ORAL TECOVIRIMAT FOR THE TREATMENT OF SMALLPOX


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Rationale: Smallpox is eradicated but remains a threat due to possible use as a biological weapon. Discontinued prophylactic vaccination and waning herd immunity highlight the need for a therapeutic antiviral, effective after smallpox is clinically evident.

Methods: Tecovirimat therapeutic efficacy was evaluated in non-human primates challenged with a lethal dose of monkeypox virus and in rabbits challenged with a lethal dose rabbitpox virus. Based on the exposure–response relationship in each model and previous clinical pharmacokinetic data, a dose of 600 mg twice daily was predicted to provide exposures in excess of that provided by the efficacious doses in animals. A Phase 3 randomized, placebo-controlled clinical safety and pharmacokinetic study was conducted in which subjects were allocated to receive 600 mg tecovirimat or placebo twice daily for 14 days.

Results: Tecovirimat exhibits potent antiviral activity against the human orthopoxvirus pathogens vaccinia, cowpox, monkeypox and variola viruses. Tecovirimat efficacy was demonstrated in pivotal animal studies conducted in FDA-accepted non-human primate and rabbit models for human smallpox. Non-human primates required higher drug exposures for efficacy, and target human exposures were based on exceeding effective exposures in non-human primates. A Phase 3 clinical study demonstrated that drug exposures in humans exceeded those required for efficacy in non-human primates, providing a reasonable expectation of efficacy in humans. In clinical trials, there were no drug-related serious adverse events, and no safety concerns were identified. In August 2018, FDA approved tecovirimat for the treatment of smallpox.

Conclusions: On the basis of its efficacy in two animal models and pharmacokinetic and safety data in humans, tecovirimat received US marketing approval in accordance with the FDA Animal Rule.

DEFENDING AGAINST EMERGENCE OF BIOLOGICAL THREATS
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Rationale: Outbreaks simulate an offensive strategy in which a biological agent is released during battle, to which we respond with a medical countermeasure. The Joint West Africa Research Group (JWARG) positions a biopreparedness platform for detecting emergence of biological agents that are endemic to West Africa, providing real-occurrence data for countermeasure efficacy and in collaboration with partner national militaries.

Methods: In Nigeria, Ghana, and Liberia, 301 participants consented to participate in an acute febrile illness surveillance protocol since 2017. Biological specimens were processed for clinical and molecular analysis. Rapid Diagnostic Tests (RDT) for malaria followed the national algorithms. Viral hemorrhagic fever viruses and arboviruses were detected by a Luminex MAGPIX bead-based immunocomplex assay and Roche LightCycler 480 real-time PCR assays that use recombinant proteins and synthetic RNA positive controls, respectively.

Results: Of enrolled participants presenting with febrile illness of unknown origin, 91.9% (n=285) presented with thermodysregulation, 63.9% (n=198) with heartrate abnormalities, 73.5% (n=228) elevated respiratory rate. 56.3% of enrolled participants were female, and mean age was 37.0 (range 18-78). 12.5% (n=39) tested positive for P. falciparum by RDT and by thick/thin blood smear microscopy; 14 participants had discordant results. 26.7% (n=90) tested positive for Schistosomiasis. No viral hemorrhagic fevers or non-malaria vector-borne pathogens were detected.

Conclusions: JWARG improves biopreparedness of allied forces in West Africa for the next outbreak origin using healthcare center patient capture and tiered laboratory testing approaches. This platform permits test and evaluation of medical countermeasures against endemic pathogens with dual use as biological warfare agents.

Disclosure of Interest: None declared
Rationale: Decontamination of heavy metals and radionuclides is one of the major challenges due to their rapid use in nuclear warfare and toxic terrorism. In any such scenario, immediate concern is topical/skin decontamination. Self decontamination using suitable formulation as part of pre-hospital management can reduce the contamination in exposed individuals.

Methods: Linear polysaccharide based formulations were developed using the suitable dispersing media with varying concentration of polymer. Three formulations with 1, 2 & 3 % of polysaccharide namely INM01-03 were evaluated using viscometer and Fourier Transform Infrared Spectroscopy (FTIR-Spectroscopy). Technitium-99m radionuclide has been chosen as a model compound for efficacy evaluation of the developed formulations. 15 adult S.D. rats, 03 rats each in five groups were topically given Tc-99m uniformly on dorsal surface & formulations INM01-03 and Control (saline) were applied. Scintigraphy imaging was carried out at different time intervals.

Results: Developed formulations showed an increase in viscosity on increasing the concentration of linear polysaccharide. Fourier Transform Infrared Spectroscopy (FTIR) confirms the chemical integrity of the formulations. Gamma scintigraphy imaging revealed that formulation INM 01 had 89.51±2.3% decontamination efficacy, INM03 showed 92.88±3.1% efficacy and Control group animals showed 70.36±4.2 % efficacy in radioactive removal within 30 minutes of formulation application. INM02 exhibited maximum decontaminating efficacy of 93.83±3.3% within 30 mins. No significant detection of radioactivity was observed at 24hrs.

Conclusions: The developed INM02 formulation exhibited significant decontaminating efficacy in comparison to the control group animals. Preliminary data suggests that the developed formulation has the potential to be used as a decontaminating agent after detailed safety & efficacy studies.

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Rationale: A quasi-experimental study was conducted by the Singapore Armed Forces Medical Training Institute (SMTI) to examine the value of cross-attachment of Emergency Medical Technicians (EMTs) to the National Emergency Ambulance Service (EAS) operated by the Singapore Civil Defence Force.

Methods: 10 EMTs (treatment group) who recently completed their training were selected to participate in a 12-week on-job-training attachment to the National EAS, where they will function as part of the ambulance crew. A further 10 medics (control group) were matched to the treatment group and underwent routine deployment in military medical centres over the same period. All participants underwent the same pre- and post-attachment tests consisting of a theory test, a medical emergency practical test and a trauma emergency practical test designed for the study. They were also provided with a logbook to record cases encountered during the attachment. Data was analysed using statistical techniques.

Results: Pre-attachment scores between the two groups showed no significant differences, demonstrating adequate matching. At the end of the study period, the treatment group performed significantly better than the control group in the trauma emergency practical test (p=.014) and medical emergency practical test (p=.030). The control group demonstrated no significant differences between pre- and post-attachment results. The study also revealed that the treatment group was exposed to a significantly larger number of cases during the study period (p=.00018).

Conclusions: This study indicates that the attachment programme significantly contributes to the EMT’s performance in emergency scenarios. Further experimental research with a larger sample size and randomized design would be essential to provide more insights. Regardless, the study is an excellent example of evidence-based policy decision-making applied in the military medicine context.

Disclosure of Interest: None declared
OP01.05
NOVEL THROMBOLYTIC THERAPY FOR INTERMEDIATE-RISK PULMONARY EMBOLISM
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Rationale: Current guidelines do not recommend thrombolytic therapy for the treatment of intermediate-risk pulmonary embolism (PE) because of the tight balance between the benefit and safety with classic protocols. The aim of this study was to compare the new thrombolytic protocol with lower-dose slow-infusion (LDSI) of tissue plasminogen activator (tPA) to classic 2-hours tPA infusion protocol or no-reperfusion regarding 30-day efficacy and safety.

Methods: Among 849 patients with PE from the Serbian multicenter registry, 469 patients who fulfilled criteria for intermediate-risk PE were involved in the study. From them, 307 (65.5%), 99 (21.1%) and 63 (13.4%) were treated with no-reperfusion, classic tPA protocol (100 mg for 2 hours) and LDSI of tPA (1-2 mg/hour via catheter or 5 mg/hours systemic venous infusion with a maximum dose of 50 mg). The basic characteristics of patients were similar between groups except that patients treated with LDSI of tPA had a significantly higher risk for bleeding. Thirty-day all-cause and PE-caused mortality and 7-day major bleeding were the main efficacy and safety end-points, respectively.

Results: All-cause and PE-caused 30-day mortality were 10.7% vs 16.2% vs 1.6% (Log rank p=0.015) and 4.2% vs 10.1% vs 0.0% (Log rank p=0.009) in patients with no reperfusion, classic tPA protocol and LDSI of tPA protocol, respectively. Major bleeding at 7 days were 2.5% vs 8.1% vs 14.3% (Log rank p<0.001) in patients with no reperfusion, classic tPA protocol and LDSI of tPA protocol, respectively. There was one fatal intracranial bleeding during catheter infusion of tPA.

Conclusions: Lower-dose slow-infusion of tPA protocol decreased significantly all-cause and PE-caused mortality at 30-day at the cost of excess of non-fatal major bleeding at 7-day in patients with intermediate-risk PE and high risk for bleeding.

Disclosure of Interest: None declared
THE APPLICATION OF VENOVENOUS ECMO FOR LIFE-SAVING SUPPORT IN UNDERWATER BLAST LUNG INJURY

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Rationale: To explore the feasibility of treating severe underwater BLI with Venovenous ECMO in canine models.

Methods: Nine healthy adult beagles were included in the study. Underwater explosions in the similar intensity and explosive distance were created by detonating 500 g TNT to establish underwater BLI models. All beagles were randomly assigned into 3 groups: CON group (no ventilation or ECMO treatment), MV group (conventional mechanical ventilation treatment), and ECMO group (Venovenous ECMO treatment). The mortality, as well as the pneodynamic, extravascular lung water index, PaO2, PaCO2, A-aDO2 were recorded at indicated timepoints. The histological changes, as well as the biochemical features of the lung tissues were examined after the animals sacrificed at 24h after experiments.

Results: There was no significant difference in the three groups in basic characteristics. All dogs in the CON group and MV group died, at 7h, 10h, 10.5h, 18h, 14.5h and 21h after therapy, respectively, with a 24-hour mortality of 100%, while no dog died in ECMO group in 24 hours. The alveolar septum structure could still be found in ECMO group, while in CON group and MV group present of edema, consolidation, inflammatory cell infiltration and red blood cell exudation with no normal alveolar structure. Compared with MV group, autophagy-related protein Beclin-1 and the ratio of LC-3 II /LC-3 I was apparently suppressed in ECMO group.

Conclusions: Underwater blast wave can induce severe injuries to the lungs. Venovenous ECMO can significantly improve the body oxygenation and reverse the condition of hypoxemia, which provides more opportunities to those causalities with severe underwater BLI at the point of injury and even the lower echelons of military care.

Disclosure of Interest: None declared
Rationale: Providing fluid resuscitation to patients with critical illness or those who have an accident are the paramount importance in emergency room treatment. However, intravenous fluid administration in some patients are difficult. The opening of the bone marrow can be easier, faster and saving. But at present, intraosseous needles or devices are expensive. Researchers have proposed the idea of innovative intraosseous devices that use cheaper materials, use of medical equipment in the emergency room applied to open the bone marrow.

Methods: The age, sex, circumference of proximal tibia and proximal humerus of the cadaver were collected. Innovative intraosseous devices were tested to the cadaver by access proximal tibia and proximal humerus. All 60 bones (15 cadavers) were obtained. Bone marrow aspiration abilities, injection of saline solution, side effects such as swelling or fracture were collected. Comparison of duration using the 2-sided Wilcoxon signed rank test and considered statistically significant when P-value < 0.05.

Results: Innovative intraosseous devices can successfully access the first attempt in both of proximal tibia and proximal humerus 24/30 (80%) and can be accomplished all 30/30 (100%) within 3 attempts. Soft tissue swelling can be seen in access of proximal tibia only 3/30 (10%) and proximal humerus just 2/30 (6.67%). No bone fracture was found in demonstration 0/30 (0%). Comparison of time between proximal humerus and proximal tibia were found to be significantly different. Proximal humerus was 5.57 seconds (IQR 3.28 – 12.1) which faster than the latter. Proximal tibia was 9.6 seconds (IQR, 4.59 – 20.46) (P-value = 0.001).

Conclusions: Innovative intraosseous devices can be practicable, because of highly successful rate of the first attempt, bone marrow aspiration and fluid administration. Complication is only tissues swelling. Proximal humerus is recommended for access. Because it takes time to penetrate faster than proximal tibia.

Disclosure of Interest: None declared
Rationale: In 2015 the European Resuscitation Council published new guidelines on the management of traumatic cardiac arrest (TCA). In this guidelines effective decompression of the pleural cavity by performing simple thoracostomy (ST) was recommended in TCA regardless of the initial rhythm, contrary to guidelines from North America. Since 2013, our physician-staffed emergency medical service (P-EMS) has been practicing ST in case of TCA in the prehospital setting, without distinction of initial electrical rhythm.

Methods: This retrospective study included patients treated for TCA by our P-EMS between 2013 and 2018. We analysed the prehospital and hospital data, focusing more specifically on the initial rhythm (asystole, pulseless electrical activity [PEA] or ventricular fibrillation [VF]) and the outcome of our patients. The success of the ST was defined by the direct access to the pleural cavity.

Results: 50 patients underwent ST, of which 49 (98%) had a closed trauma. The ST was bilateral in 45 (90%) patients. The majority of patients (36, 72%) were men, with an average age of 42 years (SD 20 years, min 8, max 88). Only one decompression failure has been reported. The initial rate was asystole in 36 (72%), PEA in 12 (24%), and VF in 2 (4%) patients included. A return of spontaneous circulation was obtained in 6 (12%) patients, 4 of whom were initially in PEA and 2 in asystole. Only one patient, initially in PEA, eventually left the hospital alive.

Conclusions: 5 years after the introduction in our PEMS of a specific protocol for TCA including ST, we have seen that the technical success (access to the pleural cavity) is excellent. Despite the poor prognosis of TCA, ST has an important role in its prehospital management. The presence of an initial rhythm seems to be a criterion for the selection of patients who can best benefit from aggressive management, including bilateral ST.

Disclosure of Interest: None declared
OP02.01
PREHOSPITAL MANAGEMENT OF BURNS: ANALYSIS OF PRACTICE AND PROSPECTS FOR IMPROVEMENT
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Rationale: Severe burns are regularly encountered by prehospital emergency medical services and hospital emergency departments. As standards of care are relatively well established for the hospital management of the severely burn patients, prehospital care is comparatively poorly defined. Our study analyzed the initial management of patients admitted to our burn center, focusing on the prehospital period.

Methods: This retrospective study included all patients admitted for thermal burn in our tertiary care, burn center hospital, between January 2008 and December 2017. We excluded interhospital transfers. Data were extracted from patient’s prehospital chart and consolidated with the hospital data. We specifically address three aspects: prehospital and hospital burn size estimations (using the % of total body surface area [TBSA] burned), pain assessment and management (using the Verbal Numeric Rating Scale [VNRS]) and type and volume of infusion during the first hour.

Results: We included 86 patients. 63 (73%) were male. Median age was 33 years (IQR 12-51). A prehospital estimation of the burn size was available in 95% cases; the burn size mean was of 21±21% (range 1-99%). The prehospital vs hospital burn size estimations differed in 37% of the cases (variation range from -14 to +15% of burn size). Crystalloid infusion was reported in 64 patients (74%) at a mean volume of 0,8ml/kg/%TBSA burned (range 0-10). Pain intensity was documented on site for 59 (69%) patients. The mean VNRS was of 6±3. Systemic analgesia was provided to 66 (77%) patients, predominantly fentanyl (n=59;89%) followed by ketamine (n=7;11%). The mean dose of fentanyl and ketamine were of respectively 2,4±2,2mcg/kg (0-10) and 2,4±2,0mg/kg (0,2-6).

Conclusions: The prehospital burn size estimation differed from the hospital one in a 37% of our patients. Pain intensity was not reported in about one third of the patients. Most patients benefited from systemic analgesia, the drug dosage being within the recommended ranges. The quantity of cristalloid infused in the first hour was higher than the recommended dose. These results confirmed the need for dedicated guidelines for the prehospital management of burned patients.

Disclosure of Interest: None declared
Rationale: Air shows are representative of mass gathering events (MGE) associated with an increased risk of medical event due to specific risks and dangers. How should one evaluate the level of medical preparedness? What medical display should be ready and for what type of medical event? What should be anticipated in the probability of an airplane crash?

Methods: We reviewed the medical usage, the type of pathologies and the medical responses displayed in five consecutive major air shows held in Western Switzerland between 2004 and 2014.

Results: The average medical usage rate (MUR) was 2.36‰ (range: 0.91 – 3.60), and the average transportation to-hospital rate (TTHR) was 0.089‰ (range: 0.041 – 0.175), representing 4.03% (range: 2.14 – 6.78) of the consultations (TTHR/MUR). These fell within the predicted range of the worldwide averages for MGE. The vast majority of pathologies was of low severity.

Conclusions: The medical resources planned according the Maurer’s formula never failed to answer to the needs. If using Maurer’s formula in case of mass gatherings having different phases (like opening or closing ceremonies, parades, special or night events) or lasting on several days, it requires to distinguish these phases and to make specific risk assessments for each of them.

Disclosure of Interest: None declared
OP02.03
DEVELOPMENT OF PROTECTION MATERIALS AND A HANDHELD WIRELESS ULTRASONIC DEVICE FOR BLAST LUNG INJURIES
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Rationale: Blast Lung injury is an increasing problem in both military and civilian activities. Its prevention and early diagnosis are important to reducing its incidence and improving its treatment.

Methods: Rats and goats were used. Blast lung injuries were induced using a large bio-shock tube or spherical explosives in a field test. Protective materials were selected based on the physical characteristics of the blast wave and a computer simulation. Twelve kinds of protective materials were tested. A handheld device was developed and used to detect the severity of the blast lung injury.

Results: The four polyureas selected showed protective effects, among which polyurea 2 (P2), containing 38% of hard segment, had the best protection. Mortality in this group was only 13%; only one animal had moderate lung injury. If solid glass microspheres were added into P2, the protective effect could be further improved. The other seven materials showed no noticeable protective effects, with animals sustaining severe to extremely severe lung injuries. The handheld device we developed consists of a transducer and a main body. Five types of transducers are available for different uses. The size of the device is 16 x 5 cm with 220 g in weight. It works for 8 hours after one battery charge. Results indicated that the device could detect different degrees of blast lung injury According to the relationship of ultrasonic images with the corresponding lung tissue injuries, we have developed a seven-point lung ultrasonic score. In addition, the device could also detect pneumothorax, hemothorax and rib fracture.

Conclusions: The composite materials, which consist of P2 and solid glass microspheres, may protect against severe blast lung injury caused by strong blast wave. The handheld wireless ultrasound device could be used for rapid diagnosis and assessment of blast lung injury in a battlefield.

Disclosure of Interest: None declared
OP02.04
ESTABLISHING A METHOD FOR MEASURING THE PRESSURE OF BURN-BLAST COMBINED INJURY BY FINITE ELEMENT ANALYSIS
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Rationale: Burn-blast combined injury caused by both military and civilian explosions has become the main cause of death for blast injury patients.

Methods: Based on the finite element analysis method for measuring the pressure of the burn-blast combined injury, we established a three-dimensional model of the animal for the experimental anima, a simulated explosion field according to the explosive force. The impact pressure of each part of the surface of the animal three-dimensional model in the simulated explosion field is obtained by using a finite element analysis.

Results: By building three-dimensional (3D) models of rat explosion regions, we simulated the surface pressure of the skin and lung. The pressure distributions were performed at 5 distances from the detonation center to the center of the rat. When the distances were 40cm, 50cm, 60cm, 70cm and 80cm, the maximum pressure of the body surface were 634.77kPa, 362.46kPa, 248.11kPa, 182.13kPa and 109.29kPa and the surfaces lung pressure ranges were 928-2916Pa, 733-2254Pa, 488-1236Pa, 357-1189Pa and 314-992Pa. After setting 6 virtual points placed on the surface of each lung lobe model, simulated pressure measurement and corresponding pathological autopsies were then conducted to validate the accuracy of the modeling. For the both sides of the lung, when the distance were 40cm, 50cm and 60cm, the Pearson’s values showed strong correlations.

Conclusions: Finite element (FE) modeling and simulations can mimics transmission and pressure distribution of blast wave. This approach could provide us an increasing reliability and more detailed biomechanical information based on distribution diagram and statistics, which might be helpful in further predictive analysis of injuries.

Disclosure of Interest: None declared
OP2.05
PERCEPTION OF FAMILY MEDICINE PHYSICIANS ON THEIR CAPABILITY IN MEDICAL DISASTER RESPONSE
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Rationale: Every disaster often holds a potential for significant impacts on human health and life. Every new threat presents new challenges to health risk management. However, Family Medicine faces an uncertainty on the specific roles it can assume to support urgent efforts at disaster surge response. Its preparedness level remains unknown. This research Project, designed to explore issues of Family Medicine competency in this changed disaster response environment,

Methods: conducted a disaster preparedness and response workshop among 28 Family Medicine physicians, testing their learning rate using a pretest-posttest data collection method.

Results: Pretest results (38.11%, \( x = 10.67 \)) indicate that Family Medicine practitioners as a group were not ready by competency to respond to a disaster event and may instead increase the life risks of disaster victims. Posttest results (\( x = 21.67, 77.39\% \)) showed an average doubling of their learning levels.

Conclusions: Family Medicine Physicians Attending workshop on improving Emergency preparedness and had a positive impact on their perception of effectiveness in their disaster preparedness and response competency

Disclosure of Interest: None declared
THE EFFECT OF ELECTROACUPUNCTURE IN MOTION SICKNESS SUSCEPTIBILITY IN HEALTHY MALE ADULTS. PRELIMINARY RESULTS OF A DOUBLE BLIND STUDY

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Rationale: Motion sickness is the main cause of nausea-related symptoms during passive motion in transportation. Student pilots are especially vulnerable resulting in a high drop out rate in the initial phases of flight training. The aim of this study was to evaluate the effects of electroacupuncture (EA) for the reduction of motion sickness symptoms.

Methods: The participants were randomly divided into three groups of therapeutic electroacupuncture (Group A), sham electroacupuncture (Group B) and control group (Group C). After the acupuncture session, the participants were exposed to motion stimulus using a rotating chair, in the vertical axis together with controlled head movements. Their symptoms were measured using the Greek version of the Gianaros Motion Sickness Assessment Questionnaire after the end of the rotation.

Results: Twenty (20) subjects participated in the study. All three groups of subjects showed increase in their motion sickness symptoms after the exposure to the motion stimulus, which shows that the stimulus was strong enough to produce symptoms. The mean total symptom score for Group A was 59,375, for Group B was 74,333, while for the Group C was 93,166. This difference is marginally statistically significant when comparing Group A with Group C. The difference is more evident and statistically significant in the peripheral group of symptoms (sweating, feeling of cold or feeling of warmth) as measured by the Gianaros MSAQ.

Conclusions: Despite the small number of subjects, the results of the present study suggest that participants who received therapeutic acupuncture prior to motion stimulation tended to have fewer motion sickness symptoms in comparison with their counterparts, who were not subjected to any therapy. Further studies are necessary before electroacupuncture can be used in an operational setting for student pilots prior to flying.

Disclosure of Interest: None declared
AN OBSERVATIONAL STUDY TO ASSESS MEDICATION ADHERENCE PATTERN AMONGST HYPERTENSIVES IN A TERTIARY HEALTH CARE CENTRE AND TO EVALUATE THE USE OF CELLULAR PHONE TEXT MESSAGING AS A TOOL TO IMPROVE ADHERENCE TO MEDICATIONS

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Rationale: Hypertension is a global health problem and a major risk factor for cardiovascular diseases & premature deaths worldwide. One of the main reasons attributed for uncontrolled hypertension is non-compliance to prescribed medication regimen.[1,2] According to World Health Organization improving adherence to medications will have greater impact than improving specific medical treatments.[2]

Methods: The study participants' blood pressure was recorded and their adherence to medications was graded as high, medium and low using Medication Adherence Questionnaire. Then messages (either as Short Message Service- SMS or Social media- Whatsapp) were sent regularly reminding them the importance of regular medicine intake. After two months of follow up blood pressure was recorded and adherence graded. Data tabulated and statistically analyzed.

Results: Majority of study participants in medium to low grading of adherence (65.2%) moved towards high adherence (88.4%) after two months of follow up. A statistically significant decrease in systolic (8.3 mmHg, p < 0.001) and diastolic blood pressure (2.4 mmHg, p < 0.002) was observed at the end of follow up. There was no significant difference in adherence pattern amongst participants receiving messages either as SMS or Whatsapp.

Conclusions: Non-adherence to medication is a global phenomenon to be tackled at the earliest. Our study clearly brings out the importance of improving adherence by regular reminder as messages. Hence, there is a wide scope to avail means to improve the adherence pattern and maximize the health benefits. Armed forces could lead the country in this aspect and help to reduce the burden of chronic disorders.


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A CLINICAL PROFILE OF COMPLICATED VIVAX MALARIA AT FOOTHILLS OF HIMALAYAS IN NORTH INDIA
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Rationale:  Vivax malaria has long been thought to have a benign course. We had carried out a prospective observational study at a mid-zonal hospital in North India over a period of 2 years. A total 241 consecutive patients admitted with the diagnosis of malaria were included.

Aims & Objectives:  (1) To study various complications in patients with vivax malaria. (2) To compare the incidence of complications in vivax, falciparum and mixed malaria.

Methods:  The demographic and clinical details of the patients were noted at presentation as well as during their hospitalization. The diagnosis of malaria was based on (a) Peripheral smear: Thick and thin peripheral smear. Parasitic index for all were noted at admission. (b) Rapid diagnostic malarial Antigen tests: like LDH (optimal test) for Vivax and HRP2 for falciparum.

Baseline laboratory tests for all the patients included CBC, LFT and RFT. Additional tests like X-Ray chest and ABG were carried out in patients with complications. The statistical analysis was done by using SPSS 17 version and in MS Excel.

Results:  Out of the total 241 patients with malaria, 202 were infected with P. vivax (83.81%), 15 were with P. falciparum (6.22%) and 24 patients were found to have mixed malarial infection (9.95%). Severe disease was present in 68 (28.21%) cases. One or more complications was noted in 51 out of 202 cases of vivax malaria (25.24%), 11 out of 24 cases of Mixed malaria (45.83%) and 6 out of 15 cases of falciparum malaria (40.00%). The complications seen in vivax malaria were: thrombocytopenia (71%), leukopenia (15%), High bilirubin (9%), anemia (7%), ARDS (3%), hypotension (5%), acute renal failure (2.5%), cerebral malaria (3.5%), metabolic acidosis (4%). Two patients with parasitic index > 5% had died with multiorgan failure. Both of them were having P. Vivax mono-infections.

Conclusions:  Vivax malaria was always described as a benign disease. Although the terms Severe /complicated malaria are associated with Falciparum malaria, we have noted that almost one fourth of the cases of vivax malaria too were showing the features of complicated malaria. Further research is needed to find out the change in clinical profile of vivax malaria

Disclosure of Interest: None declared
Rationale: Since conservative treatment and surgery of CTS versus cervical RP differ (hand vs spine), the surgeon should make sure where the origin of patient symptoms (pain, paresthesia & numbness) is; CTS, cervical RP or both (double-crush syndrome).

Methods: A cross-sectional study was conducted using consecutive patients with pain or paresthesia or numbness of the upper limb referred to the electrodiagnostic (EDX) department of police hospital in Mashhad from May 2016 to 2018. A physiatrist (physical medicine & rehabilitation specialist) conducted standard EDX tests via Medtronic Keypoint System.

Results: Among 492 patients, 371 were men and 121 were women; diabetic polyneuropathy excluded (28 out of 492). Patients diagnosed with just CTS were 134 (29%), with just cervical RP were 73 (16%), with both CTS & cervical RP (double-crush syndrome) were 14 (3%), with ulnar nerve damage were 10 and with normal EDX were 233 (50%).

Conclusions: This study showed 10% of patients with CTS had a double-crush syndrome. Surgical treatment of CTS needs carpal ligament release at the wrist but surgical treatment of cervical RP needs neck surgery. The significance of double-crush syndrome diagnosis is that the origin of pain is dual and both must be treated to address the patient’s complaint completely and sometimes neck surgery should be preceded the carpal release. This can be accomplished only if there is a high index of suspicion for a dual lesion. Also, it is not uncommon for patients to have their CTS treated appropriately, yet the symptoms in the affected hand remain. This may prompt unnecessary re-exploration of the wrist wound to ensure a complete carpal ligament release while the origin of the symptoms is in the neck & vice versa. The Needle Electromyographic Test (on selected number of C6/C7 myotomes) by an expert can detect both CTS and cervical RP and ensure that a second lesion will not be missed.

Disclosure of Interest: None declared
Rationale: The medical care of victims of terrorism is a current topic. Our study aimed to determine the epidemiological characteristics of the treatment of victims of terrorism at the military hospital in Tunis.

Methods: We conducted a retrospective study from 2012 to 2017. We included victims of terrorist acts on the Tunisian territory having been taken care of or autopsied at the Military Hospital of Tunis. Two groups of experts were called upon to assess whether deaths were preventable and to calculate ISS and TRISS scores.

Results: We studied 153 victims. Ninety-nine percent of the victims were male soldiers. Kasserine was the governorate most affected by terrorist acts. The most found mechanism of injury was blast-related. The ISS was higher in gunshot wounds than blast wounds. The ISS and TRISS sensitivity and specificity were higher than 90% for mortality of the victims. The limbs represented the most frequent lesions followed by the face, the abdomen and the thorax. The amputation rate was 44%. Fifty-eight percent of the blast victims had an auricular blast, 60% of which had a tympanic perforation. Thirty percent of the victims died as a result of the event. The gunshot wounds were the mechanism causing the most deaths. Hemorrhage accounted for 50% of the causes of death followed by multiple trauma followed by isolated head trauma.

Avoidable and potentially avoidable mortality accounted for 21.7% of total mortality. The gunshot wounds were the most frequent mechanism associated with preventable or potentially preventable deaths. All of these victims died from bleeding.

Conclusions: Some aspects can be improved in Tunisia in terms of pre-hospital and hospital care by training the armed forces or medical staff to reduce the mortality and morbidity caused by unconventional war related injuries. Subsequent studies may focus on triage of victims or their transport.

References:

Disclosure of Interest: None declared
DIRECT REPAIR OF PERIPHERAL ARTERIAL INJURIES WITHOUT PATCHES OR INTERPOSITION GRAFTS IN LEVEL II TRAUMA MILITARY HOSPITAL: 3 YEARS’ EXPERIENCE

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Rationale: Background: Using patches or interposition grafts in peripheral arterial injuries creates a turbulent flow that increases the risk of re-thrombosis, hematoma and pseudoaneurysm. It also destroys the arterial anatomical tract. Interposition grafts increase the risk of infection. In possible cases, dissection proximal and distal to the injury side of artery will provide space, compensate the lost area, and facilitate direct end to end anastomosis technique.

Aim of the work: To evaluate the early and midterm results of direct end to end repair of peripheral arterial injuries without using patches or interposition grafts.

Methods: Methods: A direct anastomosis technique without using patches or interposition graft was applied to 30 patients who were hospitalized due to emergency peripheral arterial injury between September 2016 and September 2018 in Jazan military hospital in Saudi Arabia.

Results: Results: Injury reasons were 20 cases for gun shot (66%), 6 for traffic accident (20%), and 4 for stab wound (14%). 19 cases were upper extremity (63%), 11 lower extremity (37%). 3 (10%) cases were venous injuries too and they were repaired with the same technique. Bone fracture cases were operated combined with orthopedic surgeons. No re-thrombosis or anastomosis burst was found in early Postoperative period. Two patients were reoperated (6%) due to hematoma in the wound. No postoperative compartment syndrome was found. Local wound infection occurred in 2 cases (6%) and treated with antibiotics after wound culture. Patients were given clopidogrel 75 mg and 150 mg acetylsalicylic acid once daily upon discharge. No re-thrombosis or pseudo-aneurysm was found in postoperative follow up period.

Conclusions: Conclusions: Direct end to end anastomosis technique in possible cases preserved the functional anatomy of the vessels with minimal to absent postoperative complications and morbidity decreased considerably.

Disclosure of Interest: None declared
Rationale: The Submarine environment is unique, imposing numerous physiological and psychological stressors, including confinement, sunlight deprivation, circadian rhythm desynchronization and hypercarbia. Submariners spend prolonged periods of submergence without access to sunlight and may benefit from Cholecalciferol (vitamin D3) supplementation. The primary objective of the study was to determine the efficacy of vitamin D3 supplementation on maintenance of vitamin D homeostasis during a deployment of approximately 30 days or more.

Methods: Submariners were divided into two groups: placebo (n=50) & intervention group (n=50). Placebo group was given vitamin B6 and intervention group was given 600IU vitamin D3/day. Anthropometrics, serum markers of vitamin D, PTH, calcium & Phosphate were determined pre & post deployment.

Results: The mean vitamin D level pre deployment was 24.26±9.15 & 24.17±8.75 in placebo & intervention group respectively. The change in vitamin D level from base level in both the groups was statically significant (p<0.001). The change in serum calcium level in intervention group was statically significant (p<0.001) but in placebo group was not significant & the change in serum PTH, Phosphate level was statistically not significant in both intervention & placebo groups post deployment. Change in Body Mass Index (BMI) was statistically significant (p<0.001) in intervention group post deployment.

Conclusions: although dosage of 600 IU/day vitamin D was sufficient to maintain adequate vitamin D levels in submariners while on long deployment, a significant advantage for the supplemented over placebo was not evident. Hence supplementation of Cholecalciferol (vitamin D3) during long deployment of approx. 30 days is not recommended. However, it is recommended to carry out more randomized control trials with more numbers of submarine volunteers & for longer deployment (approx. 90 days) to ascertain the efficacy of vitamin D3 supplementation.

Disclosure of Interest: None declared.
OP03.04
DOES INDUCTION INTO HIGH ALTITUDE AREA BY AIR ROUTE INCREASES THE RISK OF HIGH ALTITUDE PULMONARY EDEMA (HAPE) AMONG SOLDIERS?

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Rationale: Number of High Altitude Pulmonary Edema (HAPE) cases are reported amongst soldiers being inducted in High Altitude Areas (HAA). Hence, this study was undertaken to understand factors associated with HAPE cases among Armed Forces personnel.

Methods: We carried out this record based study, using data of HAPE cases reported to Central Disease Registry (CDR) of Indian Armed Forces. This registry receives clinical and epidemiological data of HAPE cases in a standardised format from hospitals where HAPE cases are admitted. We extracted data of HAPE cases which were reported in eight year period from 2010-2017 for this study. Data was summarized by calculating means, standard deviation and proportions. Chi-square test was used to compare proportions. R software ver 3.2 was used for statistical analysis.

Results: 1073 cases of HAPE were reported to CDR during this eight year period. Most of HAPE cases (83%) occurred at altitude between 9000-12000 feet. Majority of HAPE cases (77.42%) were inducted in HAA by air while rest were inducted by road. Higher proportion of HAPE cases inducted by air occurred at lower altitudes as compared to HAPE cases inducted by road.

<table>
<thead>
<tr>
<th>Onset altitude</th>
<th>Onset Altitude</th>
<th>Total</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Induction by Air</td>
<td>88.83</td>
<td>11.17</td>
<td>770</td>
</tr>
<tr>
<td>Induction by Road</td>
<td>60.18</td>
<td>39.82</td>
<td>226</td>
</tr>
<tr>
<td>Total</td>
<td>820</td>
<td>176</td>
<td>996</td>
</tr>
</tbody>
</table>

Conclusions: Our findings raise an important question that is whether induction into HAA by air increases the risk of HAPE in comparison to induction by road. Theoretically, induction into HAA by air can increase the risk of HAPE as air induction from low altitude areas to high altitude areas take only an hour and provide less time for physiological adaptation, whereas induction by road may take few days and thus help in acclimatization of individuals. However, we could not directly calculate and compare the risk of HAPE among air inductees with those inducted by road due to lack of denominator data in CDR. It is recommended that specific studies should be undertaken to ascertain risk of HAPE in air inductees as compared to road inductees.

Disclosure of Interest: None declared
Rationale: This report describes a feasibility study designed to assess the medical benefit of a telesonographic examination unit connecting a sonographer and experts in a distant military clinic. Can a sonographic co-assessment in real-time effectively support the sonographer examining the patient?

Methods: The method used was the technical and functional establishment of a remote diagnostic system on the basis of an ultrasound unit in conjunction with image transmission software (ASYSTED), an image viewing unit, and a secure inter-network connection (SINA box).

Results: In 2018, a telesonographic link was established in Germany between a military medical examination centre in Daun and the Bundeswehr Hospital in Hamburg, 500 kilometres away. The Advanced System for Teleguidance in Diagnostics (ASYSTED) image transmission program was used to establish a regular consultation in which patients were examined by a junior physician with basic experience in ultrasound and support was provided by an ultrasound expert from the Department of Internal Medicine at the Bundeswehr Hospital in Hamburg in an online real-time procedure. The ultrasound findings and the resulting consequences were immediately discussed.

Conclusions: The secure and rapid medical assessment of pathological ultrasound findings in remote settings by means of telesonography can be quickly established and used without delay. Diagnostic accuracy is high. Telesonography also makes possible the training and further medical support of junior personnel by experts. Use of this method in military deployments in remote regions is technically feasible and will be examined in follow-up studies.

Disclosure of Interest: None declared
OP04.01
IS IT STILL JUSTIFIED TO SYSTEMATICALLY REMOVE OSTEOSYNTHESIS MATERIAL FROM MILITARY PERSONS FOR MEDICAL FITNESS REASON?
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Rationale: Osteosynthesis materials are systematically removed from French military persons to meet medical fitness criteria, as in many other countries. Our study aims to summarize and to discuss the reasons of this attitude, notably in the field of maxillo-facial surgery.

Methods: This study consisted of a systematic review by searching the science direct and pubmed databases in the period 1998-2018 with the key-words « maxillo-facial implant removal »; « implants removal »; « plate breakage »; « fracture & osteosynthesis complication »; « radiations & osteosynthesis material »; « secondary projectile & osteosynthesis »; and « military medical fitness & osteosynthesis ». We searched for regulatory texts and we have asked our experts on this topic.

Results: We fund eighteen studies concerning maxillo-facial implants removal, most are related to reasons for removal. We did not find any study concerning the systematic preventive removal. Our research showed a strong trend for the non-ablation for non-military persons, because of a low complication rate, and to avoid new surgical procedure with potential complications. We did not find any publications about frequency or severity of fracture when material is present, neither about the complexity of surgical management. Even if it is believed that osteosynthesis material could be a secondary projectile in case of blast, we did not find any data about that. We highlighted a potential problem linked to electromagnetic waves used in operations to interfere communications. They could interact with osteosynthesis plate and conduct to involuntary muscle contractions due to the creation of an electric courant (Crouzier et. al)

Conclusions: There is no evident base proof which could justify the systematic maxillo-facial osteosynthesis material removal for military person. If we consider the potential complications of the surgical ablation of osteosynthesis material, there may be a need to rethink our attitude about osteosynthesis material and military person medical fitness. Researches about potential interaction between osteosynthesis material and electromagnetic waves must be continued, nothing effect had been showed so far in living human.

Disclosure of Interest: None declared
STRENUOUS PHYSICAL EXERCISES UNDER EXTREME STRESSFUL CONDITIONS IMPAIRS COGNITIVE PROCESSES DURING MILITARY TRAINING

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Rationale: The way in which cognitive functioning is affected by stressors is an important scientific issue because stress caused by strenuous physical exertion may disrupt cognitive processes leading soldiers to make mistakes during the decision-making process in combat.

Methods: In order to investigate the effects of strenuous physical exertion on cognitive processes, 135 military (males 24–39 years old) were tested cognitively at five time points during the Leadership Development Exercise (LDE) during the Commands Course 2012-2014, while they were progressively exhausted by water, caloric and sleep restriction over the course of 96 h of continued operations. Two types of variables were analyzed: reported physical fatigue (PF) and mental fatigue (MF), and cognitive processes [(verbal reasoning (VR), numerical reasoning (NR) and spatial reasoning (SR) and short-term memory (STM)] in order to evaluate possible associations.

Results: The results revealed significant increases in PF and MF levels while significant decreases in VR, NR, SR and STM was observed. As expected, PF and MF levels had increased progressively until 96h and PF was positively correlated with MF (rs = 0.979, p <0.001). We also had found significant differences in all subcomponents of the cognitive tests [VR (χ2 = 82.648, p < 0.001), NR (χ2 = 84.056, p < 0.001), NR (χ2 = 81.875, p < 0.001), e STM (χ2 = 84.122, p < 0.001)]. Comparing the cognitive tests results (96h/BL), at the end of the LDE, the subjects were able to correctly answer only [(VR= 43.75%, NR= 39.75%, SR = 56.90% and STM = 39.10%)], and the results were negatively correlated with MF perceptions [(VR (rs = -0.919, p <0.001) NR (rs = -0.903, p <0.001), SR (rs = -0.919, p <0.001) and STM = (rs = -0.930, p <0.001)).

Conclusions: Our results revealed important evidences about the impact of strenuous physical activity on physical and mental fatigue, as well on cognitive processes related to decision-making. Such correlation is used by the Brazilian Army as screening to better estimate the soldier's physical and mental states while conducting military training with high physical demands in order to avoid accidents and deaths.

Disclosure of Interest: None declared
ROLE OF RED CELL DISTRIBUTION WIDTH (RDW) AND MEAN PLATELET VOLUME (MPV) – EARLY PREDICTIVE BIOMARKERS IN ISCHEMIC STROKE.

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Rationale: Stroke is one of the most dreaded vascular accidents, in an army deployment in harsh terrains and climatic condition, where the reach and rescue of medical aid for the army personal would be very difficult and the golden time in management is lost. In our study we focused on using RDW and MPV as predictive marker of ischemic stroke, which will help us to screen the army person at forward areas at risk of ischemic stroke, where the advanced medical facility is limited. These biomarkers can be accessed from a simple complete blood count and it will be a very feasible biomarker to test which will aid referring patient to higher centre and limit the morbidity and mortality.

Methods: This is a retrospective hospital-based study conducted by screening 2,43,000 patient admitted in AIMS Kochi during the period Jan 2013 to June 2018. Study population of 900 of Ischemic Stroke cases were identified. RDW and MPV were calculated from complete blood count of the patients. The association of the new biomarkers with severity of stroke were analysed and correlated with modified Rankin scale and GCS scoring system at the time of presentation.

Results: Our study showed male predominance in ischemic. Statistical analysis indicated, RDW and MPV were highly significant to be used a predictive marker of stroke with a P value of <0.001. Sensitivity and specificity analysis using ROC curve showed very high significance with an area coverage of 75% - ROC analysis substantiating their predictive potential for high risk stroke.

Conclusions: RDW and MPV biomarkers will play a important role as predictive marker of ischemic stroke in army deployment units at the line of control where or where units are posted in harsh climatic condition where the accesses to higher medical facility is limited.

Disclosure of Interest: None declared
OP04.05
THE EFFECT OF VITAMIN D SUPPLEMENTATION ON THE LUNG FUNCTION AND REDUCTION OF CORTICOSTEROID USAGE IN PATIENTS WITH MODERATE TO SEVERE BRONCHIAL ASTHMA AMONG IRANIAN SOLDIERS

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Rationale: Decreasing lung function and the high consumption of corticosteroids in patients with asthma are the most important problems in controlling the disease. Vitamin D supplementation is hypothesized to exert effects on the lung function and reduction of corticosteroid usage in patients with moderate to severe bronchial asthma.

Methods: A total of 100 soldiers with asthma referred to the respiratory disease center were undergone the survey. The diagnosis was made on the basis of history and clinical examination. Institutional ethical committee approval was obtained. All of the subjects followed a recommended diet. A randomized, double-blind sampling method was used and the subjects were randomly divided into two groups: vitamin D group (n=50) and placebo group (n=50). Vitamin D group received oral vitamin D3 (Cholecalciferol) 60,000 IU per month for 6 months and the placebo group received placebo powder in the form of glucose sachet. Monthly follow up of every patient was done and during every visit change in severity, lung function (Peak expiratory flow rate (PEFR)), steroid dosage, number of exacerbations and number of emergency visits were checked out. Data were analyzed by SPSS software version 17 through statistical tests with the significance level of 0.95.

Results: There was a significant reduction in exacerbation episodes by administering monthly vitamin D supplementation (P =0.0001). PEFR was significantly increased in the vitamin D group (P =0.0001). Furthermore, monthly administration of vitamin D significantly decreased the dosage of steroid consumed (P = 0.003) and emergency visits (P = 0.005) as well as the level of severity of asthma (P = 0.006) compared with placebo.

Conclusions: The findings obtained portrayed a substantial reduction in the severity of patients with bronchial asthma by administering vitamin D supplementation. Thereupon, it is recommended to consider the vitamin D supplementation along with additional treatments for the aforementioned patients.

Disclosure of Interest: None declared
**OP04.06**

**BODY FAT COMPOSITION AS A MARKER FOR RISK ASSESSMENT IN LIFESTYLE DISEASES LIKE HYPERTENSION**

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**Rationale:** High blood pressure is one of the most common chronic medical problems prompting visits to primary health care providers. The aim of the study was to compare the body composition of hypertensive patients with normal subjects using impedance based non-invasive body composition analyzer.

**Methods:** A descriptive observational study was conducted with an aim to examine the body composition of hypertensive and non-hypertensive individuals using impedance based non-invasive body composition analyzer. The study was carried out at a tertiary care hospital in Pune. The study examined correlation between the various parameters with systolic and diastolic blood pressure.

**Results:** The mean systolic and diastolic blood pressure in the hypertensive group was 150.24 and 93.67 respectively. The mean Visceral Fat Area (VFA) was found to be 131.0 cm\(^2\) amongst the hypertensive patients. The mean Percent Body Fat was also calculated and the same in cases was estimated to be 28.9%, which is much higher than the normal. BMI was significantly higher in the hypertensive individuals at 26.5 kg/m\(^2\) as compared to 24.3 kg/m\(^2\) in non hypertensives (p<0.001).

Body fat mass, Percent body fat, Obesity degree and Visceral fat area were also significantly higher in the hypertensive group (p<0.001).

Visceral fat area also showed a fair positive correlation with systolic BP, which was statistically significant (p<0.05).

**Conclusions:** Assessment of visceral fat area may be included as an essential measure to assess and even predict hypertension. Those with high visceral fat area must be monitored closely for developing hypertension and other lifestyle diseases.

**References:**

**Disclosure of Interest:** None declared
PREVALENCE OF METABOLIC SYNDROME IN THE ACTIVE ROYAL THAI ARMY (RTA) PERSONNEL

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Rationale: Metabolic syndrome (MetS) has been the focus of attention for many years. Little information exists on the prevalence of the MetS among RTA personnel, the authors thus aim to estimate the prevalence of MetS and associated risk factors among the RTA personnel.

Methods: Data retrieved from the Heath Examination in the RTA forces in Bangkok, 2015 was used to determine MetS according to the IDF 2005 criteria. Comparison across variables were made using Chi square test. Identification of risk factors was done using multiple logistic regression model. Results were presented as Odds ratio together with 95% CI. P-values less than 0.05 indicate significant difference.

Results: From 16,668 RTA personnel records, the mean age was 44.3±11.1 years (ranged 18-65) and 81% were male. The prevalence of MetS was 21.1% and it was more common among female than male. In female, the prevalence of MetS was increased with age (22%, 47.5%, 49.2% and 53.1% for age-group < 30, 30-39, 40-49, and ≥50, respectively). Among male, there was also a similar trend for age specific groups with less prevalence. The significant risks factors (P<0.0001) were age in year (CI 1.01-1.03), being female (CI 5.66-6.95), smoking (CI 1.19-1.51) and alcohol drinking (CI 1.00-1.42) (P<0.05). However, a history of regular exercise was the potential protective factor for MetS (CI 0.51-0.73) (P<0.0001).

Conclusions: The prevalence of MetS among RTA personnel was 21.1%. Age, being female, smoking and alcohol drinking were independent risk factors for MetS. In addition, regular exercise was a significant protective factor. These findings are important for planning strategies to prevent MetS in the RTA personnel.

Disclosure of Interest: None declared
CLUSTERING OF CARDIOVASCULAR DISEASE RISK FACTORS AMONG MALE YOUTHS IN SOUTHERN SWITZERLAND: PRELIMINARY STUDY

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Rationale: The distribution of cardiovascular disease risk factors among youths in Southern Switzerland is poorly understood. The aim of this preliminary study was therefore to describe the prevalence of cardiovascular disease risk factors in 18- to 20-year-old males undergoing medical examination to assess fitness for recruitment into the army.

Methods: Between 2009 and 2013, 1541 (21%) out of 7310 conscripts volunteered for answering a structured questionnaire addressing smoking behavior, sedentary lifestyle and familial cardiovascular risk factors, as well as measuring blood pressure, lipidemia and waist circumference.

Results: Height, weight, body fatness and blood pressure reading were not statistically different between conscripts who had respectively had not volunteered to participate in the study. Following risk factors were detected: smoker (N=656; 43% of the study participants), sedentary lifestyle (N=594; 39%), positive cardiovascular family history (N=235; 15%), blood pressure = or >140/90 mm Hg (N=88; 5.7%), total cholesterol = or >5.2 mmol/L (N=83; 5.4%), waist circumference = or >1.02 m (N=55; 3.6%). No cardiovascular risk factor was detected in 434 (28%), one factor in 612 (40%) and two or more factors in 495 (32%) participants.

Conclusions: This preliminary cross-sectional survey generates the first analysis of cardiovascular risk factors among ostensibly healthy male youths living in Southern Switzerland. The main finding is that two or more cardiovascular disease risk factors are present in approximately one third of them. Since smoking and sedentary lifestyle, the most commonly detected cardiovascular risk factors, are preventable, youths represent an opportunity for the promotion of lifestyles that will affect the development and progression of atherosclerotic disease.

Disclosure of Interest: None declared
ROLE OF MILITARY MEDICAL UNITS IN CHOLERA PREVENTION IN MASS GATHERING (ARBA'IN)

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Rationale: The aim of this study was to evaluate the knowledge level of the pilgrims about cholera. Cholera is reported in Iraq annually yet. The disease is so contagious and dangerous that will kill majority of the patients. Presenting facts about cholera is among basic preventive measures. Each year, religious mass gathering of Arba'in occurs in Iraq by Iranian pilgrims. Health care, treatment and prevention of most pilgrims are executed in part by military medical units. Preventive programs (especially education) would control infectious agents.

Methods: The study was a cross-sectional research. Two hundred pilgrims were chosen accidentally and a questionnaire including 26 questions was presented. Rate of knowledge was evaluated according to the correct answers. Data analysis was done by SPSS (version 16) with K-squared test and ANOVA.

Results: Only 10% of the pilgrims had taken part in cholera educational classes. 55.6% had got the necessary information from media. The level of knowledge was moderate in 70%, sufficient in 27%, and weak in 3% of the pilgrims. There were no difference between the grade of men and women. Significant correlation was not observed between the rate of knowledge and other variables such as academic education and travels to Karbala.

Conclusions: The results showed that in spite of increasing pilgrims in Arba'in, their knowledge was not sufficient about cholera and its mode of transmission. Since the rate of knowledge had not significant difference with academic education, so all of the pilgrims should take part in educational classes. Infectious diseases including cholera are preventable easily with adequate teaching. According to our results, we propose extended and complementary education as a priority in the management of mass gatherings.

Disclosure of Interest: None declared
OP05.01
PSEUDO OR SPURIOUS HYPERTENSION AMONG MALE YOUTHS IN SOUTHERN SWITZERLAND
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Rationale: There is a debate about prevalence and significance of Isolated Systolic Hypertension in the Young (ISHY). Frequency and type of ISHY were therefore investigated among Swiss male citizens, who undergo a medical examination for recruitment into the army in the year they turn 18 to 19.

Methods: Among males, who underwent the examination for recruitment between 2014 and 2016 in Southern Switzerland, 1027 accepted to participate in a research protocol addressing their cardiovascular health including among others blood pressure (BP) measurement. A single high BP reading does not mean hypertension and the average of several readings provides a more reliable estimate of BP. Consequently, more readings were taken with the average mode technology (Microlife® BP3AC1-1) in volunteers with an initial reading = or >140/90 mmHg. Further readings with the same technique were obtained 24 hours later in subjects with an average reading = or >140/90 mmHg. Central BP (Arteriograph®, TensioMed-H) was measured in subjects with Isolated Systolic Hypertension (ISH) to identify pseudo or spurious hypertension.

Results: Among the 1027 participants, the first blood pressure reading was = or >140/90 mmHg in 337. Average mode blood pressure was still = or >140/90 mmHg in 276 subjects. Twenty-four hours later, BP was = or > 140/90 in 78 subjects. ISH (BP = or >140 / <90 mmHg) was observed in 57 of the mentioned 78 subjects. A reliable central BP determination was obtained in 47 of the subjects with ISH. Pseudo or spurious hypertension (central BP <130 mmHg) was noted in 25 cases.

Conclusions: Among males 18 to 19 years of age living in Southern Switzerland, ISHY is found in approximately 5%. The determination of central BP indicates that pseudo or spurious hypertension accounts for approximately half of the cases.

Disclosure of Interest: None declared
THE RELATIONSHIP BETWEEN LUMBAR DISK HERNIATION AND SERUM 25-HYDROXYVITAMIN D CONCENTRATIONS IN IRANIAN MILITARY FORCES
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Rationale: The relationship between vitamin D and many musculoskeletal disorders is marked but little is known about vitamin D status and its effect on intervertebral disk

Methods: The study was conducted on military personnel referred to the hospital for intervertebral disk disorders. The diagnosis was made on magnetic resonance imaging (MRI). Institutional ethical committee approval was obtained. The level of serum 25-hydroxyvitamin D was measured in a total of 120 subjects with lumbar disc herniation. The L1 to S1 disk herniation and degeneration (grades I to V) was reported on MRI. Data were analyzed by SPSS software version 17 through statistical tests and Logistic regressions with the significance level of 0.95.

Results: The rates of vitamin D deficiency, vitamin D insufficiency and normal level of vitamin D were reported for some 34 (28.4%), 56 (46.6%) and 30 (25%) ones, respectively. The intervertebral disks of patient with vitamin D deficiency were more frequently herniated (36% compared to 22%, p = 0.0048). On regression analysis, vitamin D deficiency was significantly associated with an increase in the number of hernia in each patient (unadjusted odds ratio [uOR] = 1.87, 95% confidence interval [CI] = 1.812 to 3.95, p = 0.009; adjusted odds ratio [aOR] = 2.46, 95% CI = 1.54 to 3.96, p = 0.023). When each lumbar disc is analyzed separately (e.g., L4 to L5), the chance of disk herniation in patients with vitamin D deficiency is higher per disk (uOR = 1.81, 95% CI = 1.482 to 2.85, p = 0.004; aOR = 2.26, 95% CI = 1.45 to 2.81, p = 0.0048).

Conclusions: The results indicate that vitamin D deficiency was associated with lumbar disk herniation. Regarding the epidemic of vitamin D deficiency and the prevalence of lumbar disc herniation in military forces, it is suggested to perform further studies in this area, especially the use of vitamin D supplementation in treating these patients along with other treatments.

Disclosure of Interest: None declared
OP05.03
MAPPING OF THE DISTRIBUTION OF POISONOUS ANIMALS AND INSECTS IN THE DIFFERENT REGIONS OF SAUDI ARABIA: A STRATEGY FOR THE PROTECTION OF DEPLOYED PERSONNEL
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Rationale: Personnel deployed in remote areas are vulnerable to stings and bites from poisonous animals and insects. Information on the distribution of the venomous species in a given area is vital for designing strategies to prevent and manage venomous bites and stings during deployment. It is therefore essential that thorough information on these animals and insects is made available for the species-specific anti-venom and other treatments that are required.

Methods: The different regions of Saudi Arabia were surveyed for the distribution of various poisonous animals. Professional animal collectors were used to collecting poisonous animals in different regions. The collected animals were identified and distribution maps were prepared. Hospital records of the different regions were screened to record the time, season and incidence of bites and stings of poisonous animals.

Results: Medically important poisonous animal species were recorded from different areas in the Central, Eastern, Western, Northern and Southern regions. The distribution of the poisonous animals and insects in the various areas of the different regions were geographically mapped.

Conclusions: The current study resulted in the identification of the various species of poisonous animals and mapping of their distribution in the different regions of Saudi Arabia. The results also indicated that poisonous bites and stings have a strong seasonal and geographic component, with the majority of the stings being recorded in the evening and in summer months. The prepared maps may facilitate designing of region-specific prevention and management strategies for poisonous bites and stings for personnel during training and deployment.

Disclosure of Interest: None declared
OP05.04
ASSESSMENT OF KAP REGARDING HIV TESTING AMONG MILITARY PERSONNEL IN OMDURMAN MILITARY AREA 2017
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Rationale: WHO and UNAIDS estimate the prevalence rate of HIV infection in Sudan is 25% in 2016. The most vulnerable groups are women who have sex for money and men have sex with men. The question why the military personnel in Sudan are NOT one of the vulnerable groups as is known globally about the military personnel have a high risk of exposure to HIV/AIDS.

Methods: A descriptive cross-sectional community based study was conducted among active duty service military personnel to establish baseline behavioral, knowledge and intervention exposure data in relation to HIV and AIDS among military personnel. A sample size of 340 military personnel in Omdurman Military Area was determined using statistical formula. Sociodemographic data as well as information related to sexual behavior were collected.

Results: All the respondents 100% are males, all 100% were Muslims and 100% of them have been circumcised. About 34.1% of the age group 18-24 years, 54.1% of the sample aged 25-49 years. Regarding education 56.2% basic school, 32% high school and only 11.8% illiterate. About 75% were married.

<table>
<thead>
<tr>
<th>Knowledges &amp; Attitudes</th>
<th>NO (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness: Aware about HIV/AIDS</td>
<td>340 (100)</td>
</tr>
<tr>
<td>Transmission: Sexual intercourse</td>
<td>260 (76.5)</td>
</tr>
<tr>
<td>Mosquitoes bites</td>
<td>186 (54.7)</td>
</tr>
<tr>
<td>Attitudes: NOT sharing food with infected person</td>
<td>176 (51.7)</td>
</tr>
<tr>
<td>Healthy-looking person cannot have HIV</td>
<td>168 (49.4)</td>
</tr>
<tr>
<td>NOT Sharing room with infected person</td>
<td>279 (82.0)</td>
</tr>
<tr>
<td>NOT Working with infected person with AIDS</td>
<td>276 (81.2)</td>
</tr>
</tbody>
</table>

Conclusions: In general, the present findings showed that even though the respondent’s knowledge about the disease was good but also there was some wrong believes. The study showed that circumcision, religion, marital status, education level and health education programs are significant predictors for HIV infections control and prevention. Intervention strategy including sustained educational programs is need for the control.

Disclosure of Interest: None declared
OP05.05
EDUCATIONAL NEEDS OF ARMED FORCES' HEALTH CARE PROVIDERS FOR MATERNAL AND NEWBORN CARE IN DISASTERS
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Rationale: Health care providers, as members of the crisis team, provide a health care service to mother and newborn in critical conditions. Therefore, educational needs analysis is the basis of the planning in this field. This study aims to determine the educational needs of health care providers in order to prepare them to care adequately maternal and newborn in disasters.

Methods: This study was a cross-sectional study conducted in 2018. A total of 208 health care providers, including nurses and midwives of 9 armed forces hospitals in Tehran, participated in this study by census method. Data collection instrument was a researcher-made questionnaire containing 10 domains and 64 items. Face validity, content validity and construct of the questionnaire were acceptable. Cronbach alpha test of reliability is calculated 0.94. Data were analyzed using descriptive and inferential statistics in SPSS v.16 software.

Results: Mean and standard deviation of educational needs for health care providers was respectively in the domain of communication and coordination 3.80±0.55 and sexual violence management 3.71±0.60. That was more than the average of the other domains and at a high educational level. In the domain of postpartum care in newborn (2.19±0.96) and accountability (2.98 ± 0.89), educational needs level was identified low. Overall, educational needs of armed forces’ health care providers for maternal and newborn care in disasters were highly evaluated (3.3 ± 0.43).

Conclusions: This study provides evidence that health care providers’ readiness in disasters is low and requires more attention. Therefore, their preparation for maternal and newborn health care in disasters seems necessary.

Disclosure of Interest: None declared
EFFECTIVENESS OF QUICK RELAXATION TECHNIQUE ON PAIN ASSOCIATED WITH CHEST TUBE REMOVAL AMONG POST-OPERATIVE CABG PATIENTS IN A TERTIARY CARE HOSPITAL OF DELHI.

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Rationale: Chest tube removal is a common procedure in critical care units and post coronary care units and is associated with moderate to severe pain and researchers always encouraged the development of protocols for the pharmacologic management of chest tube removal pain. The research question is whether the quick relaxation technique is effective in reducing the pain levels experienced by CABG patients on chest tube removal.

Methods: An experimental approach with two groups quasi experimental pretest /post test research design was used. Study population consisted of hospitalized patients planned for CABG (Coronary Artery Bypass grafting). 60 subjects were selected by simple random sampling technique and allotted to experimental and control group by lottery method. Quick relaxation technique was implemented to experimental group patients. Structured assessment tool was developed and used for data collection, which consisted of demographic data, information related to chest tube and numerical rating scale for pain assessment.

Results: Out of the 60 subjects majority were in the age group 60-70years (43.33%) in experimental and (40%) in control group. 73.33% in control group and 70% in experimental group had severe pain pre procedure. 80% in control group had moderate post procedure pain and 86.6 % had mild pain.

Table 1: Post procedure pain among experimental and control group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean pain</th>
<th>Standard deviation</th>
<th>t test</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>5.1</td>
<td>1.14</td>
<td>5.639</td>
<td>P&lt;.000</td>
</tr>
<tr>
<td>Experimental</td>
<td>3.7</td>
<td>1.05</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Control group had mean post procedure pain score of 5.1± 1.14 whereas Experimental group had mean pain score of 3.7± 1.05. Quick relaxation technique was highly effective in reducing the pain level while removing chest tube drain of post CABG patients. (Unpaired t test value of 5.6394 with df 58, P< .0001)

Conclusions: The study is useful in identifying quick relaxation technique as an important intervention in reducing pain associated with chest tube removal. Hospitals and nursing institutes should prepare guidelines for quick relaxation technique along with routine pharmacological management during chest tube removal for better patient satisfaction.

Disclosure of Interest: None declared
OP05.08
INDIVIDUAL COMBAT RATIONS – TASTY, SAFE, AND CROSS-CULTURAL
THOUGHTS OF THE VETERINARY LAB

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Rationale: Microbiological parameters in Individual Combat Rations were analyzed near Best-Before-Date in the Vet Laboratory Container during an UN Mission in Africa. Although microbiological requirements were fulfilled indicating the careful manufacturing of Combat Rations, the consumer acceptance was moderate. One concern is the use of meat from Halal-slaughtered animals, which reveals the discrepancy of diligence on manufacturing food, and the animal welfare thereof.

Methods: Methods used correlated with International Standards and National Reference Methods. The Army Laboratory and the Veterinary Lab Container is accredited according to ISO 17025:2005. Bacterial parameters examined were Aerobe Colony Forming Units, Enterobacteriaceae, Coliforms and Salmonella ssp, Staphylococcus sp, Bacillus cereus, Listeria sp, and Clostridium sp.

Results: 28 Combat Rations of 11 different Ration Types of 3 different distributors were examined. In total, 673 samples were analyzed, thereof 40 during mission in the Vet Container near Best-Before-Date, and 633 samples in the Army Laboratory. All values remain below the limits set by EU-Legislations or responsible Standardization Bodies.

Conclusions: Despite temperatures in shadow exceeded 40°C at Mission, no limiting values in microbiological key parameters were approached. Even plastic-enveloped UN-Combat Rations which approached inside temperature of 53°C remain microbiologically safe near Best-Before Date, which finally indicates the advanced food technology. The aim of the study however was not to evaluate food safety in Combat Rations itself. It was rather to exploit the Rations’ perfect quality to illuminate the contrariness between the effort spent on Combat Rations’ shelf live on one hand, and the contradicting lack of animal welfare by using meat from Halal-slaughtered animals on other hand. From the veterinarian point of view, the animal welfare should be distinctive for cross-cultural Combat Rations.

Disclosure of Interest: None declared
WHOLE-GENOME-BASED PHYLOGENY OF BACILLUS CYTOTOXICUS REVEALS DIFFERENT CLADES WITHIN THE SPECIES AND PROVIDES CLUES ON ECOLOGY AND EVOLUTION

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Rationale: Bacillus cytotoxicus is a member of the Bacillus cereus group linked to fatal cases of diarrheal disease. Information on B. cytotoxicus is very limited; in particular comprehensive genomic data is lacking. We aimed to apply a genomic approach to characterize B. cytotoxicus and decipher its population structure.

Methods: Complete genomes of ten B. cytotoxicus were sequenced and compared to the four publicly available full B. cytotoxicus genomes and genomes of other B. cereus group members.

Results: Average nucleotide identity, core genome, and pan genome clustering resulted in clear distinction of B. cytotoxicus strains from other strains of the B. cereus group. Genomic content analyses showed that a hydroxyphenylalanine operon is present in B. cytotoxicus, but absent in all other members of the B. cereus group. It enables degradation of aromatic compounds to succinate and pyruvate and was likely acquired from another Bacillus species. It allows for utilization of tyrosine and might have given a B. cytotoxicus ancestor an evolutionary advantage resulting in species differentiation. Plasmid content showed that B. cytotoxicus is flexible in exchanging genes, allowing for quick adaptation to the environment. Genome-based phylogenetic analyses divided the B. cytotoxicus strains into four clades that also differed in virulence gene content.

Conclusion: Our results provide novel insights essential to extend the currently very limited understanding of B. cytotoxicus virulence, ecology, and evolution.

Disclosure of Interest: None declared
OP06.01
IMPROVING PATIENT SAFETY DURING HOSPITAL EVACUATION THROUGH FMECA PROSPECTIVE RISK ANALYSIS
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Rationale: Many causes of hospital evacuation exist but published practical experiences are rare, although it’s a high risk event for patient’s safety. The objective of this study was to evaluate risks to improve patient safety during evacuation applying a Failure Modes, Effects and Criticality Analysis (FMECA).

Methods: FMECA was carried out with a multidisciplinary team (physicians, nurses, pharmacists, logistic manager, direction and patient’s safety officer). It has been performed on both internal medicine unit (IMU) and intensive care unit (ICU). Criticality indexes (CI) were based on the Williams matrix (CI_{max} = 810). The 20% of most critical failure modes (Pareto’s rule) were analyzed and mitigations actions were proposed.

Results: The team met 3 times (7 hours). 68 failure modes were identified in IMU and ICU. Averages initial CI were 319 (245-504) for IMU and 592 (441-810) for ICU. After mitigations of 14 failure modes, the mean criticality decreased to 194 (mean reduction 39%) and 252 (52%), respectively. The main improvement was the deployment of an “evacuation kit” with necessary documents and equipment (e.g. hospital and evacuation plans, checklist, algorithm for patient triage and evacuation, degraded mode protocols). Degraded mode, call-backs, and evacuation process must be tested regularly and known by the staff. Moreover, collaboration with advanced medical post is essential to ensure drug accessibility if other hospitals are not rapidly reachable. The implementation of “emergency drugs bag” containing vital drugs and antidotes must be considered.

Conclusions: FMECA has shown to be a useful tool to improve evacuation procedures and highlighted the value of evacuation preparedness. Evacuation kit in addition to degraded mode protocols, call-back, and evacuation process should be implemented and known by the staff. Considering the difficulties of anticipation, established plan and flexibility are required.


° These two authors contributed equally

Disclosure of Interest: L. Schumacher ° Grant / Research Support from: Swiss Federal Department of Defence, Civil Protection and Sport through the Centre of Competence for Military and Disaster Medicine, F. Berthaudin ° Grant / Research Support from: Republic and State of Geneva, A.-L. Blanč: None declared, C. Blatrie: None declared, A. Staines: None declared, P. Bonnabry Grant / Research Support from: Swiss Federal Department of Defence, Civil Protection and Sport through the Centre of Competence for Military and Disaster Medicine, N. Widmer Grant / Research Support from: Swiss Federal Department of Defence, Civil Protection and Sport through the Centre of Competence for Military and Disaster Medicine
THE IMPACT OF ANTIMICROBIAL STEWARDSHIP PROGRAM PRE-AUTHORIZATION STRATEGY ON THE CONSUMPTION OF RESTRICTED ANTIMICROBIALS IN A MILITARY HOSPITAL

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\textsuperscript{1}Pharmacy, King Salman Armed Forces Hospital, Tabuk, Saudi Arabia

**Rationale:** Antimicrobial stewardship program was implemented since August 2016. This study was conducted to evaluate the antimicrobial utilization and the appropriateness of their use.

**Methods:** Consumption data of the antibiotics under investigation was collected using pharmacy department monthly issuance electronic records. The data was analyzed to determine the consumption trend (primary endpoint) before implementation of the ASP pre-authorization strategy (pre-intervention) this include the years 2015 and 2016. The post-intervention period include the years 2017 and 2018. The cost of the used antimicrobial over the study period was also determined (secondary endpoint).

**Results:** The study project showed decrease in the hospital consumption of the investigated antimicrobial since implementation of the ASP pre-authorization strategy. The study showed decrease in colistin consumption by 25% and 40% in 2017 and 2018 following the initiation of the ASP activities. Linezolid consumption both injectable and oral tablets decreased by approximately 50% whereas meropenem consumptions decreased by 60% post ASP intervention. The results showed decrease in the use of tigecycline by 31% and 25% in the years after the ASP pre-authorization strategy implementation. The antifungal voriconazole consumption was reduced by 52%. Significant reduction in antimicrobial cost was observed in particular the cost of expensive agents such as linezolid, tigecycline, and voriconazole. The 2017 and 2018 antibiograms show better response to antimicrobials compared to the previous years.

**Conclusions:** The antimicrobial stewardship program (ASP) pre-authorization strategy significantly reduced the consumption of antimicrobials guarded by the pre-authorization policy. It also decrease the resistance to antimicrobials. The ASP strategy did not worsen patient outcomes and contributed in the cost reduction as well.

**Disclosure of Interest:** None declared
VALUE OF WEARABLE PPG EQUIPMENT BASED ON ADVANCED BIOFLUID-DYNAMICS IN EARLY WARNING OF CARDIOVASCULAR EVENTS IN MILITARY TRAINING

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Rationale: Previously, we have developed wearable photoplethysmography (PPG) equipment based on advanced biofluid-dynamics, and evaluated its accuracy in judging cardiovascular events in clinical patients. This experiment intends to further evaluate the value of wearable PPG equipment in early warning of cardiovascular events in military training.

Methods: 360 officers and soldiers with an average age of 28.2±5.6 years were enrolled in this study. During five high-intensity military training sessions, blood pressure, blood oxygen, heart rate, arrhythmia and myocardial ischemia were evaluated by wearing wearable PPG equipment. Blood pressure (more than 160/100 mmHg), blood oxygen (less than 90%), heart rate (more than 180 beats/min), arrhythmia (atrial fibrillation, frequent ventricular premature, ventricular tachycardia, atrial tachycardia, supraventricular tachycardia, ventricular fibrillation), and myocardial ischemia are cardiovascular early warning events.

Results: During the training, 18 people quit halfway. The PPG equipment detected 4 people with high blood pressure (more than 160/100 mmHg), 2 with low blood pressure, 3 with heart rate greater than 180 beats/min, 2 with arrhythmia (atrial fibrillation, frequent ventricular premature), and 7 with myocardial ischemia. In the officers and soldiers who completed the training, PPG equipment did not detect the above abnormal situation.

Conclusions: Wearable PPG equipment based on advanced biofluid-dynamics has a certain early warning value for cardiovascular events in military training. If it is found through network transmission, we can terminate the life-threatening events in advance.

Disclosure of Interest: None declared
A FULL-AUTOMATIC EXTERNAL FIXATION FOR BATTLEFIELDS
L. Xiangdang
†
†The general hospital of PLA, Beijing, China

Rationale: External fixation is a preference for operation in the processes of battlefield treatment, peculiarly for those with severe multiple injuries and open wounds, which fixes the limb speedily and expedites rapid evacuation of wounded soldiers during the wartime, hence the fundamental technic of hygiene and logistics in combat zones.

Methods: We developed a novel full-automatic external fixation based on lock-in theory, and made a contrastive analysis of its mechanical properties and other related indicators. In FEM the maximum stresses applied on the frame of the fixator, fixator screw, and bone were 161, 54, and 39 MPa, respectively, which was much less than the allowable stress.

Results: After application of 100000 cycles of loading to the fixator, the device was still firmly fixed on the bone. One-way analysis of variance (ANOVA) testing in all for groups demonstrated a significant difference in mean axial and torsional stiffness. And the stiffness of new type of external fixation group is higher than the external fixation group.

Conclusions: The conclusion is that compared with traditional external fixations, the novel appliance has the characteristics of small volume, low mass, advanced degree of automation, operating friendly, high intensity and strong security, in addition, inconspicuous. The novel full-automatic external fixation is especially adequate for multiple trauma and open wounds in the circumstance of the field battle, which can immensely improve the efficiency and level of medical treatment.

Disclosure of Interest: None declared
SYNDROMIC APPROACH OF THE ILL FIGHTER

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¹Laveran Military Teaching Hospital, French Armed Forces Health Services, Marseille, France, Marseille, ²First military medical center, Vincennes, ³Bataillon de marins pompiers de Marseille, Marseille, ⁴Clermont Tonnerre military teaching hospital, Brest, ⁵154e Antenne Médicale, 10 e CMA, Aubagne ; Ecole du Val de Grâce, Paris, ⁶CESPA French Military Centre for Epidemiology and Public Health, Marseille, France

Rationale: To provide optimal support to French military doctors deployed in role 1 (NATO taxonomy) and adapt diagnostic and therapeutic tools, we interested in their medical activities by operational theatres.

Methods: A survey based on self-administrated questionnaire was conducted among French army doctors deployed in role 1 since 2012. They were interviewed on the main syndromes and grouped cases they had to manage during their last mission. We used Fisher exact test to compare proportions.

Results: Participation was 30% (136/453). Physicians were 34y median-aged; 54 females and 82 males; 46 Captains, 58 Majors and 32 Colonels. Among them, 109 (80%) had been deployed in the last 2 years; 56 (41%) in Mali (the others in 16 different theatres); 71 (52%) in an isolated role 1 (without access to any lab) and 68 (50%) had provided medical assistance to the local population. Syndromes among military patients reported as frequent or very frequent were: traumatisms (87% of the physicians interviewed), skin (83%), diarrhea (77%), digestive disorders (54%), metabolic disorders (44%), neuropsychiatric disorders (36%), fever (32%), respiratory illness (29%), genitourinary tract (20%), sexual exposure (16%). Half of the physicians reported grouped cases of diarrhea and 10% mentioned grouped cases of unexplained fever, of which 70% from African theatres. Envenomation was rare (3%), but 75% of cases occurred in Mali. As well, neuropsychiatric and metabolic disorders were significantly more frequent in Mali (respectively 30/56 and 34/56) than in others theatres (19/80 and 26/80) (p<0.005).

Conclusions: This study confirmed the spectrum and the priorities in role 1 medical cares. We identified some specificities by operational theatres that could lead to implement additional preventive measures and resources for their management in these places.

Disclosure of Interest: None declared
WHAT ROLE FOR BIOLOGICAL ANALYZERS AT THE CLOSEST TO THE FIGHTER?
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¹Laveran Military Teaching Hospital, French Armed Forces Health Services, Marseille, France, Marseille, ²First military medical center, Vincennes, ³Bataillon des marins pompiers de Marseille, Marseille, ⁴Clermont Tonnerre military teaching hospital, Brest, ⁵154e Antenne Médicale, 10e CMA, Aubagne ; Ecole du Val de Grâce, Paris, ⁶CESPA French Military Centre for Epidemiology and Public Health, Marseille, France

Rationale: In their feedback, French military physicians deployed in role 1 (NATO taxonomy) have increasingly reported the need of bioassay tests for the primary management of military patients.

Methods: To identify the main “biological gaps” on the field, a survey based on self-administrated questionnaire was conducted among French army doctors deployed in role 1 since 2012.

Results: Participation was 30% (136/453). Physicians were 34y median-aged; 54 females and 82 males; 46 Captains, 58 Majors and 32 Colonels. Among them, 109 (80%) had been deployed in the last 2 years; 56 (41%) in Mali (the others in 16 different theatres); 71 (52%) in an isolated role 1 (without access to any lab); and 113 (83%) approved an expansion of the biological means. Tools currently available at the primary-care level - capillary blood glucose, urinalysis strips and malaria rapid diagnostic tests (RDTs) - were estimated useful respectively at 89%, 94% and 86%. Difficulties interpreting malaria RDTs in hot climatic conditions were highlighted by 32 (24%). The main bioassays requested in terms of usefulness were: 1) C-reactive protein (CRP) (79%); 2) hemoglobin (77%); 3) creatinine (74%); 4) troponin (71%) 5) leukocytes count (70%); 6) ionogram (69%); and in terms of frequency (i.e. for a regular use): 1) CRP (40%); 2) leukocytes count (35%); 3) hemoglobin (25%). Implementation of RDTs or point-of-care technologies were considered the most helpful for: malaria (82%), bacterial and parasitic stool pathogens (63% and 62%), strep throat (61%), HIV (59%) and Dengue virus (58%).

Conclusions: Even if the perfect portable analyzer for deployment is not yet available, this study identified the spectrum and the priorities among the (micro)biological analyses that would bring a real decision help in role 1 medical cares.

Disclosure of Interest: None declared
PT01.01
MILITARY AND MEDICAL ETHICS
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Rationale: The aim of the presentation is highlight some of the dilemmas faced between the military and the medical ethics and to make recommendations on the way forward.

Methods: Information were retrieved from the archives

Results: Ethical consideration is relevant to military medicine as well as transparency of policies and practices which is paramount except in situations when legitimate security requires setting limits on disclosure of information. Patient's trust in health care is vital for a productive provider patient relationship and it can become difficult in circumstances of dual loyalty. Ethical decision requires prioritizing separate principles such as autonomy and beneficence. The ethical principles must be recognized, specified and balanced in practical ways to build trust and safeguard the dignity

Conclusions: in conclusion, both professions requires morals and conduct in giving skilled services as required, therefore every individual in this dual professions, owe it to humanity to balance it up. By making best of options available in all circumstances.


Disclosure of Interest: None declared
Rationale: Gunshot wounds are among the most traumatic injuries. It is difficult to assess the extent of damages caused by a bullet and these are usually far too serious to be treated with the first aid kit. That's why the best option is to bring the victim to the hospital as soon as possible.

Methods: Our study focuses on the victim during the raking operation in the southern zone. This was a retrospective and descriptive study ranging from the period of 7th on January 2018 to April 8th 2018. Were included all patients with gunshot wounds. The following parameters were studied: age, type of injury, delay of transfer, clinical and paraclinical data, perioperative management and short-term evolution.

Results: In total there were four victims, whose care was taken in the Inter-army Medical Center of Ziguinchor. There were two casualties by 12.7mm caliber firearms incidents and the others were injured by AK 47. The injuries were located in the lower limb for three of the victims and in the head for the fourth who had died in the field. Two patients had undergone surgery preceded by preoperative preparation. One patient was severely injured and had several transfusions. The medical evacuation by air was made as soon as possible to the level III hospital.

Conclusions: Quote from France's 2008 White Paper on Defense and National Security: Protecting the Forces is not only a human imperative, but also a strategic necessity to maintain adherence and tactics to ensure success. Health support is a moral obligation that the State undertakes with respect to its nationals, especially when faced with increased risk.

Disclosure of Interest: None declared
Rationale: Suitability for active military service by transgendered applicants

Methods: Review of available literature.

Results: No definitive impairments in US or Australian armed forces

Several States have accepted transgendered servicemen into their ranks including Australia. Between November 2012 and March 2017, the ADF’s health system helped 27 serving members with gender dysphoria (GD) - a clinical term which refers to conflict between a person's physical or assigned gender and the gender with which he/she/they identify. Not all transgendered (TG) persons suffer from gender dysphoria although there is a high incidence of psychopathology in this group as a whole especially suicidality which is prevalent even after sexual re-assignment surgery (SRS).

The US Commander in Chief, President Donald Trump declared on August 25, 2017 that individuals with a history of gender dysphoria were now disqualified from military service ‘except under certain limited circumstances’. The rationale appeared to be that TG individuals were at ‘high risk’ of suicide and therefore they were ill-suited to military life. The implication was that transgendered people all have a mental illness. In June 2018 The World Health Organisation stopped recognising GD as a mental illness.

This presentation will examine the grounds for any restrictions in military service for TG individuals

Conclusions: Few impediments exist to ban TG service personnel from active service in military forces.

Already Australia, the United Kingdom and Israel permit GD service personnel

References:


Disclosure of Interest: None declared
PT01.04
ETHICAL ISSUES ASSOCIATED WITH RENAL REPLACEMENT THERAPY IN SENEGALESE ARMY HEALTH SYSTEM
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Rationale: Renal replacement therapy (RRT) represents a good example of a life-saving and expensive procedure that is poorly accessible in many Africa countries and healthcare professional have to decide which patients to treat or not. Such difficult decisions are moral and ethical dilemmas for medical staff. This study aimed to assess ethical perception of RRT allocation principles among Senegalese military staff.

Methods: During a national cross-sectional study, we asked participants opinion about ideal criteria that should guide RRT (dialysis treatment and renal transplantation) allocation in Senegalese Army Healthcare System. Data were collected with a questionnaire including socio-demographical parameters (age, gender, marital status, religion, rank category, and current health status) and nine allocation criteria that participants had to rate according to their ethical acceptability. Relationships between participants’ perception and socio-demographical variables were assessed by logistic regression analysis.

Results: Among 1120 participants interviewed, 1052 (125 medical staffs, 283 veterans and 644 non-medical troops) responded completely to the questionnaire. Their mean age was 27±12 years and 92.8% were males. Medical staff prioritized “kidney disease severity” and a “combined criteria (disease, age, survival, responsibility)” to select patients who should receive RRT. Non-medical troops rated “kidney disease severity”, “young age” and “operational responsibility” as first RRT allocation criteria. The most ethically acceptable principles for veterans were “kidney disease severity” and “order in waiting list”. Age and medical background were associated with participants’ preference for “kidney disease severity” and “young age” as first criteria.

Conclusions: Perception of ethically acceptable RRT allocation principles is different among Senegalese military. Disease severity is the most consensual criteria but operational responsibility and young age could be seen as morally less acceptable by ethicists. Army health managers should work to improve RRT access and develop eligibility criteria based on ethical values shared by all groups.

Disclosure of Interest: None declared
THE MECHANISMS BY WHICH EVI1 INHIBITS CARBONIC ANHYDRASE III EXPRESSION AND ELEVATES THE SENSITIVITY OF RAT1 FIBROBLASTS TO HYDROGEN PEROXIDE INDUCED APOPTOSIS.

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Rationale: EVI1 is a transcriptional factor with two distinct zinc finger domains and encoded in human chromosome 3q26. EVI1 overexpression has been associated with various conditions such as myelodysplastic syndrome (MDS), juvenile myelomonocytic leukaemia (JMML). The study aimed to investigate the mechanism by which Evi1 transcription factor inhibits the CaIII transcription, and the increased sensitivity of Evi1 overexpressing Rat1 cells to H2O2 induced apoptosis, therefore, its potential application in human.

Methods: RNA & total protein extraction.
Quantitative PCR (QPCR).
Western blot.
Luciferase assay.
Caspase-Glo 3/7 assay.

Results: In the present study, Carbonic Anhydrase III (CaIII) was expressed at much lower levels in EVI1 overexpressing fibroblast cells compared to the wild type indicating an inhibitory role of EVI1 against CaIII. Our results were further confirmed by western blot in which CaIII protein in normal fibroblast cells was more abundance than that in cells with EVI1 enforced expression. Furthermore, Luciferase reporter assay showed repressed promoter activity in EVI1 overexpressing cells resulted from EVI1 interfering with CaIII promoter by direct or indirect binding.

Conclusions: The elevated levels of EVI1 protein has shown to have an inhibitory effect on Carbonic anhydrase III. The CAIII promoter activity was lowered as a result of elevated levels of EVI1. The inhibited CAIII gene in Rat1 cells resulted in increased sensitivity to H2O2-induced apoptosis, as the CAIII enzyme is responsible for the antioxidative defence.


Disclosure of Interest: None declared
PT01.06
THE CLINICAL STUDY OF LONG-PULSE 1064NM ND:YAG LASER TREATMENT FOR ONYCHOMYOSIS
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Rationale: A survey showed that fungal infectious dermatosis was high in army. Accompanied by varying degrees of swelling, pain and itching, which seriously affects daily training and flight. The purpose of the clinical study was to evaluate the efficacy, mycological clearance and safety of long pulse 1064nm Nd:YAG laser treatment for onychomycosis.

Methods: There are 26 affected nails from 10 patients with onychomycosis were enrolled in our clinical study. All the 10 patients were mycologically proven fungal infection before receiving long pulse 1064nm Nd:YAG laser therapy. We divided the 37 nails into different severities according to the Scoring Clinical Index of Onychomycosis. We gave 6 to 8 sessions’ laser therapy with one week interval. The parameters of laser therapy were followed as: 35 to 40J/cm² fluence, 35ms pulse duration, 4mm spot size, 1Hz frequency. Follow up was performed at 2, 6, and 10 months after the first laser therapy and the clinical efficacy was evaluated at the same time. In order to assess mycological clearance, mycological tests including microscopic examination and culture were performed before irradiation and two months after the first laser therapy.

Results: Twenty-two nails of 10 patients have been treated using the Nd:YAG 1064nm laser for six to eight sessions. The effective rates at 2, 6, 10 months after the first laser therapy were 46.54%, 52.68%, 60.56%. And the mycological clearance was 80.76% at two months after the first laser therapy.

Conclusions: Long pulse 1064nm Nd:YAG laser was effective for onychomycosis of different severities. It’s a simple, effective, and safe therapeutic method without noticeable side effects. Such therapeutic method offers a new alternative treatment for onychomycosis cases, and is especially beneficial in elderly patients, patients with low immunity, liver and renal dysfunction.

Disclosure of Interest: None declared
PT01.07
RISK COMMUNICATION IN TERRORIST AND BIOTERRORIST INCIDENTS
RELYING ON INFORMATION MANAGEMENT IN CYBERSPACE AND DEALING WITH RUMORS
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Rationale: Terrorist incidents are one of the humanitarian crises that lead to mental&financial losses, disturbing public opinion and mental inflammation. At terrorist incident, there are three main tasks for risk communication: informing, managing the crisis by government, calming the public atmosphere of society.

Methods: In this qualitative review, the researchers, after reviewing related research, presented the findings in the room thought and experts in the field of media, and the output results of the interviews, discussions and debates of these individuals presented as the results of the study.

Results: Managing the public atmosphere of the community with careful consideration, prediction of possible situations... by the media, especially the national media with the goalkeeper of news, the organization of news, the systematic and systematic modal diversity, and the maintenance of order and peace in society, the simplest achievement of such a management. At this time, the news should not be hidden or delayed due to the fact that cyberspace is rapidly disseminating news and rumors.

In the face of such a situation and in the professional coverage of the crisis, the editorial staff should adapt to the crisis of consensual makeup. They should follow the needs of the audience. The first is the formation of a news service focused on health, political, social, and military journalists. Prior to the occurrence of the accident, the principles for professional activity are described, ethical codes of conduct, and media policies of the organization are described for these individuals.

Conclusions: The management of the media sphere, whether in the official or virtual media, is one of the most important tasks of the service. The immediate and future consequences of the crisis should be reduced by parallelizing and mirroring it.

Disclosure of Interest: None declared
PT01.08
USE OF NON CLASSIFIED MEDIA INFORMATION IN DETECTING CBRN (CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR) THREAT.
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Rationale: With the ongoing terrorist attacks and natural disaster events, the speed in information is crucial to prevent the loss of human lives as well as to develop effective response in preparedness for major events. The correct use as open sources media tools help to access proper information.

Methods: Media tools that are non classified such as Google, Centers for Disease Control data base, World Health Organization data base and Brazilian Epidemiology Reports from Center of Epidemiology Vigilance data base is accessible to all computer users. They are free of charge and with no media knowledge can help communities and military personnel to achieve great results in preventing terrorist attacks as well as natural disasters. Viral haemorrhagic fever diseases such as Ebola is a matter of concern due to its great lethality. Brazil, as a continental size country needs a powerful tool to help civilian and military personnel in outbreak diseases.

Results: In 2018 the Ebola outbreaks that took place in Democratic Republic of Congo could be well managed due to the open source media info. The correct use of a matrix developed by our group helped to use media source correctly.

Conclusions: The correct use of open media source is essential to prevent major damages in health service. Using the matrix developed is cost effective and can be used in the future to develop a program for the Civilian Emergency Preparedness.

Disclosure of Interest: None declared
Rationale: With the geopolitical situation with transnational terrorism, Brazilian Army created a group of specialists for CBRN events. The goal was to work in outbreaks and general situations when required.

Methods: Brazilian Army created a CBRN course for healthy personnel with specialists from Brazil to train the officials. Some graduates of the course went to other countries such as Israel, USA, Poland and Ukraine to share knowledge and to gain information of new techniques concerning CBRN issues.

Results: After the personnel were prepared with the course and several drills, medical officers were sent to different states to prepare hospitals and civilians to respond to counter-terrorism and outbreaks for the 2016 Olympic Games.

Conclusions: All the situations in the Olympic Games of 2016 that occurred in the Brazilian States were well managed resulting in a great success concerning CBRN events. Techniques of counter-terrorism and preparedness for worldwide outbreaks were learned by the population and improved their response for future events. Overall relations with countries that CBRN is a current threat improved exchange of information and planning for future cooperation.

Disclosure of Interest: None declared
Rationale: Considering the threats of the enemy on the use of chemical, nuclear and biological weapons, undoubtedly, how to respond and protect against these factors, especially for police medical staff, when dealing with victims crisis these events are of the most necessary educational needs and basic priorities. The purpose of this study was to determine the knowledge, attitude and skill of police relief staffs in chemical, nuclear and biological weapons in order to determine the need for educational planning in police medical center of Mashhad.

Methods: This descriptive analytical study was carried out on the second organized police personnel (aid) workers, the used instruments included a questionnaire for measuring knowledge and attitude and a checklist was used to measure employees' skills. These tools are made by the researcher that its validity by experts and review scientific and specialized resources and its reliability by Test-Retest method was confirmed. The data by SPSS software 16 and descriptive statistics and chi-square test were analyzed.

Results: The results showed that about the knowledge of NBC, 9/6% of relief personnel had poor knowledge, 63/9% had average knowledge and 26/5% had good knowledge. In relation to attitude of NBC, 11/2% had a negative attitude, 36/4% had moderate attitude and 52/4% had a positive attitude. About practice, 13/9% had poor performance, 49% had average performance and 37/1% had good performance. There was a significant relationship between attitude and practice. (P<0/05).

Conclusions: Considering the fundamental role of police relief personnel in times of chemical, biological and nuclear disasters, is necessary increasing their knowledge, attitude and practice skills in the form of a formulated plan for training theoretical and practical to do properly behaviors for protection and rescue and control the crisis.

Disclosure of Interest: None declared
CIVIL MILITARY COOPERATION IN CBRN DEFENSE, THE LEBANESE ARMY EXPERIENCE.
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Rationale: With the increasing ease of CBRN weapon proliferation, we are forced to deal with an unconventional warfare. How should we prepare to face such a threat, and is there a role for civilian military cooperation in such a scenario?

Methods: The creation of a national CBRN team in 2013, composed of representatives from both the Lebanese army and a multitude of other relevant national institutions helped in the successful development and implementation of a comprehensive and integrated national CBRN policy, with teams progressively being available all over the country, working in conjunction with the local hospitals.

Results: Constant inter-agency training and international cooperation helped identify and assess the needs in the CBRN field. These hands-on projects review the effectiveness of the national response plan and address any gaps in it, to cite a few: low antidote and medication stockpile, lack of enough specialized suits and equipment.

Conclusions: The establishment of a dedicated army CBRN team, and its incorporation in a larger scale national team, helped develop a unified CBRN national action plan, and a common inter-agency scientific guidelines. All of the above is helping increase the level of readiness required to face such a grave threat should it happen.

Disclosure of Interest: None declared
Creation of the Tunisian Taskforce Against Biological Threats

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Rationale: The purpose of this project is to implement, train, and equip biological Taskforce responder units to enable them to take immediate action when a bio-incident occurs and to facilitate the establishment of a Tunisian contingency plan against biological threats.

Methods: The project is implemented by the Tunisian General Directorate of Military Health and the Robert Koch Institute and involving also the Tunisian Ministry of Public Health and the Ministry of Interior with its two branches, the scientific police and the civil protection. The project is commissioned and financed by the German Federal Foreign Office.

Results: The Tunisian biological Taskforce consists of 3 teams of 4 members each (a medical physician, a CBRN expert, a biologist and a forensic police officer). The Taskforce is currently trained in different aspects of the management of biological contaminated crime scenes. The main topics of the trainings are:
- Sampling in biologically contaminated areas with respect to the principles of crime scene investigations
- Protection against contamination with the use of personal protection equipment (PPE)
- Barrier management and decontamination of Taskforce members and samples
- Team communication while working in contaminated areas
- Documentation and packaging of samples
The project will focus on the implementation of the decontamination unit attached to the taskforce and to enhance interoperability between the taskforce, the decontamination unit and the biological mobile laboratory.

Conclusions: The implementation of the Taskforce leads to the strengthening of the cooperation between the Tunisian health and security sector to enhance readiness and preparedness to biological threats caused by highly pathogenic or bioterrorism-related agents.

Disclosure of Interest: None declared
THE CHARACTER AND MECHANISM STUDIES OF SULFUR MUSTARD INDUCED CYTOTOXICITY DAMAGE OF HUMAN CELLS

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Rationale: There are about 1-3 days latency after Sulfur Mustard (SM) infection, the sensitivity to SM of different organs or tissues are different. So in this study we investigated the toxicity characteristic of SM to different human cell lines, and inspected the mechanisms.

Methods: Human pluripotent stem cells (hiPS), keratinocyte cells (haCat), skin fibroblasts (hFF) and mesenchyme stem cells (hMSC) are treated with different concentrations of SM. Cytotoxicity, DNA damage and ROS levels were detected. By comparison the pathway involved in DNA damage repair after SM infection, we investigate the cytotoxicity mechanism of SM infection. Furthermore, the therapeutic effect of hMSC transplantation was evaluated in SD rats after SM infection.

Results: Human stem cells are most sensitive to SM. SM infection leads to severely DNA damage, and the damage is mainly single strand breaks. The ROS levels were not increased significantly after SM infection. The pathways involved in DNA damage repair are different in these cell lines.

Conclusions: Our results indicated that stem cells are more sensitivity to SM induced damage, and DNA damage is the main cytotoxicity effect of SM.

Disclosure of Interest: None declared
PT01.15
DESIGN AND APPLICATION OF SIMULATION TRAINING SYSTEM FOR CBN MEDICAL RESCUE COMMAND
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Rationale: To develop and apply a simulation training system for immersive training of CBN medical rescue command according to the CBN protection technologies. The scenario of CBN accident was simulated by virtual reality technology.

Methods: The training requirements, the technological parameters and the overall design objective were summarized by expert consultations and systems engineering methods. The simulation training system for CBN medical rescue command was developed by software engineering and computer simulation.

Results: The system had been established for 5 years which included scenario designing model, directing and monitoring model, commanding training model, geographic information system, evaluation model and related database. More than 20 rescue teams including more than 400 team members had been trained by the system.

Conclusions: The training by the system was practical, joyful, operable and theoretical, which made the trainee acquire the command skill through the observing the environment, applying the tools, and solving the simulation problems in the scenario. The system could enhance the training efficiency which had important and practical significance for the improvement of CBN medical rescue level in CPLA.

Disclosure of Interest: None declared
STUDY OF BIOLOGICAL APPROACH IN EARLY WARNING FOR MILITARY STRESS INJURY
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Rationale: Military stress injury leads to comprehensive adverse reactions of physiology and psychology in soldiers. In the past, military stress injury control system just concerned mental abnormalities, and chosen psychological or psychiatric scales as the only tools of early warning and diagnosis for military stress injury.

Methods: We have found that stress leads to disorder in HCY metabolic pathway and results in a significant increase of plasma HCY. It was further found that the metabolic disorder of HCY disturbed methylation homeostasis, dysregulated the expression of neurotrophic factors, and mediated stress cognitive impairment at last. Stress-induced metabolic disorders also lead to the release of HSP70, which could activate the inflammatory reactions in vascular endothelial cells and induces extensive systemic injury. Plasma HCY and HSP70 are important inducing factors of stress injury, whose levels are highly correlated with the intensity of stress allostatic load and the characterization of cardio-cerebral function damage.

Results: As biomarkers of early warning and diagnosis for stress injury, plasma HCY and HSP70 provide a new biological approach for precise early warning of military stress injury.

Conclusions: As biomarkers of early warning and diagnosis for stress injury, plasma HCY and HSP70 provide a new biological approach for precise early warning of military stress injury.

Disclosure of Interest: None declared
RESEARCH ON THE EVALUATION INDEX OF THE ABILITY OF NUCLEAR, CHEMICAL AND BIOLOGICAL EMERGENCY MEDICAL RESCUE COMMANDING

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Rationale: To establish the direction of improving the ability of nuclear, chemical and biological emergency medical rescue commanding, standardize the mode of improving the ability, and improve the ability of commanding.

Methods: AHP method was adopted, to construct the target layer, criterion layer and scheme layer which are evaluated at the standard of the ability of commanding, and to construct the evaluation factors system; About 20 authoritative experts and management practitioners including Chen Xiaohua and Yu Min were interviewed; Delphi method was adopt to determine the weight and to construct the system of the evaluation index finally.

Results: Seven first-level indicators, such as the communication in emergency and the ability of leadership, and 66 second-level indicators, such as the belief in overcoming the disasters, the perception of seeking psychological support for technological innovation, and the ability of forecasting demand are constructed. The highest weight is 2.65%, 2.61% and 2.33%, and the lowest weight is 0.61%.

Conclusions: establish the index system to determine 66 requirements for capability in 7 categories and focus on building 8 abilities, including the ability of innovation of rescue commanding, the ability to communicate with the media and the ability to learn academic theories.

Disclosure of Interest: None declared
PT01.18
STRENGTHENING THE CAPABILITY OF NUCLEAR EMERGENCY MEDICAL DEFENSE
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Rationale: With the rapid increasing of nuclear and radiation facilities, such as nuclear power stations and plants, hospitals, and terrorism threats, such as dirty bombs, same as other countries in the world, China has been facing more and more challenges. The study aims to analyze and summarize the new challenges of nuclear and radiation emergency medical defense system, and to seek the solution to improve the capability for these challenges.

Methods: Literature review, case studies, questionnaire and field survey were applied.

Results: By the study, some deficiencies and defects were found, such as lack of consciousness of crisis, ambiguous responsibilities, limited resources, unperfected emergency plans, inadequate training, and insufficient public education.

Conclusions: To improve the capabilities for the nuclear and radiation emergency medical response, previous experience and lessons must be comprehensively studied and learnt. The emergency medical rescue system should be systematically improved, the law and regulations need to be updated timely, field training must be conducted practically and special fund must be increased, professional equipment and vehicles must be equipped.

Disclosure of Interest: None declared
CASPASE-1 INHIBITOR AND ACQUIRED IMMUNE DEFICIENCY SYNDROME TREATMENT: A SYSTEMATIC REVIEW
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Rationale: Acquired immune deficiency syndrome (AIDS) is a severe loss of the body's cellular immunity. AIDS is a potentially life-threatening condition caused by the human immunodeficiency virus (HIV). AIDS is a global pandemic. As of 2016, approximately 36.7 million people have HIV. There is currently no cure or effective HIV vaccine. Treatment consists of highly active antiretroviral therapy (HAART) which slows progression of the disease. Studying the relation of new antiretroviral drug (caspase-1 inhibitor) and aids treatment is a main goal.

Methods: This essay was a systematic review of English articles published in PubMed, Nature and Science since 2010. Being up to date, matching with keywords and accessing the full text were incoming metrics.

Results: The papers address a mystery: why immune cells die in people with HIV. A 2010 study showed that HIV does not directly kill most of these cells, called CD4 cells. Instead, the cells often self-destruct. They found that most of the cellular suicide occurs via a process called “pyroptosis”. A key protein involved in pyroptosis is caspase 1, and an experimental caspase-1 inhibitor made by Vertex Pharmaceuticals (VX-765) had already been tested in humans as a potential treatment for epilepsy. The drug, failed to help epileptics, but studies suggested that it was safe. Scientists tested VX-765 in HIV-infected cells cultured from human tonsils and spleens, and found that it blocked pyroptosis and prevented CD4 cell death.

Conclusion: The approach could one day provide an alternative to the antiretroviral drugs currently used by 9.7 million people worldwide to manage HIV infection. HIV infection causes a mass suicide of immune cells a process that can be halted by an experimental drug such as VX-765 that blocks cellular self-destruction.

References: PubMed, Nature and Science

Disclosure of Interest: None declared
PT02.02
RELIEF AND TREATMENT IN MODERN WARFARE WITH NERVE AGENTS OF CHEMICAL WARS
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\textbf{Rationale:} Nerve warfare agents are the fastest and most prolific fighters in the world. So, in dealing with their victims, the seconds are very important; therapeutic interventions should begin as soon as possible.

\textbf{Methods:} This study was a narrative review which reviewed the studies published between 2000 and 2018 by using electronic, academic and scientific resources such as PubMed, Scopus, Ovid, and etc.

\textbf{Results:} Nervous agents are compounds of the family of organophosphoric insecticides, which have a much higher fatality potential. These pesticides are inhibitors of acetylcholinesterase enzymes. Therefore, the main symptoms of poisoning are symptoms of excessive activity of muscarinic and nicotine receptors. Death is due to \textit{respiratory} failure. Victims should get out of the hot zone very quickly. We should do the triage and pay attention to ABC.

\textbf{Conclusions:} With timely and rapid identification, increasing the level of knowledge of all personnel and the need for diagnostic centers to identify the agent and provide the necessary warnings, the correct response could be to deal with the agents of modern warfare.

\textbf{Disclosure of Interest:} None declared
THE AFRICAN COHORT STUDY: A MIL-MIL AND MIL-CIV COLLABORATION EVALUATING HIV OUTCOMES IN RESOURCE LIMITED SETTINGS

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\textsuperscript{1}US Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, United States, \textsuperscript{2}Makerere University Walter Reed Project, Kampala, Uganda, \textsuperscript{3}Kenya Medical Research Institute/US Army Medical Research Directorate-Africa, Nairobi, Kenya, \textsuperscript{4}Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, United States, \textsuperscript{5}Henry M. Jackson Foundation MRI, Kericho, Kenya, \textsuperscript{6}National Institute for Medical Research Medical Research Center, \textsuperscript{7}Henry M. Jackson Foundation Medical Research International, Mbeya, Tanzania, United Republic of, \textsuperscript{8}US Army Medical Research Directorate-Africa/Nigeria, \textsuperscript{9}Ministry of Defence Health Implementation Progamme, Abuja, Nigeria

\textbf{Rationale:} The African Cohort Study (AFRICOS) is a prospective observational HIV focused cohort led by the US Military HIV Research Program (MHRP) in cooperation with local military, ministry of health and charitable hospitals. The study which commenced in 2013 provides insight into attainment of HIV treatment goals.

\textbf{Methods:} AFRICOS enrolls HIV infected and uninfected participants at 12 sites supported by the MHRP PEPFAR program in Uganda, Kenya, Tanzania and Nigeria. On enrollment, participants undergo history and physical examination, questionnaire administration, a neurocognitive battery, and phlebotomy for laboratory assessment, including measurement of CD4+ and HIV viral load. They are followed at 6 month intervals with repeat assessments.

\textbf{Results:} As of September 1, 2018, AFRICOS enrolled 3414 participants, 2847 (83.4%) of which were HIV infected. At enrollment, median age is 38 years and 58% of participants are female, with a 91% literacy rate. Since study start in 2013, the cohort has had a 9% rate of lost to follow up and 99 deaths (3.5%). 2824 HIV infected participants contributed data to analysis of antiretroviral therapy (ART) uptake and viral suppression at the most recent study visit (Table 1). Notably over 90% of participants on ART achieved viral suppression per WHO target of <1,000 copies/mL.

\textbf{Table 1. Antiretroviral Therapy Uptake and Viral Suppression}

<table>
<thead>
<tr>
<th>HIV Program</th>
<th>Uganda (n = 502)</th>
<th>SRV, Kenya (n = 996)</th>
<th>Kisumu, Kenya (n = 502)</th>
<th>Tanzania (n = 534)</th>
<th>Nigeria (n = 290)</th>
<th>All (n = 2824)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female – n(%)</td>
<td>302 (60.2%)</td>
<td>589 (59.1%)</td>
<td>277 (55.2%)</td>
<td>320 (59.9%)</td>
<td>173 (59.6%)</td>
<td>1661 (58.8%)</td>
</tr>
<tr>
<td>Age – Median (IQR)</td>
<td>38.1 (30.4 – 45.2)</td>
<td>39.7 (33.4 – 46.7)</td>
<td>39.0 (31.6-49.2)</td>
<td>40.7 (32.0 – 48.9)</td>
<td>38.4 (33.2 – 43.5)</td>
<td>39.2 (32.5 – 46.7)</td>
</tr>
<tr>
<td>On ART for 6+ months – n(%)</td>
<td>381 (75.9%)</td>
<td>891 (89.5%)</td>
<td>437 (87.1%)</td>
<td>424 (79.4%)</td>
<td>241 (83.1%)</td>
<td>2374 (84.1%)</td>
</tr>
<tr>
<td>VL &lt; 1000, On ART for 6+ months – n(%)</td>
<td>357 (93.7%)</td>
<td>823 (92.4%)</td>
<td>410 (93.8%)</td>
<td>359 (84.6%)</td>
<td>205 (85.1%)</td>
<td>2154 (90.7%)</td>
</tr>
<tr>
<td>VL &lt; 50, On ART for 6+ months – n(%)</td>
<td>334 (87.7%)</td>
<td>779 (87.4%)</td>
<td>396 (90.6%)</td>
<td>270 (63.7%)</td>
<td>168 (69.7%)</td>
<td>1947 (82.0%)</td>
</tr>
</tbody>
</table>

\textbf{Conclusions:} The African Cohort Study is a large complex project successfully engaging military and civilian partners to generate data informing HIV care delivery and programming in sub-Saharan Africa.

\textbf{Disclosure of Interest:} None declared
PT02.04
"WELCOME OPERATION" - BRAZILIAN ARMED FORCES TAKING CARE OF THE VENEZUELAN REFUGEES
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Rationale: With the economic-geopolitical problems that are going on in Venezuela, the Brazilian Government created, by law, in February, 2018, an Humanitarian Logistic Task-Force called “OPERAÇÃO ACOLHIDA” (“WELCOME OPERATION”), to be deployed by the Brazilian Armed Forces (BAF), with the aim to receive and to take care of the Venezuelan refugees, that are arriving at Brazilian frontier as hundreds by day.

Methods: BAF prepared initially eight (8) shelters in Boa Vista, the capital of Roraima State, 220 km faraway from Pacaraima, the dry frontier city with Venezuela, in the very northern part of the country, in the heart of South America and in the middle of the Amazon Forest; nowadays, they are already eleven (11). In Pacaraima there were created two (2) shelters and have been installed one (1) Forward Medical Service Station (PAA – Posto de Atendimento Avançado), with doctors, nurses, para-medics, pharmacists, dentists, veterinarian doctors, nutritionists and social assistants, from Brazilian Army, Navy and Air Force, to take care of all those people.

Results: BAF are providing triage, health assistance, vaccination to people and to animals, first care to many trauma patients, isolation to people diagnosed with infectious diseases, and shelter and food to hundreds of people that are leaving everything behind them, to escape from their country.

Conclusions: BAF are having a very good experience with this Humanitarian Civic-Military Operation, with the reception of Venezuelan citizens, including Indians, and helping them to find places to live, to work and how to survive until then. But the logistical problem has been a big challenge, cause all the transportation must be done by plane or by boat, through the Amazon rivers, and this is slow and costly. The health personnel must be selected from all over the country, because in the frontier, originally, there was only a Frontier Special Platoon (PEF – Pelotão Especial de Fronteira). In the capital there are some infectious diseases which incidence is growing up quickly, as measles and AIDS. The measles was considered eradicated in Brazil. After 1 year of hard work, BAF are still not able to see the end of the “Welcome Operation”.

Disclosure of Interest: None declared
GLOBAL HEALTH SECURITY AGENDA 2024: OPPORTUNITIES FOR DEFENSE SECTOR ENGAGEMENT

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Rationale: Recent outbreaks have demonstrated the impact of infectious diseases on national and global security, affecting a host of military mission areas. Bioterrorism continues to be of increasing global concern. Widespread technological development requires robust biosafety and biosecurity practices to safeguard pathogens. Despite the recognized need for multisectoral cooperation to prevent and mitigate the effects of infectious disease outbreaks, it can be challenging for militaries to identify concrete ways to cooperate with their counterparts in other sectors.

Methods: Global Health Security Agenda (GHSA) is a well-established mechanism through which the defense sector can collaborate with their civilian counterparts domestically and in international partnership. GHSA launched in 2014 as a five year initiative to accelerate the implementation of the World Health Organization’s International Health Regulations, with the goal of advancing a world safe and secure from infectious disease threats, whether naturally occurring, or the result of accidental, or deliberate release. In 2018, GHSA was renewed for a second five year period, termed “GHSA 2024”. GHSA 2024 provides new opportunities for engagement of the defense sector, both domestically through the execution of health security related military missions, and multilaterally via newly established GHSA structures such as Task Forces and Working Groups.

Results: GHSA acts at the intersection of health and security, breaking down barriers between sectors to enable a collaborative, whole of society approach to shared health security goals. Militaries contribute to GHSA implementation through existing missions that are aligned with the goals of GHSA. GHSA enables the planning and execution of health security related military missions by establishing a platform of multisectoral coordination.

Conclusions: This talk will provide an overview of the GHSA, particularly new developments under GHSA 2024, and will highlight the role of the defense sector in GHSA, offering examples of defense sector participation in GHSA to date, and recommendations for increased defense sector engagement in GHSA 2024.

Disclosure of Interest: None declared
INTEGRATION OF A CIVILIAN HOSPITAL AND A MILITARY UNIT: A SUCCESSFUL EXPERIENCE

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Rationale: Reinforcement of a civilian hospital by a military medical unit, augments its ability to cope with mass casualty situations.

Methods: Included only the statistics of casualty register of the 1973 War and the 1982 Lebanon War.

Results: An evacuation hospital (EH) is a medical facility designed to handle all casualties from an arena to sort them, to resuscitate and stabilize those who need it in order to evacuate them to other hospitals. Only life saving operations are being performed at EH. During the 1973 War, the main field hospital at the Egyptian front functioned as an EH: more than 3600 cases were treated in this installation. Only 93 of them were operated at the EH. After the war it was decided to keep this hospital in the form of two identical units: the rationale behind the decision was to keep at the national level a military reserve units which can improve the ability of any facility to cope with mass casualty event of any kind. One of the scenarios discussed was the reinforcement of a hospital. As the mode of work of a hospital is different from that of a military unit designed to act as a EH, medical units and peripheral hospitals were trained how to cooperate at time of need.

During the Lebanon War, 1982, battle casualties were evacuated from the front to a civilian hospital located near the border. It was estimated that the flow of casualties might overwhelm the small hospital. Thus, the hospital was reinforced by a mobile military unit. This augmentation allowed the hospital to function efficiently in the mode of EH: during a week it handled 400 casualties: 82% of them were later evacuated to rear hospitals, after being sorted and stabilized. Only 3% required surgery.

Conclusions: This experience demonstrates both the value of such integration and also the steps which be taken in order to make it work.

Disclosure of Interest: None declared
PT02.07  
MILLITARY CIVIL COOPERATION IN EMERGENCY MEDICINE  
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¹Nursing, Ministry Of Defence, Nigeria, Fct, Nigeria

**Rationale:** This paper asks the questions bordering on professional etiquettes and laws while challenging considerations of epaulets and ego in place of the patients, casualties or victims as a first line service, irrespective of who is providing it.

**Methods:** The design of the study adopted was expost design. A systematic empirical enquiry in which a scientist (researcher) does not have direct control of independent variable because their manifestations have already occurred or because they are inherently not manipulative.

**Results:** From the time of Nightingale and the Crimean War to these days of terrorism and public health, the need for civilians and military healthcare workers to interface has become expedient. Gap between the military command structure subsumes a superordinate and subordinate relationship and use of force, whereas emergency medicine respects technical know-how, thrives on minimizing casualties and defies obey-the-last-order mentality.

**Conclusions:** In conclusion, for this antithesis to be resolved, better understanding of the medical emergencies is need. It contends that initiating resuscitation, stabilization, and commencement of investigations and intervention to diagnose and treatment of illnesses are a collective responsibility that defies mundane considerations. While the paper highlights responsibilities and cooperation, it also delves on a paradigm shift within the military/emergency environments through observational, descriptive, cross-sectional approach and recommends social change in defence policies that exalts competent frontline management above ranks in managing health care complexity in military-civilian relationship, thus reaffirming competent, character-driven and compassionate - either military or civilian health professionals.

**References:** 1. Nightingale F. Florence Nightingale: Measuring Hospital Care Outcomes.  
2. Ekere EA. Building an effective civil military relationship in work place

**Disclosure of Interest:** None declared
CIVIL-MILITARY COOPERATION IN THE TRAINING OF MILITARY MEDICAL PERSONNEL IN THE REPUBLIC OF BELARUS

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Rationale: Currently, much attention is paid to civil-military collaboration in the training of military medical personnel. Consider areas of civil-military cooperation for the development of professional competencies of doctors for independent professional activity.

Methods: The main tasks of pre-University training are training in civil medical colleges of Junior and secondary medical personnel, as well as attracting the most trained graduates of civil schools to study in a military educational institution. Pre-diploma training of medical service officers at the Military Medical Faculty (MMF) in the EE "Belarusian State Medical University" (BSMU) is a basic 6 – year higher medical education, providing training of doctors capable of providing quality medical care, both in the military and civil health care.

Results: 64 civil departments of the BSMU and 4 military departments of the MMF participate in the formation of a military doctor (medical service officer). Clinical bases of departments of military field surgery and military field therapy are not only military clinical medical institutions, but also civil clinics of Minsk. Part of the medical staff of the Ministry of Defence is being retrained and improved (at least once every 5 years) by agreement with the Ministry of Health in the civil Belarusian Medical Academy of postgraduate education, in the training center, retraining and advanced training of the Ministry of Health and its branches, as well as in the civil scientific and practical centers of the Ministry of Health of the Republic of Belarus.

Conclusions: Republic of Belarus has established and operates a coherent and effective system of training military medical personnel. Civil and military cooperation at all stages of training medical personnel for the Armed Forces and other military formations of the Republic of Belarus is of great importance.

Disclosure of Interest: None declared
PT02.09
CIVIL-MILITARY COOPERATION IN MOROCCO IN EMERGENCIES MANAGEMENT.
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\textbf{Rationale:} How is civil-military cooperation organized in the face of a humanitarian emergency in Morocco?

\textbf{Methods: Method}
An analysis of an exceptional health situation such as the derailment of the train linking Rabat to Kenitra which occurred on October 16, 2018. It left 7 dead and 120 wounded.

In the face of this exceptional emergency health situation, it will be showed how governance could be done with civil-military mutual cooperation model.

\textbf{Results: Results}
The train accident occurred in Bouknadel, 17 kilometers away from Rabat, in the gendarmerie district. The Red Plan was triggered by the Royal Gendarmerie. A binary sort was made at the accident site. An anesthetist-resuscitator civilian coordinator led the relief organization with the help of the military doctor in charge of the Royal Gendarmerie’s SAMU (emergency medical help service).

The evacuation noria plan was made by SMUR (mobile emergency and resuscitation service) of the Rabat and Kenitra as well as the civil protection ambulances.

A white plan has been triggered at the hospitals of Rabat and Salé.
The Regional Hospital Center Salé received 106 wounded.
The Mohammed V military hospital in Rabat received 12 wounded. The Rabat University Hospital received 2 wounded.

\textbf{Conclusions: Conclusion}
Faced with a national tragedy, the Ministry of Public Health with the help of the Civil Protection, can deploy its resources using HeliSmur, ambulance of SMUR, to welcome the wounded in the CHR (Regional Hospital Centers), CHU (University Hospital Centers) In cooperation with the Ministry of Public Health, the Royal Armed Forces Health Service can manage an exceptional situation thanks to its resilience, its organization and its expertise through its external missions (OPEX).

\textbf{Disclosure of Interest:} None declared
PT02.10
CIVILIAN-MILITARY COOPERATION BY USING 1-3-7 MODEL IN ROYAL THAI ARMY (RTA) TO ACCELERATE MALARIA ELIMINATION IN THAILAND
S. -. Tabprasit1:* on behalf of Watcharee Yokanit, Nithinart Chaitaveep, Jariyanart Gaywee, Thippawan Chuenchitra and Pramote Imwattana
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Rationale: Military areas of operation are known to be malaria endemic especially Sisaket provinces. Sisaket province is one of the top five of high rate malaria infection in Thailand. Although the malaria outbreak is not occur in the Royal Thai Army (RTA), we have to keep up with the malaria outbreak by using national malaria elimination program.

Methods: The national malaria elimination program (“1-3-7” policy) is delineates responsibilities and actions. The time frame of the approach has been incorporated with report of malaria cases within 1 day, their confirmation and investigation within 3 days, and the appropriate response to prevent further transmission within 7 days. In the national malaria elimination program (“1-3-7” policy) composes of the case management which the medical corps diagnose the malaria infection by rapid test and microscope in the first day. They also directly-observed treatment and follow up to check the recurrence of malaria infection for P. falciparum on day 3, 7, 28 and 60 and P.vivax on day 14, 28, 60 and 90. Moreover, the medical corps investigate and seek the new case of malaria infection to prevent the transmission in the high risk group. Importantly, they also provide mosquito repellent spay in the infection area for controlling the vector.

Results: We started the project during 15 Nov 2017- 9 Sep 2018. The malaria infection was 168 cases; Plasmodium Vivax Malaria (P.v.) 150 cases, Plasmodium Falciparum Malaria (P.f.) 3 cases and Mix (P.v. and P.f.) 15 cases. Moreover, we found that 5 cases were infected more than one time. The percentage of succession in preventing further transmission within 7 days was 3.3% (10/168). In these day 7th, we collected 137 cases in the blood paper for detection the malaria by Polymerase Chain Reaction (PCR). All of the specimens showed no malaria infection.

Conclusions: Malaria remains a major health problem in the AOs along the Thai-Cambodia border and active surveillance must be continued to evaluate the efficacy of the malaria control program. Conducting a suitable program for malaria elimination program plays an important role in the control of malaria in endemic areas.

Disclosure of Interest: None declared
Rationale: In civilian context, tactical emergency medicine (TEM) is defined as the provision of emergency medical support to police and Special Weapons and Tactics (SWAT) units. During the previous years, the increased dangerousness of standard police interventions, the risk of a terrorist attack and the need to guarantee maximum security at the scene of the interventions favoured the development of TEM units in most European countries. Switzerland, although renowned for its security, is not totally immune to these risks and TEM teams were recently implemented.

Methods: In 2016, the Lausanne University Hospital and the canton of Vaud’s State’s Police, in the French-speaking part of Switzerland, started the implementation of an emergency physician, skilled in prehospital emergency medicine, within the SWAT team, for high-risk situations. Data regarding the medical aspects of the interventions were systematically and prospectively collected.

Results: From March 2015 to February 2019, an emergency physician was engaged 56 times within the SWAT team. Six interventions were cancelled during the SWAT deployment. 58% of the interventions occurred during the night (20:01-6:59). The mean time duration was 3.6 hours (median 180 min, 50 – 720 min). In terms of casualties, 7 patients required on-site simple medical examination (including two cases after Taser’s use), 3 patients suffered from thoraco-abdominal (2) or craniocerebral (1) gunshot wounds (including two self-inflicted cases), and 1 patient died from self-inflicted gunshot wound.

Conclusions: The probability of medical intervention as part of our SWAT team is 20%. According to the potential pathologies, control of the haemorrhages, thorax drainage, airway control or traumatic cardiac arrest resuscitation are the most frequent procedures. The integration of an experienced emergency physician ensures that emergency procedures, decision-making and rapid evaluations of cases could be carried out directly on site. SWAT operators are trained at Tactical Combat Casualty Care (TCCC) and help the physicians for the medical procedures. A perfect mutual knowledge, dedicated ROE and regular training are essential.

Disclosure of Interest: None declared
THE MANAGEMENT OF TRAUMA CASES AT A FORWARD SURGICAL CENTRE IN A COUNTER INSURGENCY SCENARIO

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Rationale: This retrospective study describes the management of trauma cases at a forward surgical centre located in a counter insurgency scenario.

Methods: Two years data from a single FSC located in a Counter Insurgency Operational zone was analyzed retrospectively on several parameters. The admission and discharge registers, operation theatre records of Surgery and Anesthesia and the fatal case records were evaluated.

Results: 60% of the trauma cases were penetrating trauma. The commonest region of the body that was injured was the extremities mainly upper limbs. The torso injuries were less than expected presumably due to the use of bodyarmor. Majority of the cases were priority 2 cases requiring urgent surgery. 50% cases required general anaesthetic; the remaining were done under neuraxial blockade or regional or local anesthesia. 8% cases required blood transfusion at the FSC. As banked blood was not readily available, the FSC relied on fresh whole blood. In 85% of the cases the surgical team was able to perform definitive surgery and not just life and limb saving surgery. Overall survival of the trauma cases received at the FSC was 97.12% with a mortality of 2.88%. The leading cause of death was head injuries and chest injuries. The results of this study are comparable to the results of the American experience in Iraq and Afghanistan.

Conclusions: This study analyses the data from a Forward Surgical Center to provide the pattern of the surgical case load in a counterinsurgency area.

Disclosure of Interest: None declared
USE OF VIRTUAL REALITY EXERCISES IN DISASTER PREPAREDNESS TRAINING, A SYSTEMATIC REVIEW
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Rationale: Use of virtual reality exercises additional to Tabletop exercises considered as new approaches to the preparation of disaster preparedness plans. Virtual Reality Exercises are being developed to either replace or complement current traditional approaches to disaster preparedness training. Evaluation of the case for virtual reality exercises as a complementary/replacement mechanism for real time drills and tabletop exercises.

Methods: Review of research publications involving Virtual Reality Exercises in Disaster training from 2000 to date. Pubmed Complete was used with keywords of disaster, preparedness and virtual reality.

Results: Virtual Reality exercises have many advantages versus the traditional real life or tabletop exercises, but still some drawbacks can be identified.

Conclusions: Virtual reality exercises are better in preparing disaster preparedness plans when compared to tabletop exercises. Virtual reality exercises can be used as the primary means of creating a real life-like experience in disaster preparedness training and proved at least as better complementary to tabletop exercises. Advantages of virtual reality exercises are remarkable, and underlining its benefits and uses versus costs to leadership can be explained.

Disclosure of Interest: None declared
STANDARDIZATION OF ACUTE LUNG INJURY ASSAY USING NON INVASIVE GAMMA SCINTIGRAPHY
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Rationale: Development of non-invasive method for evaluation & quantification of visceral organs injury is always a challenge. Non-invasive methods for visceral organ injury assay are always preferred as it drastically reduces animal requirement.

Methods: Acid aspiration–induced lung injury is one of the validated methods to induce acute respiratory distress syndrome (ARDS). White New Zealand rabbits were administered with hydrochloric acid 0.1N injected directly into the right lung through transthoracic injection & control group animals were injected with equal amount of saline into the right lung. Gamma Scintigraphy was used to evaluate the lung injury using radiotagged macro aggregated albumin $^{99m}$Tc-MAA radiotracer. Real time imaging was carried out using Single-photon emission computed tomography (SPECT-CT) with above radio-tracer on 1st, 3rd & 21st days for quantification of lung injury & healing with time.

Results: Animal model of acute lung injuries are helpful to simulate the human lung injuries & used for the development of drugs. SPECT-CT image of treated animals showed higher accumulation of the radiotagged macro aggregated albumin (MAA$^{99m}$Tc) in the acid injected lung. On day 1st before creation lung injury, right lung (RL) showed 52 ± 3% accumulation of radiotracer in comparison 48± 3% in left lungs (LL). On 3rd day, RL showed 66± 3%, while LL showed only 34± 3%. On day 21st, RL showed 58± 3%, while LL showed only 42± 3% accumulation of radio-tracer which is probably due to reduction of inflammation & healing in lung. Significant difference in radio-tracer distribution with time confirms radio accumulation is associated with acid induced injury.

Conclusions: Gamma Scintigraphy is approved nuclear medicine diagnostic tool for several diseases like renal etc. $^{99m}$Tc MAA SPECT CT scintigraphy showed promising results & can be used as non-invasive method for evaluation of acute lung injury.

Disclosure of Interest: D. Tripathi Grant / Research Support from: DRDO, S. Sarkar: None declared, H. Rawat: None declared, A. Jaimini: None declared, G. Mittal: None declared, R. Sharma: None declared, A. Kumar: None declared
Rationale: Medical management in Combat casualty scenario is an important aspect for Defence Forces to cater first-aid and life support to casualties on the field. One of important aspect in CCM is to manage haemostasis. Although there are several formulations available in market for the purpose, each of them has certain limitations.

Methods: Different concentrations of chitosan were dissolved separately in 0.75% acetic acid. The reaction mixtures were kept at 25°C under continuous stirring at 250 rpm. Polymeric scaffolds were obtained by freezing drying of polymeric hydrogels in varying concentration. Physiochemical characterization of developed hydrogels & scaffolds were carried out using atomic force microscope, scanning electron microscope, FTIR etc. Excision wound was created by 8mm punch biopsy on SD rats. Wound contraction was measured up to 14 days after application of formulations separately.

Results: Biopolymeric hydrogel formulation based on activated chitosan has been developed for haemostasis. Cryo-scanning electron microscope (Cryo-SEM) analysis of hydrogel samples showed highly porous structure with varying pore size of ~40-45nm with fibrous network and chemical integrity was confirmed by FTIR. Nanoporous polymeric scaffold having the pore size of 150-250nm and evaluated using atomic force microscope & scanning electron microscope has also been developed with a diameter of ~ 5 cm for high altitude haemostasis. Animals of treatment group showed 98.28%±0.5 healing while control group animals showed 67.99% ±0.6 healing on 14thday. Nanoporous polymeric scaffold showed average blood clotting in 2.5 minutes.

Conclusions: Hydrogel formulations showed a significant increase in wound healing activity for excision wound as compared to standard treatment. Results also indicate that chitosan scaffold also have a great potential in accelerating wound healing. The scaffold can be used in any harsh enviroment like siachin (-50°C) to rajasthan (+50°C) and is able to clot blood in less than two minutes.

Disclosure of Interest: A. Kumar Grant / Research Support from: DRDO, S. Sarkar: None declared, D. Tripathi: None declared, H. Rawat: None declared, A. Jaimini: None declared, C. Beniwal: None declared, G. Mittal: None declared
Rationale: There is a zero tolerance approach for use of illegal drugs in the Serbian Army. Routine urine drug screens can’t confirm new psychoactive substances (NPS). Thus, the Plan of Action on Drug Abuse Control for 2017-2021 in Serbia, foresees, beside civilian sector, the education of military healthcare workers and improvement of risk awareness of military personnel in tackling NPS challenge. Potential of synthetic opioids to be used as incapacitants is also of military significance. A practical approach for recognition and management of NPS abuse, with the case study, will be presented.

Methods: Retrospective study of patients with psychoactive substances overdose at the NPCC from 2013 till 2017.

Results: PAS were the cause of poisoning in 281 (6.69%) in 2013, 312 (7.07%) in 2014, 442 (9.31%) in 2015, 354 (7.7%) in 2016 and 294 (6.7%) patients in 2017, while synthetic cannabinoids were registered in 64, GHB in 6, DMT in 2, phenethylamines in one patient treated in this period. All of them were civilians. AB-PINACA, JWH-018, JWH-122, JWH-210, 5F-ADB48, MDMB-CHMICA, AB-FUBINACA, AB-CHMINACA and MDMB-CHMICA were detected in 20 cases. Toxidrome approach was used to classify clinical picture of overdose by stimulants, depressants, hallucinogens, dissociatives and synthetic cannabinoids. This practical approach, with the case study, is used for education of civilian and military doctors and cadets.

Conclusions: The use of NPS is a growing public health concern. Compulsory drug testing does not screen for NPS, making them tempting to the small proportion of military personnel. Military healthcare workers need to be familiar with NPS pharmacology and clinical presentation, toxidromes and management of specific effects.

Disclosure of Interest: None declared
A SYSTEMATIC REVIEW OF PREHOSPITAL HAEMOSTATIC DRESSINGS

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Rationale: Haemorrhage is one of the leading causes of battlefield and pre-hospital death. Haemostatics dressings are an effective method of limiting the extent of bleeding and are used by military forces extensively. A systematic review was conducted with the aim of collating the evidence on current haemostatic products and to assess whether one product was more effective than others.

Methods: A systematic search and assessment of the literature was conducted using 13 health research databases including MEDLINE, CINAHL, and a grey literature search. Two assessors independently screened the studies for eligibility and quality. English language studies using current-generation haemostatic dressings were included. Surgical studies, studies that did not include survival, initial haemostasis or rebleeding, and those investigating products without pre-hospital potential were excluded.

Results: 232 studies were initially found and, after applying exclusion criteria, 42 were included in the review. These studies included 31 animal studies and 11 clinical studies. The outcomes assessed were subject survival, initial haemostasis and rebleeding. A number of products were shown to be effective in stopping haemorrhage, with Celox, Quikclot Combat Gauze and HemCon being the most commonly used, and with no demonstrable difference in effectiveness.

Conclusions: There was a lack of high quality clinical evidence with the majority of studies being conducted using a swine haemorrhage model. Iterations of three haemostatic dressings, Celox, HemCon and QuikClot dominated the studies, probably because of their use by international military forces and all were shown to be effective in the arrest of haemorrhage.

Disclosure of Interest: None declared
Rationale: Cervical spine injuries, with a prevalence of 3 - 4 % of all traumas, 15 - 20 % of all head injured, 7 - 8 % of all unconscious, 40 % being unstable injuries with 55 % of them being young males are an important socio-economic group. Being a tertiary care centre of Armed Forces, we do receive a fair amount of such injuries and hence decided to share our epidemiology, challenges & advances in management of cervical spine injuries.

Methods: Management individualised as patient recovery is most important and dictates the timing.
   1. Primary aim is functional recovery of cord and roots as these contributes to the rehabilitation
   2. Secondary aim is stabilisation - bony union for stability and early mobilisation for physiotherapy
a) Operative measures included reduction, decompression, fixation and fusion. Techniques included:
   1. Corpectomies/Discectomies for decompression
   2. Iliac grafts, PEEK/Titanium Spacers & Cages with Plating for fixation
   3. Bone grafts/granules for fusion
   4. Posteriorly Wires/Cables & Lateral Mass devices
   5. Odontoid and Trans-articular screws for C1 - C2 injuries
b) Conservative measures included Philadelphia collars, Cervical tractions & Halo devices for stabilisation

Results:
a) Approaches used were:
   1 Anterior approach in most (36) cases.
   2 Posterior approach in 08 cases.
   3 Both (Anterior + Posterior) approaches in 02 cases.
b) Conservative approach in 02 cases only (46 were operative)
c) Early versus Late were in the ratio of 2:3

Our results were comparable with reported literature.

Conclusions: Currently cervical spine injuries management varies from simple to complex amid controversies and advances. Controversies relates to Early Vs Late, Anterior Vs Posterior, Conservative Vs Surgical etc. Anterior approach, reduction, decompression, stabilisation(fixation) and fusion remains the workhorse in most injuries. Injury classification systems include CSISS, SLIC, AO, Allen Ferguson etc with none universally accepted. Surgery means early mobilisation, less complications and early return to work/home. Advances in form of odontoid screws, artificial discs/cages/spacers may reduce surgical time, hospital stay and morbidity.

Disclosure of Interest: None declared
PT03.01
EFFECTS OF TOPICAL OLIVE OIL ON ACUTE PAIN OF PATIENTS WITH UPPER OR LOWER EXTREMITIES TRAUMA
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Rationale: However, pain alleviating efficacy of olive oil has been proposed, no trial assess the efficacy of this oil on pain of traumatic patients. Thus, we assessed the efficacy of topical olive oil on acute pain of patients with trauma.

Methods: In this randomized, triple-blinded and placebo-controlled trial, forty patients with upper or lower extremities trauma who admitted to the emergency department were recruited using convenience method and allocated randomly to olive oil or placebo groups during 2015-2016. Both products were applied on trauma site two times a day for 9 days. Pain severity was assessed and scored in 1st, 3rd, 6th and 9th days of the intervention by visual analogue scale.

Results: Topical olive oil application significantly reduced VAS scores in comparison to placebo in 6th (P< 0.001) and 9th (P< 0.001) days. In comparison to 1st day, olive oil resulted in a significant decrease in VAS scores at 3rd (P= 0.031), 6th (P< 0.001), and 9th (P< 0.001) days; however, in placebo group a significant difference was found only between 1st and 9th days (P= 0.040). No adverse effects were seen during the study.

Conclusions: Application of topical olive oil as a non-pharmacological, low-cost, and safe approach can be suggested for emergency nurses to alleviate the pain of traumatic patients.

Disclosure of Interest: None declared
PT03.02
BASKA ® MASK AS AN ALTERNATE TO ENDOTRACHEAL TUBE :
A BOON IN MODERN DAY MILITARY TRAUMA & DISASTER MANAGEMENT

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¹ANAESTHESIA, INDIAN ARMY, PANCHKULA, India

Rationale: Introduction: Airway management is an essential component in the first aid during Combat Medical Care. Supraglottic airway devices (SGAs) are gaining popularity as alternative & BASKA MASK is ideal since it can be used easily, even by paramedics.

Methods: Methods: Randomised, controlled clinical trial involving 100 patients undergoing laparoscopic surgeries was done to compare ETT and Baska ® Mask. We evaluated the mean airway seal pressure, ease of insertion, time taken for insertion and the complication rates with the use of these 2 devices.

Results: Results: We found that the mean airway seal pressures were comparable with the two devices. The first time success rate for insertion and ease of insertion was higher with the Baska mask than that seen with the ETT (94% vs 70%), respectively, p < 0.001). The Baska mask was easier to insert as compared to ETT, due to its flexible head, requiring lesser insertion attempts & shorter time to insert.

Figures and Tables

Table1

<table>
<thead>
<tr>
<th></th>
<th>BASKA® MASK</th>
<th>ETT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE OF AIRWAY</td>
<td>33(3)/17(4)</td>
<td>24(7)/20(8)/6(8.5)</td>
</tr>
<tr>
<td>EASE OF INSERTION</td>
<td>45/5/0</td>
<td>35/15/0</td>
</tr>
<tr>
<td>NO OF ATTEMPTS FOR AIRWAY INSERTION (1/2/3)</td>
<td>45/5/0</td>
<td>35/12/3</td>
</tr>
<tr>
<td>NO OF ATTEMPTS FOR GASTRIC TUBE INSERTION (1/2/3)</td>
<td>46/4/0</td>
<td>42/9/0</td>
</tr>
<tr>
<td>TIME TAKEN FOR INSERTION</td>
<td>10(8-12)</td>
<td>16(14-18)</td>
</tr>
</tbody>
</table>

Comparison of parameters between two groups

Conclusions: Baska ® mask is comparable on various parameters to the ETT.
In accordance with the results of our study as well as various other studies on BASKA MASK we conclude that BASKA MASK is equally safe as compared to the GOLD STANDARD ETT. In fact, in field conditions we found it to be more user friendly than an ETT.
We strongly recommend the evaluation of the Baska ® mask in the Field Medical Kit for airway management during emergency situations.

References: REFERENCES

DECLARATION: NO benefits/sponsorship has been taken from BASKA MASK for this research. There are no conflicts of interest.

Disclosure of Interest: None declared
PT03.03
NECROTIZING FASCIITIS IN SOLDIERS
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Republic Of

Rationale: Necrotizing Fasciitis is a rare but life-threatening infection which engage most soft tissues and muscles in the
lower limbs. There is no study has published a bout Necrotizing Fasciitis in Soldiers. The purpose of this study was to
report the incidence of necrotizing fasciitis in soldiers with the aim of developing preventive strategies for injury.

Methods: Two soldiers suffered from the lower extremity pain at different times during military service in the garrison. In
the initial visits to the treatment center, they were treated outpatiently, but with exacerbation of symptoms and
recurrences, they were hospitalized for diagnosis of necrotizing fasciitis. Both patients had antibiotic treatment at the
same time after fasciotomy and several occasions of necrotic tissue debridement. One of the patients died and the other
improved.

Results: Because muscle sprains and muscular injuries are abundant in soldiers, there is a possibility of Streptococcus
group A (GAS) transmitted by the blood from the throat to the blunt trauma site or the muscle strain and pressure on the
muscle.

Conclusions: Injury prevention strategies should be developed by commanders in barracks.

Disclosure of Interest: None declared
Rationale: How would hyperbaric oxygen therapy (HBOT) affect neutrophil and traumatic injury? In many traumas, including severe or multi-organ traumas, ischemia occurs; oxygen does not enter tissues and damage occurs at different levels. In some cases, medical procedures can prevent full or permanent tissue ischemia and restore blood circulation. Studies have shown that damage from ischemia is different from the injuries followed by oxygen prescription and re-establishment of blood flow. HBOT is performed in special chambers to allow oxygen entering the patient's body within higher pressures than the normal atmosphere pressure, and the blood plasma would be also oxygen-rich.

Methods: This study was designed as a narrative review and searching Pubmed articles.

Results: The tissue structure is not deranged in ischemia: there are very few leukocytes present in the area. After oxygen administration and re-establishment of perfusion in the tissue, necrosis will occur along with infiltration of the white blood cells; neutrophils will be present more than other leukocytes in the region. After restoring the blood flow to the tissues, the neutrophils move to the ischemic region and attach to the endothelium, before diapedesis and leaving the vessel. In general, more reactive oxygen species (ROS) are produced and more damage occurs. Studies have shown that HBOT causes a decrease in the neutrophilic tendency to attach to the endothelium, reduces the neutrophils infiltration, and prevents neutrophil attachment to damaged endothelium. Of course, the other effects of HBOT on the surroundings are also for improvement; to prevent vasoconstriction, and to reduce the expression of cell adhesion molecules on the endothelium surface.

Conclusions: It seems that HBOT at the right time and position can have positive effects and reduce the severity of injuries caused by trauma, especially severe and multi-organ traumas.

Disclosure of Interest: None declared
HYPERBARIC OXYGEN AND BURN WOUNDS; MECHANISMS AND OUTCOMES
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Rationale: Thermal burn is one of the medical indications of HBOT but its effective mechanism(s) are not known. Burns are still serious medical challenges leading to local and systemic consequences in human body and financial cost for public health systems. For hyperbaric oxygen therapy (HBOT), patients will go inside special chambers and receive pure oxygen intermittently but with greater pressures than normal atmospheric pressure.

Methods: This narrative review was designed with relevant keywords, searching Pubmed articles up to 2019.

Results: HBOT has been prescribed for thermal burns in 1965. The studies are including experimental (animals) and clinical (humans). Villanueva and colleagues did the first systematic review at 2004. Mechanisms announced for HBOT include: Hyperoxia, precapillaries vasoconstriction, preventing ischemia in skin (dermal region), less plasma exudation, preservation of cellular metabolism, tissue oxygenation enhancement, reduction of edema and fluid loss, and attenuating neuro-inflammation finally.

Conclusions: Outcomes are believed to be decrease of: 1, mortality, 2, staying in hospital, 3, number of operations, and 4, financial cost.

Disclosure of Interest: None declared
Rationale: Arabian Gulf countries require comprehensive and robust disaster management plans/strategies to cope with untimely, unpredictable, and perceived high impact disasters. In the past decade, there has been a marked increase in the magnitude and frequency of disasters causing public health emergencies, huge economic losses, and irreversible impact on the environment. The impact may affect the community or society to an extent which is beyond its ability to cope with its own resources. Based on global data, there has been approximately 60% increase in disasters around the globe, wherein an estimated 33 million people have become homeless, and 4.2 million were injured. Both man-made and natural disasters had caused over 2 million deaths in the past decade and affected over 3 billion people indirectly.

Methods: This research aims to describe the current challenges in the context of Emergency preparedness in the Gulf region. Authors reviewed published articles that having the key words of disaster preparedness, Arabian Gulf countries, disaster management, emergency management in Gulf, public health emergency, pandemic in the Gulf countries, and crisis response in Gulf countries; that are published between 2007 and 2016; a total of 22 articles were included.

Results: Both qualitative and quantitative assessments to identify key trends associated with disaster preparedness in the Gulf region indicate prepared for terrorism, health/safety accidents, and extreme heat. However, is not prepared for natural disasters.

Conclusions: This paper provides an overview of disaster preparedness in Arabian Gulf countries based on previously published literature. It provides an in-depth review of key themes and trends documented on disaster preparedness and management in Arabian Gulf countries.

Disclosure of Interest: None declared
Rationale: Envenomation, especially snake bite and scorpion sting, is a rare, but potentially significant risk to French soldiers deployed on operations worldwide. As a result, the French Military Health Service (MHS) chose an original and integrated answer, by creating a Technical Committee on Envenomations (TCE).

Methods: This committee is a multi-disciplinary group composed of military physicians, pharmacists and veterinarians. The aim of this work is to present the different actions of the Technical Committee on Envenomations.

Results: The TCE provides an assessment of venomous risk, based on the analysis of the scientific literature and feedback from the field. TCE members help to identify poisonous animals encountered and train physicians and paramedics about prevention and management of envenomations during operations. Protocols have been published, specifying the indications of antivenom use and patient aeromedical evacuation in case of snake bites or scorpion stings. In addition, TCE experts are sometimes asked for advice via telephone consultation. The follow-up of antivenom use allows estimating the number of envenomation cases: between 2015 and 2017, the MHS treated 19 scorpion stings and 9 snake bites. These cases concerned servicemen from France or other countries, as well as civilians. No deaths or sequelae have been reported. Most of envenomations occurred in Mali. The antivenom stock available on this area has been adapted accordingly. The withdrawal of previously used product (Fav-Afrique®, Sanofi-Pasteur, Lyon, France) and the technical constraints led to choose two freeze-dried antivenoms stored at room temperature (Inoserp Pan Africa® and Inoserp MENA®, Inosan Biopharma, Madrid, Spain).

Conclusions: In conclusion, the MHS proposes a global strategy for venomous risk management, by combining the skills of its staff and lessons learned from the field.

Disclosure of Interest: None declared
MANAGEMENT OF SEVERE COMBAT INJURED MAXILLO-FACIAL SOLDIERS, THE FRENCH HEALTH SERVICE PROTOCOLE

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Rationale: Maxillofacial injuries consist of a considerable percentage (at least 20%) of overall wartime injuries, particularly in recent conflicts (Iraqi, Afghanistan, Africa). Surgical treatment represents a real challenge, especially in war conditions. Patients are usually victims of high-energy blunt polytrauma, and environment is unsafe. Management has to be as quick as possible. First surgical step consists to securize airway, control haemorrhage, stabilize fractures, and prepare patient evacuation. The aim of this study is to describe and discuss surgical management of severe maxillofacial injured soldiers by French Military Health Service.

Methods: Based on our experience over recent conflicts, and on the current knowledge we would like to set actual concepts of seriously maxillofacial injured soldier management.

Results: Prehospital hemorrhage management most often requires the use of tactical dressing, oral or nasal packing. Orotracheal intubation cricothyroidotomy are used in first airway management. Surgical teams start a damage control surgery approach, whit a first surgical step before evacuation. Time in the operative room should be limited. Surgical step consists in vessels ligation, and packing improvement. Surgical tracheotomy is most often performed by the forward surgical team to prepare evacuation. Facial fractures stabilization must be done if possible. Intermaxillary fixation and external fixation, using external fixator or wires, are the current procedures.

Conclusions: Management of severe combat injured maxillo-facial soldier by French Health Service is a damage control surgery procedure. Because of multiple injuries, patient instability, and unsafe conditions, surgical management must not jeopardize the evacuation of the injured patient.

Disclosure of Interest: None declared
PT03.09
ACUTE EFFECTS OF ZOFENOPRIL ON CARDIO-DYNAMIC AND PRO OXIDATIVE PARAMETERS ON ISOLATED RAT HEART IN CHEMICALLY INDUCED DIABETES
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Rationale: RAAS modulators are commonly used for treatment of diabetic cardiomyopathy. Hyperglycemia strongly stimulates tissue renin angiotensin aldosterone system (RAAS) activity. When adverse effects of combined RAAS modulation were discovered, other than usual effects become an issue. RAAS modulators have acute - nongenomic and chronic-genomic effects. We explored acute effects of Zofenopril on rat myocardium in diabetes.

Methods: We used 2 groups of 12 Wistar albino rats each. Diabetes was induced with single dose of streptozotocin 60mg i.p. After 4 weeks with hyperglycemia animals were sacrificed and isolated hearts were mounted on Lagendorf apparatus. Cardiodinamic parameters dp/dt max and min, SLVP, DLVP, heart rate, coronary flow, NO, O₂⁻,TBARS, H₂O₂ were measured prior and after perfusion Zofenopril 1.5 µM from 40 to120 mmH₂O of coronary perfusion pressure (CPP), mimicking conditions from hypoxic to hyperoxic.

Results: Zofenopril causes positive lusitropic effect on lower CPP and negative inotropic and lusitropic effect on higher CPP in both groups (p<0.05). O₂⁻ was reduced in controls (p<0.05). In diabetes O₂⁻ was higher low and medium CPP (p<0.05) and it was reduced on higher CPP (p<0.05). NO was reduced on medium CPP in diabetic group.(p<0.05)

Conclusions: Zofenopril modulates rate of relaxation and this is reduced in diabetes. due to cellular Ca++ overload, impairment of SERCA2a function and modulation of phospholamban effects. Coronary flow was reduced in diabetic group on higher CPP.

Presence of –SH group in Zofenopril causes reduction of O₂⁻ in control group. In diabetic group initial rise and then steep drop of O₂⁻ might imply to significant metabolic effect of Zofenopril that induces later cardiodinamic and CF deterioration on higher CPP.

Rise of TBARS in controls is consequence of lipophilic properties of Zofenopril. Different result in diabetic group for TBARS and NO point to previous notion that myocardium in diabetes is functionally different.

Disclosure of Interest: None declared
THE RISKS OF MILITARY MINERAL-BASED HEMOSTATIC AGENT
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Rationale: Despite of the two studies from USAISR regarding leaching risk by Kheirabadi et al.[1] and cytotoxicity by Bowman et al.[2] respectively, we have given little attention to the side effects associated with mineral-based military hemostatic agents on traumatic wound. Following Adamiak et al. [3] reports of their observation of the shock syndrome on tested pigs in 24 hours after surgery in 2016 plus the US FDA ban on powdered surgical gloves to human in 2017, we studied the risk scale of kaolin-coated hemostatic agent.

Methods: Paper research on the risk of cytotoxicity, carcinogen & genotoxicity of kaolin.

Results: Huang et al.[4] found high concentration of silica dioxide induces cytotoxicity on human cells and more cell died in the group treated with the nanonized SiO$_2$ than normal particles. Other than the risk of pneumoconiosis, Adamis et al.[5] briefs the kaolin’s impact to open wound in abdomen by citing report by Policard et al.[6] on reticulin fibers development in rats & by Rutter et al.[7] on fibrogenic of kaolinite in mice. Rutter also proves smaller particles would lead to fibrosis in 35 days comparing with 200 days required by larger size. The two papers reflect the risk of applying kaolin-based agent in the battlefield.

Japanese finds kaolin toxicity worse than the gastroenterologist’s belief. The in vitro and in vivo studies prove kaolin’s carcinogen and genotoxicity. They confirm the nanoparticle enhances toxicity to mammalian cells too.[8-12]

Conclusions: The present study echoes the conclusion of Bowman et al in 2011 suggesting regulatory authorities re-evaluate the safety of mineral-based hemostatic agents.


MEDICAL RESPONSE TO DEVASTATING FIRE EXPLOSION IN PERSPECTIVE OF BURN SPECIALTY
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Rationale: China is the largest developing country in the world, and is also one of the countries with most disasters. Meanwhile, China has started fairly late in the disaster response research.

Methods: This article reviewed the medical response to a devastating fire explosion occurred in China in perspective of burn specialty. It summarized the main solutions of the disaster relief, as well as experiences of the mass burn casualty treatment, from three aspects of emergency response, mobilization and treatment in hospital. Such as the construction of the organization structure of the hospital and department in the emergency response stage; the beginning of the preliminary work; mobilization of materials, financial resources and personnel; the pre-hospital treatment in core zone; treatment in the rear hospital in rescue coping process were all given systematic review in this article.

Results: These data were compared with many world-famous fire and explosion events casualties data such as 2004 Madrid terrorist bombing attack, the 9.11 event in the United States, three terrorist attacks in Indonesia and 2013 Boston Bombing, and the differences and causes were discussed.

Conclusions: Generally speaking, the rescue operation is very successful. Especially for the management of burn casualties and the positive measures taken in organization, leadership, control and motivation, which are all pla

Disclosure of Interest: None declared
THE AIRWAY MANAGEMENT PROTOCOL IN THE LONG RANGE FIXED-WING PLANE AEROMEDICAL TRANSPORTATION OF MASS SEVERE BURN CASUALTIES

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Rationale: Summarize the airway management experience in the long range fixed-wing plane aeromedical transportation of mass severe burn casualties.

Methods: Our Aeromedical Evacuation Team performed a retrospective airway management experience of four severe burn casualties for four hours journey by fixed-wing plane aeromedical transportation.

Results: The four severe burn casualties were transported to aim hospital safely by fully assessing the possibilities of airway condition during flight, preparing the equipment and devices for airway management, rehearsing the whole procedure of aeromedical transportation before departure and good organization and coordination.

Conclusions: Burn casualties represent a group of patients with severe airway injury. Our current airway management system for the long-range transport of burn casualties is safe and effective.

Disclosure of Interest: None declared
DEFENSE MEASURES AND MEDICAL TREATMENT FOR COUNTER-IED TERRORISM ATTACK IN PKO

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Rationale: In Afghanistan and Syrian war, also in the Peace-Keeping Operations, IED have been common ways for Terrorists to initiate attacks. How to safeguard the medical contingents in PKO and provide better medical support for IED-attack patients has become a key problem to be solved urgently.

Methods: The thesis carried out research on the defense and medical works on IED terrorism attack in PKO based on the IED-attack cases happened in MINUSMA, by means of literature research, data analysis, history review and demonstration methods. Conclusion: By the research, we can conclude that IED terrorism attacks have posed serious threats for Peace-keeping operations, we must pay high attention it, reduce the attacked probability by intensifying defense, increase the success rate of treatment by standardization and classification of medical works.

Results: The thesis analyze the background, characteristic and damage of IED terrorism attack, put forward defense Counter-measures of medical contingents from the aspects of personnel grouping, equipment improvement, organizing, communication and coordination, clarify the key-points in medical treatment such as field first aid, aero-evacuation by helicopters, emergency treatment in Level 2 Hospital, aero-evacuation by fixed-wings airplanes, early treatment in Level 3 Hospital, specific treatment and rehabilitation treatment in Level 4 Hospital, to normalize the medical treatment of IED patients, provide some reference to better deal with IED terrorism Attack.

Conclusions: By the research, we can conclude that IED terrorism attacks have posed serious threats for Peace-keeping operations, we must pay high attention it, reduce the attacked probability by intensifying defense, increase the success rate of treatment by standardization and classification of medical works.

Disclosure of Interest: None declared
INDONESIAN NAVY PERSONNEL HAD LOWER GENSI NI SCORE COMPARED TO CIVILIAN BUT NOT FOR NON-COMMISSIONED OFFICER IN PATIENTS WHO UNDERWENT CORONARY ANGIOGRAPHY

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Rationale: Navy personnel, despite of their rank, are considered to be physically fit to serve their country, but coronary artery disease (CAD) still drags them to sudden cardiac death events (1). The aim of this study was to compare Gensini Score, one of the most widely used scoring systems for expressing coronary angiographic results as an intensity index for CAD (2), between navy personnel and civilian.

Methods: This retrospective cross-sectional research used data from 171 patients that underwent coronary angiography in Indonesian Navy Hospital of Dr. Ramelan, Surabaya. The navy ranks were grouped according to the commission level. Gensini Score and all other variables were obtained from patients medical records.

Results: The average score of Gensini Score of civilian (41.54±48.06) is higher than enlisted (13.37±26.25; $p=0.031$), new commissioned officer (13.21±26.76; $p=0.020$), and middle rank officer (21.23±33.17; $p=0.017$), but not for non-commissioned officer (45.61±42.62; $p=0.657$). Non-commissioned officer have significantly higher Gensini Score than enlisted ($p=0.027$), new commissioned officer ($p=0.019$) and middle rank officer ($p=0.023$).

Conclusions: Majority of Indonesian Navy rank had lower Gensini Score compared to civilian but not for non-commissioned officer. This suggest that civilian and non-commissioned officer may have higher risk of developing severe CAD.


Disclosure of Interest: None declared
Rationale: The Motion Sickness Assessment Questionnaire (MSAQ) was developed in order to assess the multiple dimensions of the motion sickness syndrome (gastrointestinal, central nervous system, peripheral, and sopite-related symptoms). The aim of this study was to translate and develop the Greek version of the MSAQ and to evaluate its psychometric properties.

Methods: The MSAQ was translated into Greek and then translated back into English according to published guidelines for cross-cultural translations. Minor differences between the two texts were corrected. The Greek version was then administered to male subjects before and after nauseogenic motion stimulation. With the use of a motor driven rotating chair in the vertical axis, the subjects were exposed to Coriolis cross-coupling stimulation. A battery of statistical tests was used to evaluate the psychometric properties of the MSAQ.

Results: There were 112 subjects who participated in the study. Mean total MSAQ score was 19.04 before the exposure and 33.46 after the exposure, which was statistically significant, indicating that the stimulus was sufficient in producing motion sickness. Internal consistency, measured with Cronbach's alpha coefficient, was excellent for the total scale and subscales. The test-retest evaluation was done with Pearson's coefficient and Bland-Altman's plot for the total score and subscales and showed statistically significant results.

Conclusions: Results suggest the Greek-MSAQ is a valid instrument with satisfactory internal consistency, reliability, reproducibility, validity, and responsiveness and can be used in future studies of motion sickness in Greek speaking populations.

Disclosure of Interest: None declared
Rationale: The Singapore Armed Forces (SAF) Medical Corps developed an electronic medical records (EMR) system in the 1990s to enable the documentation of medical processes and archival of all medical records digitally and reliably.

Methods: The EMR system was developed using both a top down and ground up approach. Input was sought from ground users and incorporated into the specifications of requirement. The SAF worked with the National Computer Systems (NCS) for the 1st and 2nd generation EMR systems (introduced in 1995 and 2005). For PACES 3, the SAF adopted the Sunrise Clinical Manager from Allscripts and worked with NCS to introduce the next generation EMR that would be internet facing and connected to the National Electronic Healthcare Records system.

Results: PACES 3 represented a quantum leap in terms of connectivity as it resided in the internet space, allowing seamless interfaces with the NEHR and external vendors that provided specialist care, laboratory and radiology services to the SAF. Patient care and safety were also enhanced through clinical decision support tools. Health ownership was enhanced with easy access to personal health information using eHealth. Health data in PACES 3 could also be easily interrogated to generate insights on force health.

Conclusions: The implementation of EMR system for military forces is important to enable military health services to record and archive health records reliably and also access the data to generate health insights that will guide health policy making. EMR systems can also provide the backbone for future development of health related programmes and applications.

Disclosure of Interest: None declared
STUDY ON THE SPECTRUM OF EARTHQUAKE DISASTER AND THE COMPLICATION OF EMERGENCY MEDICAL RESCUE FORCE
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Rationale: This study attempts to explore from three elements of emergency rescue, the general laws of earthquake disasters emergency medical rescue service to provide guideline for carrying out and improving emergency medical rescue plan.

Methods: Through the collection of research and data on earthquake injury and by the method of systematic review and meta analysis, the early injury characteristics of earthquake wounded were analyzed. Using statistical software R toolkit for nonlinear fitting of the model and to develop computer program by employing the expedient alternative and the R shiny toolkit to forecast the number of casualties. According to the earthquake medical rescue work area, rescue methods, tasks undertaken, the actual needs the rescue forces in the rescue action are analyzed.

Results: The cause of earthquake injury, injury types and proportion are clarified, general rules of earthquake early injury profile are found. The earthquake magnitude, focal depth, population density, geological structure, time, the damage rate of housing for parameters, a mathematical model has been built. Based on the analysis on the integration of different professional rescue teams, the selection of suitable treatment technology, the selection and combination of rescue equipment the optimization of rescue forces can be realized.

Conclusions: This study integrates a number of previous research results about earthquake injury, makes a quantitative analysis on some independent research and acquires the complete earthquake injury spectrum based on several case studies. Therefore, the study overcomes one sidedness due to sample size differences and selection deviation. The prediction of earthquake casualties model is developed combining qualitative and quantitative methods, so is the calculation program, which has high accuracy.

Disclosure of Interest: None declared
PT03.18
DEVELOPING AN INTEGRATED METHOD FOR PATHOGENS INVESTIGATION OF EMERGING AND RE-EMERGING INFECTIOUS DISEASES
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Rationale: Rapid diagnosis and accurate identification of pathogens are of great significance to effectively extinguish, control and prevent the occurrence, transmission, distribution and prevalence of epidemic, especially emerging and novel infectious diseases. In this paper a systematic method had been developed for antibody surveillance and pathogen discovery or investigation of emerging and re-emerging infectious diseases by integrating antibody detection, pathogen gene fragments enrichment and high-throughput sequencing techniques.

Methods: By integrating luciferase immunoprecipitation system (LIPS), pathogen gene fragments specific capture and enrichment strategy, and high throughput sequencing or next generation sequencing (NGS) techniques, we had developed a systematic method for antibody surveillance and pathogen discovery or investigation of emerging and re-emerging infectious diseases.

Results: Using this systematic method, we have found the hepadnavirus, rotavirus, orthoreovirus, SARS-like coronavirus and filovirus in bats, the novel hantavirus in wild rats, the avian influenza virus subtypes H4, H5 and H9 in poultry, and the four serotypes of dengue virus in fever patients.

Conclusions: This integrated method was very useful and effective for antibody surveillance and pathogen discovery or investigation of emerging and re-emerging infectious diseases in human and animal population.

Disclosure of Interest: None declared
THE HEALTH SUPPORT MISSIONS OF LAW ENFORCEMENT AND FIGHT AGAINST TERRORISM IN TUNISIA

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Rationale: The design and the conduct of medical support to armed troops in operations were revised after the onset of failure in the first and second levels of medical support after terrorist operations in Tunisia. The objective of this paper was to highlight measures achieved through the creation of a commission to revise the design and conduct medical armed forces support in operations, in January 2014.

Methods: Reviewing and monitoring of our medical support strategy was conducted in a board of medical support in operation review. The effort of the commission focused in particular on training and medicalisation forward. This medicalisation is at the first-level emergency triage module composed of nurses and different specialty doctors, whose number is determined by the nature of the mission. This module can be optionally reinforced by an intensive care unit when needed. At the second level, support is provided either by a reinforcement of local civilian teams in case of operation close to a regional hospital or installation of a hospital if the operation is in an area away from hospitals. The other axis of effort focused on operational readiness and training of medical and paramedical staff at the Military Center of Instruction and simulation techniques of anesthesiology and emergency medicine. Meanwhile, training of army fighters on fight rescue was started. Furthermore, the Medical Support Revision Commission submits to different outgoing mission teams a holistic model activity sheet which permits to evaluate the medical support program and especially the implementation of actions and procedures taught in Simulation Center and if necessary modify the pedagogical messages.

Results: The adoption of this action system allowed to have a better coordination between the different actors of the military health, a better organization of deployment of teams, to improve the efficiency of cooperation with civil actors, to have a better time monitoring of operations as well as a best learning via the feedback.

Conclusions: Since the adoption of this health support system of work and having lapped the new strategy, the management of patients improved.

Disclosure of Interest: None declared
Rationale: Background: Routine vaccination of children and young adults in accordance with the national vaccination schedules is a key public health activity in Switzerland. Although vaccination levels are improving, some population groups have sub-optimal coverage. Poor herd immunity is a major contributory factor to outbreaks as witnessed in 2019 with multiple measles outbreaks throughout Europe and in Switzerland.

Objective: Swiss Army recruits benefit from a medical examination and are vaccinated according to Swiss national vaccination policy. This presents a unique opportunity to fulfill our objective to document the status of young Swiss adults (both male and female) in the age group 18 through 24 years. The process also entails a major logistical effort on the part of the army to review vaccination booklets which are non-standardized and evaluate vaccination status and then vaccinate as indicated.

Methods: This will be an evaluation of the vaccination status of recruits of the Swiss Armed Forces using a cross-sectional analysis and piloting a novel Machine Learning (ML) approach. New recruits presenting at recruitment centers in Switzerland in 2019 will be included in the analysis. After informed consent, they will complete a short questionnaire on demographics and on attitudes to vaccination. The vaccination booklets will then be scanned. Using a novel software, developed specifically for this project, we will pilot a methodology that will enable transfer of “input data” from the vaccination booklet scan to an Excel table documenting the vaccination status of the participants and indicating if routine vaccination schedules are complete.

Results: This evaluation will provide important public health information on the vaccination status of young Swiss Army recruits with regard to their tetanus, diphtheria, pertussis, MMR, varicella, hepatitis A/B, TBE and meningococcal vaccination status. It will also be a first chance to evaluate the uptake of the HPV vaccination in young adults.

Conclusion: The questionnaire will allow us to identify poor vaccination status of certain subpopulations and evaluate attitudes and motivators in this population. The study will pilot and evaluate the Machine Learning technology in the context of vaccination booklets.

Disclosure of Interest: None declared
ROLE OF NEUROFEEDBACK IN IMPROVING THE PERFORMANCE AND REACTION TIME OF COMMANDERS OF NAVAL AND SUBMARINE FLEETS

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Rationale: Introduction: Achieving optimal performance through improving reaction time is crucial in critical and important jobs (which the tasks need to be performed exact and accurate). Commanding in naval and submarine fleet is among critical jobs in Navy. Neurofeedback training is one method used to achieve optimal performance and strict implementation of tasks. It is a condition-maker of the brain's electrical function and causes the individuals' performance to be optimized.

Rationale: After training Navy commanders by neurofeedback, their performance would be enhanced.

Methods: Methods: This narrative review is based on an Internet search using keywords such as neurofeedback, reaction time, sensitive jobs, and other related phrases.

Results: Results: The process of neurofeedback involves training or learning of self-regulation of brain activity. The brain controls the required blood by dilatation or contraction of blood vessels and navigates the blood flow of brain into specific areas which have more shares in participation in this self-regulation. Literature review showed that neurofeedback training has positive effects on the operation and reaction time. There are supporting evidences on the background for neurofeedback as an effective training intervention in order to achieve efficient performance through reaction time improvement in critical roles.

Conclusions: Conclusion: Considering the positive impact of this approach on reaction time and performance of the individuals, it seems that:
- Performance of commanders of naval and submarine fleet could be optimized by applying neurofeedback,
- Mistakes could be reduced during decision making process at critical times,
- Quality of Navy operations could be enhanced.

Disclosure of Interest: None declared
THE JOINT WEST AFRICA RESEARCH GROUP: BUILDING SUSTAINABLE PARTNERSHIPS FOR PREVENTION, DETECTION, AND CONTROL OF INFECTIOUS DISEASES

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Rationale: The 2014 West African Ebola virus disease (EVD) outbreak demonstrated the threat of infectious diseases to global security and the subsequent importance of establishing a robust bio-preparedness posture. This stance must include increased surveillance and enhanced diagnostic capabilities to detect both known and unknown high-risk pathogens, especially in areas where knowledge about infectious disease threats are limited.

Methods: The US Department of Defense Joint West Africa Research Group (JWARG) is a Joint US Army-Navy collaboration with government, West African military, academic, and non-governmental partners to address knowledge and capability gaps identified during the West Africa EVD outbreak. The implementation strategy has focused on developing and expanding strategic partnerships in Liberia, Ghana, and Nigeria, and scientific infrastructure for sustainable research efforts were developed. Patients underwent blood draws for standard microbiology diagnostic testing, molecular diagnostics, serological assays, and next generation sequencing to determine the identity of etiologic pathogens. Antimicrobial resistance profiles were determined for a subset of the bacterial isolates and selected patient samples also underwent RNA deep-sequencing to identify molecular signatures of causative pathogens.

Results: The Naval Medical Research Center/Austere environments Consortium for Enhanced Sepsis Outcomes (ACESO), enrolled over 200 severely-ill patients presenting at civilian hospitals in Ghana and Liberia in an observational study of sepsis. The Walter Reed Army Institute of Research/Emerging Infectious Diseases Branch (WRAIR/EIDB) has enrolled over 230 patients in a study aiming to understand the etiologies and outcomes of febrile illness of unknown origin in hospitals in Liberia, Nigeria, and Ghana. Pathogen identification capabilities were established or enhanced under the two studies, and provide critical information for patient care and biosurveillance purposes.

Conclusion: Partnerships between civilian and military medical institutions built under the Joint West Africa Research Group strengthen local capabilities and are critical for enhanced biopreparedness.

Disclosure of Interest: None declared
PT04.05
PERFECT STRESS SCORE IN MILITARY PATIENTS WITH CENTRAL SEROUS CHORIORETINOPATHY
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Rationale: Introduction: Idiopathic central serous chorioretinopathy (CSCR) is a relatively common ophthalmic disorder characterized by the development of a serous detachment of the sensory retina. Psychophysiological factors may trigger or maintain CSCR, though, surprisingly, the association between CSCR and anxiety has yet to be studied. The aim of the present study was: to determine whether military patients with acute CSCR have higher scores for perfect stress than nonmilitary.

Methods: Methods: A total of 49 patients with acute CSCR, 23 military and 26 non military age- and sex-matched controls took part in the study. A brief face-to-face interview was conducted covering demographic variables and history and occurrence of CSCR and assessing stress with beck questioner.

Results: Results: Compared to non military controls, perfect stress was not significantly higher in military patients with acute CSCR.

Conclusions: Conclusion: no difference in perfect stress scores were observed in Iranian military patients with acute CSCR. This suggests there is no psychological difference in level of stress and anxiety perception among military patients with acute CSCR.

Disclosure of Interest: None declared
Rationale: Epidemic outbreaks within the last 2 decades have led to international awareness of the vulnerability of communities/nations to emerging and reemerging public health threats. Consequently, the Global Health Security Agenda has fostered the need for each country to assess its risks to public health threats in order to adopt pragmatic multi-sectoral and multi-disciplinary strategies for real-time surveillance, detection and management in accordance with IHR. The linkage of public health to security agencies remains an effective approach to containing outbreaks in conflict-ridden, insecured and hard-to-reach environment as depicted in the Ebola outbreak in West Africa in 2014. Consequent upon the epidemics of Ebola in West Africa, the US Africa Command (AFRICOM), in 2015, established the African Partner Outbreak Response Alliance (APORA); a military network aimed at fostering and strengthening the capability of the African militaries as first responders to outbreaks. This study aims at reviewing the APORA-member country’s public health linkage to security agencies.

Methods: Methodology: A review of the APORA country’s Joint External Evaluation tools; namely existence of legislations, laws and regulatory framework that incorporates security agents, workforce development, joint training and simulation exercises with civilians of the health ministry and involvement of security agents in the country’s Emergency Operation Centres (EOC).

Results: Results: Out of the 22 countries assessed, 13 (59.1%) had existing laws that linked public health to security agencies. Only 6 countries (27.3%) had trained security agents as Disease Surveillance Notification Officers. Four countries (18.2%) had joint training and simulation with civilian health authorities while only 5 countries (22.7%) involved security agents in EOC.

Conclusions: Conclusion and Recommendation: In spite of the increasing public health threats in Africa, the linkage of public health to security authorities is inadequate. There is need to strengthen such linkage through the Africa Partner Outbreak Response Alliance.

Disclosure of Interest: None declared
PT04.07
LIVER CANCERS, HYPERBARIC OXYGEN THERAPY, AND QUALITY OF LIFE
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Rationale: Finding any proof (positive or negative) for HBOT in the management of liver cancers and quality of life of the
patients.
Liver malignancies are divided as: 1-Primary (hepatocellular carcinoma (HCC) as the most common type, 90%, high
morbidity and mortality, fifth cancer globally, 2nd or 3rd cause of death due to malignancy) [1-4], 2-Secondary or
metastatic (with 4 subtypes by morphological features) [5]. Hyperbaric oxygen therapy (HBOT) as a non-invasive
treatment is efficient in carbon monoxide poisoning and decompression sickness [6, 7]. HBOT also enhances the rate of
oxygen diffusion to reach to distant parts in body.

Methods: Pubmed articles were searched by relevant keywords for a narrative review.

Results: Mortality due to HCC has been increased [8]; double in the USA since 2000 [9]. Diagnosis frequently occurs at
intermediate or late (advanced) stage, or with metastasis [10]. Effective management needs multidisciplinary involvement
[1]. Partial hepatic resection is a major treatment, but recurrence after surgery remains high [7]. Fear of oxygen
prescription for cancers is because of: 1- Enhancement of tumor growth, 2- Increase of recurrence [6]. Reports: HBO and
malignancy review and HBOT safety [6, 11, 12], no ill effect of HBOT on cancer [6]. Solid tumors would benefit from
hypoxia by: more survival for cancerous cells, angiogenesis inside tumor, and metastasis increase. Acute HBOT (3 and
24 hours after hepatectomy) decreased complications [7]. No post-operative hyperbilirubinemia or hepatic failure, and
suppression of elevation of CD18 occurred in non-cirrhotic HCC patients [13]. Kihara: no hepatic dysfunction with HBOT
(3 hours after hepatic ischemia-reperfusion injury) in animal models [14].

Conclusions: It might be concluded that HBOT would: increase the quality of life in HCC patients as an alternative
therapeutic modality: decrease complications after surgery, better liver function, and some other benefits.

Disclosure of Interest: None declared
THE ROLE OF THE ARMED FORCES MEDICAL SERVICES IN DISASTER MANAGEMENT; A CASE REPORT ABOUT KERMANSHAH EARTHQUAKE IN IRAN

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Rationale: The earthquake of Kermanshah resulted in heavy casualties and caused extensive damage to installations and infrastructures. The Armed Forces, due to their inherent ability to give quick response to emergencies as well as their health-care capacities in different parts of the country, were the first specialist search and rescue teams to arrive on the scene and provide victims with necessary emergency services. The aim of this study is to report the quality and scope of these services which can be used as a successful experience by other countries.

Methods: This study reviews and reports the experience gained with regard to disaster management, providing security, setting up field hospitals, organizing the forces, interaction with other institutions involved in disaster management (IRCS, Ministry of Health, NGOs, and the responsible institutions), prompt procurement of medical equipment on the scene, etc.

Results: In this incident, according to official figures, 620 people were killed and 9388 were injured in Iran, with about 70000 individuals made homeless. Regarding the tasks of the Armed Forces in disasters, the Iranian military forces were deployed to the area, within the first hours after the earthquake, in two combat and treatment groups to help the injured.

Conclusions: The timely presence of an operational brigade in the area that led to the injured having immediate access to emergency medical care, as well as the provision of medical and therapeutic equipment, accompanied by reviewing similar experiences in other countries, present this case as a successful example of disaster management by the health department of the Iranian Armed Forces. The descriptive findings from the present study showed that the General Staff of the Armed Forces of I.R Iran, by establishing infirmary and field hospitals as well as managing the crisis in an integrated and opportune way, had a significant role in helping the country's hospital system to reduce the casualties of this earthquake.

Disclosure of Interest: None declared
PT04.09
MANAGEMENT OF RHABDOMYOLYSIS, INSEPARABLE PART OF MILITARY MEDICINE. AS NARROWATIVE REVIEW
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Rationale: Introduction:
Iran has experienced many natural and imposed disasters like earthquakes and a long war which led to a huge burden of fatal demolition and morbidities that beyond various acute physical disorders such as renal failure due to rhabdomyolysis that even can occure during military trains especially if environmental temperature, hydration status of services and baseline fitness hadn’t been considered . Rhabdomyolysis is the breakdown of skeletal muscle as a result of injury. with release of cellular contents including myoglobin, serum creatine kinase, and aldolase into the bloodstream. Some of these muscle fiber contents, most notably

Methods: This article is narrowative review through library research and Internet search sites (sid. Google scholar. Isc) with key word (aki , rhabdomyolysis , military services) were found. Inclusion criteria for articles that comply with key words above As well as access to them is possible

Results: Management: Early fluid resuscitation to restore renal perfusion and increase the urine flow rate is agreed on as the main intervention for preventing and treating AKI and this should be done as soon as possible preferably prior to extrication of victims. Most studies recommend 1-2 litre per hour hydration with normal salin in first hours with close monitoring of urine output and avoidance of k containing solutions and starch based solutions. Compared with AKI by other causes, life-threatening complications are more frequent in crush-related AKI, which may necessitate earlier initiation and more frequent dialysis. Trauma-associated AKI has a high mortality rate, and it has been suggested that earlier renal replacement therapy initiation may be associated with improved survival in trauma-associated AKI

Conclusions: Since in this camp military services always are present as victims or as rescuers, their orientation and domination in control of situation is very important that will be obtained by continuous training and performing manoeuvres.

Disclosure of Interest: None declared
**Rationale:** **AIM:** To explore clinical features and outcome of the most severe forms of acute renal failure (ARF) during Plasmodium falciparum malaria in UN personnel stationed in Central African Republic, during "MINUSCA" mission. ARF is one of the most important negative predictive criteria for outcome of malaria.

**Methods:** We analyzed records of 54 inpatients with complicated form of Plasmodium falciparum malaria who were treated in the hybrid Serbian level 2 hospital during July 2016.- August 2017. Diagnosis of ARF was estimated based on RIFLE criteria. Having in mind the occasional lack of diagnostic kits for creatinine, at the almost one third of patients we used daily diuresis monitoring (with follow up of volume status) to diagnose this complication.

**Results:** Total of 19 patients (35.19%) have developed ARF. Beside parenteral treatment with Artemisin, they were treated with parenteral solutions and diuretics. Despite therapy, 8 patients (14.81%) have developed progressive and dialysis depended form of ARF (one had hemolytic-uremic syndrome) and they have been urgently evacuated accompanied by AMET into a senior medical institution. Based on provided back information, average creatinine on admission was 1242 +/- 342 µmol/l, Hb level 10.6 g/dl, potassium 6.8 mmol/l.

Six out of 8 patients completely recovered renal function (they needed average 7 +/- 2 HD procedures). One patient with HUS performed 5 plasma exchange sessions, one developed CRF grade 3 and one developed end stage renal disease with necessity for chronic HD treatment. There were no death outcomes.

**Conclusions:** Early recognition of systemic complications including parameters of ARF (decreasing urine output or changing of urine color could be useful markers under limited medical conditions) is necessary in the purpose of timely recognition and promptly evacuation into higher medical facilities for further treatment.

**Disclosure of Interest:** None declared
LEISHMANIASIS - TUBERCULOSIS CONCURRENT INFECTIONS IN HUMANS AND ANIMALS IN KALA-AZAR ENDEMIC AREAS OF BANGLADESH – A THREAT TO MILITARY HEALTH

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Rationale: Co-infection of parasitic disease and pulmonary tuberculosis are increasing public health problem especially in developing countries like Bangladesh. Leishmaniasis in Bangladesh bears concurrent infection with Mycobacterium tuberculosis in humans in Leishmania endemic areas in Bangladesh. This study considered both humans and animals to examine for such concurrency. Few garrison in Bangladesh are situated within or beside the endemic areas of Kala-azar, which is a health threat for military population.

Methods: This descriptive cross-sectional study was conducted at SK Hospital, a part of Mymensingh Medical College Hospital from Jan 2014 to Dec 2017. A total of 170 cattle’s blood sample, 110 cattle spleen samples and 176 Tuberculosis patients reported from Kala-azar endemic areas were included in this study. Cattle blood and spleen samples were investigated for both TB and Kala-azar and all the TB cases were investigated for Kala-azar. Spleen samples were examined by PCR. All patients’ blood was tested with ICT (rK39) for Visceral Leishmaniasis. ICT positive patient’s splenic aspiration was examined under a microscope. After that, all these cases were tested by ELISA and PCR.

Results: Among blood sample of 176 patients, 12(7%) patients were ICT rK39 positive for leishmaniasis who suffered from Tuberculosis. These 12(7%) patient’s splenic smear were examined of which 11(92%) of them were positive. But using ELISA all 12(100%) smears were positive. Out of 170 cattle blood 12(7.1%) were ICT positive indicating prevalence of bovine tuberculosis and among them 20(11.8%) were positive for antileishmania antibody. With PCR of these 20, all were negative for Leishmania. But of these 20 cattle blood 8(4.7%) had both TB and antileishmania antibody.

Conclusions: This study has been able to find out leishmaniasis amongst tuberculosis patients and also concurrent infection of Leishmania and TB in cattle from kala-azar endemic areas which are in the vicinity of respective garrison and definitely a threat to military health.

Disclosure of Interest: None declared
MOBILE COMPUTED TOMOGRAPHY IN ARMY FIELD HOSPITAL
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Rationale: The aim of this study is to discuss possible advantages of mobile multi-detector computed tomography (MDCT) in army field hospitals or medical units to provide flexibility and the option of using computed tomography (CT) near the battlefield or a disaster area.

Methods: Due to mobile MDCT technology is new and experience is few there is not enough knowledge in literature. We review the literature and add the information we acquired during the research about mobile CT we are about to obtain. We discuss the advantages and disadvantages of imaging with mobile MDCT in relation to mass disasters, battlefield, and its role in the rapid identification of the pathology, personal effects, and health and safety hazards.

Results: Imaging in army field hospital is essential for emergency issues. However, in spite of there is radiologists or surgical specialists at army hospitals, the diagnostic capabilities are insufficient and simple compared to general hospitals. A Mobile CT can be installed very quickly in disaster zones or go along with army field hospitals to a safe zone and can be operational within 30 minutes of arrival.

Conclusions: Mobile MDCT could serve patients who don’t have time to reach a more capable hospital or medical facility. We propose that the obtaining of a mobile MDCT could help rapidly diagnose some emergencies and save lives. We are about to complete the obtaining a mobile MDCT process and we will have more experience in the future.

Disclosure of Interest: None declared
ASSESSING HOSPITAL DISASTER PREPAREDNESS OF A MILITARY HOSPITAL IN MASHHAD
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Rationale: In the event of a disaster, hospitals and health centers - the first units that provide health care - optimal and timely treatment of their critical role in reducing deaths and injuries saved and be decisive. Disaster is always a negative impact on public health and welfare of the affected population are able to survive in this field are the main cause of health care. Hospitals are the first places that are unexpected complications involved. These events create unique problems that are prepared to respond to their needs.

Methods: This was a cross-sectional descriptive study which has been done in a military hospital in Mashhad. In order to collect data, we used 210 questions checklist with 10 different aims; each aim had consisted of 6 different domains (equipment, working stuff, physical space, structure, protocols and functional chart). The checklists were completed by direct observation and evaluation of equipment, programs and documents based on their domains with different people.

Results: The hospital preparedness in logistic was poor with mean number of 25.87. The mean numbers of other aims were: communications (44.59), reception (38.43), security (53.34), excused transportation (40.69), education (27.06), traffic (26.41), workforce (52.37) and management (47.19). The most number was belonged to the emergency with the mean number of 58.92.

Conclusions: The military hospital needs more preparation against unexpected disasters and cannot be an excellent supporter for disaster happening, and in the occasions of happenings some problems will occur. It will be suggested that the hospital managers should pay more attention to the unexpected disasters.

Disclosure of Interest: None declared
Rationale: The focus of patient care in the field includes preclinical and acute clinical care. It aims to achieve treatment results that align with common professional standard. Vast experience gained during a number of assignments has shown that the seamless transition between the different care levels cannot always be ensured.

Methods: Significantly improved pre-clinical resuscitation therapy improved the initial survival of critical affected patients. We will have to cope with those in the medium term who demand further advanced intensive care at the primary scene of action, for a longer time-period than initially expected. Tactical changes, transport incapacities due to lack of air sovereignty, unstable military superiority or high casuality numbers are a likely source for such discrepancies in providing fast national-equal treatment standards.

Results: The NATO has defined Casualty Staging Units at anytime integrable into the care process. In 2017, the German forces received the order to establish 8 MED-CSUs. Besides the provision of respective applications, close attention has to be paid to care personnel’s professional medical competency. Recent literature already recommends the application of so-called treatment bundles (evidence based and common accepted treatment algorithms and recommendations for a defined spectrum of diagnoses). The main focus and challenge of the respective project is to transfer the very complex field of intensive care medicine to the field of non-intensivist general medicine.

Conclusions: Ready-to-use treatment recommendations for non-intensive care personnel have to be designed. This will support patient’s outcome. Complex clinical diagnostics can be transferred to the field of general medical care without the extended availability of device-orientated care and therapy.

Disclosure of Interest: None declared
Rationale: In the context of sudden deployment scenarios, the Prolonged Critical Field Care concept requires especially non-intensive medical personnel to be effectively trained. Enabling them to provide continuously sustaining national and best possible evidence-based treatment outcomes also in austere environments and for extended time periods due to delayed evacuation will be essential.

Methods: Therefore practical and pragmatic enablement concepts become desirable. The communication and training of already clinically applied “ready to use” treatment bundles becomes key. As the field of intensive care medicine usually requires years of continuous training and experience, intensive care topics were identified to be most relevant for the proposed training without extended technical device monitoring. Adult learning theories provide a vast array of suitable training methodologies and respective tools.

Results: A blended training approach is endorsed; We would recommend as target group non-intensivists aiming to expand their knowledge due to a high probability of a timely field assignment. A classroom-based training is planned. This method is accepted to be most effective in transferring complex knowledge sets while sustainably engaging participant groups. Additionally a job-aider in form of a bundle booklet is targeted. The easy-to-use booklet structure will enable medical personnel to individually read up upon recommended intensive care treatment best-practices.

Conclusions: This approach offers the opportunity to apply extended treatment concepts simply and outcome-orientated. Supporting personnel in achieving positive outcomes in austere environments and/or in extended, more than 24 hours, post-acute critical field care situations.

Disclosure of Interest: None declared
**Rationale:** Exertional heat stroke (EHS) is a killer disease during strenuous exercises and military training, and it may be the first cause of sudden loss of consciousness or even death during such exercises.

**Methods:** In recent 10 years, Chinese PLA Expert Team for Prevention and Treatment of Heat Stroke have saved more than 500 EHS patients. According to the experience that we got from these patients as well as the retrospectively analyze results of 220 EHS cases, expert team suggested the “10 early actions and 1 avoidance” key points for EHS: early cooling, early expansion of volume, early blood purification as a means of auxiliary cooling and volume management, early control of seizures, early airway protection and respiratory support, early coagulation/anticoagulation, early prevention of brain edema, early anti-infective measures, early enteral nutrition, early immunological conditioning, and avoidance of surgical intervention during the period of coagulopathy.

**Results:** Although these strategies have obtained good results, with mortality rate drop from 36% to 12%, well-designed multi-center randomized trials may still be needed to further verify these results.

**Conclusions:** Although these strategies have obtained good results, with mortality rate drop from 36% to 12%, well-designed multi-center randomized trials may still be needed to further verify these results.

**Disclosure of Interest:** None declared
PT04.18
MILITARY OPERATION IN DISASTER RELIEF. INDONESIAN EXPERIENCE
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Rationale: Welcome to Indonesia. Country that located on four moving Tectonic Plates and Ring of Fire. Natural disaster happens every month but what happens in 2018 is extra ordinary. Three big natural disaster happens in Lombok, Palu/Donggala and Sunda Streets.

Methods: July 29th 2018, 05.47 WIB, Lombok Island strike by 6.4 SR earthquake. August 5th 18.46 WIB, 7 SR earthquake strike again and make North Lombok Island devastating. August 9th 2018 12.25 WIB another 6.2 SR earthquake strike again, follow by 6.5 and 7.0 SR earthquake on August 19th 2018. This serial earthquake make disaster relief operation difficult. There are 564 died, 39775 injury, 658 operated and 347 Health facility affected. Three Medical Battalion with Field Hospital and Hospital ship was sent to disaster relief operation.

September 28th 2018 13.59 WIB, Donggala, Palu, Central Sulawesi strike by 6.4 SR earthquake, follow by 7.4 SR at 17.02 WIB. Twenty minute later First Tsunami Wave arrived at Donggala and Palu beach. Followed by Liquefaction in Palu area. No body aware about Tsunami and Liquefaction. There are 2101 people died, 83112 minor injury, 4438 severe injury and 172 Health Facility affected. Four Medical Battalion with Field Hospital, one Hospital ship have been sent to disaster area. Once again, Field Hospital and Hospital Ship proven effective in disaster relief operation.

December 22th 2018 20.56 WIB, Anak Krakatau Mountain in Sunda Strait had been erupted and had triggered landslides at the seabed that culminated to a Tsunami. At 21.30 WIB Tsunami reported in Pandeglang, Serang, Banten Province and Lampung Province. There are 437 died, 30654 minor injury, 1373 severe, 16198 evacuated and 4 Health facility affected. Marine Medical Battalion had been sent to disaster area.

Results: Indonesia only have one Hospital Ship, KRI dr Soeharso and 4 Medical Battalion. January 21st 2019, Indonesia commissioning new Hospital Ships, KRI Semarang in Surabaya. Indonesia also preparing the third Hospital Ships, buy more Field Hospital and more Medical Battalion.

Conclusions: Hospital ship is very ideal for Disaster Relief operation; Indonesia need more than one hospital ship and four Medical Battalion; Civil Military coordination in Disaster Relief is a necessity.

Disclosure of Interest: None declared
Rationale: Medical support to earthquake disaster by Japan Ground Self Defense Force (JGSDF) in Hokkaido, Japan and future prospects

Methods: We reported that JGSDF offered medical supports to quake area in Hokkaido, Japan which occurred in 6th September 2018. Japan is prone to earthquakes. Deadly more than 6.5 magnitude earthquakes including this disaster occurred 13 times during recent 30 years in Japan. In this disaster there were more than 800 casualties and 14000 collapsed buildings. Also damage of heat power plant caused blackout through a wide area and therefore led to the dysfunction of the local infrastructure. We set out several new endeavors in this magnitude 6.7 earthquake disaster.

Results: Medically speaking the features of this disaster are followed.
1. There were more patients with slight degree of wound injury than those with severe injury.
2. There were a relatively lot of available medical offices from the just post-quake period under favor of little collapsed buildings.
3. The management of transportation was more important than medical practice in shelter.
It was very valid means of transportation of many elderly disaster victims with basic diseases needed to see a doctor regularly in affected area.

JGSDF aggressively provided medical supports to affected area, staff to affected hospitals and actions for alleviation of stress by this disaster as well as own organization rescue.

Conclusion: We considered it important to take a flexible approach for response to all kinds of disaster situation such as regional attribution (city area or countryside), date & time of disaster onset (daytime or night) and attribution of disaster (building collapse, landslide or tsunami).

Disclosure of Interest: None declared
THE IMPLEMENTATION OF “FIELD BLOOD SERVICE” IN HUMANITARIAN CRISIS: THE EXPERIENCE OF MALAYSIAN ARMED FORCES HEALTH SERVICES FOR THE ROHINGYA REFUGEES IN COX’S BAZAR, BANGLADESH.

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Rationale: The violence that had erupted in Myanmar’s Rakhine state in August 2017 has caused a humanitarian crisis at a catastrophic scale. Estimated about 1.3 million people, cramped in a small area, makes Cox’s Bazar the densest refugee camp in the world. A level-3 field surgical hospital, Malaysia Field Hospital (MFH) manned by Royal Medical Corps, has been deployed since December 2017 to provide medical assistance. In view of the limitation of regional blood supply, the increasing number of complex surgical cases, managing obstetric bleeding emergencies and complexity of blood component processing and its logistic, MFH opted for field blood bank protocol with flexibility and multiple donor resources to cope with the blood transfusion demand.

Methods: This is a descriptive study. We gathered the blood bank data from Malaysia Field Hospital from 1st March until 31st December 2018. The data were analyzed to obtain descriptive results.

Results: Total of 245 whole blood bags has been processed, 207 of which have been transfused and 38 bags were discarded. The donor resources for the blood were from relatives (54.7%), MFH “walking blood bank” (31.4%), International Federation of Red Cross (IFRC) field hospital 13.5% and Pre-Autologous Blood Donation (PABD) 0.4%. The blood group distribution of the collected blood was 58.4% group O, 26.1% group B, 11.8% group A and 3.7% group AB. The surgical based disciplines were the main consumers of transfusion with 70.9% (Obstetric cases: 53.6 %, General Surgery 10.1%, and Orthopaedic 7.2%) and the remaining 29.1% was utilized for medical-related causes.

Conclusions: In our experience, the MFH Field Blood Service provided a quick, sustainable and sufficient blood supply to operate a field surgical hospital in the humanitarian crisis area.

Disclosure of Interest: None declared
**PT05.03**

**ESTABLISHING A METHOD FOR MEASURING THE PRESSURE OF BURN-BLAST COMBINED INJURY BY FINITE ELEMENT ANALYSIS**

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**Rationale:** Burn-blast combined injury caused by both military and civilian explosions has become the main cause of death for blast injury patients.

**Methods:** Based on the finite element analysis method for measuring the pressure of the burn-blast combined injury, we established a three-dimensional model of the animal for the experimental anima, a simulated explosion field according to the explosive force. The impact pressure of each part of the surface of the animal three-dimensional model in the simulated explosion field is obtained by using a finite element analysis.

**Results:** By building three-dimensional (3D) models of rat explosion regions, we simulated the surface pressure of the skin and lung. The pressure distributions were performed at 5 distances from the detonation center to the center of the rat. When the distances were 40cm, 50cm, 60cm, 70cm and 80cm, the maximum pressure of the body surface were 634.77kPa, 362.46kPa, 248.11kPa, 182.13kPa and 109.29kPa and the surfaces lung pressure ranges were 928-2916Pa, 733-2254Pa, 488-1236Pa, 357-1189Pa and 314-992Pa. After setting 6 virtual points placed on the surface of each lung lobe model, simulated pressure measurement and corresponding pathological autopsies were then conducted to validate the accuracy of the modeling. For the both sides of the lung, when the distance were 40cm, 50cm and 60cm, the Pearson's values showed strong correlations.

**Conclusions:** Finite element (FE) modeling and simulations can mimics transmission and pressure distribution of blast wave. This approach could provide us an increasing reliability and more detailed biomechanical information based on distribution diagram and statistics, which might be helpful in further predictive analysis of injuries.

**Disclosure of Interest:** None declared
PT05.04
ANAESTHESIA IN EXTERNAL OPERATION: CASE OF THE LEVEL II HOSPITAL OF SENEGALESE CONTINGENT IN BISSAU
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Rationale: Established since 2012 in Bissau, under the auspices of the ECOWAS Mission in Guinea-Bissau (ECOMIG) the mission of the level II hospital is to take care of the pathologies of the mission's military but also of civilians. Within it, the operating room plays an indispensable role in the treatment of surgical pathologies. The purpose of this work is to study the anesthetic management of operated patients.

Methods: This is a retrospective study from March to October 2017 covering all patients who have received anesthesia for a surgical procedure or for emergency care in the operating room of the Senegalese contingent's level II hospital. Age, sex, surgical pathology, anaesthetic technique, drugs used and the outcome of the patient were the parameters studied.

Results: During the study period, we collected 63 patients, with 53 male patients (84%) and 10 female patients (16%) and a sex ratio of 5. The average age was 31.76 years. Civilian patients accounted for 96% of patients and Guinea-Bissau military personnel (4% per cent). The ASA class I was predominant with 67% of cases; Emergencies, mainly digestive, accounted for 12% of the operative activity. Depending on the type of surgery, parietal surgery was predominant with 50% of cases, followed by urological surgery with 38% of cases and orthopedic surgery with 3% of cases. A coin extraction was carried out in 3% of cases and skin-burn bandages in 3% of cases also. Anesthesia was carried out in 90% of the cases by the Dr/Nurse team. General anesthesia was performed in 26% of cases, spinal anesthesia in 58% of cases and a peripheral block in 3% of cases. The most used hypnotic was the propofol (96%) followed by ketamine (4%). In per-operative, all patients had received non-invasive monitoring of the following parameters: BP, HR, ECG, SpO2. The average number of fluids per surgical procedure was calculated to be 2 vials of 500ml or 1000ml. The interventions ranged from 15 to 90 minutes. A wake-up delay and per-operative bradycardia were the only incidents.

Conclusions: Anesthesia in external operations is always a challenge due to the diagnostic delay and the lack of technical means.

Disclosure of Interest: None declared
Rationale: Après avoir défini ce qu’est la chirurgie de guerre qui est l’art de traiter les blessures dues au combat dans des conditions défavorables dues à un état d’exception nous allons montrer quelle est sa place dans le système de santé actuel.

Methods: Nous allons décrire les deux protagonistes principaux qu’elle concerne à savoir le blessé de guerre et le chirurgien militaire.

Results: Nous terminerons par exposer les principes de cette chirurgie qui commence par le traitement rapide des blessures sur le champ de bataille par les combattants eux-mêmes et finit dans les hôpitaux d’infrastructure et parlerons de l’évolution de ses concepts dans le temps.

Conclusions: La chirurgie de guerre dont l’enseignement a progressivement disparu des écoles de médecine a été remise à jour avec un contexte international d’attaques terroristes et de catastrophes à afflux massifs de blêssés.

Disclosure of Interest: None declared
PT05.06
DAMAGE CONTROL CHIRURGICAL EN CONTEXTE DE CHIRURGIE DE GUERRE
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Rationale: Le « damage control » désigne un moyen de prise en charge en urgence surtout traumatologique des fractures et plaies avec une stabilisation initiale rapide et temporaire qui autorise un traitement définitif différé sans pour autant en limiter les choix techniques.

Methods: En chirurgie de guerre la stabilisation osseuse indispensable en urgence est réalisée par une fixation externe, seul mode d’ostéosynthèse compatible avec un contexte sanitaire peu favorable à la chirurgie osseuse.

Results: Le damage control en utilisation civile est pratiqué selon trois scénarios :
- celui du traitement des patients polytraumatisés, le polyblessé de guerre n’en est qu’un aspect particulier ;
- celui d’une option de stabilisation temporaire dans un centre qui assure un traitement indispensable en urgence avant transfert vers un centre aux ressources plus importantes, c’est le concept de la chirurgie du théâtre d’opération ;
- celui du traitement en urgence des lésions graves pluritissulaires des membres, caractéristiques fréquentes des lésions de guerre.
En condition de guerre ou d’attentat le damage control, lors d’afflux massif ou saturant, devient un choix tactique pour le bénéfice du plus grand nombre.

Conclusions: Le damage control, appliqué en contexte de guerre, a pour objectifs, en urgence, d’assurer une hémostase, de décontaminer les plaies et de stabiliser les segments osseux, ultérieurement de ne pas gêner les gestes de réparation des parties molles ou de fixation définitive des fractures par des ostéosynthèses internes.

Disclosure of Interest: None declared
PT05.07
EARLY PREDICTORS OF MORTALITY AND MORBIDITY IN INTENSIVE CARE UNIT ADMITTED TRAUMA PATIENTS

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Rationale: Background: Trauma is the leading cause of morbidity and mortality worldwide. Admission to the intensive care unit (ICU) after traumatic injury is common and many of these patients develop in-hospital complications which are associated with significantly higher hospital mortality and morbidity prolonged hospitalization and cost. This study aim to evaluate early predictors of mortality and morbidity in ICU admitted trauma injured patients.

Methods: From 1st September, 2016 to 31st January, 2019 all trauma patients admitted to ICU were enrolled in this study. the medical records of all patients were retrospectively reviewed and data of patients demographics injury mechanism,type, injury severity score ,glasgo coma score,serum lactate level,base defecet and other laboratory tests were recorded .

Results: There were 92 patients (all males). The most common mechanism of injury was bomb blast war injury followed by gun shot injuries and road traffic collisions.
There were no mortality. Factors predict morbidity were mechanism of injury,decreased GCS ,increased age , increased ISS. serum lactat level and base defects

Conclusions: Early rescusitation and agressive ICU management of trauma patients can decrease the inhospital morbidity and mortality . Mechanism of injury ,base defecet and serum lactate are early predictors of morbidity and mortality for ICU admitted trauma patients

Disclosure of Interest: None declared
HELLENIC MILITARY SURGEONS DEPLOYED TO A ROLE II MILITARY HOSPITAL IN NORTH AFGHANISTAN
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Rationale: There are a lot of unique challenges for the military medical personnel which are assigned to Afghanistan. We evaluate the results of the Hellenic military surgical staff deployment to a role II military hospital in North Afghanistan.

Methods: Patients who were admitted to the role II German hospital of Kunduz were evaluated. We reviewed the type of diseases, mechanism and location of injuries, management, types of surgical procedures, blood supply and outcome.

Results: The data included 792 ISAF patients, 18 NGOs patients, and 296 local patients. 71.6% of the patients were ISAF personnel. 51 patients underwent a surgical operation; 35 of them were operated in an emergency base. 55 surgical procedures were performed. In 22 (43.1%) of these patients, orthopaedic procedures were performed while in the rest 29 (56.9%) patients the operations were of the general surgery interest. Gunshot injuries were the main mechanism of injury for locals whereas ISAF personnel were usually presented with injuries after IEDs and rocket attacks. A total number of 11 patients were transferred to role I military hospitals for further treatment within 24 hours.

Conclusions: Greek military surgeons in Afghanistan care for injured ISAF soldiers and non military personnel and provide surgical care to the local populations. Although it is difficult to be away from family and assume an increased level of personal danger, deploying as a general surgeon to Afghanistan clearly represented a valuable and rewarding experience. Although in a demanding combat environment, this mission was highly effective due to appropriately trained and equipped staff.

Disclosure of Interest: None declared
HELLENIC MILITARY SURGEONS EXPERIENCE AND FUTURE LESSONS FROM AFGHANISTAN DEPLOYMENT
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Rationale: A military surgeon is a physician who works in a standard clinical field, but who also has to learn to adapt his skills to exceptional circumstances and must have to cope with special challenges due to his deployment in crisis regions, fact which is one of the major factors influencing military medical strategy planning.

Methods: The role of the medical personnel is to provide medical service support to the ISAF personnel deployed, to support the development of the medical service of Afghan military forces and police, to participate in the provision of services to the civilian population - policy known as ‘winning hearts and minds’ - as well as to support the development of the civilian health services. The following contribution based on our experience of a 4-month deployment at a role II military hospital.

Results: We performed triage, initial resuscitation, stabilization, and preparation of sick, wounded, or injured patients for evacuation. We provided consultation, medical and surgical service for locals, non-governmental organizations personnel, and ISAF patients. We had been forced to confront numerous unanticipated circumstances. The war has gone on far longer than planned, the volume of wounded soldiers has increased, and the nature of the injuries has changed. The needs facing the military medical personnel have increased while requests have been made for additional staff members at all levels.

Conclusions: The following areas consist of major objectives of the training of military surgeons for deployment in war fields abroad: specific skills for the management of trauma cases in situations with limited resources, triage of mass casualties, damage control surgery, skills for the emergency cases treatment in adjacent fields, experience of working in mobile surgical task group and specific aspects of medical facilities, instruments, and materials.

Disclosure of Interest: None declared
Rationale: Epithesis or maxillofacial prosthesis are silicon devices which aim to cover a facial loss of substance: all or part of nose, auricle, orbital loss or sometimes more important facial loss. They were developed in France at the time of the “broken face”, following the World War I. Our study aims to assess their place in facial reconstruction in the 21th century, notably for the facial wounded soldier.

Methods: We conducted a retrospective study which included all patients who have had a facial reconstruction using an epithesis during a period of two years (from January 2017 to January 2019). Patient pathology, kinds of facial defect, characteristics of the epithesis, and results of the reconstruction were recorded and analyzed.

Results: 6 patients had facial defect treated by prosthesis during the studied period. Tissue loss was due to oncological surgery for 4 patients, to a dog bite for 1 patient and to a firearm injury for 1 patient. The use of a facial prosthesis was considered as a definitive procedure for 4 patients and as a temporary procedure for 2 patients. All studied cases had a result judged as good or very good. The only encountered problems concerned the modifications over time (healing, edema) of soft tissues.

Conclusions: Despite considerable progress in surgery, facial reconstruction remains a veritable challenge, with sometimes disappointed result while a complex reconstruction had been performed. Even if facial prosthesis are considered by some as "old-fashioned", we showed that they can give good result. That’s why, in our opinion, they still retain a place in facial reconstruction. Moreover, they will be useful devices in the management of the facial wounded soldier who often has complex tissue loss to repair (Multiple tissue loss, association of bone, muscle, mucosa and skin loss).

Disclosure of Interest: None declared
DEPLOYMENT OF THE SURGICAL LIFE-SAVING MODULE (SLM) IN 2017: LESSONS LEARNED IN SETTING UP AND TRAINING OPERATIONAL SURGICAL UNITS.

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Rationale: The military operations carried out by the French armed forces, occasionally require the use of the Surgical Life-saving Module (SLM), to ensure the surgical support of its soldiers. SLM is particularly useful in small-scale military operations, such as Special Forces missions. In 2017, the French SLM was for the first time used to ensure surgical support of allied forces, which were lacking forward surgical capabilities.

Methods: the SLM is a mobile, heliborne, airborne, surgical structure with parachuting capability onto land or sea, therefore essentially focused on life-saving procedures, also known as "damage control" surgery.

Results: over a period of 2 months, 5 medical teams were successively deployed with the SLM. A total of 157 casualties were treated. The most common injuries were caused by shrapnel (56%), followed by firearms (36%), and blunt trauma (2.5%). Injuries included the limbs (56%), thorax (18%), abdomen (13%), head (11%), and neck (2%). The surgical procedures were broken down as follows: 126 dressings, 16 laparotomies, 7 thoracotomies, 12 isolated thoracic drains (without thoracotomy), 1 cervicotomy, 12 amputations, 7 limb splints, 2 limb fasciotomies, 2 external fixators and 1 femoral fracture traction.

Conclusions: the numerous SLM deployments in larger operations highlighted its ability to adapt both in terms of equipment and personnel. Continuous management of equipment logistics, robust personnel training, and appropriate organization of the evacuation procedures, were the key elements for optimizing combat casualty care. As a consequence, the SLM appears to be an operational surgical unit of choice during deployments.

Disclosure of Interest: None declared
A COMPARATIVE STUDY OF INJURY SEVERITY SCORE AND NEW INJURY SEVERITY SCORE AS CRITERIA FOR ADMISSION OF TRAUMA PATIENTS IN A TERTIARY CARE CENTRE

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Rationale: This study was carried out to compare and evaluate Injury Severity Score (ISS) and New Injury Severity Score (NISS) as criteria for hospital admission of trauma patients.

Methods: It was a prospective observational study. The available data was analyzed to determine and compare ISS and NISS as the criteria for hospital admission. Descriptive analyses of quantitative parameters were expressed as means and standard deviation. Categorical data were expressed as absolute number and percentage. The analysis included the estimation of proportion with 95\% confidence interval. Cross tables were generated and Chi square test was used as test of significance for association. P value < 0.05 was considered statistically significant. SPSS software Version 24.0 was used for statistical analysis.

Results: A total of 102 patients were studied at Trauma Centre of our hospital. Out of the total patients, 59.8\% patients had their NISS scores greater than ISS which showed that NISS is slightly more sensitive and accurate than ISS. It was observed that NISS was not a superior tool in predicting hospital stay as compared to ISS. The relationship between NISS and number of hospitalisation days was not statistically significant (p value= 0.112) whereas ISS was a better predictor of hospital stay (p value=0.042).

Conclusions: In this study, it was concluded that majority of parameters favored NISS whereas parameters like hospital stay have favored ISS. Hence, we concluded that NISS is a better score than ISS in majority of the parameters in decision making and hence, can be preferred over ISS for objective assessment and as one of the criteria for Hospital admission of trauma patients.

Disclosure of Interest: None declared
EXTREMITY COMBAT INJURIES – AN INDIAN PERSPECTIVE FROM COUNTER INSURGENCY ZONE

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Rationale: To study the presentation, pattern and outcome of extremity trauma in a combat zone.

Methods: This is a retrospective study where the data was collected from the hospital trauma register and medical records section. The data was analysed using MS excel sheet, tabulated and expressed as median, mode or percentage and other relevant linear statistical tools.

Results: Retrospective analysis of total of 104 cases of combat injuries over the period of two years extending from Jan 2017 to Dec 2018 was done, which revealed a staggering 91% (n=95) cases to be of extremity trauma. Of these, 54% (n=51) cases involved the lower limbs and 38% (n=36) cases involved upper limbs whereas only 8% (n=8) cases had involvement of both upper and lower limbs. It was also observed that the most common mechanism of trauma was blast injuries contributing to 66% of the casualties and amongst which Improvised Explosive Devices (IEDs) and mines were encountered most frequently. Skeletal injuries were seen in 46% cases and 9% resulted in amputations. Mortality rate of 1.05% was observed amongst extremity injury patients.

Conclusions: The extremity trauma sustained in military combat environment is significantly different in terms of their mechanism of injury, severity and outcome compared with those in civilian practice. With the increasing use of explosive mechanism of assault like IED’s and anti-personal mines alongside concurrent use of better personal armored protection of head and torso has probably led to an overwhelming involvement of extremities which now comprises the bulk surgical load and a major challenge for the Combat Medical Services.

Disclosure of Interest: None declared
OVERCOMING CHALLENGE TO THORACIC SURGEONS IN PAKISTAN ARMY: STRIKING A BALANCE DURING MULTI LEVEL DEPLOYMENT AND PROVIDING CUTTING EDGE THORACIC SERVICES

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Rationale: General thoracic surgeons were a rare commodity in Pakistan at the turn of century. The trained cardiothoracic in army were very few and heavily committed. The country had entered in a state of war on terrorism with increased deployments and continuous influx of casualties. In addition, there was an ever increasing workload of elective thoracic surgery for a large clientele deserving cutting edge solutions. This presentation aims to depict the framework employed to manage this dilemma.

Methods: A three year thoracic surgery fellowship program was started with selection of general rather than cardiac surgeons. They were then deployed for two years in the base hospitals and forward centers taking maximum casualties of war on terror. The sample data of the workload of such deployments were achieved and results analyzed to study the effects on morbidity, mortality and referral to tertiary care. The surgeons were posted back to tertiary care centers for continuing cutting edge training and services.

Results: A total of 11 thoracic surgeons have qualified and further three are under training till date. The consultants are deployed in all base hospitals across the country receiving major brunt of war and urban terrorism casualties. The injuries were caused by gunshot wounds, improvised explosives, suicidal bomb blasts with a multiple incidences of mass casualty arrival at respective hospitals. The thoracic surgeons were an integral part of team management and headed one of the surgical teams. There was observed decrease in morbidity, mortality and referral to tertiary care facility for thoracic injuries. The recommendations of the management of thoracic surgery patient were made at different echelons of care and included the recommendations on damage control, auto transfusion and indications of VATS. The tertiary care facility continued to provide continuous advanced cutting edge services.

Conclusions: Training a general surgeon for thoracic surgery resulted in a more versatile surgeon for the war time deployment and still retained core competencies for elective surgical procedures in this frame work.

Disclosure of Interest: None declared
Rationale: Fast buoyant ascent escape is main method of DISSUB submarine escape. If some mistakes happened, the acute decompression sickness (DCS) may be happened.

Methods: In the past years, we have done many research works on the pathologies, mechanisms and prevention strategies of DCS caused by fast buoyancy ascent escape (FBAE). Our work demonstrated that DCS caused by simulated FBAE could induce acute lung injury and inflammatory factors expression in the rat lung of DCS.

Results: The lung tissue mRNA levels of TNF-α, IL-1β, IL-6 and IL-10 were significantly increased at 0.5 hour after DCS caused by simulated FBAE. The lung contents of TNF-α, IL-1β, IL-10 and IL-6 were at an expression peak at 0.5 hour, then decreased to normal baseline within 24 hours after FBAE. The protein level of IL-13 was downregulated in rat lung tissue. Circulating bubbles could produce mechanical damage to endothelial cells, revealing the collagen and the subendothelial basal cell layer, then activates the coagulation system. Aggregated platelets can modulate the inflammatory response through recruiting circulating leukocytes to inflamed tissue by circulating platelet-leukocyte complexes. Results showed Clo significantly reduced the DCS mortality risk, the wet/dry ratio of lung, the accumulation of platelet and leukocyte in lung, the fall in platelet count, the WBC count, the numbers of activated platelets and platelet-leukocyte complexes in peripheral blood.

Conclusions: The results suggest that pretreatment of PDTC, TNF-αAb and Clopidogrel can reduce the incidence of decompression sickness induced by fast buoyancy ascent escape.

Disclosure of Interest: None declared
Rationale: The aims of the study were to assess whether a topical haemostatic (Celox Rapid) would remain effective after 8 hours of use, to simulate a prolonged casualty extraction, and also to assess whether it would stop bleeding due to peripheral amputation of a limb without a tourniquet. A secondary aim was to assess whether this could provide the basis for a peripheral haemorrhage model for testing haemostatics.

Methods: Two swine were anaesthetised. One was given bilateral femoral arteriotomies which were treated with haemostatic gauze and then assessed after 8 hours for evidence of ongoing haemostasis and any adverse reactions. The other animal had bilateral through-elbow amputation performed then treated with haemostatic gauze only.

Results: The animal given extended treatment with haemostatic survived to ten hours with haemostasis maintained and no adverse tissue reaction. In the amputational haemorrhage model, haemostasis was achieved by application of haemostatic alone.

Conclusions: Topical haemostatics are effective in an extended fieldcare model of junctional haemorrhage. They are also effective in peripheral haemorrhage and may be considered as a primary adjunct to tourniquet, rather than a secondary measure. The methods used provide the basis for a model for testing haemostatics in peripheral haemorrhage.

Disclosure of Interest: None declared
PT05.17
IMPROVING THE MILITARY OPERATIONAL PERFORMANCE BY THE BIOMEDICAL CONTROL METHODOLOGY.
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Rationale: The study aimed to present the results of the Biomedic Control Methodology (BCM) performed by the Brazilian Army Special Operations Command in order to prevent accidents during courses with high level of physical and mental effort.

Methods: 180 soldiers, all males (age = 19.76 ± 1.83 years) enrolled in the 2015 to 2018 Command Courses had analyzed their biomedical data from anthropometry, urinalysis and blood biochemistry during 120 hours of the Leadership Development Exercise (LDE), in which water, caloric and sleep restriction were progressively applied.

Results:

<table>
<thead>
<tr>
<th>Health Problems</th>
<th>LDE</th>
<th>Resting</th>
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<tbody>
<tr>
<td></td>
<td>LB</td>
<td>24h</td>
</tr>
<tr>
<td>Urine density</td>
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<td>180</td>
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<td></td>
<td>≥1.030</td>
<td>0</td>
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<td></td>
<td>≥1.036</td>
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<tr>
<td>Hydroelectrolytic Disturbances</td>
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<td></td>
<td>Hyperkalemia</td>
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<tr>
<td>Rhabdomyolysis</td>
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<td>48</td>
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<tr>
<td>Loss of consciousness</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Acute Renal Failure (ARF1)</td>
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Throughout the LDE, we found significant increases in indirect markers for rhabdomyolysis ([GOT (χ² = 138.68, p <0.001) CK (χ² = 105.32, p <0.001) and LDH (χ² = 128.36, p <0.001)], significant from 48h); hydroelectrolytic disturbance ([Na (χ² = 172.37, p <0.001) and K (χ² = 129.42, p <0.001)], significant from 72h), and ARF1 [CRE (χ² = 122.16, p <0.001) URE (χ² = 163.82, p <0.001)] significant from 72h); all cases were related with the progressive physical effort performed. The first step for the treatment was to move away the pre-renal and post-renal ARF, performing the volemic expansion with crystalloids (2000ml saline solution in 2 hours), monitoring the oxygen saturation and diuresis (200-300ml/h), seeking, whenever necessary, hemodynamic stabilization, rigorous water balance, maintenance of euvoolemia, correction of the hydroelectrolytic disturbance and metabolic acidosis. After 2 hours of intervention, the subjects were submitted to reevaluation and, if necessary, the volemic expansion with crystalloids was continued. All soldiers had recovered their combat conditions at about 2 hours and 45 minutes after being admitted.

Conclusions: Despite of the LDE extreme conditions, BCM has been effective at preventing and treating diseases, syndromes and disorders that affect soldiers, collaborating to avoid accidents and deaths during the military training.

Disclosure of Interest: None declared
STUDY OF CANCERS FREQUENCY DISTRIBUTION AMONG ARMED FORCES AND THEIR FAMILIES IN IRAN FROM 2001 TO 2017

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Rationale: Cancer is a serious health problem nowadays. Incidence of cancer is increasing in all world and has an increasing boredom on health system of all countries. The boredom of disease is seen even in developed countries. The purpose of this study is to study the frequency distribution of cancers among armed forces and their family's population in Iran's provinces. Also, estimating mean survival time and survival rate for most prevalent cancers.

Methods: In this study data from 30037 cancer patients from armed forces insurance system database from April 2001 until March 2017 were collected. Then the site-specific and age-adjusted frequency and survival of the cancers were analysed.

Results: Mean age of cancer patients were 63.45 years; 46.4 percent of patients were male and 53.6 were female. Totally, 28.5 percent of patients have died until March 2017. Mean survival time for all patients were 8.42 years. Among the cancers, testis cancer had the largest mean survival time, 12.87 years, and penis cancer had the smallest mean survival time, 2.01 years. The most prevalent cancers were: breast, prostate, colon, stomach, bladder and lung with the mean survival time of 11.61, 7.49, 7.71, 4.16, 8.07 and 2.93 years, respectively. Also one, five and ten-year survival rate for all cancers were 0.89, 0.58 and 0.42, respectively.

Conclusions: The frequency and distribution as well as survival of various cancer in military population is somehow different from the general population. Therefore, complementary studies about the possible specific risk factors must be considered as a priority.

Disclosure of Interest: None declared
Rationale: Leishmaniasis is one of the vector-borne diseases stand out as a major concern for military deployments. In Saudi Arabia, the cutaneous leishmaniasis (CL) is the most common manifestation among the army personnel. Leishmaniasis remains a great challenge for the armed forces deployed in the various regions. Several factors contribute to the prevalence and transmission of CL. Recent reports indicate that consistent efforts are being made by different agencies including the military and preventive health organizations to control this disease. This study aims to review the recent advances for the control of leishmaniasis from a military perspective.

Methods: A review of literature on the prevention and/or control the Leishmaniasis was undertaken. The archives of the PubMed, Scopus, Medscape, and Google Scholar, etc. was also searched.

Results: The results of this study showed that several factors contribute to the clinical manifestations. Active service members of both, the developed and the developing countries are continuously in pursuit to find ways to eradicate this serious health issue; for this purpose, a wide range of strategies including health education, awareness programs, using various audio, visual methods and personal protective measures have been recommended. A significant success has been reported in reducing leishmaniasis burden by some countries including the Kingdom of Saudi Arabia.

Conclusions: Cutaneous Leishmaniasis is a disease that continues to disrupt military readiness and operational activities. Military health professionals should be familiar with this disease to support implementation of specific steps to counter the disease and initiate proper referral for diagnosis, treatment and preventive measures. Scientific research should be encouraged to address all aspects of the diseases.

Disclosure of Interest: None declared
INCIDENCE AND RISK FACTORS ASSOCIATED WITH KNEE INJURIES AMONG ACTIVE – DUTY SAUDI ARABIA MILITARY SERVICES MEMBERS
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Rationale: Musculoskeletal injuries are common among military population especially sports- resulted injuries which consume time for treatment and rehabilitation, deter participation in some service roles and present a humongous challenge in military services. Among common injuries are those of the knee. Although the great number of researches about knee injuries among military population, none of them was done to quantify that problem in the Kingdom of Saudi Arabia. This retrospective study aims to explore the prevalence of knee injuries and risk factors among active duty military personnel in KSA.

Methods: This is a retrospective study included 2230 persons from all military branches with knee injuries between 2010 to 2016. Data collected from Saudi military hospitals and statistically analyzed using correlations and regression models.

Results: This study focused on 2230 patients with knee injuries. Their mean age was 42.73 and SD ±16.343. The frequency distribution showed that ACL injuries were the most common of knee injuries in the military population at 45.2% followed by meniscus injury (24.9%) and internal derangement (10.1%) with incidence rate 4.57, 0.25 and 0.10 respectively. Other incidences were negligible and representing only 0.1%. Chi-square test revealed sports are the most contributing factor accounting for 30.5% of all knee injuries followed by twisting injuries at 25% (P = 0.000).

Conclusions: This study revealed that injuries to the ACL which represent 45.2% followed by meniscal injuries which represent 24.9 % of all knee injuries are the most common knee injury among active-duty military personnel in KSA. Sports activities were the commonly cited factor influencing the incidence of knee injuries.

Disclosure of Interest: None declared
PT06.03
RISK FACTORS AND PREVENTIVE MEASURES FOR VECTOR BORNE DISEASES AMONG ARMED FORCES
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Rationale: Vector-borne diseases (VBDs) account for about 17% of the estimated global burden of infectious diseases. VBDs severely reduce the fighting capacity of armies and may cause suspension or cancellation of military operations. The objective of this study is to analyze the risk factors and preventive measures to control VBDs.

Methods: Literature on vector borne diseases among the deployed forces and risk factors were reviewed and strategies for preventions has been worked out.

Results: The infectious diseases have no longer been the main causes of morbidity and mortality among soldiers. However, the recent conflicts involving western armies have occurred overseas, increasing the risk of VBDs for the soldiers and for the displaced populations. The threat of vector-borne disease has changed with the progress in hygiene and disease control within the military: some diseases have lost their military significance (e.g. plague, yellow fever, and epidemic typhus); others remain of concern (e.g. malaria and dengue fever); and new potential threats have appeared (e.g. West Nile encephalitis and chikungunya fever). Hence, vector control and personal protection strategies are essential to safe guard armed forces. Recent examples of VBDs include dengue fever in Haiti, malaria during Operation Restore Hope in Somalia and Operation Enduring Freedom (OEF) in Afghanistan, and visceral and cutaneous leishmaniasis in OEF and Operation Iraqi Freedom (OIF).

Conclusions: The approach for prevention of VBDs lay emphasis on preparation, education, personal protective measures, vaccines, chemoprophylaxis, and surveillance, pre- and during deployments.

Disclosure of Interest: None declared
ZIKA VIRUS IN THE BRAZILIAN MILITARY HEALTH SYSTEM
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Rationale: Zika virus (ZIKV) is a member of the flavivirus family. Its clinical evolution can easily be mistaken for other arboviruses because of their similarity of symptoms, and risk of cross-reactivity in serological tests. The emergence and rapid spread of ZIKV has set an alert in the Brazilian Navy Health Care system. As a result, the Naval Hospital Marcilio Dias has maintained a long-term study of arboviruses infections on Brazilian Navy (HNMD) military personnel and their families since January 2017.

Methods: Suspect sera samples from HNMD patients were aliquoted and frozen within 24 hours after collection, and tested using real-time reverse transcription-PCR. Previously known positive serum and samples from cell culture have been used as controls.

Results: Currently, we have 1,200 sera samples from patients with suspicion of been infected by arboviruses, and who showed acute febrile symptoms. Laboratorial confirmation of ZIKV infections has been based on detection of virus RNA in serum by using RT-PCR. So far, 649 sera were analyzed in 60 pools of 10 samples, and seven pools of seven samples. Twenty-nine pools were positive for ZIKV from which 193 individual samples possibly have the virus. These individual samples are still under analysis.

Conclusions: The results reflect the current epidemiological scenario, but also provide subsidies for decision making of the Navy Health System medical teams. In addition, the current work has served as the basis for a methodological development for the production of virus nucleic acid reference material according to ISO 17.034 in Brazil. This has been made through a partnership between HNMD and the National Institute of Metrology, Quality and Technology.

Disclosure of Interest: None declared
PT06.05
EPIDEMIOLOGY OF METABOLIC SYNDROME IN THE REGION OF BIZERTE: RESULTS OF A SURVEY OF A COHORT OF 2500 MILITARY
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Rationale: Metabolic syndrome (MS) is one of the main public health problems in Tunisia. Its frequency and risk factors remain poorly studied today. The army is not spared this scourge despite the selection imposed on its personnel during recruitment. The objective of our work was to study the prevalence of metabolic syndrome in a military cohort and to analyze the different metabolic anomalies and risk factors of this syndrome in various army corps.

Methods: This was a prospective cross-sectional study conducted with 2500 military and civilian personnel still operating in three units of the Bizerta garrison. Each patient received a physical examination and a biological assessment. The criteria for MS were those of the International Federation of Diabetes (IDF). Data capture and analysis was performed using SPSS 20.0.

Results: Our population was predominantly male (98,1%) with an average age of 36 years. The overall prevalence of MS was 17,7%. It increased with age (26,8% for class 45-55 years), rank category (12,4% for troop men versus 22,1% for officers) and length of smoking (25,57% for smokers for more than 20 years; OR=1,83). It was higher among singles (21,6% vs. 13,7% among married couples; OR=1,74), air force (23,23% vs 10,08% for the Special Forces Group (GFS); OR=0,46), air force (23,9%; OR=2,28). The overall prevalence of abdominal obesity was 48%, of high blood pressure was 11,7%, of fasting hyperglycemia was 14,2%, of hypertriglyceridemia was 27,8% and of hypo HDL-cholesterolemia was 46,7%.

Conclusions: MS is beginning to settle in the military environment. It is therefore recommended to set up a programme to combat and prevent the risk factors of this syndrome, in particular sedentary behaviour and overweight. On the other hand, early detection and management are necessary to reduce cardiovascular risk in the military population.

Disclosure of Interest: None declared
EMPOWERING AND STRENGTHENING EX-SERVICEMEN TO PREVENT LIFESTYLE DISEASES

V. Bhaskar

Govt of india, Indian navy, Mumbai, India

Rationale: Ageing is associated with a number of physiological conditions that can contribute to increased disability, frailty and accidental falls. Factor coupled with deteriorating health with advancing age, change in value system it is felt necessity to find modalities to empower and strengthen elderly and Ex-servicemen (ESM).

Methods: An interventional “Before and After” study was conducted for a period of three months for in-patient ESM of a tertiary care hospital for common lifestyle diseases namely stroke, diabetes, senile depression, acute myocardial infarction and hypertension. Data of anthropometry, laboratory investigations and Hamilton rating scale for depression (HRSD) were taken before and after the study.

Results: A total of 58 (out of 68) subjects were followed up from start to end. A statistically significant decrease was observed with respect to pulse, respiratory rate, blood pressure (both systolic and diastolic), fasting glucose, post-prandial glucose, total cholesterol, low density lipoprotein (LDL) cholesterol and very low density lipoprotein (VLDL) cholesterol (Table 1). All 58 subjects were evaluated on 15 points of HRSD. The reduction in HRSD was statistically significant after three months of interventions.

Hamilton rating scale of depression before and after the interventions

<table>
<thead>
<tr>
<th>Score</th>
<th>Before intervention n (%)</th>
<th>After intervention n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>39 (67.24%)</td>
<td>58 (100%)</td>
</tr>
<tr>
<td>6-10</td>
<td>19 (32.75%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>11-15</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>58 (100%)</td>
<td>58 (100%)</td>
</tr>
</tbody>
</table>

Test statistics (Z) = +7.484; p< 0.001
There was a significant decrease in HRSD after the intervention (p<0.001).

Conclusions: ESM and elderly are recommended to be trained on progressive weight training and yoga. Progressive weight training and spiritual health enhancement by yoga with meditation has a positive impact on health of elderly.

Disclosure of Interest: None declared
DYSLIPIDEMIA IN TUNISIAN MILITARY PILOTS
H. Djemaiel
1ministry of defense, bardo, Tunisia

Rationale: Dyslipidemias are one of the most important risk factors for cardiovascular disease, which is a real problem in aerospace medicine, which can lead to sudden or subtle in-flight disability.

Methods: This is a retrospective descriptive study of the files of military pilots who came to the Aerospace Medicine Center during the period from January to December 2017.

Results: Our study population consists of 279 military pilots in the course of their career with a male predominance (93.55%). The average age was 37.75 years. The prevalence of dyslipidemias was 26%, distributed according to the type in hypertriglyceridemia 13.2%, hypercholesterolemia 6.4% and hypoHDLemia 1.8%. Obesity was noted in 27% of dyslipidemic pilots and 42.5% of them were smokers. Diabetes was associated with dyslipidemia in 9.6% of our pilots and HTA in 12%.

Conclusions: Our results should encourage the expert physician to reconsider the dietary habits and lifestyle of military pilots in order to reduce the frequency of these morbidity states and the risk of cardiovascular morbidity and mortality in order to preserve flight safety.


Disclosure of Interest: None declared
A STUDY OF ADULT RUBELLA OUTBREAK AND ITS IMPLICATIONS ON INCREASING NUMBER OF WOMEN IN UNIFORM
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¹Dept of Community Medicine, Indian Navy, Karwar, India

Rationale: Rubella, though a fairly innocuous disease, is known cause of severe birth defects in newborn. With increasing number of women in combat and being assigned instructional and medical care duties, adult Rubella outbreak in a training centre as in this study poses grave threat to them, besides having disruption potential on training.

Methods: This study was conducted at an Airmen training Centre of the Indian Airforce having 2510 recruits, in five squadrons. All cases of fever with rash and/or lymphadenopathy were included in the study. The demographic, epidemiological and clinical data of all the cases was analyzed and medical records reviewed.

Results: A total of 31 cases reported over a period of 05 days. 21 cases were from a single squadron as the index case. 12 women officers were doing instructional duties at the time of outbreak. Fever with rash (90.32%) was the commonest presentation, lymphadenopathy (64.51%) was the most common sign. The AR within the squadron most affected was 4.18%, with over-all AR of 1.23%. The incidence was 12.35 per 1000 per year. The case fatality rate (CFR) of the disease was nil.

Conclusions: Till the fully immunized cohort of young recruits start getting enrolled, it will be prudent to introduce rubella vaccine so as to limit the loss of vital training man-hours and prevent possibility of CRS in the women instructors and medical care givers, working in the line of their duty.

Disclosure of Interest: None declared
USE OF DNA FROM AFB SMEARS TO PERFORM HIGH-THROUGHPUT SEQUENCING BASED SURVEILLANCE FOR DRUG-RESISTANT MYCOBACTERIUM TUBERCULOSIS IN AFGHANISTAN

N. A. Hamraz, N. A. Hamraz, J. D. Mancuso on behalf of James D. Mancuso; Mazghan Rowneki; Nesar Hamraz; Peicheng Du; Gary Davis; Robert Blakemore; David Alland; Naomi E. Aronson

Rationale: Afghanistan is one of the 22 countries with the highest burden of tuberculosis (TB). The study objective was to evaluate the prevalence of drug-resistant tuberculosis in Afghanistan using molecular techniques that can be adopted to detect resistance using sputum smears.

Methods: Slides positive for acid-fast bacilli during routine clinical practice obtained from 4 sites in Afghanistan. Slides were re-scored by study personnel according to the WHO/IUATLD standard. DNA extracted from all slides graded 1+ or higher. Sample DNA was amplified and uniquely barcoded via multiplex PCR. Pooled samples and performed high-throughput targeted re-sequencing of 17 drug-resistance associated loci using the Illumina MiSeq platform. Identified mutations were compared with a library of known drug-resistance associated mutations.

Results: N=335

<table>
<thead>
<tr>
<th>Gene target</th>
<th>Drug(s)</th>
<th># (%) samples with &gt;20 reads</th>
<th># (%) of SNPs identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>katG</td>
<td>INH</td>
<td>148 (44%)</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>inhA Promoter</td>
<td>INH</td>
<td>134 (40%)</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>rpoB</td>
<td>RIF</td>
<td>166 (50%)</td>
<td>12 (7%)</td>
</tr>
<tr>
<td>emb10</td>
<td>EMB</td>
<td>160 (48%)</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>pncA0</td>
<td>PZA</td>
<td>107 (32%)</td>
<td>4 (4%)</td>
</tr>
<tr>
<td>pncA1</td>
<td>PZA</td>
<td>111 (33%)</td>
<td>4 (4%)</td>
</tr>
<tr>
<td>pncA2</td>
<td>PZA</td>
<td>102 (30%)</td>
<td>3 (3%)</td>
</tr>
<tr>
<td>pncA3</td>
<td>PZA</td>
<td>144 (43%)</td>
<td>4 (3%)</td>
</tr>
<tr>
<td>pncA combined</td>
<td>PZA</td>
<td>107 (32%)</td>
<td>15 (14%)</td>
</tr>
<tr>
<td>gyrA</td>
<td>FQ</td>
<td>63 (19%)</td>
<td>6 (10%)</td>
</tr>
<tr>
<td>gyrB</td>
<td>FQ</td>
<td>106 (32%)</td>
<td>0</td>
</tr>
<tr>
<td>rpsL0</td>
<td>SM</td>
<td>250 (75%)</td>
<td>0</td>
</tr>
<tr>
<td>rpsL1</td>
<td>SM</td>
<td>94 (28%)</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Rs10</td>
<td>AK, CAP, SM</td>
<td>99 (30%)</td>
<td>1 (1%)</td>
</tr>
</tbody>
</table>

Conclusions: Mutations associated with PZA and FQ resistance were seen.

Similar to estimates of RR-/MDR-TB reported by WHO in 2014 of <1% among new cases and 8% among retreatment cases; those were based on testing of only 2 new and 184 retreatment cases.

Surveillance and sustained political commitments are critical to TB program success in Afghanistan.

Technical challenges in extracting and amplifying DNA from sputum microscopy slides remain.

High-throughput sequencing has the potential to provide information that can be used to guide both clinical management and public health policy.


Disclosure of Interest: None declared
EVALUATION OF CARDIOVASCULAR ENDURANCE IN IRANIAN MILITARY AIRCREW
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1aerospace, aja university of iran, 2physiology, 2Baqiyatallah University of Medical Sciences, 3physiology, aja university of iran, tehran, Iran, Islamic Republic Of

Rationale: Background: Physical activities during military services must not only provide appropriate body fitness and health but also should reduce the physical and psychological problems.
Objectives: This study aimed to evaluate cardiovascular endurance of male military pilots and compare them with other crew.

Methods: Materials and Methods: In this research, 338 pilots and 146 other crew (loadmaster, Navigator, Attendants) were randomly selected and their cardiovascular fitness were compared by 1.5 mile running In min. Their mean age was 35.59 ± 0.5 and 35 ± 0.31 years; they had mean weight of 82.46 ± 7 and 81.63 ± 8 kg, and mean height of 178.21 ± 5 and 176.64 ± 5, respectively. Their mean 1.5 mile run was 14.65 and 14.73 min.

Results: Results: There was not a significant difference in the cardiovascular fitness indice between pilots (P > 0.05), and other crew. Both groups obtained the highest ranks based on army physical fitness test (APFT) standard. There was no significant difference between the two groups in terms of BMI and both were in overweight range.

Conclusions: Conclusions: Military pilots did not have a good cardiovascular fitness which is possibly due to the inappropriate physical activities during their training courses.

Disclosure of Interest: None declared
Rationale: Cardiovascular diseases, first cause of death in Switzerland, are frequently attributable to risk factors already present in children and adolescents. The aim of this study was therefore to describe the prevalence of cardiovascular disease risk factors in 18- to 20-year-old males undergoing medical examination to assess fitness for recruitment into the army.

Methods: An exploratory transversal study, approved from the regional ethic commission, was conducted during the recruitment days. The analysis includes measurement of the anthropometric parameters, arterial brachial pressure, central arterial pressure and arterial stiffness (=pulse wave velocity in m/s). Moreover, a structured questionnaire addressing smoking behavior, sedentariness and familial cardiovascular risk factors, as well as blood analysis for determination of glycaemia, lipids and Vitamin D metabolism values was performed.

Results: In the period between 1/4/2014-31/12/2016, 1045 voluntary were included in our study. Following cardiovascular risk factors were present in this young male population: tobacco use (N=449, 43%), body mass index >25.0 Kg/m2 (N=274, 26%); Abdominal circumference > 94.0cm (N=117, 11%); Arterial pressure = or > 140/90 mm Hg (N=83, 8%); 25-OH-vitamina D3 rate = or < 50 nmol/L (N=201, 19%); total cholesterol = or > 5.2 mmol/L (N=54, 5%); uricaemia >500 µmol/L (N=61, 6%); pulse wave velocity >10m/s (N=25, 2.5%).

Conclusions: The results of this study allow us to analyze the cardiovascular health of young males living in Southern Switzerland. These results clearly show that a high number of young male present at least one cardiovascular risk factor.

Disclosure of Interest: None declared
PREVALENCE AND RISK FACTORS OF CHRONIC HEPATITIS B IN A MILITARY POPULATION

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1Infectious Diseases, Faculty of Medicine, 2Infectious Diseases Research Center, 3Epidemiology, Faculty of Medicine, AJA University of Medical Sciences, Tehran, Iran, Tehran, Iran, Islamic Republic Of

Rationale: Military personnel, especially those with a history of war wound injury or blood product transfusion were previously at increased risk of developing hepatitis B virus infection. Regards passing three decades from the end of the war between Iran and Iraq and other changes in general and military population, we aimed to evaluate HBV prevalence and risk factors on a large military community.

Methods: We estimated HBV prevalence in the military personnel of the Iranian army ground force who participated in the military health monitoring program during 2010-2016 by measurement of HBsAg in a 5-cc serum sample. We also compare HBV risk factors in HBV positive and negative military staffs by a questionnaire. Data were analyzed by SPSS-22 using Chi-square, Fischer, and Logistic regression analysis at 95% significant level.

Results: There were 109 HBsAg positive in 25167 military staffs (0.4%) which consisted of 96 (88.1%) HBeAg negative and 13 (11.9%) HBeAg positive patients. In the patients with positive HBsAg, Higher ALT level correlated with higher viral load (P<0.001) and hyper echogenicity in the liver sonography (P=0.008). A family history of HBV infection was the only risk factor of HBV acquisition in our study (P<0.001).

Conclusions: Prevalence of HBV infection was much lower in our military community compared to the general population of Iran and the previous military studies. So, we don't recommend any additional investigation such as supplementary HBV vaccination in the military community.

Disclosure of Interest: None declared
PT06.14
MRI ETIOLOGY OF CHRONIC LOW BACK PAIN IN A MILITARY POPULATION: A PILOT STUDY
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¹Neurosurgery, Khanevadeh Military Hospital, ²Infectious Diseases Research Center, AJA University of Medical Sciences, Tehran, Iran, Tehran, Iran, Islamic Republic Of

Rationale: Chronic low back pain (LBP) is one of the most common debilitating occupational diseases, resulted from some different etiology. It seems that the frequency of the disease is increasing, especially in young military staff. We aimed to evaluate etiology of the chronic LBP in the military personnel of Iran army ground forces, referred to the medical council of Khanevadeh military hospital by MRI, during the first six-month of 2016.

Methods: In a descriptive cross-sectional study, we reviewed all the registries of the patients with chronic LBP referred to the neurosurgery council of Khanevadeh military hospital, Tehran the first six-month of 2016. Data were gathered using a questionnaire. We used the Chi-square test and descriptive statistic in SPSS ver 22 software, IBM corporation for analyzing the data.

Results: 82 military patients with chronic LBP were studied. Mean age of the patients was 37.3±0.6 years. The most common etiologic MRI findings of LBP were disk herniation in 54 (65.9%), degenerative changes in 16 (19.5%), spondylolysis or listhesis in 9 (11%), and others 3 (3.6%). The most common military subspecialties were epic in 37 (45.1%), engineering in 24 (29.3%), and administrative in 21 (25.6%). We didn't find any relation between MRI etiology of LBP and military subspecialty by chi-square test (P=0.15).

Conclusions: The most important of our finding in this pilot study was the low mean age of the patients, who are in the active years of their occupation. Re-evaluating the military recruitment process or battle-learning courses may be necessary. We are continuing this study to evaluate a large sample of patients with chronic LBP.

Disclosure of Interest: None declared
ASSOCIATION OF TYPE 2 DIABETES WITH RISK FACTORS IN A MILITARY POPULATION

M. Saheb Honar¹, S. Baboli², S. Soleiman-Meigooni³.
¹Preventive Medicine, ²Neurosurgery, Khanevadeh Military Hospital, ³Infectious Diseases Research Center, AJA University of Medical Sciences, Tehran, Iran, Tehran, Iran, Islamic Republic Of

Rationale: Type 2 diabetes mellitus (T2DM) is one of the major’s non-communicable diseases, caused morbidity and mortality worldwide. There is no study on T2DM status in Iran Army Forces. We aimed to measure the prevalence of T2DM in this population and identify variables associated with T2DM risk to classify individuals.

Methods: Data from 3661 Iran army ground forces were employed. Characteristics are compared with subjects with and without T2DM. We examined the classification ability of logistic regression with two tree-based supervised learning algorithms, decision tree and random forest (RF).

Results: The prevalence of T2DM was 3%, less than the general population. Our results show that the incidence of T2DM increases as subjects become older. The proportions of staff members with T2DM are more than the other military ranks. T2DM is more common in obese and overweight groups. The highest prevalence of T2DM is in the subjects with high levels of lipid profile. The areas below the receiver operating characteristic curve for logistic regression, decision tree, and RF were 73.8%, 77.1%, and 97.1%, respectively.

Conclusions: Age, body mass index, total cholesterol, low-density lipoprotein cholesterol, and triglyceride are associated with T2DM risk. The RF has superior classification performance in comparison with logistic regression and decision tree.

Disclosure of Interest: None declared
PT06.16
DIAGNOSTIC UTILITY OF VENOUS AMMONIA LEVEL, SPLEEN SIZE AND INR IN ASSOCIATION TO OESOPHAGEAL VARICES IN LIVER CIRRHOSIS
S. V. S.1
1Internal Medicine, Amrita institute of Medical science and research, Kochi, India

Rationale: The objective of our study is to evaluate Diagnostic Utility of Venous Ammonia Level, Spleen Size and INR in association to oesophageal Varices in Liver Cirrhosis

Methods: Study setup: Hospital based study. Duration: December 2016 - January 2018 Study population: CLD patients. Variables: serum ammonia level, INR and Spleen size. The test group was divided into 2 groups based on parquet classification of esophageal varices where Groups 1 consisted of (grade I and grade II varices). Group 2 consisted of (grade III and grade IV varices). Inclusion criteria: Patients admitted with a diagnosis of CLD. Exclusion criteria: Patients who receive Endoscopic Variceal Ligation (EVL) or Scelero therapy. Presence of, active GI bleeding. Portal vein thrombosis, Hepatocellular carcinoma

Results: We found a male predominance in the age group of 50-60 years in CLD patients. Venous ammonia and spleen size were found to be a non-invasive biomarker for predicting oesophageal varices. Where venous ammonia was highly significant (p-value 0.00) occupying 85% in ROC analysis. Spleen size was also significant (p-value 0.036) occupying 67% in ROC analysis. INR was not statically significant

Conclusions: These biomarkers will play a major role predicting oesophageal varices in primary health care setup in forward areas, which will aid in early diagnosis and prompt referral to higher centre. It will reduce the morbidity and mortality associated with the diseases. Serve as an excellent diagnostic modality in patients whom endoscopy is contraindicated. These biomarkers will reduce the frequency of repeat endoscopy in CLD patients.

Disclosure of Interest: None declared
PREVALENCE OF FATTY LIVER ON ROUTINE SONOGRAPHY AND ITS ASSOCIATED FACTORS

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¹Military Medicine, Ministry of Defence Malaysia, Kuala Lumpur, ²Medicine, Tuanku Mizan Military Hospital, Wangsa Maju, Kuala Lumpur, ³Medicine, Hospital Putrajaya, Putrajaya, Malaysia

Rationale: Abdominal ultrasound is routinely done during annual senior officer medical health screening for the detection of fatty liver. The aim of this study is to determine the prevalence of fatty liver detected through ultrasound and its associated factors, in order to help risk stratify patients who will benefit from routine ultrasound during the senior officer medical health screening.

Methods: This is a retrospective analysis of 919 senior officers' health data recorded during annual medical health screening in 2018 done in Department of Military Medicine. Demographic data were analyzed using descriptive statistics. Factors associated with fatty liver were analyzed using Chi-squared test.

Results: The mean age of the population was 47.8 (SD± 6.7) years old, predominantly males (94.5%, n = 868) and Malays (92.3%, n = 848). The majority was from Armed Forces (61.5%, n =565), followed by Navy (20.5%, n =188) and Air Force (18.1%, n =166). 28.1% were current smokers, 8.5% had hypertension, and 1.5% had diabetes. The mean waist circumference is 89.6(SD±10.2) cm. Mean body mass index (BMI) was 26.0 (SD ± 3.1) kg/m². Mean total cholesterol was 5.57 (SD± 1.04) mmol/l, mean triglyceride level 1.82 (SD±1.2) mmol/l, LDL-C mean was 3.50 (SD ±2.19) mmol/l and HDL-C 1.32 (SD ±1.2) mmol/l. Liver enzyme profile showed mean AST level of 24.5 (SD± 17) iu/L and ALT 29.8 (SD±18) IU/L. Only 2 officers were positive for Hepatitis B surface antigen and Hepatitis C antibody on screening. Fatty liver was detected in 62% (n= 561) of the ultrasound performed. Fatty liver on sonography was associated with age > 50 years old (p=0.03), elevated triglyceride level 1.7 mmol/l and above (p=0.015), and BMI above 30 kg/m² (p < 0.05).

Conclusions: There is high prevalence of fatty liver detected on routine sonography. Senior officers who are 50 years old and above, those with elevated triglycerides and body mass index of more than 30 kg/m² should be considered for screening for fatty liver through ultrasound.

Disclosure of Interest: None declared
PREVALENCE OF DYSLIPIDEMIA AMONG AGE ABOVE 30 YEARS PERSONNEL OF SRI LANKA ARMY

E. Wickramarathna¹*, G. Jayaweera¹
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Methods: A descriptive study was conducted among 70959 subjects that consist of all Army personnel of age above 30 years. Data were collected throughout the period of 2014 to 2018. Three fully automated KONE biochemistry Analyzers were used to measure serum cholesterol level and all the tests were done with same reagent. Serum cholesterol level of 200mg/dl was taken as the cut off value and subjects with higher values were categorized as having dyslipidemia. Data was analyzed using Microsoft Excel 2010 version.

Results: Prevalence of dyslipidemia among Sri Lanka Army personnel of aged above 30 years was 41.84%(n=29688). Nearly half (49%) of subjects that aged over 50 years are dyslipidemic. Among Officers 60.65%(n=2201) & 40.83%(n=27485) of Other Rankers are dyslipidemic. 69%(n=74) of Second Lieutenants are dyslipidemic and it was the rank group which has the highest percentage. Overall 61.26%(n=43465) of Officers and 38.73%(n=27485) of Other Rankers are having dyslipidemia.

Conclusions: There is a high prevalence of dyslipidemia among Sri Lanka army personnel of age above 30 years. It would adversely influence on achievement of organizational goals of Sri Lanka Army. Multi-strategic preventive and curative interventions should be implemented and further strengthening of activities of "Healthy Army Healthy Nation" programme is highly recommended.

Disclosure of Interest: None declared
Rationale: The reason for choosing this topic is that brucellosis is the major causative factor for various diseases among the domestic animals and human beings. The study of the prevalence data has revealed that this disease is prevalent in various regions of the world; however, the prevalence rate is different in different regions. Moreover, there is a prime requirement to develop effective treatment and control approaches for this disease to avoid serious health consequences. Therefore, this study has taken into consideration the epidemiology of this disease and the preventive and control methods along with the treatment approaches.

Methods: The secondary qualitative research method was used for the collection of data from the evidence based databases. The content analysis was carried out to determine the epidemiology of this disease and the changing trend in the control and treatment of the disease.

Results: The results of the study revealed that epidemiology of the disease vary from region to region and for treatment a 6-week oral therapy with a combination of doxycycline and rifampin was effective and relapse was found among 10% of patients. Alternatively, fluoroquinolone plus doxycycline was found effective. Six weeks administration of doxycycline along with streptomycin for 3 weeks was also effective. Netilmicin or gentamicin can be used as a substitution of streptomycin. There is no available vaccine for the treatment of this infection among human. The control and prevention of the disease is possible by using preventive approaches.

Conclusions: The epidemiology of Brucellosis varies in different part of the world. There is an increased changing trend in the treatment and control of infection and there is a crucial need for the advancement in these trends.


Disclosure of Interest: None declared
NOISE INDUCED HEARING LOSS IN MILITARY PERSONNEL

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Rationale: hearing protection

Methods: As a first part of the screening study, 2519 subjects were evaluated, 1154 land force, 479 air force, 506 air defense and 380 from navy. First noise exposure survey filled by the study group. Then screening air conduction pure tone audiometry was done for each participant. Patients who did not pass the screening air conduction pure tone audiometry referred to the ENT and audiology unit for the further evaluation, complete history, otological examination and tympanometry.

Results: Table 2: The number and percentage of the affected and non affected screened subjects in different categories.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Land Forces</th>
<th>Air defense</th>
<th>Air force</th>
<th>Navy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>2519</td>
<td>1154</td>
<td>506</td>
<td>479</td>
<td>380</td>
</tr>
<tr>
<td>Affected</td>
<td>277</td>
<td>137</td>
<td>27</td>
<td>47</td>
<td>66</td>
</tr>
</tbody>
</table>

Conclusions: 277 (10.9 %) of high risk exposed subjects had high frequencies hearing loss. This hearing loss could be minimized with the proper use of hearing protective devices on exposure to intense noise level, as noise induced hearing loss is preventable disease by proper use of the hearing protective devices.


Disclosure of Interest: None declared
HAND HYGIENE COMPLIANCE CHALLENGE, MULTIDISCIPLINARY TEAM CAN MANAGE.
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¹Infection control, ²Family medicine, ³Intensive care unit, Armed Forces Hospital Jazan, Jizan, Saudi Arabia

Rationale: Armed Forces Hospital Jazan AFHJ was primary care facility, upgraded to 100 bed secondary hospital on January2017, at that time hand hygiene compliance was extremely low 19%.

Methods: Root cause analysis includes: decreased awareness among healthcare providers for World Health Organization (WHO¹) 5 moments, proper method of hand wash and rub, inadequate number of hand hygiene facilities and supplies and no monitoring for hand hygiene or feedback to Healthcare providers.
Our goal is to increase the hand hygiene compliance of healthcare providers from 19% to 65% within a period of 18months.
-A hand hygiene team was established with membership from:Infection control, quality, supportive services, Medical supply, ICU and nursing departments.
-The hand hygiene policy was updated according to WHO guidelines.
-Fixation of adequate hand hygiene supplies150 hand rub dispenser, 125 tissue holders, 125 soap dispenser and 20 hand washing sinks. Proper selection of hand hygiene supplies as soaps and hand rub.
-Competency hand hygiene training for all staff was conducted together with the health education to visitors and patients.
-Systematic monitoring of hand hygiene compliance according to WHO 5 moment observations, data validation, analysis and feedback to frontline personnel was done

Results: 18 months following a comprehensive education, proper implementation of WHO hand hygiene5 moments and adequate supplies, hand hygiene compliance increased from 19% to 64%

<table>
<thead>
<tr>
<th>month</th>
<th>Jan2017</th>
<th>Mar</th>
<th>May</th>
<th>Jul</th>
<th>Sep</th>
<th>Nov</th>
<th>Jan2018</th>
<th>Mar</th>
<th>May</th>
</tr>
</thead>
<tbody>
<tr>
<td>compliance %</td>
<td>19</td>
<td>28</td>
<td>31</td>
<td>38</td>
<td>41</td>
<td>50</td>
<td>56</td>
<td>61</td>
<td>64</td>
</tr>
</tbody>
</table>

Conclusions: To improve hand hygiene practices, implement mandatory competency training, ensure adequate hand hygiene supply and change personnel culture, significantly increased the hospital hand hygiene compliance rate which is closely monitored according to WHO 5 moments
Comprehensive, systematic and sustained change is the best solution.

ID Week: H.H Compliance Among HCPs in Outpatient Settings, Oct 2-6, 2013

Disclosure of Interest: None declared
PREVALENCE OF TYPE II DIABETES IN THE MILITARY TUNISIAN OBESE PILOT
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1ministry of defense, bardo, Tunisia

Rationale: Diabetes is an ongoing topic with the epidemic evolution of type 2 diabetes worldwide. This is a serious problem in the aviation industry, despite a strict medical selection of flight crew on admission and regular follow-up during review visits. Moreover, it is now well established that the risk of developing diabetes is particularly related to obesity, and this, especially, by the insulin resistance that it induces.

Methods: This is a retrospective study of 279 military pilots monitored at the Tunisian aeromedical center, from January to December 2017. 261 of them are male and 18 are female. Computerized medical records included anthropometric parameters including weight and height with calculation of the corresponding body mass index (BMI) and biological parameters (including fasting glucose and HbA1c).

Results: The average age is 38 years old with extremes ranging from 26 to 61 years old. 54.5% of our pilots were overweight and 20.1% were obese. Diabetes was diagnosed in 4.2% of non-obese subjects, 5.9% of overweight and 10.7% of obese patients.

Conclusions: These results suggest that type II diabetes is more common among obese pilots. This is particularly favored by unbalanced diet and irregular physical activity. The management of the obese diabetic pilot is thus essentially based on a lifestyle change, followed by the failure of a therapy compatible with the aeronautical activity, in order to preserve his ability to fly.

2.Shirafkan A, Marjani A. Prevalence of Obesity Among Type 2 Diabetes Mellitus In Gorgan (South East of Caspian Sea), Iran. World Appl. Sci. J. 2011; 14 (9): 1389-1396

Disclosure of Interest: None declared
Rationale: AMAZONLOG was an interagency multinational logistic exercise performed by the Brazilian Army that took place in the city of Tabatinga, state of Amazonas, Brazil, at the triple border among Brazil, Colombia and Peru, from November 6th to 13th 2017. Along with the Brazilian Army, military teams of the bordering countries, observers from 34 friendly nations and governmental agencies also took part in the exercise, which was inspired by the logistic exercise “Capable Logistician–2015”, carried out by some of the countries affiliated with the North Atlantic Treaty Organization in Hungary.

Methods: In the city of Tabatinga the Brazilian Army installed a Logistics Base and, in order to provide it with health support, one Forward Medical Service Station deployed with military doctors, para-medics, pharmacists, dentists, and veterinarian doctors. To prevent Brazilian troops and the other exercise participants from contracting various endemic diseases, actions such as water analysis, food safety and vector control were performed, and special attention was given to prevent accidents with snakes and others poisonous arthropods. The Operational Health team supported the exercise in tasks such as disasters simulation, humanitarian help and medical evacuations training as well as operational actions.

Results: Although a total of 139,000 meals were consumed by almost 2,000 participants over the course of eight days, there were only 15 cases of gastroenteritis registered, which could not be traced back to the meals served. No military personnel was neither affected by any vector born diseases nor bitten by any poisonous animals during the exercise, and there were no accidents that required real intervention by the Operational Health team.

Conclusions: The success of the operational health and preventive medicine actions employed by the Brazilian health team in the Amazon Jungle proved the importance of conducting such activities in any operational environment. On March 2018, the Brazilian Army’s Health Board created the Operational Health Course to ensure that such capabilities will be further increased through the continuous training of qualified military professionals in all kinds of fields operations.

Disclosure of Interest: None declared
Rationale: The paper aims to describe the preventive medicine and operational health actions held by the veterinary and medical officers deployed in the Brazilian Battalion’s Level I Medical Unit in MINUSTAH, as well as the sanitary activities developed during the earthquake and cholera outbreak in 2010, conducted to alleviate the suffering of the Haitian population.

Methods: In order to prevent Brazilian troops from contracting various endemic diseases such as cholera, hepatitis A, malaria and typhoid fever, water analysis, food inspections and safety and vector control actions were performed. Operational Health actions were the same as those regularly conducted on a Level I Medical Unit. Emergency actions were also conducted to assist earthquake victims.

Results: No significant cases of food poisoning occurred during the mission’s deployment and no military personnel was affected by cholera during the outbreak. There were also fewer cases of vector born diseases when compared to the expected amount of cases occurring in similar missions. The Brazilian medical staff intervention during the earthquake, as well as the regular health measures partaken in the Level I Medical Unit were recognized internationally.

Conclusions: The success of the operational health and preventive medicine actions employed by the Brazilian health team in MINUSTAH proved the importance of conducting such activities in any operational environment, be it in Brazil or internationally, while also showing the Brazilian Army’s capabilities regarding its possible future deployment in other UN peace operations. Through the creation, on March 2018, of the Operational Health Course by the Brazilian Army’s Health Board it is ensured that such capabilities will be further increased through the continuous training of qualified military professionals in this field of operation.

Disclosure of Interest: None declared
PT07.07
IMPLEMENTATION OF PERSONALIZED MEDICINE FOR MILITARY PILOT SELECTION
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Rationale: Introduction: Personalized medicine provides medical services in various aspects (health, prevention, diagnosis, treatment and care) which are appropriate to each person's genetics. Selecting volunteers as a military pilot requires special medical standards. Training the military pilots implies high cost.

Rationale: Personalized preventive medicine may be used to select healthy and non-problematic volunteers as a military pilot. It can also be prevented by evaluating the risk of a disease by preventing the onset of it, or postponing the disease beginning.

Methods: Methods: The present study is a narrative review based on Internet search using related keywords as personal medicine, prevention, military pilot, and regulations.

Results: Results: The age of the selection of individuals for military piloting is usually in late second decade of life, and many of the common illnesses are not yet presented at that time, which may develop later. One of the problems that will arise in the future after picking up a military pilot will be those suffering from diseases such as diabetes, hypertension, cardiovascular diseases, etc., which would lead to abandoning or restricting the military pilot in fulfilling the flight requirements. Due to the time and cost of training these persons, they cause financial losses and the loss of specialist skills.

Conclusions: Conclusion: The component of prevention in personal medicine and the preparation of genetic profiles of an individual can be used to select healthy volunteers with better physical future, to identify the risk of diseases, and to select people of lower risk. Given the time spent on training and the importance of flying safety, and the preservation of the lives of the military pilot, the use of personal medical equipment in selecting volunteers for military pilots can be effective in improving work and final conclusions.

Disclosure of Interest: None declared
PT07.08
BREAST CANCER PREVENTION WITH BISPHOSPHONATES AND AROMATASE INHIBITORS: A SYSTEMATIC REVIEW
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Rationale: IARC[1] in 2018 claims that the world faces more than 18million new cases of cancer, of which 9million will lead to death. The average incidence of cancer in Iran is similar to the world(world:182per100,000people, Iran:158per100,000people). Breast cancer has greatest incidence in the world(11.6%) and in Iran(12.5%). Bisphosphonates and aromatase inhibitors(AIs) are two class of cheap drugs that prevent the loss of bone density. Studying the effects of bisphosphonates and AIs on breast cancer prevention is main goal.

[1] International Agency for Research on Cancer

Methods: This essay are a systematic review of English articles published in PubMed, Research gate and Lancet since 2010. Being up to date, matching with keywords and accessing the full text were incoming metrics.

Results: Compared to Herceptin and Tamoxifen, AIs were able to reduce the likelihood of the cancer recurring by about a third over 5years. Als also reduced the risk of dying by about15% over the10 years. When Als were compared to no treatment at all, the reduced risk of dying shot up to40%. Bisphosphonates could reduce secondary tumors growing in the bone by17%. Researchers found that 2-5years with bisphosphonates reduced recurrence of cancer in the bone by28% and cut death rates by18% over the course of a decade. There are, however, some side effects to taking Als. Als can cause a reduction in bone density so two types of drug should be used together.

Conclusion: These results show bisphosphonates reduce the chance of breast cancer returning in the bones. Aromatase inhibitors block the body’s ability to make estrogen, which can fuel the growth of breast cancer. These cheap treatments should be considered for routine use in the treatment of early breast cancer. Further research is still important to how to give these drugs in combination with each other.

References: PubMed, Research gate and Lancet

Disclosure of Interest: None declared
Rationale: According to the current regulations of the Greek Army, all conscripts who want to become cadet officers or join the special forces, have to undergo cardiology exam. The current study presents the collaboration between a military medical base and the local civilian hospital for 247 candidates.

Methods: A total of 247 soldiers went through clinical examination, blood pressure monitoring and electrocardiogram (ECG). They filled in a questionnaire with personal data, personal and family history, which aims to spot any cardiovascular risk factors. Of the conscripts examined, 6 were decided that they needed a cardiac echocardiogram and one had to perform a treadmill test. Instead of transporting them to the two main military hospitals of Athens or Thessaloniki, it was decided that all would be examined in the local hospitals.

Results: In total, 176 conscripts were found healthy without any cardiac issues, 60 were found healthy with underlying minor heart issues (such as mitral prolapse), old heart and thorax issues (such as pneumothorax and myocarditis) or normal variants (such as right bundle branch block in the electrocardiogram), 2 were not suitable for army service, 8 were found to have issues that didn't allow them to serve at the special Forces or as cadet officers (such as hypertension and obesity) and one was sent to Athens for further investigations.

Conclusions: The cardiology department of the local hospital was fully co-operative, thanks to the direct contact of the military and the civilian cardiologists. All the procedures were performed after the hospital's day schedule by the military cardiologists. The examinations were fast, efficient and cost effective, and the result shows that a collaboration between military units and civil hospitals is feasible and saves time and money for the army.

Disclosure of Interest: None declared
PT07.10
VIRAL ENCEPHALITIS DUE TO H1N1 INFECTION – AN UNUSUAL PRESENTATION
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Rationale: H1N1 related Encephalitis and considering this diagnosis with present H1N1 endemicity

Methods: A 42 years old lady developed intermittent headache and projectile vomiting. She was operated for Pituitary Macroadenoma in 2009 and was on treatment for Ulcerative Colitis and Diabetes Mellitus for the past 04 years. On the third day of fever, had altered sensorium, brought to ER. O/E Temp 103F, Pulse 112/min, normal blood pressure. SpO2 was 95% at room air. CNS examination revealed GCS E1M4V1; pupils 3mm, not reacting; moving limbs to noxious stimuli, bilateral extensor plantars. Other systems unremarkable. Investigations revealed normal hematological/biochemical parameters. Peripheral smear and Paracheck for malaria, NS1Ag, IgG/IgM for dengue negative. Chest XRay was normal. Started on broad-spectrum IV antibiotics, Acyclovir and Artesunate. CE MRI Brain showed hyperintensities in bilateral posterior basifrontal region, mammillary bodies, hypothalamus, anterior thalamus with diffusion restriction of above areas and no contrast enhancement. Cerebrospinal fluid examination was suggestive of viral meningitis. Her arterial blood gas was normal. Repeat MRI showed increase in size of lesions seen previously with involvement of bilateral basal ganglia and midbrain. Throat swab for H1N1 by RT-PCR was positive (received on day 5). Despite all efforts, she succumbed on day 5 of hospitalization. CSF for Herpes Simplex Virus by DNA-PCR and Japanese Encephalitis virus IgM by ELISA were negative (received post-mortem).

Results: Absence of respiratory symptoms at presentation or after admission (not reported in literature yet) and unusual site of brain affliction. Risk of serious H1N1 infection is known in people with underlying medical conditions (diabetes mellitus, immune suppression, extremes of age, chronic ailments) and pregnant women[1,2,3]

Conclusion: Influenza associated encephalopathy/encephalitis in adults is a rare complication and remains a diagnostic challenge. Highlights the importance of considering this diagnosis with present H1N1 endemicity.


Disclosure of Interest: None declared
AN INVESTIGATION OF THE PREVALENCE OF MUSCULOSKELETAL DISORDERS, DYNAMIC BALANCE, ENDURANCE OF TRUNK FLEXOR AND SPINE EXTENSORS MUSCLES, AND CORE MUSCLES STRENGTH IN THE FLIGHT STAFF
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Rationale: Aims: Poor physical fitness and subsequent musculoskeletal disorders are the major reasons for absence from work and decreased occupational quality. Therefore, the purpose of this study was to investigate the prevalence of musculoskeletal disorders and assessment of some physical fitness factor in flight staff

Methods: Methods: This cross-sectional study was performed on 66 individuals (Age: Mean±SD: 36.1±7.1 years) from the flight staff of the Mehrabad aerial station randomly. Nordic questionnaire was utilized to evaluate the prevalence of musculoskeletal disorders. However, to assess the spinal extensor muscles endurance, trunk flexor muscles endurance, core muscles strength, and dynamic balance; Biering-Sorensen endurance test, a defined test for assessment of trunk flexor muscles endurance, Pressure-Biofeedback, and Y balance test were used, respectively.

Results: Results: The most prevalent musculoskeletal disorders among subjects were as the followings: lumbar spine (24.2%), knees (18.1%), and cervical spine (13.6%). A negative and significant correlation was found between most dynamic balance factors and spinal and trunk muscle endurance and core muscles strength.

Conclusions: Conclusion: It can be concluded that there is high prevalence of musculoskeletal disorders in the lumbar spine, knees, and the cervical spine compared to the other areas of the body. Furthermore, low endurance and strength of spinal, trunk and core muscles was observed.

Disclosure of Interest: None declared
Rationale: This perspective plan study was done to suggest measures to improve physical and mental health status of the troops.

Methods: It was an observational descriptive study with a focus to highlight factors affecting health and the perspective plan using a public health approach.

Results: Overall morbidity due to all causes was around 75/1000/year. Injury due to non-enemy action (rate range 6.4-8.4/1000/year) was the leading cause of morbidity. About 3% of the total service personnel were in low medical category serving in active operational area.

(a) Communicable diseases
Amongst communicable diseases viral hepatitis was the leading cause followed by respiratory infections, GI diseases and malaria in that order. Important diseases that were capable of causing epidemic were chickenpox, meningitis, dengue and malaria.

(b) Non-Communicable diseases/disorders
Amongst non-communicable diseases important causes of morbidity and mortality were identified as NEA injuries including RTAs, falls, burns, lifestyle diseases and combat stress related disorders. Mental health issues were also important causes of morbidity. Sudden deaths were found to be a cause of concern and many of these were due to cardiac causes.

(c) Operation related injuries
Important injuries due to operations were mine blast injuries and Gunshot wounds. Mine blast injuries mostly involved lower limbs and resulting in loss of limb and lifelong disability.

Conclusions: It is important for us to put the combat medical care and combat health care on top of the agenda by reducing loss of manpower due to preventable causes.

Disclosure of Interest: None declared
INVESTIGATION OF SEIZURE AS A RARE BUT IMPORTANT COMPLICATION IN HYPERBARIC OXYGEN THERAPY

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Rationale: In 1834 Junod beneficial effects of hyperbaric oxygen therapy on humans discovered. Pravaz in Lyon and Tabarie in Myntpylt both the positive effects of immersion in pressurized air for the treatment of various diseases found. Including high pressure oxygen interesting effects on patients caused by Pseudomonas aeruginosa, like osteomyelitis of new applications in the treatment chamber air embolism, necrosis caused by radiation, anaerobic bacteria resistant, carbon monoxide poisoning, problems and difficulties wound healing can be noted. Hyperbaric Oxygen Therapy involves risks for nervous system such as oxygen poisoning such as seizures in patients who are breathing O₂ at a pressure of 2 atm or higher to be Nitric oxide synthase over nitric oxide, which causes delays in onset NOS role that the brain poisoning with hyperbaric oxygen through the inhibition of NOS is caused seizures.

Methods: This article is systematic review through Internet search with key words.

Results: In an animal study showed that Cerebral blood flow may affect the latency of seizure, brain blood flow increases, so that the latent period before the seizure of nitric oxide synthase inhibitors decreased (NOS) increase and therefore is prolonged seizures. In a study of the central nervous system poisoning with hyperbaric oxygen investigated. In this study, patients treated from 1992 to 2001, six patients were seizure (0.03%). In another study of patients with indications for oxygen therapy at 2.4 atm pressure were treated with only 2 seizures were recorded. The incidence is 2.4 per 100,000 patient. Suggested that the earlier a patient's tolerance by prescribing a half hours of oxygen with pressure 2 atmospheres gauge and then if tolerated it increase or continue and this action poisoning CO₂ or septicemia with anaerobic bacteria may be necessary.

Conclusions: According to the papers that although hyperbaric oxygen therapy may be a useful therapeutic effect on the treatment of various diseases, but may also have effects such as seizures, which indicates the various articles of Inhibition of nitric oxide synthase 2 under the high-pressure oxygen atmosphere (NOS), which is an increase cerebral blood flow, which reduces latency to onset and will also prolong the seizure.

Disclosure of Interest: None declared.
THE EFFECT OF VITAMIN D SUPPLEMENTATION ON TESTICULAR TEMPERATURE IN SOLDIERS WITH VARICOCELE USING THERMAL IMAGING

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Rationale: Varicocele increases the temperature of the testicle, which is detectable by thermal imaging. Vitamin D supplementation is hypothesized to exert effects on the temperature of the testes and reduces it in patients with varicocele.

Methods: A total of 70 soldiers with varicocele referred to Shahid Beheshti hospital were undergone the survey. The diagnosis was made on the basis of clinical examination. Institutional ethical committee approval was obtained. All of the subjects followed a recommended diet. Firstly, the testicular thermography was performed for all of them. Afterward, a randomized, double-blind sampling method was used and the subjects were randomly allocated to two groups: vitamin D group (n=35) and placebo group (n=35). Vitamin D group received oral vitamin D3 (Cholecalciferol) 60,000 IU per month for 6 months and the placebo group received the placebo powder in the form of glucose sachet. After six months, the testicular thermography was performed for two groups again and the data obtained were compared. Non-contact infrared camera of VIS-IR 640 was used so as to thermography. Data were analyzed by SPSS software Version 17 through statistical tests with a significance level of 0.95.

Results: The results indicated the significant reduction in testicular temperature by administering monthly vitamin D especially in patients with varicocele with the grade of 3. (P =0.044).

Conclusions: The findings obtained illustrated a substantial controlling of testicular temperature in patients with varicocele by administering vitamin D. Hereupon, it is recommended to consider the vitamin D supplementation along with other treatments.

Disclosure of Interest: None declared
Rationale: Hepatitis infection is a real concern in patients on haemodialysis particularly in the developing world where prevalence of viral hepatitis is higher than in developed countries. This work aims to assess the prevalence of viral hepatitis B and C and to identify risk factors in military hemodialysis centres.

Methods: It is a cross-sectional study conducted between June 1st and 31st August 2018. The study included patients with end-stage renal disease undergoing haemodialysis since at least three months and who had performed serology for hepatitis B and C. We collected for each patient epidemiological data, clinical history of transfusion and HIV status. Statistical analysis was done on EPI Info 7.

Results: Among 62 patients, three were excluded and 59 patients selected. Mean age of patients was 40.1 years (19-70 years) with 50.8% of men. The most frequent causes of kidney disease were nephroangiosclerosis (49.1%), diabetes (16.9%) and primitive chronic glomerulonephritis (22.0%). Mean haemodialysis vintage was 30.5 months (06-123 month). The prevalence of hepatitis B and C were 3.38% and 1.69%. Only 40 patients had protective antibody levels. Age and haemodialysis vintage were the main factors associated with the occurrence of viral hepatitis. However, other factors such as gender, nutritional status or number of blood transfusions were not significantly correlated with the risk of viral infection.

Conclusions: The prevalence of viral hepatitis in military hemodialysis is still high and dominated by HBV infection. This epidemiological patterns could be improve with more sensitization among young soldiers, better prevention of blood transmitted infections and universal HBV immunisation coverage.

Disclosure of Interest: None declared
PT07.16
DETERMINE THE MEDICAL CAUSES AND DISEASES WHICH LED TO EARLY AND PERMANENT MEDICAL DISQUALIFICATION OF IRANIAN AIR FORCE CADETS FROM 1986 TO 2016
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Rationale: Preparation of cadet volunteers to enter aeronautical training and provision of optimal services requires a lot of material spiritual resources that disabilities, make them waste and there is no way except of prevention. Purpose of this research is detected the medical causes and diseases which lead to the early and permanent medical disqualification (EPMD) of IRIAF cadets from 1986 to 2016.

Methods: This is a descriptive, cross-sectional, retrospective study with target population of IRIAF cadets with EPMD from 1986 to 2016, and data has been extracted from medical documents and medical council records.

Results: 80 cases of early medical discharges including 25 martyrs and 55 EPMD. The main causes were ENT, psychiatry, cardiac. Common diseases include motion sickness (MS), generalized anxiety disorder (GAD), adjustment disorder. The total number of lost service years (LSY) was 1412 person years and its average was 25.67 person years. Most of the medical causes of LSY were related to ENT, psychiatric and cardiac, and diseases included MS, GAD, adjustment disorder. Medical causes resulted in highest average of LSY, including neurologic, psychiatric and ENT, and major diseases including HBP, occupational hearing loss, GAD.

Conclusions: We expected that the most common causes of EPMD in cadets, such as pilots, include neurology, cardiac and psychiatric, and the most LSY and its average are result from psychiatric. was found that the results which extracted from studies in pilots and cadets are very different.

Disclosure of Interest: None declared
DETERMINE THE CAUSES AND DISEASES LEADING TO EARLY AND PERMANENT MEDICAL DISQUALIFICATION OF NON-PILOT FLIGHT CREWS IN IRANIAN AIR FORCE BASED ON THEIR SERVICE CATEGORIES FROM 1986 TO 2016

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Rationale: Preparation of military non-pilot volunteers to enter trainings and provision of optimal services requires a lot of material spiritual resources that disabilities, make them waste and there is no way except of prevention. Purpose of this research is to determine the medical causes and diseases which lead to early and permanent medical disqualification (EPMD) of non-pilot flight crews (NPFC) in IRIAF, based on their service categories, from 1986 to 2016.

Methods: This is a descriptive, cross-sectional, retrospective study with target population of IRIAF NPFC with EPMD from 1986 to 2016, and data has been extracted from medical documents and medical councils. In IRIAF, NPFC service categories include flight engineer, navigator, crew chief, load master, flight care, mechanic, flight security, hostess, information and operation, boom operator and martial control.

Results: 228 cases of early medical discharges were detected, including 47 martyrs and 181 EPMD. The main causes of EPMD were psychiatric, neurologic and ear, nose and throat (ENT), while common diseases include generalized anxiety disorder (GAD), occupational hearing loss (OHL) and myocardial infarction (MI). The total number of lost service years (LSY) was 2457 person years and its average was 13.57 person years. Most of the LSY and its average were related to psychiatric causes, while most of the LSY was belonged to GAD and its most average was seen in specific flight phobia.

Conclusions: Based on the previous studies on pilot’s populations, most common causes of EPMD included neurosurgery, cardiac and psychiatric. Due to similarity in occupational environment between pilots and NPFC, expected that the named causes were referable to NPFC, but our results were different.

Disclosure of Interest: None declared
Determine the Medical Causes and Diseases Which Led to Early and Permanent Medical Disqualification or Service Exchange of Iranian Air Force Pilots Based on Their Service Categories from 1986 to 2016

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Rationale: Preparation of military pilot volunteers to enter training and the provision of optimal services requires a lot of material spiritual resources that disabilities, make them waste and there is no way to reduce except of prevention. Purpose of this research is to determine the medical causes and diseases which lead to the early and permanent medical disqualification (EPMD) or permanent medical exchange in service categories (PMES) of IRIAF pilots, based on their service categories, from 1986 to 2016.

Methods: This is a descriptive, cross-sectional, retrospective study with target population of IRIAF pilots with EPMD from 1986 to 2016, and data has been extracted from medical documents and medical councils. In IRIAF, there were 3 main service categories as fighter, transportation and helicopter.

Results: 474 cases of permanent disqualification were collected, including 218 martyrs, 17 war captives and 239 pilots with medical retirement. Among medical retirements, there were 171 fighter, 46 transportation and 22 helicopter pilots. In war captive pilots, there were 16 fighter and 1 helicopter pilots. 34 cases of permanent medical exchange in service categories (PMES) was recorded, including 28 fighter, 3 transportation and 3 helicopter pilots. The total lost service years (LSY) was 3233 person years, with an average of 12.63 person years. Most of the LSY belonged to neurosurgery causes and their mean was belong to psychiatric causes. Most of the LSY was related to Lumbar discopathy and the highest average of LSY was due to migraine.

Conclusions: Most common causes of pilot's EPMD included neurosurgery, cardiac and psychiatric with a high prevalence of fighter, transportation, and helicopter categories. The highest number of LSY and its average were related to psychiatric disorders with abundance of fighter, transportation and helicopter categories. In the end, we found that our results were in line with the initial expectations. It seems that the outbreak of the Iran and Iraq war, the events of Middle East region and the daily tensions of flight occupations have an inevitable impact on our results.

Disclosure of Interest: None declared
INCIDENCE ESTIMATION AND SEVERITY DETERMINANTS OF TRAUMATIC SPINAL CORD INJURY IN KOREAN MILITARY

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Rationale: Traumatic spinal cord injury (SCI) is a catastrophic disease that affects individuals and society due to persistent sequela. For this reason, the overseas researches have been actively reported at the national or regional level, but there are no epidemiological studies conducted on specific population groups in Korea yet.

Methods: From May 2012 to December 2017, a total of 3,011 patients with a diagnosis of traumatic SCI registered on N-DEMIS (New Defense Medical Information System) were listed and duplicate patients were eliminated. Then, 89 patients with traumatic SCI who finally meet the definition of American Spinal Injury Association (ASIA) were reviewed by a rehabilitation specialist.

Results: The average incidence of traumatic SCI in the study was 24.99 per 1 million people per year. The military officers were 19 (21.3%), NCOs (non-commissioned officers) 30 (33.7%), soldiers 38 (42.7%), and cadets 2 (2.25%) and the mean age at injury was 29.82 (± 9.99) years. According to the common classification criteria of overseas researches, 37 cases (41.6%) suffered traumatic SCI due to falls, 16 cases (18.0%) were injured by motor vehicles accidents, There were 14 (15.7%) injuries during military training, 11 (12.4%) sports injuries, 7 (7.9%) diving injuries and 4 (4.5%) other injuries. There were 64 patients (71.9%) of cervical SCI, 9 patients (10.1%) of thoracic SCI, and 16 patients (18.0%) of lumbosacral SCI. The degree of impairment was classified as AIS (ASIA Impairment Scale). Twenty four patients had complete paralysis which made of AIS A 19 (21.3%) and AIS B 5 (5.6%). On the other hand, patients with incomplete paralysis were 65 (73.0%), consisted with AIS C 14 (15.7%), AIS D 51 (57.3%), respectively. When the severity of traumatic SCI was classified as 'complete paralysis' and 'incomplete paralysis', the shorter the military career and the younger age at the time of injury, the more significant correlation was found with the severity of SCI.

Conclusion: This is the first study to present the incidence of traumatic SCI in military by epidemiological method and to analyze the incidence of specific population in Korea.

Disclosure of Interest: None declared
PT08.02
SUDDEN DEATH IN THE ARMY: FROM 2007 TO 2014 REVIEW OF DEATH REGISTRY
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Rationale: The purpose of this study was to investigate characteristics and causes of sudden death in young, healthy adults of the Republic of Korea army.

Methods: We performed a retrospective study based on mortality data in the army from January 2007 to December 2015. Cases falling into sudden death criteria were included in the study. The sudden death was defined as a case of death either within 1 hour of the onset of acute symptoms, or within 12 hours of having been observed alive when it was found as a dead state.

Results: Of total 1088 deaths, 107 cases were classified as sudden death, and autopsies were conducted for 90 cases. Syncope(54.2%) was the most common prodromal symptom of the sudden deaths, and dyspnea(24.5%), chest pain(11.2%), and vomit(5.6%) followed. The exercise(36.4%) was the most common activity at the time of sudden death, and resting(30.8%) such as sleeping, activities of daily living(30.8%) followed. Of 90 cases who underwent autopsy, there were 32 cases(35.6%) with coronary artery disease, 31 cases(34.4%) with unexplained sudden death, 17 cases(18.9%) with hypertrophic cardiomyopathy, 6 cases(6.7%) with myocardial bridge, and 4 cases(4.4%) of miscellaneous causes. Miscellaneous causes were dilated cardiomyopathy, tricuspid valve stenosis, aortic dissection, and arrhythmogenic right ventricular cardiomyopathy. Autopsy results showed that coronary artery disease was frequent in a group with 35 years of age or older (p < 0.001), whereas unexplained sudden death and hypertrophic cardiomyopathy were frequent in a group younger than 35 years old (p = 0.004 and p = 0.01, respectively).

Conclusion: In order to prevent sudden deaths in the army, we should try to screen for unexplained death and hypertrophic cardiomyopathy among soldiers younger than 35 years old. For soldiers with 35 years of ages or older, we need to focus on screening for coronary artery disease.

Disclosure of Interest: S. Ko Grant / Research Support from: The Armed Forces Medical Command
GENETIC STUDIES ON SCHIZOPHRENIA IN SAUDI ARMED FORCES: 1. ROLE OF THE METHYLENETETRAHYDROFOLATE REDUCTASE (MTHFR) C677T POLYMORPHISM

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Rationale: Methylenetetrahydrofolate reductase (MTHFR), a critical enzyme in folate metabolism is involved in metabolic pathways of importance for nucleotide synthesis and methylation of DNA, membranes, proteins and lipids. The functional polymorphism of MTHFR gene, C677T has been shown to impact various diseases and implicated as a risk factor for the development of various neurodegenerative and psychological disorders including Schizophrenia.

Methods: We investigated MTHFR C677T genotypes and alleles frequencies in Schizophrenia and matched healthy controls from Saudi armed Forces. One hundred seventy three schizophrenia patients were studied for MTHFR C677T polymorphism and compared with 280 controls, employing the polymerase chain reaction-restriction fragment length polymorphism technique (PCR-RFLP). The MTHFR gene was amplified using specific primers. The PCR products (294bp) was subsequently digested with HinfI (New England Biolabs) at 37 °C for 12 h, separated by electrophoresis on 2% agarose gels, and visualized with ethidium bromide staining.

Results: The frequencies of the genotypes and alleles of MTHFR C677T differ significantly between cases and controls. The frequencies of allele T and genotype CT were significantly higher while the frequencies of allele C and genotype CC were lower in schizophrenia patients as compared to controls (p =0.03). These results indicate that the allele T and genotype CT of MTHFR C677T polymorphism are significantly associated with schizophrenia while allele C and CC genotype may be protective for it.

Conclusions: It is concluded that the MTHFR C677T polymorphism increases the risk for schizophrenia development in Saudi armed forces and can be a genetic marker however, further studies are needed with larger sample to strengthen these findings.

Disclosure of Interest: None declared
Rationale: Schizophrenia is one of the most common devastating psychiatric disorders that negatively affects the quality of life and psychosocial functions. Its etiology involves the interplay of complex polygenic influences and environmental risk factors. Inflammatory markers are well-known etiological factors for psychiatric disorders, including schizophrenia. The aim of this study was to investigate the association of pro-inflammatory cytokine genes, tumor necrosis factor (TNF) -α (-308G/A) and TNF-β (+252A/G) polymorphisms with schizophrenia susceptibility.

Methods: TNF-α and TNF-β genes were amplified using ARMS primers in 180 schizophrenia patients and 200 healthy matched controls recruited from Saudi Armed Forces visiting psychiatry clinic of Prince Sultan Military Medical City, Riyadh. The frequencies of alleles and genotypes of (TNF)-α (-308G/A) and TNF-β (+252A/G) polymorphisms were compared in patients and controls.

Results: The frequencies of TNF-α (-308) allele A and genotype GA were significantly higher while those of allele G and genotype GG lower in schizophrenia patients as compared to controls indicating that genotype GA and allele A of TNF-α(-308G/A) may increase susceptibility to schizophrenia while genotype GG and allele G may reduce it. On the other hand the distribution of alleles and genotypes of TNF-β (+252A/G) polymorphism does not differ significantly in patients from controls, however the frequency of genotype GG of TNF-β (+252A/G) was significantly higher in male as compared to female patients. The distribution of TNF-α (-308G/A) and TNF-β (+252A/G) polymorphisms was almost similar in schizophrenia patients with negative or positive symptoms.

Conclusions: TNF-α (-308G/A) and TNF-β (+252G/A) polymorphisms may increase the susceptibility to schizophrenia and could be potential risk factor for its etiopathogenesis. However, further studies with larger sample are warranted to strengthen our findings.

Disclosure of Interest: None declared
NEUROSURGERY IN HUMANITARIAN FIELD MISSION. 
EXPERIENCE OF MOROCCAN FIELD HOSPITAL IN FAVOR OF REFUGEES SYRIANS IN ZAATARI CAMP IN SYRIAN-JORDANIAN BORDERS. 
EVALUATION OF « NEUropsychological TEAM » CONCEPT.

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Rationale: To evaluate the role and effectiveness of the « neuropsychological team concept » to manage and assist neurosurgical, neurological, psychiatric casualty in humanitarian field missions. The neuropsychological team was made by a neurosurgeon and psychiatrist.

Methods: This evaluation was made in Moroccan field Hospital (MFH) in Zaatari camp in Syrian-Jordanian borders during 24 months. All refugee presented with neurosurgical, rhumatological or psychological disorders were evaluated by the neurosurgeon and psychiatrist. A child with psychological disorders was invited with their family to multiples seances therapy group and drawing.

Results: The MFH is a multidisciplinary hospital with medical and surgical activities with 60 beds. 28 multidisplinary doctors. The MFH was an open space to receive any kind of injury and any patients (civilian, military), with free dispensation of medicines, food, and hygienic kits. 17079 patients were assisted during 20 months. 8349 women's/7264 mens and 1466 Childs. The most frequent neurosurgical disease encountered are spinal degenerative and trauma. Head trauma and some soft tissue wound due to torture. Encountered neurological pathologies include: Epilepsia, movements disorders, stroke. Neuropsychiatric manifestation was dominated by cephalalgia psychogenic, panic, insomnia and night terror in child. The neuropsychological team coordinate to assist distress responses of refugial, the behavioral changes and chronic psychiatric illness decomposed by the disaster.

Conclusions: A concept of neuropsychological team has good results in this humanitarian hostile environment to manage, neurosurgical, neurological and psychological disorders. The concept must be evaluated by others studies in different type of disasters.

Disclosure of Interest: None declared
Rationale: During the deployment of French soldiers in operation, the military health service is responsible for providing medical and psychological support for these combatants through a complete medical chain, from immediate care on the field to their evacuation in France. Strategic aeromedical evacuations (AME) for medico-psychological reasons represent the second cause of evacuation from operation theaters. From January 2013 to December 2016 in the French armed forces, 2853 AME were carried out of which 655 for psychological disorders. What are the clinical and contextual elements allowing the indication of an evacuation out of operational theaters for the military personnel? How will the action of the medical officer, first practitioner taking in charge the combatants in the area of operation, be articulated with the intervention of the psychiatrist on the theater, especially when the evacuation times are long?

Methods: We try to answer these questions through our feedback as a military psychiatrist recently in mission in Mali. We propose a retrospective and descriptive study, based on the analysis of patient files with an AME indication.

Results: Aeromedical evacuation requests were made into account not only the seriousness of the mental disorders presented but also their repercussions, particularly on the combatant's ability to continue his or her mission to his or her post. In each situation, the psychiatrist was requested by the medical officer of the Role 1.

Conclusions: Although the expertise of the specialist is a real added value on operation, the military general practitioner remains the main coordinator of the care system. The quality and effectiveness of the collaboration with the psychiatrist are the guarantee of the relevance of the medical evacuation request.

Disclosure of Interest: None declared
Rationale: Mental disorders (especially personality disorder) are one of common reasons for early separation from the military service. The purpose of this study was to evaluate the relation of self-mutilation and personality disorder among soldiers.

Methods: In this case-control study, 30 soldiers referred to an army psychiatric hospital (cases) and 30 soldiers referred to another military health center (controls) were evaluated for personality disorders by clinical interviews on the basis of DSM-IV criteria. The frequency of self-mutilation and personality disorders were then analyzed by SPSS statistical software.

Results: Totally, 63.3% of case group and 6.7% of control group had history of self-mutilation. The frequency of personality disorders was 56.7% and 20% in cases and controls, respectively. In case group, 78.9% and 18.2% of patients, respectively, with and without a history of self-mutilation, had cluster B personality disorder (P=0.002). This difference remained significant among control group (P=0.003).

Conclusions: Regarding the relationship between self-mutilation with cluster B personality and impulsivity of these personalities, detection and preventive treatment of patients or exempt in severe cases prior to entering military service may be useful for reducing the incidence of self-mutilation and suicide.

Disclosure of Interest: None declared
THE STUDY OF THE FREQUENCIES OF THE PSYCHIATRY DISORDERS (AXIS I) IN AWOLS

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Rationale: The purpose of this study is evaluation of prevalence of psychiatry disorders (axis I) in soldier of separation from military service.

Methods: In a descriptive-cross sectional study, 102 awoles and 105 soldiers referred to a clinic of army psychiatric hospital, were evaluated for Psychiatry (AXIS I) disorders by clinical interviews on the basis of DSM-IV criteria. The results were then analyzed by SPSS statistical software.

Results: In this study, the frequencies of psychiatry disorders in awols respectively major depression disorder 27.27%, cyclothymia 25.97%, dysthymia 25.97%, bipolar mood disorder (1) 7.79%, bipolar mood disorder (2) 6.49%, adjustment disorder 6.49% and in the soldiers referred to army psychiatric hospital are respectively 47.5%, 12.5%, 13.75%, 15%, 6.49% and 7.5%.

Conclusions: Regarding the high prevalence of psychiatric illnesses in fugitive soldiers, the need to screen psychiatric illnesses in soldiers (especially in high-risk cases), training commanders in early diagnosis and rapid refer to health centers, and monitoring the regular treatment of these patients. It is also required to be sent to the Army Psychiatric Council to be exempted from military serving patients who are not allowed to continue serving them.

Disclosure of Interest: None declared
Rationale: Personality disorder are one of commen reason for early separation from the military service, and the most frequency of premature elimination from the serving. The goal of this study is evaluation of prevalence of personality disorder in soldiers separated from military service.

Methods: In this study 102 awoles and 105 soldiers referred to a clinic of army psychiatric hospital, were evaluated for personality disorders by clinical interviews on the basis of DSM-IV criteria. The results were then analyzed by SPSS statistical software.

Results: In this study, the frequencies of personality disorders in awols 73 percent and in the soldiers referred to clinic 22 percent (p value 0/00). The frequencies of the most personality disorders (hysterionice, borderline, and antisocial) in awols are respectively 29, 18, and 23 percent and in soldiers referred to clinic are 16/2, 3/8, and 1 percent which there was a significant difference between two groups (p value in borderline 0/02, hysterionic 0/00, and antisocial 0/00).

Conclusions: The frequencies of personality disorders in awols were more common than community and soldiers which referred to clinic of hospital. Initial evaluation of psychiatry (diagnosis of psychiatric disorders and personality disorders) soldiers in initiating military serving, as well as training commanders in identifying personality disorders and behavioral problems, handling them as well as referring them to Counseling and health centers should be carried out. And soldiers who can not serve are referred to the Army Psychiatric Council to determine where they will be assigned to serve or exempt from service.

Disclosure of Interest: None declared
PT08.11
THE ROLE OF CONTROLLING THEIR EXCITEMENT AND COMPASSION IN PREDICTING MENTAL HEALTH OF POLICE FORCES
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Rationale: Police play a very important role in the health and safety of each community. Police officers face a lot of physical and mental health problems due to high-impact events, which can seriously affect their mental health. Therefore, the purpose of this study was to investigate the role of excitement and compassion in predicting mental health of police officers.

Methods: In this descriptive-correlation study, 343 employees of police force were selected by random sampling method in 2018. Data were collected by emotional control questionnaire, self-inclining scale and mental health questionnaire. Data analysis was done by SPSS software using Pearson correlation coefficient and stepwise regression analysis. The two variables of emotional control and Self-compassion in total explained 82% of mental health variance, of which 37% were related to emotional control and 45% were related to self-compassion (P <0.05).

Results: According to the definition of the WHO, the ability to adapt to the social environmental conditions, having an appropriate response to life problems and incidents, forms an important aspect of mental health (1). Identifying the effective factors on mental health can increase and improve it. Studies emphasize that those who continuously suppress and relieve their emotions are at increased risk of depression, anxiety, and PTSD. Therefore, emotional control can affect psychological health (2). Also, other factors affecting mental health are compassion for themselves. Studies have revealed that increasing Self-compassion predicts psychological well-being. Self-compassion can promote well-being, because it helps people feel secure, connected, and relaxed (3).

Conclusions: Police officers who have a busy and busy job can feel a lot of mental health if they are able to control their excitement and compassion. Based on this, it is suggested that appropriate programs and training be used to improve and strengthen factors such as controlling their excitement and compassion in order to increase their mental health.

THE EFFECT OF THE STRATEGY OF COPING TRAINING WITH TWO PROBLEMS SOLVING AND ROLE PLAYING METHODS ON THE RESILIENCE OF NURSES IN THE EMERGENCY DEPARTMENT OF MEDICAL CENTERS OF KERMANSHAH MILITARY FORCES

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2department of health police, police hospital, master of science in nursing, 3department of health police, police hospital, medical cardiologist, 4department of health police, police hospital, basic of science in nursing, kermanshah, Iran, Islamic Republic Of

Rationale: Resilience is one of the skills that helps nurses to adapt to the stresses of their work environment, so training their skills plays a significant role in dealing with professional and occupational problems on negative experiences. The present study was carried out to determine the Effect of the Strategy of Coping training with Two Problems Solving and Role playing Methods on the Resilience of Nurses in the Emergency Department of Medical Centers of Kermanshah Military Forces, To provide useful information in this regard.

Methods: This quasi-experimental was research performed with a comparative approach on nurses of the emergency department in both groups before and after the intervention. The subjects were Non-probability sampling into two groups of 31 subjects. Data were collected using Conner and Davidson questionnaire. The data were analyzed using descriptive and inferential test in SPSS v.24 (t-test).

Results: The results showed that the level of resilience in nurses was moderate in both groups. The problem-solving and role play training had a significant effect on the resilience of nurses in the emergency department of the treatment centers. Also, the effect of role playing training on increasing the resilience of nurses was significantly more effective than problem solving training.

Conclusions: The results of the current study showed In both groups at the end of training reduce stress levels, reducing negative emotions and increase job satisfaction were reported, which can be due to increased resilience in nurses. that the resiliency skills training could promote job satisfaction components of psychosocial working conditions in nursing personnel. Therefore, Accordingly it is recommended providing resilient training for nurses, especially nurses in the emergency department.

Disclosure of Interest: M. Karami Grant / Research Support from: department of health police, A. zamanifar: None declared, S. chaghazardi: None declared, M. sohrabi: None declared, Y. fatemikhah: None declared, S. mohamadi: None declared
INVESTIGATING THE APPLICATIONS OF MOBILE-BASED SOFTWARE IN MENTAL HEALTH OF MILITARY AND POLICE OFFICERS: A SYSTEMATIC REVIEW

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Rationale: Considering the positive impact of using mobile health (mHealth) in providing a variety of care services to people with various types of mental and behavioral disorders, Armed Forces Health Services have also taken advantage of this technology and have achieved successful experiences. This study was aimed at identifying and explaining the applications of mobile-based software in the mental health of the military forces.

Methods: The present study is a systematic review conducted in 2019. To identify the relevant studies, a combination of keywords such as “military”, “military medicine”, “behavioral disorders”, “mental disorders”, and “mobile health” were searched in PubMed, Scopus, Embase, and ISI (web of Sciences) databases by applying inclusion and exclusion criteria. Data were collected from selected articles using a data extraction form, were analyzed using content analysis techniques, and were summarized and reported based on the study objectives.

Results: Of the 124 articles found in the initial screening, a total of 14 studies fulfilled the inclusion criteria. The results of this study showed that mHealth was most commonly used for PTSD with 36% (5 out of 14 studies), as well as for soldiers in the battles with 57.14% (8 out of 14 studies). The United States has used mHealth the most with 71.43% (10 out of 14 studies). Also, the most important goal of using mHealth was to treat mental disorders, followed by screening, self-management, and prevention. All reviewed articles emphasized the usefulness of the application of mobile-based software for improving the mental health of military forces.

Conclusions: The results of this study showed that mobile-based software can be used in a wide range of mental disorders for various purposes such as treatment, prevention, and screening. These programs can be used for various military forces, especially soldiers in combat and veterans with mental disorders. Therefore, the utilization of mobile-based software is suggested to the medical team and military psychologists as a useful tool.

Disclosure of Interest: None declared
PT08.14
EFFECTS OF VITAMIN D SUPPLEMENTATION ON SYMPTOMS OF DEPRESSION IN IRANIAN SOLDIERS WITH LOW LEVELS OF SERUM 25-HYDROXYVITAMIN D: NESTED CASE—CONTROL STUDY AND RANDOMIZED CLINICAL TRIAL
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Rationale: Several studies demonstrate the prevalence of symptoms of depression in soldiers is more than the whole of society. Vitamin D supplementation is hypothesized to exert effects on the symptoms of depression in soldiers.

Methods: A total of 300 soldiers with low levels of vitamin D were enrolled for the study. Institutional ethical committee approval was obtained. A randomized, double-blind sampling method was used and subjects were randomly assigned to two groups: vitamin D group (n=150) and placebo group (n=150). Vitamin D Group received oral vitamin D3 (Cholecalciferol) 40000 IU per week for 6 months and the placebo group received placebo powder in the form of glucose sachet. Soldiers with high serum 25(OH) D levels (n=150) were used as nested controls. Depressive symptoms were evaluated with the Beck Depression Inventory. The criteria for entering the study was the Beck Depression Inventory (BDI) score with the score from 1 to 13. Data were analyzed by SPSS software version 17 via statistical tests with the significance level of 0.95.

Results: Soldiers with low 25(OH) D levels (n=300) scored significantly higher (more depressive traits) compared to the subjects with high 25(OH) D levels (n=114) (P<0.05). In the vitamin D group, there was a significant improvement in BDI scores after 6 months in comparison with the placebo group (P<0.05). There was no significant difference between the vitamin D group and nested control. In the placebo group, no significant change was observed in the scores after 6 months.

Conclusions: The results indicate that there seems to be a significant relationship between serum vitamin D levels and symptoms of depression and suggest that vitamin D supplementation is appeared to be impressive in reducing the symptoms of depression.

Disclosure of Interest: None declared
PT08.16
INCIDENCE OF PTSD IN MILITARY PERSONALS REFREED TO NATIONAL MILITARY ANNEX HOSPITAL (PSYCHIATRY & REHABILITATION DEPT) 2017-2018.
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Rationale: This study evaluates the incidence of PTSD among military personals in (PSYCHIATRIC & REHABILITATION ) 2017-2018

Methods: Descriptive case series study of 2100 referred patients (military combatants) to psychiatry and rehabilitation of NATIONAL MILITARY ANNEX HOSPITAL KABUL AFGHANISTAN 2017-218

Results: Sample consist of 2100 referred patients were included in the study, patients aged from 18-54 yrs, Male:2071 (1250 Psy +821 Rehab) Female: 29 (Psy).
PTSD was the primary diagnosis in 12.55% in males (194 Psy and 66 Rehab) 2.4% in females (Psy).
Secondary diagnosis of PTSD was found in 45 inpatients with other medical illnesses.

Conclusions: Specialist referral maybe indicated for military combatants experiencing prolonged recovery following combat trauma ( psychological and physical disabilities ), individa, group, cognitive behavioral therapy can be included in psychotherapy and supportive therapy to decrease the rate of PTSD related social disabilities among military combatants, we found to lesser extent the relationship between the severity of physical disability and PTSD, however more researches are required to guide the future interventions.

References: Diagnostic and Statistical Manual of Mental Disorders 5th edition.
American Psychiatric Association, Washington DC.
World atlas Oishimaya Sen,Nag2018.
Disclosure of Interest: None declared
STUDY OF THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND MENTAL HEALTH IN SOLDIERS
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Rationale: A high emotional intelligence and mental health makes soldiers immune to the problems and leads them to more conformity in military fields. This study aimed to investigate the relationship of emotional intelligence with mental health and demographic factors in IR army soldiers

Methods: This was a descriptive, explanatory, and quantitative study. Research population included all soldiers of a military unit in Tehran city. Of them, 350 subjects were randomly selected with simple random sampling. Three questionnaires including General Health Questionnaire (GHQ), emotional intelligence (Schutte et al.), and demographic information were used for data gathering in this research

Results: It was shown that emotional intelligence has a significant negative relationship with mental health \( (r=-0.523) \) and its components including somatic symptoms \( (r=-0.328) \), anxiety \( (r=-0.388) \), social dysfunction \( (r=-0.461) \), and depression \( (r=-0.470) \). Also, according to the average scores of mental health components (24.74), soldiers were at a relatively high level of healthy.

Conclusions: This study indicated that emotional intelligence is highly correlated with mental health and its components among soldiers. Thus, people with high emotional intelligence are more self-reliant and have a more positive attitude to themselves. They also have a more tendency to confront the problems and solve them to reduce stress in their life.

Disclosure of Interest: None declared
PREVALENCE OF BURNOUT SYNDROME AMONG NURSES WORKING IN CRITICAL CARE UNITS IN A QUATERNARY HOSPITAL: A CROSS SECTIONAL STUDY

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Rationale: Excessive workload has always been a cause for burnout among health care professionals. Employee performance, rates of illness, absenteeism, accidents & staff turnover is all affected by employees mental health status. Critical care areas are characterized by a high level of work related stress factor known to increase the risk of burnout syndrome. As per WHO India is short of 1.94 million nurses & Indian Burnout prevalence is 23% to 30% & appx 30 to 50% of workforce is exposed to psychological overload at work resulting in occupational stress or Burnout.

Methods: A cross sectional descriptive study was conducted among 30 nurses working in selected critical care units (Medical Surgical ICU, PCICU, ICCU & CSICU) with minimum 1 month duration of experience in critical care, using purposive sampling technique. The tool used was Modified Copenhagen burnout inventory for assessing burnout among nurses working in critical care settings. Analysis & Interpretation of the data was done using statistical test (Mean, standard deviation & Chi square test).

Results: Association of years of experience with burnout

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>Mild Burnout</th>
<th>Moderate Burnout</th>
<th>Severe Burnout</th>
<th>Total</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5 yrs</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>5-10 yrs</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>&gt;10 yrs</td>
<td>9</td>
<td>3</td>
<td>2</td>
<td>14</td>
<td>13.89&lt;sup&gt;S&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>8</td>
<td>10</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

<sup>S</sup> table value -9.49 at p- 0.05

The results revealed that 56.7% of subjects belongs to the age group of 21-30 yrs. 46.6% of the subjects were with <5 years of service. The mean burnout score of samples were 49.16 ±1.84. Majority of the nurses 53.3% had moderate, 26.6% had mild & 20% of nurses had severe burnout. There was a significant association between burnout score & years of experience (p=0.007%), those who had < 5-10 yrs of experience had moderate to severe level of burnout. The nurses those had >10yrs of experience had mild burnout.

Conclusions: Increase in the percentage of nurses suffering from burnout possibly results in poor patient care, stressful working environment and staff shortage. As the nurses are frontline worker & the backbone of health care system, policy makers should adopt appropriate strategies for increasing the satisfaction of nurses and thereby reducing the burnout syndrome.

Disclosure of Interest: A. Thomas Other: concern for the mental health issues of nurses & paramedics
Rationale: Since the prevalence of Post-traumatic Stress Disorder (PTSD) is escalating among military personnel together with a global rise in the use of Complementary and Alternative Medicine (CAM) therapies, it is worth exploring the potential integration of CAM in the treatment and management of PTSD.

Methods: Literature was searched using the databases such as PubMed and Google Scholar with no date restrictions. Search terms included “PTSD”, “Military”, “CAM”. Snowball technique was also used.

Results: PTSD is an anxiety disorder caused by intense shocking and traumatic events including combat. Conventionally, the treatment of PTSD involves the use of medications such as antidepressants and psychotherapy and can reduce the severity of some PTSD symptoms. However, their effectiveness is limited and many patients discontinue these treatments before achieving full remission. The limited approaches and unmet treatment needs of patients provide a compelling argument for effective integration of conventional and CAM techniques for the treatment and management of PTSD.

Recent studies indicate that CAM therapies are being used by nearly 50% of patients who have PTSD. CAM use among veterans and the civilian population was estimated at 23% to 50%. Moreover, CAM use is widespread among veterans in specialized PTSD programs of Veterans Administration (VA) in the USA. Another survey revealed that some forms of CAM are offered along with specialized PTSD treatment. A qualitative study indicated that high veteran demand was cited as a facilitator for promoting CAM in VA.

Conclusions: In view of the rising popularity of CAM techniques among military personnel in the management of PTSD, it would be an encouraging step to integrate it with conventional PTSD therapies. However, at the same time, it is crucial to increase the evidence base related to safe and effective CAM use.

Disclosure of Interest: None declared
Rationale: Need identified to mitigate mission power loss through MEDEVAC for mental health reasons.
Methods: The Combat Operation Stress Control (COSC) Restoration and Reconditioning Center (RRC) concept offers a comprehensive and cost effective approach to mental health care in combat and operational environments. The RRC aims to enhance unit readiness, performance enhancement, and preserve the fighting strength. Within the U.S. military, significant amounts of funding are allocated to the Medical Evacuation (MEDVAC) process. The ultimate goal of restoration and reconditioning is onsite, close proximity rehabilitation with the goal of returning the Warfight to duty. The restoration-reconditioning program is built on the following tenets: individual therapy, group therapy, command consultation, mind-body interventions, medication management, sleep consultation, functional assessments, and performance enhancement, within a structured military setting. The purpose of the RRC concept is to mitigate MEDEVAC from operation, from a mental health perspective.
Results: Still in data collection phase.
Conclusion: Engaging in an intensive block of behavioral health interventions, such as the ones represented in the RRC contribute to reduced rate of MEDEVAC for mental health reasons.
References: Army Technical Publication 4-02.5
Disclosure of Interest: None declared
Rationale: The Global Severity Index (GSI) is an indicator for assessing the severity of the mental state of the psychological trauma that is higher than the borderline in the pilots (53%). Tension is common mental disorders in pilots. Anxiety (a non-specific response to the stimulants) is reported to be the main cause of aviation safety and, in terms of the reverse relationship between stress and general health, stress endanger flight safety. The purpose of this article is to investigate the tension in the pilots and provide a solution to reduce it.

Methods: This essay was a systematic review of articles published in SID and Google Scholar since 2002. Being up to date, matching with keywords and accessing the full text were incoming metrics.

Results: Occupational burnout as a physical, emotional, and mental state of tiredness generally results from job-related stress. 8% of the sample population of pilots are sick and 26% are exposed to burnout. Occupational stress is accompanied by burnout, which ultimately leads to a threat to the mental health of the pilots. There is a significant correlation between mental disorders and occupational burnout in a vicious circle. The inverse relationship between stress and age indicates the effect of experience and compliance. Athletes’ stress is less reported than those who do not exercise. There is a significant positive correlation between social, economic, familial with stressful factors. The highest average is for economic factors. A significant relationship between pilots and co-pilots in the level of stress and in general health indicates that co-pilots are at increased risk.

Conclusion: The establishment of a Center for the Prevention and Cure of Psychological Disorders of Pilots and Stress Training Workshops is recommended for officials, flight staff and aerospace medical physician. Using a psychometric examination such as physical examination can be effective in choosing students. The inclusion of a regular exercise program is recommended. Improving the economic situation reduces the role of stressors.

References: SID and Google Scholar

Disclosure of Interest: None declared
Rationale: Anxiety sensitivity as a cognitive variable reflects individual differences that are characterized by fear of anxiety feeling and indicates a tendency to dismay about the consequences of such feelings. Anxiety sensitivity is a structure of individual differences in which a person is concerned about physical signs associated with anxiety arousal and basically comes from the belief that the signs get to potential injurious consequences. In other words, tendency to fear is a catastrophic interpretation of signs of anxiety and it is the causative agent that maintains and sustains most of the mental disorders, especially the anxiety disorders class and acts to increase anxiety responses and create fears of stimulus excitant.

Methods: This study is a cross sectional analytic study. The statistical population of this study is all medical and paramedical students of the AJA University of Medical Sciences. The data collection tool was ASI questionnaire that includes three factors of fear of physical anxiety, fear of lack of cognitive control and fear of observing anxiety by others. The obtained data were analyzed using independent T test coefficient and analyzed using SPSS version 21 software and p<0.05 considered significant.

Results: There is no meaningful relationship between fear of physical anxiety and major. (p=0.97)
There is no significant relationship between fear of lack of cognitive control and major.
There is a significant relationship between the fear of observing anxiety by others and major which is higher in paramedic students. (p=0.05)
There is no meaningful relationship between anxiety sensitivity in general and the field.
Total average= 37.66667
Medical total average= 36.95

Conclusion: Given the low average score in all students it can be concluded that in AJA university of medical sciences the anxiety sensitivity is lower than usual and there is also no relation between fear of lack of cognitive control and fear of physical anxiety with major but fear of observing anxiety by others in paramedical students is significantly more than medical.

Disclosure of Interest: None declared
PT09.05
STUDY OF RELATIONSHIP BETWEEN POSTTRAUMATIC STRESS DISORDER AND MENTAL HEALTH
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Rationale: Posttraumatic stress disorder (PTSD) is an abnormal physiologic and psychological reaction in person with severe traumatic history. In recent studies, the relationship between PTSD and mental health has been revealed. Thus, the aim of this study was to evaluate mental health in PTSD patients.

Methods: The research design was retrospective cohort study. Subjects were consisted of 142 Iran-Iraq war veterans with PTSD diagnosed by 2 psychiatrists, aging 40-60 years old and the control group was consisted of 153 veterans without PTSD. Data was collected using interview and questionnaires. Independent t test and Chi2 test were used for statistical analysis.

Results: The survey of mental health showed that PTSD patients had psychiatric disorders, significantly.

Conclusions: PTSD patients are more prone to psychiatric disorders than control group.

Disclosure of Interest: None declared
**PT09.06**

**THE WAR WITHIN A MILITARY VETERAN - A QUESTIONNAIRE BASED STUDY ON THE ILLNESSES FACED BY THE RETIRED VETERANS IN INDIA**


1Internal Medicine, 2Amrita institute of Medical science and research Centre, Affiliated toAmrita Vishwa Vidyapeetham., Kochi, 3Indian Army, Hisar, 4Indian Army, Anandhapur, 5Indian Navy, AFMC Pune, Pune, India

**Rationale:** The study will reveal the diseases faced by the Indian veterans and assess their general, physical, emotional and social wellbeing and to formulate preventive strategies

**Methods:** This Pan Indian study was conducted on 100 veterans attending ECHS clinics in Kerala, Andhra Pradesh, and Haryana. Informed consent was obtained, following which demographic details, history, comorbidities and questions to assess the general well-being by SF 36 and a questionnaire, was done. The scores for different categories under SF 36 were calculated and the data was tallied in Excel sheet. Using SPSS data analysis tool, the results were obtained

**Results:** In our study of 100 patients with mean age 63.5 years, 28% consume alcohol of which, 96.5% have in moderation and 3.5% are alcoholics. 19% are habituated to smoking, of which 50% have COPD with a p-value of 0.001. 52% suffer from Systemic Hypertension, 42% have Type 2 DM, 23% have CAD, 22% have malignancy, 14% suffer from COPD, 10% have CLD, 9% have Osteoarthritis and 7% have had CVA. From 0 to 100, the mean Physical functioning score is 51.96 with 27.00 SD, mean Social functioning score is 59.07 with 22.55 SD, mean Emotional wellbeing score is 63.45 with 19.11 SD, mean Pain score is 55.54 with 30.40 SD and the average General Health score is 54.64 with 19.21 SD.

**Conclusions:** This is a Pan Indian effort to study the health of veterans and the pattern of diseases and devise suitable recommendations to the Defence Authorities. Psychological counselling and smoking cessation measures can improve the physical health and social wellbeing of veterans.

**Disclosure of Interest:** None declared
PT09.07
THE EFFECTIVENESS OF MANUAL THERAPY AND EXERCISE THERAPY IN TREATING NON-SPECIFIC NECK PAIN PATIENTS
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Rationale: This systematic review aims to evaluate the effect of MT and/or exercise therapy on the pain and disability caused by NS-NP and to find the best available evidence from the literature.

Methods: Study Design: A systematic review of the literature. Search Strategy: An inclusive search of different electronic databases (MEDLINE, CINAHL, PEDro, Science Direct and CENTRAL) was conducted to find the most relevant randomised controlled trials (RCTs) to satisfy the inclusion criteria of the review. The reference lists of relevant studies were also searched to find yet more relevant studies. Means of Analysis: The methodological quality of the RCTs included was assessed using the PEDro scale.

Results: Twenty-five RCTs were eligible for inclusion in this review (13 trials for exercise therapy and 12 for MT). The total number of study participants was 3,422. The mean age of participants was 44. The mean sample size was 137. The methodological quality of the trials was high, except for two trials assessed as being of low quality (a score of 5 on the PEDro scale).

Conclusions: Conclusion: Within the limitations of this systematic review, both MT and exercise therapy showed beneficial effects on NP pain and disability in the short term. However, the efficacy of MT on disability in the long term needs further investigation.

Disclosure of Interest: None declared
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Rationale: The cost for care in nursing homes or hospitals for Alzheimer’s disease is high and increases if care is mobilized to their own homes making it necessary to create smart houses. Patient is assisted by an intelligent artificial system to provide assessment while being linked to relatives or care providers.

Methods: Many challenges face observing Alzheimer’s patients for daily life activities. The main challenges are related to the method, the people, and the observation time span. These challenges are:

Forty eight patients were records from a total of 306 patients were linked to the clinic at the survey time. Data for this study were collected between 13th September and 29th November 2013.

Results: Table 2: Descriptive analysis of observations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale/category</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs.)</td>
<td>&lt;=40</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>41-50</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>51-60</td>
<td>4</td>
<td>8.3%</td>
</tr>
<tr>
<td></td>
<td>61-70</td>
<td>9</td>
<td>18.8%</td>
</tr>
<tr>
<td></td>
<td>71-80</td>
<td>23</td>
<td>47.9%</td>
</tr>
<tr>
<td></td>
<td>&gt;80</td>
<td>12</td>
<td>25%</td>
</tr>
<tr>
<td>Gender (—)</td>
<td>Male</td>
<td>34</td>
<td>70.8%</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>14</td>
<td>29.2%</td>
</tr>
<tr>
<td>Stage of the disease</td>
<td>Mild cognitive impairment</td>
<td>11</td>
<td>22.9%</td>
</tr>
<tr>
<td></td>
<td>Mild Alzheimer's disease</td>
<td>22</td>
<td>45.8%</td>
</tr>
<tr>
<td></td>
<td>Moderate Alzheimer's disease</td>
<td>15</td>
<td>31.3%</td>
</tr>
<tr>
<td>Place of residence</td>
<td>Own house</td>
<td>18</td>
<td>37.5%</td>
</tr>
<tr>
<td></td>
<td>Live with family</td>
<td>30</td>
<td>62.5%</td>
</tr>
<tr>
<td></td>
<td>Hospital</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Care home</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Medical conditions</td>
<td>Arthropathy</td>
<td>3</td>
<td>6.3%</td>
</tr>
<tr>
<td></td>
<td>Cancer</td>
<td>3</td>
<td>6.3%</td>
</tr>
<tr>
<td></td>
<td>Depression</td>
<td>8</td>
<td>16.7%</td>
</tr>
<tr>
<td></td>
<td>Diabetes mellitus</td>
<td>37</td>
<td>77.1%</td>
</tr>
<tr>
<td></td>
<td>Hearing loss</td>
<td>11</td>
<td>22.9%</td>
</tr>
<tr>
<td></td>
<td>Heart disease</td>
<td>11</td>
<td>22.9%</td>
</tr>
<tr>
<td></td>
<td>Hypertension</td>
<td>36</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>Lung disease</td>
<td>5</td>
<td>10.4%</td>
</tr>
<tr>
<td></td>
<td>Osteoporosis</td>
<td>5</td>
<td>10.4%</td>
</tr>
<tr>
<td></td>
<td>Parkinson's disease</td>
<td>5</td>
<td>10.4%</td>
</tr>
<tr>
<td></td>
<td>Sleep disorder</td>
<td>9</td>
<td>18.8%</td>
</tr>
<tr>
<td></td>
<td>Vision and eye diseases</td>
<td>12</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Other disease</td>
<td>2</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

Conclusions: The hypothesis of this study is based on the belief that inhabitants will behave in consistent and routine way. Thus, behaviour models can be developed accordingly based on probability modelling over few days of behaviour monitoring datasets using machine learning techniques. Recent trends depend on "simulation models” extraction from irregular patterns of daily activities using intelligent ontology systems. However, humans generally perform many activities in parallel, thus single behavioural model would not be useful enough to distinguish abnormal activities from routine activities. Hence, multi-behaviour variable models are vital for effective Elderly Smart Home Design Task


Disclosure of Interest: None declared
ROLES OF THE MILITARY NURSE DURING CONFLICT AND INSURGENCY

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Rationale: Should the role of nurses change regardless of situations or conditions they found themselves. No! Because the importance of nursing care goes beyond conflict and insurgency

Methods: Information gotten from nursing and military archives.

Results: The first thing that comes to mind is rescue when disaster or conflict occur and organizations swing into action to rescue and evacuate victims or casualties. It is an organized activity involving the rescue team of the nation or state that is the military, police and other trained personnel. In most cases the rescue team goes to the site with trained medical personnel who are in most cases military/police with ambulances and sometimes with Aircrafts on standby for emergency evacuation. The military, police and other trained personnel are always deployed to handle such incidents. However, during insurgency only the military or uniformed personnel are deployed to handle the situations and as such the roles of the military nurse cannot be over emphasized as they are sent to attend to the hostages or casualties under a special cover, with the hope of being a mediator between the authorities and the terrorists. Thus most nations are affected today by the above therefore, many countries have ready made plans to fall back to at any time such situations/ calamities occur with well trained rescue teams on standby.

Conclusions: Conflict is a very serious argument or disagreement between one or more people which can be external or internal. Conflict cannot be discussed without talking of disaster, insurgency and terrorism/terrorists. In most cases the Military, Police and other trained personnel are always deployed when such chaos occurs as well as medical personnel especial the nurses. Military nurses as part of the rescue team! owes it to the nursing profession to perform their nursing duties during this critical period.

References: Paper Presentation on Rescue operation in conflict situations by Wing Commander H Bashari at 18th session of scientific conference

Disclosure of Interest: None declared
PT09.10
THE RELATIONSHIP BETWEEN BASIC AND INSTRUMENTAL ACTIVITIES OF DAILY LIVING AND RISK OF DEVELOPING PRESSURE ULCER ULCER IN HOSPITALIZED PATIENTS IN KERMANSHAH POLICE HOSPITAL
S. mohamadi1,*, S. chaghazardi2, M. karamidehbaghi3, M. sharifi4, M. peak1
1department of health police, police hospital, master of science in nursing, 2department of health police, police hospital, medical cardiologist, 3department of health police, , Faculty member of police research department ,master of science in Clinical Psychology, 4department of health police, police hospital, basic of science in nursing, kermanshah, Iran, Islamic Republic Of

Rationale: Pressure ulcers are among the most important challenges facing the realm of health and medicine. Lack of movement and physical activity is the main reason for pressure injuries. Thus, this study was carried out with the aim of determining the relationship between basic and instrumental activities of daily living with pressure ulcer risk assessment, and thus helping nurses and families in preventing pressure ulcers through appropriate measures.

Methods: The current study is a cross-sectional descriptive study carried out on 350 patients of internal and surgical clinics of universities affiliated with Kermanshah Hazrate Abolfazl Hospital through available sampling. The research questionnaire included 4 sections: personal information, basic activities of daily living Katz scale, instrumental activities of daily living Lawton scale, and the Braden pressure ulcer risk assessment scale. Data analysis was carried out by SPSS software version 20.

Results: With an increase in the dependency of basic and instrumental activities of daily living, pressure ulcer risk increased (P<0.001). The intensity of the relationship was greater in instrumental activities of daily living. There was a direct correlation between all sub-scales of basic and instrumental activities of daily living with pressure ulcer risk (P<0.001).

Conclusions: Pressure ulcer risk can be prevented by determining individuals’ degree of dependency in activities of daily living and implementing preventive interventions for their empowerment.

Disclosure of Interest: S. mohamadi Grant / Research Support from: department of health police, S. chaghazardi: None declared, M. karamidehbaghi: None declared, M. sharifi: None declared, M. peak: None declared
STRESSORS AMONG BASIC BSC NURSING STUDENTS IN A SELECTED COLLEGE UNDER INDIAN ARMED FORCES
I. Das¹
¹Psychiatry Nursing, Indian Army, Kolkata, India

Rationale: Baccalaureate Nursing course is a demanding training which mandates knowledge, skills and the ability to withstand stressful situations like death and emergencies. Specially in Armed Forces, the road to becoming a Nursing Officer from a Cadet can be a difficult transition. It is necessary to conduct a study on stressors among Nursing students under Indian Armed Forces.

Methods: A descriptive cross-sectional study conducted with 120 samples by stratified random sampling. A structured questionnaire with 6 items for demographic data and 34 items to assess the stressors. ANOVA applied to determine contribution of demographic factors on stress level.

Results: Students reported moderate to high stress. Maj stressors were Clinicals and Academics. The age group 17-20 years had a lesser mean percentage stress score than that of age group 21-24, difference being a significant 5.96. The students who had their fathers working in defence services had a higher mean percentage stress score than others, difference being a significant 8.57

Conclusions: Major stressors were clinical and academic stressors. Increased age of the students and father’s defence occupation have an association with the higher perception of stress. Hence Nursing faculty in the Armed Forces should create caring and supportive learning environments.

Disclosure of Interest: None declared
PT09.12
STUDY OF SCIENTIFIC LEVEL AND PRACTICAL READINESS OF POLICE GRADUATES NURSING FACED WITH INJURIES
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1 Applied Research Office of General Health Naja(police) , Tehran, Iran, Islamic Republic Of

Rationale: The purpose of this study was to determine the level of scientific knowledge and practical readiness of police graduates nursing in Mashhad in the face of injuries, the points of weakness and strength of the scientific and practical skills of graduates nursing that identified with some reasons and it can be a way to create retraining courses and the use of qualified staff in these departments by managers.

Methods: This descriptive analytical study was carried out and by census method on the third period of police graduates nursing in Mashhad. The tools used include comprehensive health check book to measure the level of science and a checklist was used to measure skills. These tools are made by the researcher that was confirmed by experts. The data were analyzed by SPSS software and descriptive statistics.

Results: The average score was 80.1 ±13.5, their practical score was 203.5±17.2. The results of Pearson correlation test showed a significant correlation between scientific and practical score (p = 0.001). Also, there was a significant positive correlation between the total score and the scientific and practical scores (p = 0.001).

Conclusions: The results showed that the higher the level of scientific knowledge of police nursing about high-quality skills, their skills in practice have also been improved. So even for those who graduate and are busy serving, decrease their scientific level can affect the quality of their clinical skills and reduce the quality of their performance. Therefore, it can be predicted that these police nursing, needed courses to improve and update their scientific knowledge to prevent their clinical performance.

Disclosure of Interest: None declared
RFID ENABLED HEALTH CARE IN NURSING PRACTICES

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¹Base Hospital, Delhi Cantonment, Ministry of Defence, Government of India, New Delhi, India

**Rationale:** Usage of RFID Technology in various nursing practices in health care is the new way to providing more efficient and error free services in the health care sector. RFID technology is also seen as a disruptive innovation in health care and represents several opportunities for increased safety, operational efficiency and cost savings for tagging inventory, assets, patients and personnel.

**Methods:** This study was non systematical review of literature. Literature search was conducted with the help of libraries, books, medical journals and also Google search. For literature search keywords RFID, healthcare was used in different forms in combination with keywords adoption, nursing practices, patient safety, inventory management, patient identification. From literature that had been collected, a detailed study was done to understand on the implementation and scope of RFID applications.

**Results:** The preliminary search resulted in 68 articles. After a careful analysis of the content of each paper, a total of 33 papers were selected based on their relevancy.

**Conclusions:** (a) RFID can be used in nursing practices for rapid access to patient data, safe administration of injections and medicines and control of human error. Installation of RFID technology has found to reduce the burden of inventory control, supply overstock and replenishment of medical supplies.

Tracking with RFID tags whether its doctors, nurses, patients, or inventory items is a real time saver during routine or in emergency. Tracking also includes specimen, blood products, patient records and high value assets of the hospital. Due to increment of human errors and patients, and also the decrement of medical staff, researchers found that RFID technology is chosen as a suitable solution.

**References:**

**Disclosure of Interest:** None declared
**Rationale:** Suctioning the airways through an endotracheal tube, is an important intervention to management the patients under mechanical ventilation which is usually done by nurses and if it doesn't accomplish properly, it can cause lots of side effects.

**Methods:** This is a clinical trial which is done at selected army hospitals in Tehran in 2017. After preparing instruction of standard suction by the researcher and validity confirmation, standard suction (by researcher) and in the second turn, routine suction (by the nurse of patient), or conversely is done for 36 patients considering their need, randomly by tossing coin. HR, O2Sat, PIP, SBP, DBP and MAP were recorded just before and immediately, 5, 10 and 15 minutes after procedure.

**Results:** there were not a significant different in the mean O2Sat between the two methods before the procedure but a significant increase was observed immediately, 5, 10 and 15 minutes after the standard procedure. HR, PIP, SBP, DBP and MAP did not change significantly between the two groups.

**Conclusions:** considering the necessity of endotracheal suctioning for cleaning the secretions, by doing it in a correct way, doing hyper oxygenation before suctioning for 30-60 seconds, reducing it's time in to less than 15 seconds and using a catheter with a diameter less than the half diameter of endotracheal internal diameter, we can reduce it's side effects, as well as preventing the patient hypoxia.

**Disclosure of Interest:** None declared
PT09.15
IDENTIFY COPING MECHANISMS OF ONE OF THE MILITARY FORCES IN DEALING WITH STRESSORS
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¹nursing, Baqiyatallah University of Medical Sciences, ²nursing, University of Social Welfare and Rehabilitation, Tehran, Iran, Islamic Republic Of

Rationale: Since the military forces are faced with many stressors, it is essential identifying their coping mechanisms in dealing with the stressors

Methods: This was a cross-sectional descriptive-correlational study and its sample was 384 of staffs affiliated to the Navy Force in one of the military forces who were selected by cluster random sampling. Data collection tools were demographic questionnaire, a questionnaire on military stressors developed by Azad Marzabadi and Lazarus-Folkman's coping mechanisms questionnaire. Stressors were evaluated in six areas (factors related to the region of workplace, social factors, occupational, personal, familial and military-related factors) and coping mechanisms in eight subscales including; confronting coping, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem solving, and positive reappraisal. Data were analyzed with SPSS-18 software and descriptive and inferential statistic tests

Results: Among the stressors highest level of stress was related to the military field with an average of 17.95. The most coping mechanisms were used was positive reappraisal with an average of 10.65. The average of problem-based mechanisms was significantly more than emotion-focused mechanisms with p< 0.001. There was a direct and positive correlation between the most stressor with emotion-focused mechanisms by p < 0.005 and were negative correlation with problem-based mechanisms.

Conclusions: This study demonstrated that participants are used more of problem-based mechanisms in dealing with stress factors. However, it is necessary to done take the appropriate measures to reduce the use of emotion-focused strategies and also reinforce the use of problem-based coping mechanisms

Disclosure of Interest: None declared
CRITICAL NURSING PRACTICE GUIDELINES FOR HEAT STROKE (CNPG:HS)
O. Pengpinid¹, A. Sujariyanurak¹, C. Usap¹, L. Buapadung¹
¹Medicine, Phramongkutklao general hospital, Bangkok, Thailand

Rationale: Critical Nursing Practice Guidelines for Heat Stroke (CNPG: HS)

Methods: - A retrospective, single-center analysis of all diagnose EHS patients who admitted in a medical intensive care unit (ICU) of Phramongkutklao army hospital in Thailand between 2016 and 2018 were conducted.
- All demographic data and clinical variables were collected.
- An univariate analysis followed by multivariate regression was performed to detect the relevant risk factors for hospital mortality.

Results: - Exertional heat stroke (EHS) patients often have respiratory failure.
- Therapeutic hypothermia can reduce body temperature effectively
- Increase survival rate

<table>
<thead>
<tr>
<th>Profiles</th>
<th>2016 Group 1*</th>
<th>2016 Group 2**</th>
<th>2017 Group 1*</th>
<th>2017 Group 2**</th>
<th>2018 Group 1*</th>
<th>2018 Group 2**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Exertional heat stroke (EHS) patients who admitted at ICU</td>
<td>10</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>1. Temperature reduction rate according to the target 33-36 C within 4 hours (%)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>1. The temperature control rate within 72 hours can be achieved according to the target (%)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>1. The reheat rate after 72 hours until moving out of ICU</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1. Length of stay in ICU less than 7 days (%)</td>
<td>50</td>
<td>70</td>
<td>100</td>
<td>0</td>
<td>25</td>
<td>100</td>
</tr>
<tr>
<td>1. Long term complication of Cerebellar dysfunction (%)</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1. Having respiratory failure needed intubation</td>
<td>10+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Number of Acute Kidney Injury patients</td>
<td>ECMO =1</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>1. Muscle weakness and CPK rising (CRRT)</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>1. Mortality rate</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1: Clinical profile
*Group 1: Training between May to July
*Group 2: Training between November to January

Conclusions: The goal of heat injury treatment is to rapidly decrease the core temperature of the body. The complexity of diagnosis is an important issue. For nurses, lowering the temperature and controlling the body temperature below 38 degrees Celsius continuously is aimed at reducing the risks for spontaneous heating in heat stroke patients. In addition to preventing complications, caring for heat stroke patients also focuses on the quality of life of patients after the crisis returns to normal. Ideally, any symptoms involving the brain should disappear as the patient recovers and regains the ability to help him/herself for a better quality of life.

Disclosure of Interest: None declared
ANALYZING THE CONCEPT OF QUALITY OF WORK LIFE AMONG POLICE PERSONNEL: A THREE-STAGE HYBRID MODEL

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Rationale: The purpose of this study was to shed light on the concept of “quality of work life in police personnel”.

Methods: This study was conducted based a three-stage hybrid model. In this respect; the texts related to quality of work life in police personnel in articles published in databases with no time limits until late 2017 were assessed and analyzed in a theoretical phase. Then, a total number of 13 police personnel were interviewed in a fieldwork phase using in-depth semi-structured interviews. The given interviews were also examined through inductive content analysis. Finally, the concept was wrapped up in the analytic phase.

Results: Three main themes of self-actualization (quality of work life characteristics), organizational climate (quality of work life antecedents), and employee/organization productivity (quality of work life outcomes) were obtained from the review of the related literature. Working in crises, having effective leadership and management, and accepting work conditions were further extracted from the themes of the fieldwork phase. Eventually, an operational definition of quality of work life in police personnel was provided via integrating the results of the two previous phases.

Conclusions: Quality of work life is considered as an underlying and relative concept in a way that assuming tasks by police personnel can be facilitated if favorable organizational climate is created through optimizing work conditions and paying attention to self-actualization by leaders and managers in organizations despite working in crises.

Disclosure of Interest: None declared
THE EFFECT OF FOLLOW-UP CARE MODEL ON TREATMENT ADHERENCE OF CARDIAC PATIENTS IN MILITARY HOSPITALS

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1CCU, Vali-e-Asr Hospital, 2Critical Care Nursing, 3Social Health, Nursing Faculty, AJA University of Medical Sciences, 4Psychiatric Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran, Islamic Republic Of

Rationale: Coronary artery disease is the most important factor of death and disability in the world that requires long-term treatment, care and monitoring. Adherence to the treatment regimen and applying the care models seem to be effective in reducing the complications of the disease.

Methods: This is a clinical trial study. A total of 58 coronary patients admitted to the CCUs of chosen military hospitals from February to May 2015 were assigned to intervention and control groups. The test group received follow-up care for 3 months. The questionnaires of demographic and Modanlev's treatment adherence were used to collect the patients' data.

Results: Most of the participants in two groups were men, married, graduated, retired, non-smoker and had income between one to two million tomans, a private home and family history of heart disease. The mean age of both groups was about 57 years. Statistical tests did not show a significant difference in the demographic characteristics and treatment adherence level between two groups before intervention. The amount of doubt in the treatment was respectively in the first and second months (12.52 ± 3.62) and (12.45 ± 3.29) in the test group that showed significantly different with the control group (10.27 ± 3.65) and (10.91 ± 3.87) in the same time respectively (p <0.05). This means in the follow-up care group after the intervention, doubt in the treatment was reduced.

Conclusions: The use of follow-up care model in the studied patients can reduce the suspicion of continuing treatment, and help with their treatment. Therefore, it is suggested that native care models be used to train coronary artery disease patients.

Disclosure of Interest: None declared
Rationale: Dental implants are usually considered the first line of treatment for the management of missing teeth. The process involves the placement of a fixture followed by a period of osseointegration then a prosthetic phase can be initiated. In certain selective cases a fixed provisional prosthesis may be connected to the fixture at the same day of surgery. This procedure is termed immediate loading, it allows the patient to leave the clinic at the day of surgery with a fixed prosthesis. This procedure is suitable for high rank Military personnel due to their social and occupational appearance and shortage of time.

Methods: Two patients with extended edentulous ridges in the maxilla were included in the poster. Both patients were examined clinically and radiographically and found to be suitable for immediate loading. The treatment plan was discussed with the patients and a provisional prosthesis was fabricated. On the day of surgery, implants were placed in an uneventful manner after that the prosthesis was relined and occlusion was adjusted. Both patients were given postoperative instructions and were followed up

Results: Clinical assessment of osseoperception around the immediately loaded implants revealed that both patients could identify if they were biting on the implant supported provisional crown or the natural tooth. Both patients reported better biting sensation around natural teeth

Conclusions: Immediate loading of dental implants is a successful treatment option that requires careful assessment and proper case selection. In my observation I found that Immediate loading provides high patient acceptance.

Disclosure of Interest: None declared
PT10.02
ENDODONTIC MANAGEMENT OF MANDIBULAR ANTERIOR TEETH WITH TWO ROOT CANALS
A. O. Almasoud1,*, M. Alenazy2, S. Alrshoud3
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Rationale:
The main core of endodontic treatment is achieved by reaching an adequate chemomechanical debridement and filling the entire canal space in three-dimensional manner.[1]

Methods: rubber dam was placed. examination of the pulp chambers under dental operating microscope (Möller-Wedel International Microscopes, Germany) revealed two separated labial and lingual orifices in #33–43 teeth. The root canal filling was removed with chloroform and ProTaper retreatment files (DENTSPLY Maillefer, Ballaigues, Switzerland), access cavity was closed, then rubber dam was removed, and a multiplanar reconstruction cone-beam computed tomography (CBCT) was taken to confirm the numbers and canal configuration of the mandibular teeth (#33–43). The images of CBCT were obtained with Planmeca ProMax 3D Max CBCT (Planmeca OY, Helsinki, Finland) showed the general configuration of the mandibular incisors and canines as follow: teeth #33, 32, 42, and 43 were Type III, tooth #41 Type IV, and tooth # 31 Type V according to Vertucci’s classification.

Results: The follow-up posttreatment radiographs after 12 months showed a complete reduction of the periapical radiolucency for all treated teeth with no clinical signs and symptoms.

Conclusions: The clinician should always pay enough attention to all endodontic treated cases. Utilization of operation, dental microscope, CBCT, and selected appropriate obturation materials will assure a successful outcome.


Disclosure of Interest: None declared
OROFACIAL REHABILITATION OF MILITARY PERSONNEL INJURED IN SERVICE

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Rationale: Soldiers are one of the highest risk populations for orofacial trauma, since they are action-oriented people. Teeth and their adjacent structures are one of the most common injuries during military training and operations. Despite appropriate care, it often leads to tooth loss. Even if a prior surgery is sometimes needed, oral rehabilitation with dental implants is actually the best treatment in this case. Building on our experience, the aim of this study is to explain the special characteristics of this practice for military people.

Methods: A consecutive retrospective study was conducted on patients who had been treated for oral rehabilitation with dental implants at the department of Oral and Maxillofacial Surgery of Laveran Military and Academic Hospital, over a two-year period (from July 2016 to December 2018). Medical story, military garrison, nature of the injury, number of lost teeth, need and procedure type of prior jaws reconstruction, number of dental implants and complications were recorded and analyzed.

Results: Twenty-eight patients were treated and a total of sixty-five implants were placed. Most common nature of orofacial injuries were sport accidents, followed by military operations and training, motor vehicle accidents and iatrogenic injury. The number of lost teeth was between one and five per patient. Bone grafting was needed in sixty per cent cases. Twelve per cent of patients were presenting minor complications, mainly relating to prior surgery (bone graft loss) or rarely to non-integration of implants. Nevertheless, all patients have been successfully rehabilitated.

Conclusions: Oral rehabilitation with dental implants is a predictable treatment and provides satisfactory results. It must be recommended for military personnel, who are young, healthy and operational. This kind of treatment is financially assumed by the French Armed Force for military persons injured in service.

Disclosure of Interest: None declared
A STUDY ON THE ABILITY OF CBCT IN THE DETECTION OF DIFFERENT SIZES OF EXPLOSION PROJECTILES IN THE MAXILLOFACIAL REGION

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Rationale: The purpose of this study was to evaluate CBCT's sensitivity for detecting foreign bodies in different sizes and materials in the anatomically important areas of the maxillofacial region.

Methods: Four different materials were used in this study including metal, glass, rubber, and wood. Particles were prepared in 4 different sizes from 1*1*1 mm (length, width, height) to 4*4*2 millimeters. Foreign bodies were then placed into a sheep's head in infratemporal, infraorbital and sublingual regions. CBCT was performed and then observed by 11 observers.

Results: CBCT clearly detected metallic and glass particles in all areas and rubber projectiles larger than 1*1*1 mm were detected in most areas. For wooden particles, there was a lot of controversy and CBCT didn't seem to be reliable for detecting them in the infratemporal area. Larger particles were better detected in the infraorbital and sublingual area as well.

Conclusions: CBCT can replace CT scans for detecting metallic and Glass and some rubber and wood foreign bodies in the maxillofacial region and has the benefit of reducing patient's dose of x-ray and cost less than CT. To get ideal results, it would be necessary to use ultrasonography for superficial radiolucent particles and CT scans for deeper ones.

Disclosure of Interest: None declared
THE ROLE OF THE INDONESIAN NAVAL HEALTH SCHOOL JAKARTA THROUGH PROMOTING ORAL HEALTH SCHOOL’S PROGRAM BASED ON THE THE PREVALENCE OF DENTAL CARIES IN NUSANTARA KINDERGARTEN.

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Rationale: Background: The main issue of children’s oral health in the world that most common chronic conditions is dental caries. Untreated dental caries can cause pain and infections that may lead to problem with eating, speaking, playing and learning. The good news is that dental caries is preventable. The condition of children’s dental health can be seen by deciduous teeth as the indicator of dental health in kindergarten children.

Methods: The study consisted of desPetersen PE, Hoerup N, Poomviset N, Prommajan J, Watanapa A. Oral health status and oral health behaviour of urban and rural schoolchildren in Southern Thailand. Int Dent J. 2001;51(2):95–102. Descriptive method and used total sampling of 3-5 years old preschool children who were studied at Nusantara Kindergarten, conducted May 2016 with 52 children (22 boys and 30 girls) were examined for dental caries utilizing modified WHO criteria (WHO, 1997). Data information about age, gender and social factor status were obtained by questionnaires that had been answered by parents.

Results: Objectives: The purpose of this study is to find out the prevalence of dental caries by knowing the index of deciduous teeth Nusantara Kindergarten’s students which is can be used to guide planning, actuating, controlling and evaluating via Promoting Oral Health School Program by the Indonesian Naval Health School Jakarta.

Conclusions: Conclusion: Dental caries was still very common in Nusantara Kindergarten’s students and the prevalence of dental caries in this school was in high category WHO’s standard.


Disclosure of Interest: None declared
EFFECT OF PRESSURE CHANGES ON FRACTURE RESISTANCE AND MICRO LEAKAGE OF AMALGAM THREE TYPES OF COMPOSITE RESTORATIONS DURING SIMULATED DIVES AND FLIGHTS IN HYPERBARIC AND HYPOBARIC SITUATIONS

Rationale: With the growing number of scuba divers and aircrew-members dentists will increasingly encounter pressure change-related oral conditions, which require careful attention. The main question of this study is: which material is proper for filling dental caries in these patients. We assess fracture resistance and microleakage of 2 main types of dental materials--amalgam and composite--and three main types of dental composites: packable, microhybrid, and nano composites.

Methods: For fracture resistance test 90 sound maxillary premolar teeth were randomly assigned to 3 groups of 30 MOD composite restorations using three types of composite resins, and 30 premolars were assigned to amalgam test. Each group was then divided to 3 subgroups of 10 for simulating SCUBA-diving (2 bar pressure cycle), Flight (0.5 bar pressure cycle) and control (atmosphere pressure). For microleakage test the same subgroups were made using 120 mandibular premolars (n=10) and using 2% Methylene blue dye for 24 hours microleakage scores were recorded. Data were analyzed statistically.

Results: Results showed that composite filling have a higher fracture resistance than amalgam materials. In composite group Packable composite showed significantly higher fracture resistance in comparison to nano and microhybrid group. Control group had significantly higher fracture resistance values in comparison to Dive groups whereas there was no significant difference between control and Flight group. (P value= 0.083) in composite group Kruskal-wallis test revealed no significant difference in microleakage amounts of 9 subgroups (P value= 0.076). There was also no significant difference between microleakage scores of 3 composite and amalgam.

Conclusions: Composites is proper than amalgam for filling the divers caries. Packable composite resins show greater fracture toughness than micro and nanohybride composite resins. Diving pressure cycles demonstrated to have adverse effect on fracture resistance amounts of all three types of composite resins. Flight situation in usual flights doesn’t affect on dental material fracture.

References:
Disclosure of Interest: None declared
INVESTIGATING THE KNOWLEDGE, ATTITUDE AND NUTRITIONAL PRACTICE AND ITS RELATION WITH ANTHROPOMETRIC INDICES, BLOOD GLUCOSE AND LIPID PROFILES IN NAJA STAFF OF KERMANSHAH PROVINCE

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Rationale: increasing prevalence of overweight and obesity, has increased the risk for chronic non-communicable diseases around the world. regarding the role of dietary pattern in preventing chronic diseases and their prevalence in the military population of the country, the present study was carried out to determine the dietary knowledge, attitude and practice of police workers of Kermanshah province and their relation with the BMI status, blood sugar and lipid profile.

Methods: this survey was a descriptive-analytical study conducted on 340 police personnel of Kermanshah province in two administrative and operational groups aged 30-40 years in 2018. knowledge, attitude, practice and demographic information (data) of included participants were assessed using a four-part questionnaire. BMI status, blood sugar and lipid profile of personnel were measured. the data were analyzed by descriptive and inferential tests (variance analysis and regression) using spss24 software.

Results: according to body mass index (BMI) 10%, 56% and 34% of personnel were obese, overweight and normal respectively. Blood sugar, cholesterol and triglycerides were higher than normal levels in 9%, 11%, 9% of female and 11%, 21%, 21/5%, of male, respectively. the result showed that there was a significant and positive correlation between family history of high blood lipids (cholesterol) and attitude of participants. also there was a significant and negative correlation between obesity, overweight, hyperlipidemia and blood sugar levels with knowledge, attitude and practice of dietary pattern of the staff. the knowledge and attitude did not show any difference between administrative and operational personnel. Finally, the results showed that education and gender predict the attitude, awareness and dietary practice of personnel.

Conclusions: the results, this study revealed that paid attention to awareness, attitude and dietary practice of staff, can play an important role in reducing the prevalence and incidence of factors that were related to chronic diseases.

ANALYSIS OF THE EFFECT OF DIET ON THE PERFORMANCE OF MILITARY AND POLICE STAFF AND THE PROVISION OF AN OPTIMAL MODEL, CASE STUDY: BORDER CADRE OF KERMANSHAH PROVINCE

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Rationale: Undoubtedly, proper nutrition is one of the important aspects of health, which has an impact on the physical and mental personnel’s performance. This is particularly the military personnel is more important, one of the most important tasks of military health authorities, ensure the nutritional needs-led forces in war and peace conditions. This study aimed to analyze the effect of diet on the performance of the military and police and providing optimal model, the border guard command staff of Kermanshah, awareness and has provided useful information on the topic.

Methods: this survey was a descriptive study conducted on 310 personnel with random sampling. Information of included participants were assessed using questionnaire. The data were analyzed by descriptive tested including frequency tables, mean, variance and inferential statistics (Pearson) were performed using spss19 software.

Results: this study revealed that Proper diet has the highest correlation with organizational performance and individual performance police personnel have been.

Conclusions: the border guard command staff of Kermanshah in terms of climate and geography is very diverse. The geographical conditions require a special diet for their, So that foods used in warm and dry areas are such that military and police personnel use less water during the day. The rule in cold regions is such that the body needs in this area from the cold resistant and can tolerate extreme cold.

Rationale: Considering that the police education center in Mashhad located on the edge of the city and adjacent to the mountainous areas and in terms of wild rodents, it has contamination levels, therefore, is important and required, identifying rodents and their zoonotic in order to fight and avoid transfer to the staff and Students.

Methods: The study accomplished this place by a Sherman caught live trap in 2013 using bait, snack, hunted 28 specimens of rodents and a Hedgehog sample is caught and transferred to the laboratory. After kill Using the easy way to the specimens were identified using autopsy, then the samples studied of skin lesions and Lishman's body, and after the autopsy studied for the presence of parasites such Syfa Cia Abolata, Aspergillus tetra petra and cestodes Haymenolypis in the intestinal contents.

Results: The abundance of species obtained in this study included: Mus musculus, Nesokia indica, Meriones libycus and Spermophilus fulvus. In laboratory study, 15 samples to Syfa Cia Abolata, 5 samples to Aspergillus tetra petra, 5 samples to cestodes Haymenolypis, 7 samples to Lishman's body were contaminated.

Conclusions: Although in this center the level of personnel health is good condition and in the past two years according to the archive health center Patient has not been observed but the possibility of an outbreak of some diseases such as leishmaniasis, due to the large colony of pollution in some instances, especially in food storage and bakery house is possible and effective combat with three species of Mus musculus, Nesokia indica, and Meriones libycus in the center is necessary.

Disclosure of Interest: None declared
Rationale: Heated food is known to be often contaminated with *B. cereus*, leading to cases of diarrhoeal or emetic diseases. Battalion kitchens or army catering facilities present a food safety risk, as temperature abuse and long storage time can result in serious public health problems affecting a high number of served people. In contrast to civil catering facilities, no microbiological monitoring systems are currently implemented in Swiss military kitchens. In this study toxin gene profiles and cytotoxicity levels of 21 isolates of *B. cereus* originating from six different food categories were determined.

Methods: Toxin gene profiles were determined by PCR. The enterotoxicity of the isolates was assessed in a Vero cell cytotoxicity assay.

Results: Nearly all isolates (95%) harbored the *nhe*gene, whereas no *hbl*could be detected. Seven isolates displayed the *cytK2*gene and one cereulide-producer was isolated out of vegetables. While most isolates displayed low cytotoxicity, highly cytotoxic strains were detected, with three isolates even exceeding the cytotoxicity level of the reference strain for high-level toxin production, underpinning that cytotoxicity cannot be deduced only from presence or absence of toxin genes.

Conclusion: These findings further underline the importance of rapid cooling of foods or maintenance over 65°C before serving. This is especially important in mass catering facilities, such as military kitchens, in which food is often prepared a long time in advance.

Disclosure of Interest: None declared
**PT10.11**

ENTEROTOXIN PRODUCTION OF BACILLUS THURINGIENSIS ISOLATES FROM BIOPESTICIDES, FOODS, AND OUTBREAKS

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**Rationale:** While the relevance of *Bacillus cereus* as a major cause of gastroenteritis is undisputed, the role of the closely related *Bacillus thuringiensis* in foodborne disease is unclear. A recent EFSA scientific opinion stresses the urgent need for further data allowing for risk assessment, in particular as *B. thuringiensis* is a commonly used biopesticide. We aimed to gain further insights into the hazardous potential of *B. thuringiensis*.

**Methods:** A total of 39 *B. thuringiensis* isolates obtained from biopesticides, food sources, and foodborne outbreaks were characterized by panC typing and SplitsTree analysis, toxin gene profiling, FTIR spectroscopic analysis, a cytotoxicity assay screening for enterotoxic activity, and a SMase assay.

**Results:** The majority of the tested *B. thuringiensis* isolates exhibited low or mid level enterotoxicity, and produced either no or low levels of sphingomyelinase, which is reported to act synergistically with enterotoxins Nhe and Hbl. One strain isolated from rosemary was however classified as highly enterotoxic, surpassing the cytotoxic activity of the high-level reference strain by a factor of 1.5. It also produced vast amounts of SMase. We showed that many *B. thuringiensis* biopesticide strains exhibit mid-level cytotoxicity and that some of these strains cannot be differentiated from isolates collected from foods or in association with outbreaks.

**Conclusion:** We demonstrate that the use of *B. thuringiensis* strains as biopesticides can represent a food safety risk, underpinning the importance of assessing the hazardous potential of each strain used.

**Disclosure of Interest:** None declared
Characterization of Bacillus cereus group isolates from powdered food products

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Rationale: Mashed potato powder as well as powdered infant formula (PIF) are frequently contaminated with Bacillus cereus sensu lato (B. cereus s.l.), mainly with its spores. These products have also been implicated in foodborne illnesses. We aimed to characterize B. cereus s.l. isolates originating from powdered products.

Methods: We performed sporulation assays, toxin gene profiling, and panC typing combined with a SplitsTree analysis. Furthermore, cytotoxicity assays were performed with B. cytotoxicus isolates.

Results: 78% of PIF tested positive for B. cereus s.l., whereas 92% of all mashed potato powders were positive. In total, 43 isolates were further characterized. The nhe and cytK2 genes were most frequently detected. Moreover, a cereulide-producer was detected from PIF. Most isolates were assigned to panC group III, but members of group II, IV, V, and VII could also be found. Nine B. cytotoxicus were isolated out of nine mashed potato powders. All panC group VII isolates were positive for cytK1. Cytotoxicity assays of these nine isolates revealed one highly cytotoxic strain, while all other isolates exhibited no detectable cytotoxicity, underpinning that the cytotoxicity of a certain B. cereus group strain cannot be deduced from the sole presence or absence of toxin genes.

Conclusion: We showed that B. cereus s.l. in mashed potato powders as well as PIF pose a potential food safety risk. Further research is needed to extend the hitherto very limited knowledge on the ecological niches of B. cytotoxicus and the mechanism of its cytotoxicity.

Disclosure of Interest: None declared
Rationale: How can the difficulties and problems be solved that arise during an inspection of military vehicles and containers prior to shipment in order to prevent the spreading of epizootic diseases between countries?

Methods: From the 3rd of September to the 15th of October, 13 ships were loaded with 3,012 vehicles and 618 containers from two piers. Each pier was provided with a cleaning and disinfection area. The cleaning areas were installed after it was found that numerous vehicles and containers were dirty. Two Veterinarians walked down rows of vehicles checking for contaminations in form of dirt, plant or animal matter and foodstuffs. This was supposed to be done at random but after finding too many vehicles contaminated, every vehicle was checked. If a vehicle was found to be contaminated it was noted and if possible cleaned. Only clean vehicles and containers were certified prior to loading.

Results: It was found that the orders to have the vehicles and containers cleaned and devoid of foodstuffs before arrival at the loading piers were partially not followed. A third of the vehicles were not properly cleaned on their arrival at the loading area. The host nation’s exact expectations regarding the cleanliness of the vehicles and containers were not entirely clear to the personal on location.

Conclusions: A clear communication between the host nation and the sending nation is required at ground level. In general, orders have to be clear in structure and be able to be executed. Staging areas for cleaning prior to the inspection have to be set up and their locations must be known well in advance. Furthermore, sufficient personal is needed at the loading, cleaning and disinfection areas so that vehicles and containers can be thoroughly cleaned and disinfected.

Disclosure of Interest: None declared
INTERNATIONAL COOPERATION IN THE FIELD OF MILITARY VETERINARY SERVICE
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Rationale: Common procedures, consistent critical values and documentation as well as comparable measures are the basic requirements of a functional interoperability. For multinational cooperation and mutual support of the small veterinary services international standardization is mandatory.

Methods: Although an almost small part of the military medical service veterinary service plays an important role in the field of force health protection, military animal care and welfare. In multinational operations not every country will be able to support their troops with veterinary service members. Therefore mutual veterinary support will be necessary. So interoperability in the field of veterinary service will be one key to functional and overarching force health protection. The standardization of procedures, critical values, documentation and resulting measures are the basic requirements to enhance this international support.

Results: As military multinational organization NATO interoperability is the challenge that leads to NATO-based international standardization under the umbrella of NATO Standardization organization (NSO) enhancing the use of the same terminology, same procedures, comparable materiel and interchangeable results among allied nations. These lecture will report about the structure of NSO, the procedures of military medical standardization, the role of the Food and Water Safety and Veterinary Support Panel, the program of work and the standards this panel is responsible for.

Conclusions: Cause of the small structure of veterinary services international mutual support is strongly required in multinational operations. NSO prepare non classified standards in the field of veterinary service usable for allies and every other partner Nation. Cooperation in drafting is not restricted to NATO Nations only. Participating in creating this documents via different bodies (e.g. custodial expert teams) is recommended.

Disclosure of Interest: None declared
PT10.15
HOW TO REDUCE THE QUANTITY OF EXPIRED DRUGS IN OUR ARMIES?
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Rationale: How much expired drugs are thrown each month in the I-Level and is it interesting to implement some projects to reduce the quantity of expired drugs?

Methods: The drug inventory began on 1st August 2018 and the statistics were stopped on 31 January 2019. These statistics take into account:
- The drugs stored in the I-Level of MeF
- The drugs stored in the different drug kits repackaged in Marche-en-Famenne.
- Only the unused drugs were counted. If the packaging was opened and if a tablet missed, it was considered as used and not expired.
- The expired drugs collected after the month of their shelf-life were also included in the statistics.
To facilitate the processing of the data, the drugs were arranged by class.
The prices of the drugs found in ILIAS software have been used to calculate the loss of money.
The graphics and the results were processed using Excel.

Results: In the I-Level of Marche-en-Famenne (Belgium), the quantity of expired drugs represents (10% of the total drugs) during a timeframe of 6 months.
The 1421 expired drugs were arranged by pathology classes. The majority of expired drugs are the painkillers (23%). Then come the antibiotics (14%). No antiparasitic drug wastage was noted (0%). Concerning the financial aspect, antibiotics represent a bigger loss (978,91 euros or 23% of financial loss) than the painkillers (537,69 euros or 12% of financial loss). Next are the unclassified drugs. Some of them, like droperidol, are stored in small quantities but are expensive.

Conclusions: The results of this non exhaustive statistical research show that the financial loss caused by the expired drugs during a period of 6 months in the I-Level of Marche-en-Famenne is rather small.
The quantity of expired drugs varies each month. It’s depending on the batch number of the drugs present in the I-level.


Disclosure of Interest: None declared
IS THERE ANY SENSE LOOKING BACK TO THE PAST?

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Rationale: Project “Lessons of the Past” (LP) focus on the systematic review of medicines made from the scratch and their use in battlefield conditions across Europe from XIX century until 1970.

Methods: Based on literature review in libraries, memoires of health care professionals (HCP) who survived harsh conditions, economic crisis, struggle of different kind of warfare, and lack of medicines. The main purpose of LP project is to encourage scientists, HCP to search and evaluate simple promising medicines from the past and their use in nowadays potential disaster conditions where HCP can experience shortages of commercially available medications. In general overview project LP consists of 5 steps reflective cycle: 1.) search, 2.) gather, 3.) select, 4.) check, 5.) evaluate.

Results: From a vast number of medicines I selected Liquidum Mencière based on its simplicity and usefulness in wound dressings in the Great War (1914-1918), consisting from: iodoform [prove to accelerate phagocytosis], guaiacol [has antiseptic, local anesthetic properties, antioxidant activity and also induce cell proliferation], eucalyptol/cineol [as an active agent of eucalyptus oil had anti-inflammatory and reducing pain properties, reduce swelling, relief of the symptoms of minor muscular sprains and cramps and exhibit antibacterial activity], peru(vian) balsam [has anti-inflammatory, antiseptic influences and stimulate granulation of tissue on skin] of each 10 grammes, alcohol (EtOH) 90% 100 grammes, ether (Et₂O) enough [solvents also present antimicrobial activity] to make 1000 grammes.

Conclusion: Based on new and old data every compound of Mencière recipe, seems to have not just antiseptic properties but also a good synergistic effect on the whole wound healing process. It is worth verifying the effectiveness of Mencière recipe with nowadays products for wound treatment.

Disclosure of Interest: None declared
Development of a Mobile Temperature Mapping Kit

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Rationale: According to the WHO guidelines, the storage of the Time and Temperature-Sensitive Pharmaceutical Product (TTSP) should always be preceded by the temperature mapping study to determine the optimal position of monitoring probes. This is currently performed at the Belgian depots, but the same guidelines should be applied during the overseas military operations of the Belgian Armed Forces, in order to reduce the risk to human health.

Methods: The pharmacist, or his team, will perform a temperature mapping study before the storage of the TTSP during the overseas military operations. To this end, the pharmacist will dispose of a kit, easy to use and mobile, containing a laptop with mapping software (tMapp) and a sufficient number of data loggers. The kit and software will enable the in-situ analysis of the data collected by the data loggers. Based on the obtained results, immediate decisions can be taken by local or higher authorities, and the necessary corrective actions can be performed on the storage sites.

Results: The Belgian Army has started the development of a mobile temperature mapping kit for use in operations and deployments.

Conclusions: Currently, only long-term temperature monitoring has been realized during the overseas military operation of the Belgian Armed Forces. However, as mentioned by the WHO guidelines, a temperature mapping exercise is the first step required before storing the TTSP. Human health should always be the priority and placing the monitoring probes at improper locations will cause such a risk. Temperature mapping assures more optimal storage conditions and allows to reduce the product losses linked with the uncertainty of improper storage. The mapping studies however require the correct equipment, knowledge and tools, which are provided by the mobile mapping kit.


Disclosure of Interest: None declared
Rationale: Constantinos Savvas was a known Greek Military Doctor, who pioneered in hygiene and preventive medicine. This study aims to present Savvas' research and projects.

Methods: Constantinos Savvas studied Medicine in Athens. Then, he trained in Vienna in pathology and microbiology. Soon, he showed excessive interest in hygiene. Although he resigned from the army at an early stage, his scientific work was of crucial importance for numerous military operations of the 21st century. He was also an elected member of the Academy of Athens.

Results: The major achievements of Constantinos Savvas were: The successful measures against malaria in Greece, the establishment of the first laboratory of Hygiene and Microbiology in Athens University, the vaccination of the inhabitants of the region of Macedonia in Greece against cholera during the Balkan Wars, the preventive measures for typhus and his research on meningitis.

Conclusions: Overall, Professor and Academic Constantinos Savvas played an important role in the establishment of hygiene and preventive medicine in Greece. His methods and research saved the lives of thousands of people and he was honored from numerous countries and foundations.

Disclosure of Interest: None declared
BUILDING MILITARY-MILITARY COLLABORATION FOR WARFIGHTER HEALTH: THE U.S.-NIGERIA EXPERIENCE
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Rationale: The Nigerian Ministry of Defence-Walter Reed Army Institute of Research (NMOD-WRAIR) partnership was established in 2004 in response to the growing HIV epidemic in Nigeria. At inception, the goal of the collaboration was to align the health missions of the Nigerian military and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) to deliver HIV treatment, care and support within the military community. Building from these initial engagements, the partnership aims to not only maintain HIV-related healthcare, but also to strengthen the response to other infectious diseases impacting the deployed warfighter.

Methods: Governance and programmatic oversight of the collaboration was charged to the NMOD-Department of Defense HIV Steering Committee, co-chaired by the sitting Minister for Defence and the U.S. Ambassador to Nigeria. The partnership remains sustainable due to shared fiscal and programmatic responsibilities by the partners and has been an example of shared commitment across both the global PEPFAR community and joint U.S. and Nigerian government initiatives.

Results: Since 2004, PEPFAR-supported activities have expanded to 43 Nigerian military facilities, maintaining approximately 31,000 clients on HIV anti-retroviral therapy. These successes led to the partnership’s first research protocol in 2008. Since then, it has completed four protocols, including two Phase II Ebola vaccine trials, the first of their kind in Nigeria. The partnership is currently implementing three protocols, including two focused on Lassa vaccines and one on acute febrile illness. In 2015, collaborators across the region formed the Joint West Africa Research Group (JWARG), driven by the experience of the recent Ebola outbreak and with the aim of developing the personnel and technological capacity of the region in the preparation, detection and response to future outbreak of infectious diseases. JWARG leans on the NMOD-WRAIR partnership to achieve its aims in West Africa.

Conclusions: The partnership between the NMOD and the WRAIR has successfully leveraged multiple resource streams and built capacities to strengthen soldier readiness in both Nigeria and the U.S.

Disclosure of Interest: None declared
Rationale: Medical Support to military operations is of vital importance, essentially relying on profound medical planning knowledge. Study objective was to analyze the value of computer-based exercises (CPX) 1) to prepare military medical planners, 2) to raise awareness of the key role of military medicine within strategic and operational-level headquarters and 3) to test new approaches on strategic and operative level.

Methods: Six EU and three NATO exercises between 2012 and 2018 were included. Lessons learned observed during the exercises were analyzed according to a standardized protocol with special focus on key success factors and future options.

Results: Identified key success factors: 1. Meticulous preparation including specified training objectives (TOs), realistic and challenging scenario and level-appropriate medical play along topic-focused storylines; 2. Reliable advanced IT-equipment and software; 3. Role play events to train direct communication with key leaders. 4. Adequate English language skills. 5. Thorough preparation of the training audience (TA) with the given scenario. Social media communication was successfully integrated. New approaches such as military advice on strategic and operational level offering substantial contributions to health system strengthening processes were also successfully tested.

Conclusions: Computer-based exercises offer excellent opportunities to train and further-develop military medical planner’s knowledge embedded in various scenarios for EU and NATO and effectively increase multidisciplinary staff awareness of the key role of medical. New projects can be reliably investigated to foster the role of military medicine on strategic, operational and tactical level. Future steps may focus on digital tracking systems, social media communication, elements of artificial intelligence etc.

Disclosure of Interest: None declared
THE EFFECT OF POLICE TRAINING COURSES ON THE PATIENCE COMPONENT OF POLICE TRAINING SOLDIERS
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Rationale: Every year there is a significant number of Male youth in the country according to the rules they will be deployed to the military service and all of them at the beginning of their service within a period of at least two months, learn basic military training to be ready to continue serving in their relevant units. This research was carried out to investigate the effect of police training courses on the patience component of police training soldiers at the Police educational Center in Mashhad.

Methods: This study was a descriptive cross-sectional . The statistical population consisted of 225 soldiers in 2018. Sampling was done by census method on all soldiers being trained. The research was performed as pre-test and post-test before and after the training. The data collection tools consisted of two standard demographic and patience questionnaires which was scored and analyzed by SPSS software after completing the data.

Results: Paired T test results showed that between the rate of patience before the police training course There was no significant difference with the score after the end of the course (p = 0.07). The results of this test in aspects of patient questionnaire there was a significant difference between the score before the course with the post-course score in the hesitation (p = 0.02), Transcendence (p = 0.02) dimensions and there was no significant difference in tolerance (p = 0.46), satisfaction (p =0.59), endurance (p = 0.12) dimensions.

Conclusions: The results showed the main hypothesis of the research That the course of police training Increases the patience of soldiers does not approve. In general, the specific conditions governing the training course like the new conditions that soldiers enter and physical and mental pressures which experience under a military period and in a new environment it is one of the factors influencing research results.

Disclosure of Interest: None declared
Rationale: Educational managers of Police medical centers are the most important factors which can empower the medical police staff with knowledge management and prepare them to carry out their assigned missions. This study is done to design knowledge management of police medical training managers in 2018.

Methods: This research in terms of purpose is a type of applied research and in terms of method, is qualitative and the Delphi technique has been used to design the model. Based on this, first of the theoretical studies and the background of the research was reviewed. After collecting important dimensions, components and required indicators for design knowledge management of police training commanders and managers, Delphi Phase I questionnaire compilation and provided to members of the expert group, which includes 25 experts and faculty members of police sciences universities, Ferdowsi, Tehran and police teachers and selected by targeted method. After modifying and reviewing and performing the Delphi phases in two other stages and reaching consensus, the model of knowledge management of medical police managers was finalized using the final qualitative approach.

Results: The research findings indicate that in this model, the factors affecting knowledge management in four dimensions are absorption, storage, sharing and utilization. The relevant pattern consists of 17 components that have the greatest impact on knowledge management.

Conclusions: Based on the findings of the research, the organization can use this template to develop goals, plans, strategies, growth and enhancement in the knowledge management of the medical training managers.

Disclosure of Interest: None declared
PT11.09
EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON PRACTICES IN PREVENTION OF NEEDLE STICK INJURY
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Rationale: Health care workers are always at risk for exposure to dangerous and deadly blood borne pathogens through contaminated needle sticks and preventing needle stick injury is the best way to protect the health care workers from these infections. The study is to find out the effectiveness of structured teaching programme and objective structured practical examination (OSPE) on practices in prevention of needle stick injury.

Methods: Quantitative research design: one group pretest - post-test design was used. 30 subjects were in the study after informed consent by purposive sampling technique. The subjects were assessed using OSPE before and a week after the structured teaching program on prevention of needle stick injuries. Modified checklist was prepared based on the guidelines of American nurses association 2010 to assess the practices in prevention of needle stick injuries using objective structured practical examination.

Results: Majority of nursing students 93.3% were aware of practices in prevention of needle stick injury. Of all the nursing students 23.4% nursing students were exposed to needle stick injury. After conducting structured teaching program, in post-test 37% (11) nursing student were in good score level, 57% (17) nursing students scored average score level whereas 2% (6) nursing students scored score poor level in post-test. The mean practice score has increased by 2.8 after administering the structured teaching program. Structured teaching programme was effective (t=4.3, p<.001) in improving the practices in prevention of needle stick among the nursing students of selected educational institute.

Conclusions: The research study revealed lacunae in the practices of handling sharps and these practices can be improved with the planned and effective structured teaching program included in the curriculum. A structured teaching program after assessing the existing practice using objective structured practical examination as per check list will definitely improve the practices in prevention of needle stick injury among the nursing students.

Disclosure of Interest: J. Jose Other: None
COMPARING THE EFFECTS OF LECTURE METHOD AND DISPLAYING A VIDEO CLIP TO PREVENT AND REDUCE TOBACCO USAGE AMONG SOLDIERS

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Rationale: Smoking is a major risk factor for diseases such as myocardial infarction, stroke, lung disease, hypertension, and cancer. Educational intervention might be able to reduce the prevalence of Tobacco usage by increasing the knowledge and attitude of individuals.

Methods: This research was considered as an interventional study. The research community was all of the soldiers who conveyed to Shahid Beheshti Training Camp on February 20th, 2018. Some 200 people of these soldiers met the inclusion criteria for the study. A randomized sampling method was used and the subjects were randomly assigned to two groups: group A (n=100) and group B (n=100). A self-report questionnaire was considered as the data collection tool. For the first stage, a preliminary test was carried out of both groups. Afterward, the curriculum vitae was implemented through lecture and presentation of educational pamphlets for the group A and the educational clip was displayed with the same content as the educational pamphlet on tobacco usage and its harmfulness for the group B. After a month, the final test was taken from the entire samples of the study. Data obtained were analyzed by SPSS software through statistical tests including t-test, paired t-test, and independent T-test.

Results: A statistically significant difference was observed between the rate of Tobacco tendency and consumption of it before and after training using both lecture methods and video clip. Moreover, there was a significant difference between the rate of Tobacco tendency and consumption of it in both groups. There was no significant difference between the two groups before intervention.

Conclusions: According to the results of the study, applying educational programs, especially new educational methods such as educational clips about the harmfulness of tobacco usage, can increase the health awareness of soldiers. Consequently, it reduces the Tobacco tendency and consumption among soldiers.

Disclosure of Interest: None declared
THE EFFECT OF EDUCATION ON THE KNOWLEDGE AND ATTITUDE OF SOLDIERS ABOUT AIDS
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Rationale: AIDS is one of the most serious and deadly infectious diseases with a high prevalence among the young generation. Educational intervention might be able to reduce the prevalence of HIV by increasing the knowledge and attitude of individuals.

Methods: The current research was designed as an interventional study. The research community was all of the soldiers who conveyed to Shahid Beheshti Training Camp on February 20th, 2018. A total of 100 subjects met inclusion the criteria for the study. A randomized sampling method was used and the subjects were randomly divided into two groups: case (n=50) and control (n=50) groups. A self-report questionnaire was considered as the data collection tool. Firstly, a preliminary test was performed in both groups. Then, an educational program was conducted for the case group. Lecture method, posters, and educational clips were utilized in teaching soldiers for the intervention group. Ultimately, the intervention group was given a pamphlet in this regard. The final test was then taken of all of the samples. Data obtained were analyzed by SPSS software through statistical tests including t-test, paired t-test, and independent T-test.

Results: The results obtained indicated an insignificant difference between the Knowledge and Attitude of Soldiers about AIDS before the study compared to the significant difference between the Knowledge and Attitude of Soldiers after applying for the educational program (P <0.0001); nevertheless, no significant difference was observed in the control group.

Conclusions: According to the results of the study, the necessity of implementing an effective and regular educational program to improve the level of knowledge and attitude of soldiers in the field of AIDS is recommended.

Disclosure of Interest: None declared
IMPROVEMENT IN PATIENT SAFETY CULTURE (2017-2018):
AN EXPERIENCE AT KING SALMAN ARMED FORCES HOSPITAL, NORTH WESTERN REGION, TABUK, SAUDI ARABIA
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Rationale: Patient safety is the primary goal of the leadership of any medical facility. Assessment of patient safety culture provides a chance to spot out the areas of improvement and helps to observe any change with the time.

Methods: It was a cross sectional analytical study, conducted in Military Hospital, Tabuk, Saudi Arabia. A questionnaire of Patient Safety Culture designed by the agency of Healthcare Research and Quality (AHRQ) was distributed among the staff by using Stratified Random Sampling. Findings of the two surveys conducted in 2017 and 2018 were detailed in this study. All the data was entered into the SPSS v.23 and statistically analyzed by using T-test and Chi-Square test. A p<0.05 was considered as statistically significant. The findings were compared with the Local and International benchmarks of the similar studies in Riyadh and USA, respectively.

Results: The findings of 2018 survey showed improvement in all the dimensions of the Patient Safety Culture except Staffing. Areas of strength in 2018 were Teamwork within Units, Organization Learning, Management support, Supervisor Expectations & action promoting patient safety and Feedback & Communication. Two dimension which scored the lowest in both the surveys were Non Punitive to errors and Staffing. In the analysis versus local and international benchmarks, it was observed that the hospital performed better or up to the benchmarks in most of its dimension of patient's safety culture.

Conclusions: Significant improvement was observed in several composites of the Patient Safety culture survey in 2018. The staff was extremely convinced that there was a very collaborative and supportive environment within and across the units. Continuous learning and Management support to enhance the patience safety culture is improving the overall patient safety culture of the hospital. Reassessment revealed that it will bring improvement and better understanding to the areas which need improvement.

Disclosure of Interest: None declared
PT11.13
ACOUSTIC TRAUMA IN SOLDIERS ASSOCIATED WITH DEMOLITION ACCIDENT
(CASE REPORT)

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Rationale: Acoustic trauma is a hearing impairment due to exposure of impulsive loud noise that can caused permanent hearing loss. Demolition using explosion weapons is one of skill for the soldiers who are demolition training (commando, raider, etc)

Methods: Case report study. About one year ago, an accident of demolition training occurs in 18 soldiers of Raider course in Pusdiklatpassus Batujajar, West Java, Indonesia.

Results: Physical examination data shows that all of the soldiers (100%) suffered tinnitus, hearing loss, and face excoriation due to grenade explosion during the demolition training. Ten soldiers (62.5%) suffered tympanic membrane rupture, either unilateral or bilateral, and almost all of the soldiers (87.5%) suffered acoustic trauma.

Conclusions: Implementation of hearing conservation program will improve the quality of life of the soldiers and civil society in the military environment.

References:

Disclosure of Interest: None declared
NECESSITY OF MILITARY COMMANDERS’ EDUCATION ABOUT DISASTER RISK REDUCTION
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Rationale: We here tried to develop an educational and training course of civil (natural and technological) disaster management for military commanders. The disasters have increased in recent decades with profound effects in human loss, property damage, and economic fields. Role of military forces has been documented in natural and technological disasters management. There is a known 4-phase disaster management cycle. Passive and reactive execution may be helpful in disaster management but proactive and integrated action in four phases is a necessity: then military forces should engage in all phases. Military commanders should be familiarized with disaster risk reduction and management.

Methods: This study is a multi-stage mixed method; 1st stage: Conduction of a comprehensive review of the resources and extraction of the fields which armed forces could play an effective role in civil disasters. 2nd stage: Development of a curriculum (qualitative phase). 3rd stage: Implementation of the course and assessment of commanders’ satisfaction (quantitative phase). The course was considered as complete after taking the feedback from participants.

Results: According to comprehensive review of scientific resources, the areas of the military forces operation in civil disasters were: security in disastrous area, health management in refugee camps, food health in disaster, dead body management, helping in mass vaccination. The evaluation showed appropriate commanders’ satisfaction.

Conclusions: In order to effective coordination between military and civilian forces in disaster management, military commanders need to be familiarized and trained with the natural and technological disaster management. They need frequent exercises for better management.

Disclosure of Interest: None declared
THE EFFECTS OF EDUCATION BASED ON HEALTH PROMOTION MODEL ON LIFE STYLE AMONGST MALE POLICE OFFICERS.

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Rationale: All activities that an individual perform daily are named life style. Considering the important role of police in security and peace maintenance of society and the effect of personnel lifestyle on their performances, attempts should make to improve their lifestyle. The aim of this study was to evaluate the effect of health promotion education on male police staff's life style.

Methods: This semi-experimental study was conducted on 200 police staffs selected and assigned through systematic random sampling into two experimental (100) and control (100) groups in 2017. Using health promotion lifestyle profile II (HPLP-52), different aspects of life style were assessed in the two groups. Both groups completed the questionnaire before the intervention. The experimental group attended a three-session instructional program and also received an instructional package. After two month, both groups completed the questionnaire again. Data were analyzed using independent t-test.

Results: The results of this study show that the mean scores of lifestyle dimensions in the test group before the training were significantly different with the control group. Also, the mean scores of lifestyle dimensions of the experimental group after training in all dimensions were significantly different from that of the control group. Our results revealed the highest score after education belonged to physical activity (25.6±2) and lowest was health responsibility (24.5±2).

Conclusions: Many health threatening factors are prevented if unhealthy behaviors are identified and changed at an early stage. This study shows that Education of health promotion can improve the police staffs life style.

Disclosure of Interest: None declared
ESTABLISHMENT OF MODULAR AND GROUPED FORWARD RESUSCITATION AND SURGICAL UNIT BASED ON AUGMENTED REALITY TECHNIQUE

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Rationale: To improve the capability of tactical combat casualty care by developing a system of modular and grouped forward resuscitation and surgical unit, which possesses capabilities of real-time, mobile, and long-range gathering of traumatic condition and guiding of diagnosis and therapies, on the basis of augmented reality technique.

Methods: 1, clinical practice on the application of the augmented reality technique for peacetime pre-hospital first aids for traffic trauma; 2, developing a system of modular and grouped forward resuscitation and surgical unit for tactical combat casualty care; 3, clinical practice on the application of the augmented reality technique for wartime practical confrontation drills and non-military activities in which modular and grouped forward resuscitation and surgical unit engages.

Results: 1, preliminary small-sample study indicate that augmented reality technique can increasing the accuracy and shortening the rescuing time consuming; 2, modular and grouped forward resuscitation and surgical unit benefits from augmented reality technique for an increased accuracy of diagnosis and clinical management, shortened rescuing time consuming, lowered entry threshold, quick improvement on the learning of battlefield medical skills, and enhanced coverage rate of professional experts in clinical practices, in the batches of tactical exercises.

Conclusions: Farring augmented reality technique can raising the success rate of diagnosis and therapy in the first-aids and transferring to rear bases in both peacetime and wartime.

Disclosure of Interest: None declared
The Role of Brain Check Up as an Innovation Military Medicine in Facing the Industrial Revolution 04.

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Rationale: The 4th Industrial Revolution is the fourth major industrial era since the initial Industrial Revolution in the 18th century. This revolution characterized by a fusion of technologies that blurring the lines between physical, digital, and biological spheres, collectively referred to as a cyber-physical systems. It is marked by emerging technology breakthroughs in a number of fields, including robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, the Internet of Things, the Industrial Internet of Things (IIoT), fifth generation wireless technologies (5G), additive manufacturing/3D printing and fully autonomous vehicles. Prof. Klaus Schwab, the executive chairman of the World Economic Forum, has associated it with the “second machine age” in terms of the effects of digitization and artificial intelligence (AI) on the global economy, but also added a broader role for advances in biological technologies. These technologies are disrupting almost every industry in every country. And the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance. Schwab sees this part of revolution as an “emerging technology breakthroughs” in fields such as mentioned above. The fourth wave of the industrial revolution is expected to see the heavy implementation of several emerging technologies with a high potential of disruptive effects. In terms of military medicine, Military physicians have played a major role in nearly every major modern medical advancement. In the early 1800s, Surgeon General Joseph Lovell studied the connections between weather patterns and disease. In 1900, Maj. Walter Reed headed up the Yellow Fever Commission in Cuba, discovering that mosquitoes carried the disease and manage to saving countless lives. In 1935, Maj.Gen. Harry George Armstrong, along with Dr. John Heim, built a centrifuge to test how the human body reacted to acceleration and how to improve physical conditions for pilots. Talking about brain there is no single measure of “brain wellness”, where most clinicians used various clinical exams to diagnose many variety of brain problem or mental disorders. A neurologist and psychiatrist are the most visited clinicians for this problems where they usually administer a series of examination test like MMSE or just a standard neurological examination. For further diagnostic purpose additional advanced medical technology can be performed such as Brain CT-scan or structural MRI to examine the brain problem. Cerebrovascular Accident makes the second leading cause of death and the third leading cause of disability. As a soldier, brain fitness is a must, especially in the recent times where technology makes almost all of our daily tasks and intelligence plays a major role in military advancement, leaving the obsolete technology behind. When affected by CVA a soldier life will never be the same again, a limitation in their daily task is an inevitable disability. The recent therapeutical strategies in CVA requires a sophisticated time management, medical skills and technology. As we know soldiers in their duty tours sometimes not equipped with such luxury, thus makes them vulnerable to prolonged complication by this disease. In 2008 Terawan made a breakthrough by utilizing the recent imaging techniques that already available which is Digital Subtraction Angiography and an already known anticoagulation drug which is Heparin, by combining these two available medical discovery Terawan push forward their current capacity, by modifying the technique and usage of both substances Terawan proved to be successfully increasing their medical purpose, not only as diagnostic procedure but also therapeutic method, this method was later termed as Intra Arterial Heparin Flushing. This discovery already helped thousands of patients especially in military environment since Terawan is stationed in Indonesia Army Central Hospital. Many military personnel who suffered from CVA recover from their disability and able to resume their duty and daily tasks. This method apparently not only for those who already suffered from CVA but also for people who already shows some symptoms which leads to cerebral vasculature problems, such as headache or dizziness. Those people who complaint about such symptoms apparently suffer from CVT (Cerebral Venous Thrombosis) cases, this diagnosis was established after the patient underwent the MRI scanning where the problem was abnormalities in their cerebral vasculature which is an occlusion. After underwent the IAHF procedure the occlusion was released and their symptoms starts to subside. This is why the Brain Checkup is an important preventive measures especially in military personnel who needs to be in their peak performance to keep up with their tight schedule of duty. In the study below we want to present a previous study by Terawan that prove how IAHF can increase Cerebral Blood Flow thus can resolve the problems it comes with.

Methods: The study was an experimental pre-test post-test design where the subjects was patients with chronic ischemic stroke and was filtered through the inclusion criteria and then underwent the IAHF procedure where their Cerebral Blood Flow was measured before and 4 hours after IAHF method.

Results: From the previous study in “Effect of Intra Arterial Heparin Flushing Increases Cerebral Blood Flow in Chronic Ischemic Stroke Patients” the author found that after IAHF procedure there was a significant increase of Cerebral Blood Flow value : 10.39mL/100g/min or about 41.20% improvement (p<0.001)
Conclusion: A Modified Digital Subtraction Angiography technique which later termed as Intra Arterial Heparin Flushing proved to be efficient in increasing Cerebral Blood Flow thus can stimulate a better motor recovery in patients with Cerebrovascular Accident, or can be used as a possible preemptive therapeutic strategy to prevent future cerebrovascular accident, this method also can be utilized to treat another brain vascular occlusion problem such as CVT cases, therefore this new medical discovery hopefully can improve the military personnel performances in the field. This example of discovery and advances in military medical technologies should stimulate more discovery like another possible technology where the doctor and the patients can connect in new ways, and with the Army Telemedicine and Advanced Technology Research Center who explores how new innovation can improve healthcare in military environment by governing it's researchers and engineers to working on telecommunication solutions, including a mobile app that connects patients to behavioral healthcare providers. They are also using robotics and other technology to offer remote care to combat casualties, also in addition building a life-like training simulations to help preparing the medics to perform adequately in the field.

Disclosure of Interest: None declared
PT12.02
MILITARY EDUCATION AND TRAINING AS A TOOL FOR HEALTH DIPLOMACY
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Rationale: U.S. Military medical personnel’s primary mission is to support readiness, ensure force health protection and provide direct operational support to forces worldwide. As we conduct our primary mission we realize our success is predicated on effectively working with partners globally. The U.S. Military Tropical Medicine Course (MTM) is responsible for the education and training of U.S. military and partner nation personnel in the practice of medicine in developing areas, including clinical care and public health pursuant to force health protection, readiness and regional stability and security. Course content targets the knowledge base required to work in developing areas delivering care, and surveying and assessing risk to include meaningful interaction with referral preventive medicine and research laboratory resources as well as partner governmental and non-governmental organizations.

Methods: A qualitative analysis of MTM program and how its Global Health Engagement activities contribute to health diplomacy and supports needs of the Combatant Command (CCMD) was performed.

Results: The MTM course activities are coordinated with the respective DoD Office of Security Cooperation to ensure it aligns with Theatre Campaign Plan and country team strategic objectives as well as host nation partners. The partner nations for field missions have included Argentina, Egypt, Ghana, Guyana, Honduras, Kenya, Liberia, Panama, Paraguay, Peru and Tanzania with planned extension to Brazil, India and Thailand. MTM graduates participated in clinical and academic exchanges with host nations and the foreign military graduates of the program have gone on to support health initiatives in their respective countries and militaries.

Conclusion: MTM aims to optimize health and readiness while creating strategic partnerships globally. Military education and training programs can be used as an effective tool for health diplomacy.

Disclosure of Interest: None declared
E LEARNING INNOVATION FOR ARAB MILITARY CLINICIANS. A POTENTIAL PRACTICAL SOLUTION OR A SCIENTIFIC HOPE?

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Rationale: It is a known fact that a medical officer may spend his entire military life without facing a real disaster situation, and thus is mostly inexperienced in that regard. How to bridge their military knowledge gap?

Methods: Observation innovation

Results: Combining Arab Military E-Learning is difficult due to the Large deference’s in strategies, tactics, Military equipments and weapons. On the other hand combining Arab Military Clinicians E-Learning is a more practical consideration.

Conclusions: Military Medicine is rapidly evolving and military officers should evolve as well and fill the gaps of their military knowledge as they are daily filling the gaps of their medical knowledge.

References:

Disclosure of Interest: None declared
Rationale: Occurrence of asymmetrical conflicts and terrorist attacks in Tunisia has shown many weaknesses in both level 1 & 2 operation health support. Failures imposed to review and adapt the conception of health support in the armed forces. The objective of this paper was to highlight measures achieved through the creation of an instruction and simulation military centre in January 2014.

Methods: The centre's mission was to improve the interoperability of participants in level one and level two health support. Effort focused on operational preparedness of both medical and paramedical staff. Appropriate training to each of these participants was organized before involvement in missions: health support formation with two levels, basic and expert training level; workshops in emergency surgery in conventional armed conflict.

Results: In the space of a 3 years, the center has trained 902 staff in basic-level health support; 42 surgeons; 785 rescue workers; 5000 rescuers in combat; 29 first aid instructors; 40 Combat Rescue Instructors and sustained 20 health trainers. All training was made by simulation and allowed health personnel to be more confident, to gain operational best practices and medical capabilities in supporting wounded.

Conclusions: The great satisfaction of trained staff gives the simulating military center the heavy responsibility to continue to train all military participants on operational health support, recycle training professionals already formed and develop other training domains. However, achieving these prospects requires more personnel and material resources and an extension of the center space.

Disclosure of Interest: None declared
TEACHING EMERGENCY SURGERY IN UNCONVENTIONAL CONFLICTS: EXPERIENCE OF TUNISIA
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Rationale: In times of war or terrorist attack, military surgeons work under difficult conditions with often very limited resources. However, few surgeons are trained in war surgery. This is why the General Directorate of Military Health in Tunisia decided to organize a cyclical seminar on the teaching of emergency surgery in situations of unconventional conflict. The aim of this work is to describe this training, to define its objectives and to present its future prospects.

Methods: This seminar began in September 2014. Currently, it is open only to confirmed and trained military surgeons for all surgical specialties. The goal of this seminar is to teach fundamental principle of war surgery and to master the basic gestures of trauma emergency surgery in this context. This training was performed in small groups (10 to 12 surgeons) and included one-day theoretical instruction and practical workshops on half-day reformed dogs.

Results: This training was began just three years ago. Since then, 46 doctors have received this very specific training given by surgeons who have acquired experience in war surgery to the acts of terrorism that have occurred on Tunisian territory. During the theoretical training, the fundamentals of the war surgery is approached according to the available material and the logistical conditions. Experiences with presentation of clinical cases of patients treated on mission are made. During the practical workshops, the learners practice seven technical procedures: laparotomy, splenectomy, vascular management, thoracic drainage, coniotomy, tracheotomy and the establishment of external intermediaries. Since 2015, the training program has been audited annually by the experts of the International Committee of the Red Cross and is revised accordingly. The prospects of the general management is to gradually open up, within the limits of the available places, to the civilian surgeons with us we collaborate.

Conclusions: Maintaining surgical training for emergency surgeons is a necessity for military health practice. This is a challenge that must be attempted to try to maintain the originality of the surgeons of the armies.

Disclosure of Interest: None declared
ENSURING FORCE HEALTH PROTECTION COMPETENCE IN MILITARY MEDICAL SCHOOL GRADUATES: DEVELOPMENT OF A FOUR-YEAR CURRICULUM

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Rationale: Force Health Protection is a critical component of military medicine but often takes a backseat to combat casualty care in education and training. A needs assessment of the school of medicine curriculum at the Uniformed Services University of the Health Sciences was conducted and several opportunities to improve Force Health Protection instruction were identified.

Methods: Kern’s six steps for medical curriculum development was used to 1) identify the current approach and the ideal approach; 2) conduct targeted needs assessment of students and the learning environment across the four years; 3) develop strategic goals and learning objectives for each teaching opportunity; 4) design educational strategies for content and method; 5) implement the curriculum including overcoming barriers; and 6) develop student evaluation and program feedback.

Results: An integrated 4-year curriculum to teach Force Health Protection doctrine, planning and practice was developed and incorporated into the military medical practice and leadership curriculum. Educational strategies, methods and content, barriers to implementation, and preliminary assessment and evaluation were addressed. Core curriculum areas developed included health risk assessment, preventive countermeasures, disease and injury surveillance and outbreak investigation. Educational strategies consisted of didactic, laboratory, gaming and simulation methods. Faculty development was critical to success.

Conclusions: An integrated force health protection curriculum has been developed and implemented using a range of teaching methods. Improved measures of teaching outcomes are needed to further refine the curriculum. Educational strategies used here could be applied to other education and training settings to insure force health protection competence in military physicians.


Disclosure of Interest: None declared
Training Health Personnel for Combat - The Operational Health Course of the Brazilian Army

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Rationale: Training military health personnel to act in combat is always a challenge. The shortage of professionals willing to sacrifice training and the need to keep health care services operative make recruitment difficult for the operational area. Faced with the possibility of the Brazilian Army to integrate a Peace Mission in Africa, an initial assessment pointed out that the risks and the scenario to be faced would be completely different from previous experiences.

Methods: It was found that the Health Corps has its training focused on peacetime assistance and the challenges of the scenario required professionals highly trained in techniques not only to defend themselves but to be an effective member of the troop. To fulfill this need a set of specific skills thought to be necessary for the military to be able to carry out health support in adverse conditions, isolated areas, guerrilla fighting and poor evacuation was selected.

Results: In order to achieve this goal, the Curso de Saúde Operacional (Operational Health Course - CSOp) was created as the most rigorous operational training program for Health personnel in the history of EB, and already in 2018, 74 military personnel were trained, among which, Medical Officers (18), Health Officers (12) and Nursing Technicians (44) to perform pre-hospital care, basic and advanced life support, urban, jungle and mountain combat techniques, search and rescue.

Conclusions: This experience has shown that there is a need to create specific training programs for military health personnel in order to prepare the troops for the new challenges of the 21st century, particularly for asymmetric (irregular) combat scenarios in isolated areas with few resources.

Disclosure of Interest: None declared
Rationale: WHO and UNICEF recommend "breast crawl" as a simple, cost effective intervention to reduce the infant mortality rate & maternal mortality ratio along with other materno-fetal benefits during labour and post delivery. Despite the recommendations, in most of the clinical settings this technique is overlooked by the nurses during the third stage of labour.

Methods: The nurses were selected by simple random sampling and allocated into experimental and wait-list control group (n= 40 in each). Pre-test was conducted on day 1 by administering a structured knowledge assessment questionnaire to both the groups. Structured teaching programme(STP) on breast crawl was administered to the experimental group. After 7 days a post test was conducted for both the group followed by the administration of STP to control group for the dissemination of information.

Results: The demographic characteristics of the control and experimental group were statistically homogeneous using Chi square test. The mean knowledge scores of pre- test (12.35 ± 4.09) and the post test (12.63 ± 3.186) of the control group, were statistically non significant with computed t value 0.13 at p= 0.895. The mean knowledge scores of pre- test (12.45 ± 3.753) and the post test (21.53 ± 2.172) of the experimental group, were highly statistically significant with t value 17.54 at p<0.001. Non parametric test like Kruskal Wallis Chi square and Mann Whitney Z test were used for the analysis of the association between the demographic characteristics of the control and experimental group with the pre-test and post test knowledge scores which revealed that there was no significant relation between the two entities.

Conclusions: STP is an effective tool in educating nurses regarding breast crawl which in turn will positively affect the practice of breast crawl by nurses during their clinical practice. In-service education and adaptation of the concept regarding importance and initiation of breast crawl, into the curriculum and institutional policy should be encouraged to make this evidence based practice viable in the clinical settings thus contributing towards reduction of IMR & MMR.

Disclosure of Interest: R. Gopalakrishnan Other: Maximum utilization of proposed structured teaching programme to sensitize nurses in the services
PT12.09
DESIGNING TACTICAL COMBAT CASUALTY CARE GUIDELINES FOR TRAINING OF MILITARY NURSES
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Rationale: : Military nurses encounter armed conflict and other violent situations with dangers such as bullets, collapse of
unstable buildings and walls, vehicle fire and collision with tear gas. They are accelerating to help the wounded, which is a
natural way of escaping the situation. Providing first aid is at the forefront of the battlefield and in crisis situations for
anyone at risk. The purpose of this article is to designing Tactical Combat Casualty Care (TCCC) Guidelines for training of
military nurses.

Methods: This research is based on a review of the latest literature and studies in the field of military nursing and
interviews with health experts in the area of care on the battlefield.

Results: Extracting preparedness indicators for military nurses, including assessment and management of position,
assessment and management of wounded, initial examinations and rescue measures, stabilization measures in three
areas; Hot zone, Warm zone and Cold zone are required for military nurses training in accordance with Guideline.

Conclusions: This article contributes to the readiness of military nurses in dealing with disasters.

References: 1.Two Decades of Saving Lives on the Battlefield: Tactical Combat Casualty Care Turns 20
Burlington, MA: Jones & Bartlett Learning; 2014.

Disclosure of Interest: None declared
LESSONS LEARNED FROM IMPLEMENTED TELEMEDICINE PROJECTS IN MILITARY MEDICINE: A SYSTEMATIC REVIEW

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Rationale: Due to the importance of telemedicine in providing military medicine services, progress countries use of its abilities to health care improvement for military forces. The aim of this study was to identifying the experiences and programs of the leading countries to design and develop the tele medicine systems in military medicine.

Methods: This study was conducted in 2018 with a structured overview in the PubMed, Scopus, Embase and Web of Science databases by combination of keywords. Articles selected. Finally, 12 articles were selected for the review based on inclusion and exclusion criteria in the last five years. A standard form was used to data gathering. Data were summarized and reported based on the study objects.

Results: From the 12 selected articles, 5 cases (41.66%) were synchronous (real-time tele medicine) method. USA with 9 study has the most research projects in the military telemedicine. The most frequent method of telemedicine was tele orthopedic. All 12 studies (100%) refereed to the positive effects of telemedicine in health care providing for military medicine.

Conclusions: The use of tele medicine tools and potentials are effective in many factors such as patients and health care provider time saving, reduce costs, support in critical condition, improvement in health care services, and patients satisfaction in military medicine. It's suggested that other countries use of tele medicine in military medicine services.

Disclosure of Interest: None declared
AN EVALUATION OF THE EFFECTIVENESS OF HIGH-FIDELITY SIMULATION IN UNDERGRADUATE EMERGENCY TRAUMA SURGICAL TEACHING

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**Rationale:** Simulation pervades all levels of education and training within Emergency Medicine. With rapid advancements in technology, creation of complex simulations are now possible. This study evaluated the efficacy of high-fidelity simulation in undergraduate emergency trauma medicine teaching.

**Methods:** A consultant trauma expert delivered an introductory lecture, followed by consultant-led small group transoesophageal echocardiogram TOE and chest drain simulations, and a splinting station. Delegates then responded to a simulated major trauma incident with simulated patients and high-fidelity manikins. Pre- and post-surveys were administered to assess change in delegates’ trauma surgery knowledge and confidence.

**Results:** Recall of the boundaries of the safe triangle for chest drain insertion improved by 46% (p<0.01), and knowledge of cardinal signs of a tension pneumothorax improved by 26% (p=0.02). There was a 22% increase in knowledge of what transoesophageal echocardiograms (TOEs) measure (p=0.03), and 38% increased knowledge of contraindications for splinting a leg (p<0.01). Confidence working in an emergency setting increased by 22% (p<0.01). In the ABCDE component of management, delegates took an average of 25.8 seconds to safely secure the airway, 95% CI [5, 46.6]. Delegates correctly triaged 72% of the patients 95% CI [63.9, 80.1].

**Conclusion:** The results demonstrate significant increases in both competency and confidence of working within an emergency trauma setting, which is an invaluable skillset for all healthcare professionals. More work needs to be done to explore the longer-term retention of knowledge and skills. These findings suggest potentially significant benefits of further implementation within emergency trauma surgery education.

**Disclosure of Interest:** None declared
ROLE OF SIMULATION IN NURSING AND PARAMEDICS EDUCATION

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Rationale: The purpose of this presentation was to study and compare the use of simulation versus nursing education in promoting self-confidence and improve skills among nursing graduates.

Methods: This presentation provides significant information regarding the uses, benefits, history, future possibilities, advantages, limitations of simulation in nursing education and it answers the following questions: Why integrate simulation? Where is improvement needed? What should be the goals? A brief discussion on application of simulation to teaching situations, steps of planning, culture in simulation—important characteristics, simulation-environment, key values for simulation, an eco-system for simulation and ways to adapt simulation.

Results: Improved proficiency in advanced life support following simulation training compared to clinical experience alone. Hospital resuscitation teams trained in advanced life support using simulation can improve patient outcomes following cardiac arrest. Simulation helps in developing and demonstrating critical thinking skills. Providing students with “real-world” experiences and examples. The future is bright for the use of simulations in nursing education. Simulation centers are being built all around the world.

Conclusions: It changes faculty assumptions about how students learn and think and to become an essential teaching/assessment evaluation strategy in education of nurses. The incorporation of clinical simulations in nursing curriculum is one approach for change in nursing education.

The main benefits of simulation can be summarized as: experimentation in limited time, reduced analytical requirements and easily demonstrated models.

The main limitations are: simulation cannot give accurate results when the input data are inaccurate, cannot provide easy answers to complex questions and cannot solve problems by itself.

Disclosure of Interest: None declared
Rationale: Weapon equipment serviced for modern warfare is also one of them.

Methods: The tasks of military surgery have been widened to cope with the modern high-tech wars, terrorist attacks and incidents. That high (new)-tech weapons are widely produced and used in combat has made the type, severity and complexity of war wound change accordingly, and the task of military surgery is more difficult. In the Gulf War, great difference in strength between the opposing sides leads to a new war pattern which has never seen in the history of warfare “No Contact” and “Zero Casualty” in the superiority side.

Results: The theory of wars has been renewed with the appearance of new military revolution in recent years, the development and production of many high-tech weapons have got rapid development, and the destructive force to the targets and people of these new weapons has exceeded previous ones. Therefore, the research on modern military surgery should be increased, especially the destruction effects, injury mechanism and treatment of new weapons in order to better protect effectives and reflect the spirit of people-oriented.

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Disclosure of Interest: None declared
VIRTUAL REALITY VERSUS PHYSICAL MODELS IN UNDERGRADUATE ORTHOPAEDIC EDUCATION: WHICH ONE IS MORE EFFECTIVE?
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Rationale: The use of physical models has been pervasive in orthopaedic training, but they are seldom utilised at undergraduate level. With advances in virtual reality (VR) simulation, simulation of high-fidelity scenarios is now possible. This study evaluates the effectiveness of VR and physical models in teaching medical students important orthopaedic concepts.

Methods: Students were randomly allocated (n=49) to two groups: VR or physical models. Both groups received an introductory lecture, before completing a pre-test, with questions on the principles of fracture fixation, and osteotomy. Each group then received a lecture on these topics with the same content, but one was delivered with VR, and the other with physical models. Both groups completed a post-test.

Results: For fracture management, the VR and physical model groups both improved in knowledge scores by 27% (p<0.01) and 21% (p<0.01) respectively. For osteotomy, the VR and physical model groups improved in knowledge scores by 45% (p<0.01) and 51% (p<0.01) respectively.

Conclusion: VR was superior in teaching fracture fixation, which is an essential concept in orthopaedic and trauma management. Physical models were superior for osteotomy teaching, however, both interventions demonstrated improvements relative to traditional teaching. Therefore, both VR and physical models represent invaluable tools for communicating and teaching key concepts in trauma and orthopaedic surgery to undergraduate medical students.

Disclosure of Interest: None declared
PT12.15
EFFICACY OF PLASTIC SURGERY SIMULATION TRAINING FOR UNDERGRADUATE EDUCATION
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Rationale: Plastic Surgery is underrepresented in the undergraduate curriculum, limiting knowledge and practical skills. The objective was to assess the impact of teaching basic plastic surgery concepts and skills at a one-day conference on medical students’ knowledge and skills in plastic surgery.

Methods: Delegates (n=47) rotated through clinician-led workshops, including teaching and practical sessions on the training pathway, common procedures and emergency management, suturing, wide local excisions and Z-plasty. Knowledge of important plastic surgery concepts was assessed using a before-after quiz. Surgical skills were assessed using the Objective Structured Assessment of Technical Skills (OSATS). The data was analyzed using a paired t-test.

Results: There was a 36% increase (p<0.05) in participants’ average score on the knowledge quiz of common plastic surgery emergencies and procedures. Delegates’ suturing skills (OSATS) demonstrated a three-fold improvement (p<0.05). Interest in plastic surgery as a career increased by 20% (p<0.05).

Conclusion: This study demonstrated a significant increase in knowledge, skill and interest in plastic surgery following a surgery workshop. Delegates exhibited significant improvements in important concepts in plastic surgery such as emergencies and technical skills. Furthermore, surgical skills exhibited a three-fold improvement. Therefore such courses represent an invaluable learning resource for aspiring surgeons, with particular focus on plastic surgery.

Disclosure of Interest: None declared
INTRODUCING A CONCEPTUAL INTEGRATED MODEL FOR THE MARTIAL AND CITY INFORMATION SYSTEM FOR IRAN
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Rationale: Information system consists of all relevant information systems in the direction of relief and treatment in the war and crisis is commensurate with progress in science and technology have crucial importance in saving the combat injuries.promote the quantitative and qualitative status of relief and treatment information, through improved collection and transfer methods, processing and utilizing information, according to definitions, and organizing data centers, data quality and quantity, data level and circulation way in the interaction between combat and urban treatment system were the aims of this study.

Methods: This is a composition of qualitative and quantitative study. Firstly, we applied comparative study for checking the current situation in selected countries and semi-structured interview quality method for checking of Iran status. We gathered information from experts on Information technology and strategic leadership at the ministry of health and military forces. The original model was extracted from interviews with Maxqda 11 software analysis and made available to technology experts and healthcare administrators. Other questionnaire data were analyzed by SPSS 18.

Results: There were different levels of data and resources from war and crisis areas to urban hospitals. Initial and produced information at each level completed the process of relief and treatment. Integration of data production, organizing, transfer and processing along with the provision of new management infrastructure were necessary to continue the relief and treatment proceedings. The original model was approved by the opinion of more than 90% of the respondents and the final model was confirmed by the opinion of academic professors and martial arts experts.

Conclusions: Relief and treatment management will be highly effective and determinative by effective implementation in the field of information management, decision making to continue treatment in the urban system and its feedback in the combat system based on integrated databases in both martial and urban areas

Disclosure of Interest: None declared