

EXPERT CONFERENCE



Civil Military Cooperation:
Enhancing Combat
Trauma System
and Disaster Medical
Management Capacities

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ABSTRACT BOOK

Naples 2012



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WELCOME MESSAGE

Dear Colleagues,

It is my honor and pleasure to extend you an invitation to attend the Conference “Civil Military Cooperation Enhancing Combat Trauma System and Disaster Medical Management Capacities”.

This Conference is organized by Logistics Command for Southern Italy, Health Command, in collaboration with A.O.R.N. “A. Cardarelli”, Naples, A.O. Hospital “Niguarda Ca’Granda” - Trauma Team, Milan, Hospital Maggiore, Emergency Department, Bologna, Second University of Naples (SUN), School of Medicine, US Naval Forces Europe Medical, Naples, NATO Allied Joint Force Command Headquarters, JMED Division, Naples, Policlinico Militare “Celio”, Rome and Military Department of Forensic Medicine (DMML), Caserta, to be held in Naples, at the Nunziatella Military School, during the period from 12th to 14th September 2012. This Conference is an excellent opportunity for civilian and military medical personnel to share and exchange information in the field of Health Care during disasters and crises. We look forward to welcoming you in Naples.

Yours sincerely,

Brigadier General Nicola SEBASTIANI, MD



Health Commander and Director, Logistics Command for Southern Italy

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ORAL PRESENTATIONS

Conference honorary presidents' interventions

LTG Marmo, LTG Borrini, Avv Granata, Prof Rossi

Conference president's opening speech

MG Tontoli

DAY 1

Panels

1. ITA MILITARY MEDICAL EXPERIENCE IN DISASTER MEDICAL MANAGEMENT AND SUPPORT

Moderators:

MG Germani

BG Isp. Abbenante

BG Mammana

2. ITA CIVILIAN MEDICAL EXPERIENCE IN DISASTER MEDICAL MANAGEMENT AND SUPPORT

Moderators:

COL CRI Tripodi

Dr De Bellis

Prof Barbarisi



OP 1/1 The Organization of the Trauma Centres in Italy

Author: Prof Osvaldo Chiara, MD

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The following conditions are required to guarantee an appropriate assistance during all the phases of an emergency:

- a) requires a first general overview of the injured on the field with the identification of all the injuries and therapeutic priorities;
- b) ability to set up on the field and during the transportation any possible maneuvers to support basic and advanced respiratory and circulatory function;
- c) the process of sending the patient to the more adequate hospital, that can offer an effective and final treatment of the lesions (which is not necessarily the one closest to the accident site).
- d) the connection between the operational management services in the acute phase with the rehabilitation facilities in order to ensure, on a principle of continuity therapeutic, the early taking charge of the patient by the health deputies rehabilitation.

The Trauma Center can be organized according to the model of an operational, functional and interdisciplinary unit within it an emergency department and Acceptance (DEA) of an hospital (*trauma team and trauma service*), responsible in the coordination of the various expertise competent that, while apparently maintaining the aspect of an individual operational unit, when it's necessary they converge aimed to manage the traumatized taking into account predetermined and already shared protocols.

This model, known as *inclusive*, is economically more favorable compared to all the other *exclusive* models where all the traumas are initiated in structures only dedicated to this function.

The department of Emergency-Acceptance (DEA-EAS) of the firm Hospital Niguarda Cà Grande of Milan, traditionally has been always committed in the treatment of the major traumas, has actived from the month of October 2002 a functional coordination and from the 1st of January 2005 a Easy departmental structure that has been changed in a Complex Structure called "**Trauma Team**", focused on the management of the patients with major trauma taking into account the model of a CTS.

From the activation of these management model (1st October 2002) to December 2011, the trauma team managed over 3500 patients accepted for major trauma (red or yellow code of a triage), with a survivor of the 87% and a reduction of the mortality avoidable unless the 2%.

In conclusion, the experience of Niguarda highlights as trough the optimization of services already existent and thank to a logistic particularly favorable, it could have been possible to realize an inclusive model of Trauma centers able to guarantee a



global reaction and able to integrate to the traumatic pathology, form the territory, to the department of Emergency, to the structure of rehabilitation.

OP 1/2 Combat Trauma System in Multinational Environment in comparison to Civilian Trauma System

Author: COL Dr Renzo Mattei, MD

Introduction: The nature of the trauma patient injuries requires timely diagnosis and treatment by a multidisciplinary team, supported by appropriate resources in order to diminish or when possible to eliminate the risk of death or permanent disability. Most of the injured on the battlefield are trauma patients; therefore from the beginning of the warfare attempts to ameliorate the medical aid to injured military men have been made. The real combat trauma system started its development with Napoleonic and Crimean Wars in XIX century. The trauma system in civilian healthcare system started a century later in 1960-s.

The aim of this publication is to present the similarities and differences of the military Combat Trauma system and civilian Trauma System in order to deduce ways to ameliorate both systems.

Materials and Methods: By the means of descriptive method Combat Trauma System in Multinational Environment and Civilian Trauma System are described. Comparative method was applied in order to analyze their similarities and differences.

Conclusions: As a result of performed analyzes some educational and training proposals are emphasized.

Key words: Civil-Military Cooperation; Combat Trauma System; Multinational Environment; Trauma System; Medical Support Training

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OP 1/3 Oriental Fantasy

Author: Ambassador Cosimi Risi

A Middle East free of weapons of mass destruction is a fantasy difficult to achieve given historical precedents. But three permanent members of the United Nations Security Council, signatories of the Nuclear non-Proliferation Treaty, have launched the initiative for a conference specifically on this topic, scheduled for December 2012.

Fear of war, "the bomb" and other weapons of mass destruction, such as the technologically simpler to obtain chemical weapons, affect the lives of all inhabitants of all countries of the Middle East. For this reason discussions regarding the quantity and



efficiency of weaponry should take second place to the human factor. To the primary victims of war - defenseless civilians who have no future and are forced to continuously seek refuge in other countries to escape the horrors of nuclear and chemical warfare. Refugees from Iran, Palestine, Syria, Africa flee to Turkey, Lebanon, even Israel while these and other nations of the Middle East and Asia continue their attempts to achieve nuclear technology, chief among them Iran, India, Pakistan, North Korea. And even Israel, the country with the highest perception of imminent threat to its security.

The looming nuclear crisis could be solved at such a conference if all sat around a negotiating table for the same purpose. The nations will doubtless attend the conference, as they have in the past. But their purpose will not be the unified one of bringing peace to the Middle East, rather each will arrive with its own individual fears and security concerns.

The conference facilitators are working to organize such a meeting, but given the numerous aspects to be considered, the number of different weapons involved and the upcoming and influential American presidential elections with its strong impact on Israeli policy, it might have to be postponed to a later date.

OP 1/4 The emergency resuscitation and major emergencies

Author: Prof Alfonso Brbarisi, MD, FEBS(H)

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In this report will attempt to answer two critical questions

1. In 'big bang' major incidents do triage tools accurately predict clinical priority?
2. Are We Ready in Resuscitation in Disasters (big bang) and Mass Casualty Events?

The term "big bang" major incidents is used to describe sudden, usually traumatic, catastrophic events, involving relatively large numbers of injured individuals, where demands on clinical services rapidly outstrip the available resources. Triage tools support the pre-hospital provider to prioritise which patients to treat and/or transport first based upon clinical need. The aim of this review is to identify existing triage tools and to determine the extent to which their reliability and validity have been assessed.

With regard to the first question, systematic review of the literature was conducted to identify and evaluate published data

validating the efficacy of the triage tools. Studies using data from trauma patients that report on the

derivation, validation and/or reliability of the specific pre-hospital triage tools were eligible for inclusion.



About the second question: the role of resuscitation is critical, and it may take all personnel at the scene to stabilize victims. Guidelines and protocols and training, coupled with careful disaster response planning, ensure that teams make the most of their often limited personnel.

OP 1/5 Field Hospital Planning and Management

Author: COL Michele Tirico

The activities of the Italian Army over the past thirty years have seen medical personnel deployed to areas when medical assistance is often non-existent. Thanks to the experience acquired, training and special facilities the Army Medical Corps has developed a multi-level medical intervention capability, extending from initial response to the complete treatment and cure of wounded or injured patients.

1982 was the landmark year that saw us progress from the traditional assistance capability provided domestically since the post war period to a dynamic military medical service operating abroad, beyond national boundaries, and specifically in Lebanon.

In dealing with new operational requirements we also had to consider specific construction regulations and guidelines, in addition to national standards.

Battlefield military medicine today must respond to specific military as well as civilian technical conditions to ensure that clinical and therapeutic activities in Operational Theatres are as similar as possible to the levels available in a Western Nation.

Field Hospitals of the Italian Armed forces have evolved through numerous cultural and technological phases. We have gone from a canvas tent configuration to the use of rather sophisticated shelters.

Over time, the need to provide a superior professional response has concentrated specialized resources into a single military hospital, the Celio in Rome, which has become the point of reference and location for all medical and nursing personnel serving tours in the various field hospitals of Operational Theatres.

The normative references followed are of necessity those of the NATO doctrine but recently, with the introduction of the COE Manual, as this UN document was fundamental to the Leonte Mission in Lebanon. The Armed forces have also carried out studies to update the methods used in employing field units in garrisons and in theatres of operation. These studies are just the beginning of future programs that envisage higher levels of employment and an ever increasing capability in the field of technical and military management of medical personnel that must of necessity serve as the basis for new configurations.

However, the increasingly thorough and specific study of this topic is in conflict with the scarcity of human and economic resources. It is difficult to reconcile functionality with contract personnel.



OP 1/6 Risk management in hospital after natural disaster in case of radioactive contamination

Author: Dr Andrea Stanga, MD

The radioactive contamination of one person and /or population is a consequence of the exposure due to nuclear emergency (condition after an accident in a nuclear installation or for a radiologic emergency (condition that happen in different places than the nuclear installation).

The risk management of radioactive contamination in case of an hospital is articulated and complex: as a matter of fact, it's necessary taking into account the various operatives units involved in a sequential and temporal way: medicals of 118 with the concern of rescuers' protection and of the rescue vehicle, hospital team, predisposing personal, adequate equipment to radiation monitoring furthermore for the victim of a radioactive contamination.

It's also essential the information and the training of medical personal.

OP 1/7 Emergency physicians and Military physicians in Disaster Medical Support

Authors: Prof Ludovico Docimo, MD - Dr S. Tolone, MD

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A catastrophe is a sudden and unexpected event that causes extensive damage; it also reveals the shortfalls that exist between the needs of the victims and the available rescue resources. The causes of disasters may be caused by man, i.e. fires, explosions, terrorist attacks or by nature, i.e. earthquakes, tsunamis, etc.

On paper, every Nation is prepared to deal with a catastrophe, as it has legislation, dedicated agencies and training programs. Unfortunately, recent history has shown that when a real disaster occurs, theory is of little use and that more suitable preparation is required.

The goal of an emergency medicine physician during a catastrophe is to treat the greatest number of victims, to do so in the best way possible and within the shortest time possible, limiting after effects and losses. Unfortunately, extraordinary situations sometimes call for a conduct that may appear to be inhuman.

Physicians in the field must carry out a Field Triage (using either the START or the CESIRA method), identifying the most seriously injured, those with little hope of survival, and abandoning them to treat those with greater probability of survival. This is followed by careful preparation of the field, coordinated by Operations Rooms, to allow



for emergency assistance in the field prior to subsequent evacuation and transfer to a hospital.

But often during catastrophes need surpass resources as even the local hospitals may be affected by the catastrophe and be unusable. In these cases the Italian Army can intervene by providing military physicians as well as means and equipment provided by Army Engineering. This procedure has also been standardized by the EU.

For years, civilian doctors and military doctors used different methods in managing trauma. Recently, we have witnessed a slow integration of these two perspectives, with consequent formation of a Joint Trauma System. This approach envisages the use of a Joint Trauma Register database compiled using data issuing from civilian and military trauma management. We used these data to extrapolate Clinical Guidelines with a high level of Evidence. Thanks to these guidelines, through the years the outcome of those injured in the field has significantly improved. The guidelines have also helped to develop increasingly better techniques to manage patient information and improve the outcome of vascular lesions or lesions caused by explosions. Also highly important is the concept of Damage Control Surgery, which has saved 20% more lives in the field compared to the Second World War.

The combined use of modern military and civilian techniques in trauma management has led to excellent results even when exported to disasters, as demonstrated during the earthquake in Haiti in 2010.

Unfortunately, the use of Military Medicine in disasters also has physical limitations, such as the high number of patients to be treated and the limited number of patients that can be transferred simultaneously. For this reason we must encourage cooperation between civilians and military, implementing the most advanced technologies available to military medicine, creating synergies between the armed forces and civil defense, identifying appropriate models, promoting exercises and improving the training of doctors by establishing ad hoc schools of specialization.

OP 1/8 Earthquake in Abruzzo: Experience of the Italian Navy Forward Medical - Operation Gransasso

Author: Capt. (N) Andrea G. Tortora, MD

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During the night of April 6th 2009 an earthquake of magnitude 5.9 – 6.3 interested an area of Central Italy with an epicenter close to the old city of L'Aquila in Abruzzo. The quake caused the death of 309 people, more than 1500 wounded and more than 10.000.000.000 Euro of estimated damage . Since april 10th to may 25th the Italian Navy deployed a Forward Medical Post (Camp San Marco) located in the outskirts of the small town of Poggio Picenze , about 15 kilometers from L'Aquila. During the almost



45 days of deployment a total of about 350 people were treated in “Camp San Marco” mostly for respiratory diseases and/or complications of chronic diseases.

As Camp San Marco had a small lab and Ultra sound capabilities, in the first 10 to 15 days of deployment it acted as a small referring structure for some of the Forward Medical Posts close by. After a few days from deployment the shelters were also opened to the use of the local general practitioner and pediatrician whose ambulatory structures had been destroyed by the quake.

During the first 10 days we diagnosed 7 AMI's , one acute esophageal varicose bleeding, one sub acute intestinal occlusion due to a colonic tumor and some mild to moderate hyper glicaemia events in diabetic patients. As it turned out, most of the more severe acute diseases observed, even not of a traumatic origin were a direct cause of the earth quake because of stress, missing of regular drug support or clinical follow-up.

OP 1/9 Damage Control in Combat Wounds

Author: COL Corrado Maria Durante, MD

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Today in the operational theaters the chirurgic team has to deal with a kind of tissue injures characterized by etiopathogenesis thermodynamics combined with same diagnostic and therapeutic aspects not traditional and entirely new respect the past; as matter of fact this type of injures is considered as the daughter of both effects of explosive arms not conventional and the originality of tactic and scenarios clashes.

The asymmetry of conflicts thus generating new generations of complex and devastating wounds opens necessary a further chapter in the treatment of the wounds combat; the characteristic features of these injuries are essentially: 1. The wide destruction of the soft tissue 2. The colonization microrganismic³. High level of exudation 4. Tendency to local infection.

The chirurgic must answer by scheduling, management, method and technology to the unpredictability and aggression of the effects of the ordnance explosive to the most exposed parts of the human body, in summary, it creates a sort of contest between the aggressor, with few resources but without any scruples, and the surgeon repair of the field hospital, which although professionally prepared and equipped with technological equipment has to cope with complex and complicated tissue destruction that in a short time could lead to serious infections, degenerating into impairments and major amputations and sometimes compromise life itself.

The patients called military, the ones affected from tissue wounds not easily related to the traumatic events of the civilized world, are marked by specific characteristics such



as multiplicity of contemporary complex wounds, a heavy local contamination and fragmentation of care between different health units on the base of the logistic chain of evacuation for the patients.

The rational treatment of combat wounds immediately begins at the stage of pre-hospital care and once restored and stabilized the vital functions in the emergency room, the patient is taken to the operating room as soon as possible, here begins the process of damage control of wounds from combat. The wounded man ready for this method must be hemodynamically stable and meet the following requirements: PA > 90 mmHg, F.C. <100 b / m, possibly a A.B.I. > 0.9 and without fractures located in an abnormal way. The presence of lesions venous compartment, nerve and / or tendon does not interfere in any way with this technique.

The final objectives of the damage control applied to combat wounds are essentially the definitive control of bleeding, the reduction of the bacterial load and the control of the infection, the preparation for reconstructive surgeries further, reducing the number of accesses subsequent hospital and related morbidity. The damage control in combat wounds consists of the following 5 steps: irrigation, debridement, dressing antiseptic, soft-tissue fixation and immobilization of the body segment.

To demonstrate the technical methods of carrying out the procedure we have developed two models of tissue lesions complicated by explosive device, with the help of animal parts acquired business; the first phase of the movie the damage control will run on a wide loss of tissue substance located on a thigh while the second part will focus on the operations to be performed in case of complete amputation of one end.

OP 1/10 The MIMMS Approach to a Major Incident and its Application in ITAF Health Service.

*Authors: LTC P. Marcatili, COL D. Di Blasio & MG E. Tomao **

Villafranca Main Medical Wing; *ITAF Health Service Command

Major Incident Medical Management and Support (MIMMS) method provides a systematic and practical approach to field management of disasters that can be applied to any major incident.

It was first introduced in 1994 in United Kingdom, as a civilian program. Nowadays, it has been translated into numerous languages and runs in 12 different countries. MIMMS became also an international standard, delivering a simple, reproducible framework for planning a quick response to multiple casualty incidents.

This all-hazards approach consists in:

- Command and Control;
- Safety;



- Communication;
- Assessment;
- Triage;
- Treatment;
- Transports.

Since 2003, it has been introduced among NATO countries as a standardized system. MIMMS principles were used by responders to 7/7 London bombings, the Asian and Japanese tsunamis, and they were also applied for planning many high-profile events such as Italy 2006 Winter Olympics and specific disaster strategies (e.g. 2005 Rivolto AFB Open Day).

OP 1/11 The health plan for the mass event “Beatification of John Paul II”: the role of the Military Corps of the Italian Red Cross

Authors: LT Fabio Rispoli, MD, LTC Romano Tripodi, MD, Michele Iannuzzi, MD, PhD, MG Gabriele Lupini, MD,

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The beatification of Pope John Paul II, one of the Roman Pontiffs most loved by the people, brought to Rome a half million pilgrims. The Military Corps of the Italian Red Cross, an institution founded in 1866 Auxiliary of the Armed Forces, in view of the high influx of pilgrims, along with other government organizations, has prepared the event setting a second level Casualty Clearing Station (CCS) with ten medical officers and other specialized personnel and has made available an elevate number of medical and logistics vehicles. The Italian Red Cross has used for the first time in a similar context the Mother-Child Unit and the Paediatric CCS, both in the experimental stage.

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OP 1/12 Gli psicologi dell’Aeronautica Militare impiegati nell’Operazione “Gran Sasso”

Authors: LT Gaetano Buonaiuto; WO Dr Matteo Simone

“The Military Psychologist”, Air Force Selection Centre, Guidonia

In order to provide psychological support to people affected by the seismic event of April 6, 2009, the Joint Forces Operational command, at the request of the Civil Defence



Organisation, sent a team of psychologists and psychiatrists from the different Armed Forces to the Abruzzo Region.

The Air Force “Psychological Support Group” (composed of psychologists registered with Professional Associations and selected from military and civilian personnel of the Defence Administration and Officer Psychiatrists), coordinated by General Abbenante Domenico, was sent to help the victims deal with the inevitable psychological consequences of the trauma, and to support rescue operators in dealing with traumatic situations.

The professional competence required included a proven personal capacity to adapt to the context and to teamwork. The intervention evolved in a highly emotional context and was aimed at empowering human resources. This resulted in an intervention aimed at constructing and reconstructing individual, group and community relations and plans.

OP 1/13 Military Medical Academy, Sofia Readiness for Disaster Relief Medical Support

Authors: COL Dr Alexander Parashkevov, MD, PhD; COL (ret) Dr Aleksandar Dimitrov, MD, PhD

Military Medical Academy, Sofia; Military Medical Detachment for Emergency Response

Introduction: Military Medical Academy (MMA) is the successor to the General Garrison Hospital in the city of Sofia, founded in 1891. During its over one century progress (120 years) MMA has developed and established organization and capabilities to ensure that the medical support to entire spectrum of military operation, including the assistance to civilian health care system in case of humanitarian relief and disaster relief operations, is based on internationally accepted best medical practice.

The aim of this study is to present the Military medical Academy, Sofia readiness for medical support in case of disasters.

Materials and Methods: By the means of descriptive method the established in the MMA structures and organization is presented. The comparative method is used for analyzing the disaster medical support tasks and related MMA structure and organization. The results are presented via cluster analysis.

Conclusions: As a result of performed analyses the highly readiness of the Military Medical Academy, Sofia to provide primary, secondary and tertiary medical support in case of natural and/or manmade disasters is noted.

Keywords: Military Medical Academy, Sofia; Disaster Medical Support; Military Medicine; Mass Casualty

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OP 1/14 Multinationality in Medical Support of Operations - the Experience of Military Medical Academy, Sofia

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Introduction: Military Medical Academy (MMA), Sofia within its 120 years of history has medically supported all operations of the Bulgarian Armed Forces. Last decades have recorded significant increase in the frequency of Bulgarian military missions abroad, where Bulgarian servicemen are part of multinational task forces – KFOR, SFOR, EUFOR, ISAF to mention just a few. The medical teams have been performing their duties as a part of multinational medical entities supporting not only Bulgarian, but all coalition troops and civilian population.

The aim of this publication is to present the experience gained by MMA during more than 100 years medical support in multinational environment.

Methods: By the means of descriptive and comparative methods are presented the main challenges medical teams have identified in multinational environment and the measures implemented in medical teams preparation.

Conclusions: As a conclusion authors presents the impact of multinational military environment on medical teams training program, established in MMA.

Key words: Military Medical Academy, Sofia; Missions Abroad; Medical Support; Multinationality

OP 1/15 Hungarian Military Medical Service in the “Red Mud” Relief Operation

Author: LTC Dr Peter Vekszler, MD

Introduction: On 4 October 2010, the north-western corner of the dam of Ajkai Timföldgyár alumina plant reservoir collapsed, freeing about one million cubic metres of highly alkaline liquid waste from red mud artificial lake. As the result of the ecological catastrophe about 40 square kilometres of land were initially affected including seven towns and villages, forcing the evacuation of 400 residents, 10 people died and additional 150 were injured.

The aim of this study is to present the medical activities performed by the Hungarian Defence Forces included in the Disaster relief operation.

Materials and Methods: By the means of descriptive and comparative methods the medical activities performed by the Hungarian Defence Forces are analysed. The results are presented via cluster analysis.



Conclusions: Based on obtained results conclusion regarding Hungarian Defence Forces organization, capabilities and readiness for medical support to national Disaster relief operations are presented.

Keywords: „Red mud”; Military Medical Service; Disaster Relief Operation; Medical Evacuation

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OP 1/16 Military Medical Academy, Sofia Experience in Disaster and Humanitarian Relief Operations

Authors: *COL Dr Rostislav Kostadinov, MD, PhD; COL (ret) Dr Aleksandar Dimitrov, MD, PhD*

Military Medical Academy, Sofia; Military Medical Detachment for Emergency Responce

Introduction: Military Medical Academy (MMA) during its over one century history (120 years) planned and execute more than 20 military medical missions in support of international disaster and humanitarian relief operations. First mission was in 1903-1905 and from 1952 military medical officers has been deployed abroad. Nowadays Bulgarian military medics are participating in four missions abroad.

The aim of this study is to present the Military medical Academy, Sofia experience in disaster and humanitarian relief operations .

Materials and Methods: By the means of descriptive and comparative methods the experience gained during completed and ongoing military medical missions in support to humanitarian and disaster relief operations is presented and analysed.

Conclusions: In conclusion as a result of performed analyses the implementation of the lessons learned during military medical support to humanitarian and disaster relief operation in Military Medical Academy structure, training and educational programs is presented.

Keywords: Military Medical Academy, Sofia; Disaster Medical Support; Humanitarian Operations; Military Missions Abroad

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DAY 2

Panels

1. NATIONAL MILITARY MEDICAL EXPERIENCE IN DISASTER MEDICAL MANAGEMENT AND SUPPORT

Moderators:

CAPT US N Terbush
BG Angellotti
Prof Kipor
MG CRI Lupini

2. MULTINATIONAL MILITARY MEDICAL EXPERIENCE IN DISASTER MEDICAL MANAGEMENT AND SUPPORT

Moderators :

Prof Kipor
COL Frerichs
CAPT US N Terbush
BG Gervasi
COL Fulvio

3. CLINICAL AND ORGANIZATIONAL ASPECTS OF DISASTER MEDICAL MANAGEMENT AND SUPPORT

Moderators :

BG Nardi
Dr Noschese
Prof Fini
Dr Parascandolo Sa.
Dr Di Grezia
Prof Cuomo



OP 2/1 NATO Means and Capabilities to Support Disaster Relief Operations

Authors: COL Dr Jorg Frerichs, MD; COL Dr Rostislav Kostadinov, MD, PhD

Introduction: Beginning in the 1990s, NATO engaged in a number of non-Article 5 crisis response operations on three continents: initially in the former Yugoslavia in Europe and subsequently in Afghanistan and Iraq in Asia and in the Darfur region of Sudan in Africa. These operations have covered a wide variety of missions, from crisis prevention to emergency crisis response, including disaster response and humanitarian relief actions.

The aim of this publication is to present the NATO means and capabilities to support disaster relief operation.

Materials and Methods: By the means of descriptive method the roles, responsibilities and procedures of NATO Civilian Emergency Planning are described. The new structure of NATO JFC HQ, Naples Medical Division is analyzed with comparative method in order to present the NATO medical staff capabilities to support civilian authorities in case of disaster.

Conclusions: As a result of performed analyses the NATO medical capacities for support to Disaster Medical Management are presented.

Key words: Civilian Emergency Planning; Euro Atlantic Disaster Response Coordination Centre, Comprehensive Approach; Disaster Medical Management and Support; Medical Intelligence; Medical Support Planning

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OP 2/2 MEDEVAC policies in NATO

Authors: Cap CRI Alberto Lai

Croce Rossa Italiana – Corpo Militare

The management and coordination policies in case of medical evacuation of injured and patients in the area of an arm conflict are regulated by several NATO documents, mainly by STANAG 3204 and AJMedP-2, that define goals, directions, and how to perform these complex health care and logistics, operations and indicate the personnel that must be used, based on the availability and qualification.

The report is aimed at the description of these procedures and also brings the experience of the Military Corps of the Italian Red Cross in its feature of assistance for the Armed Forces in support of ISAF and Operation Iraqi Freedom.



OP 2/3 Civil-Military Cooperation in Maritime Medical Support to NATO-led Operations

Author: CAPT ITN Dr Fulvio Sabato, MD

Introduction: The nature of Maritime military operations is such that vessels are operating in majority of the operation far removed from land-based medical treatment facilities. This characteristic requires from medical planners to plan for an effective military medical support framework with highly dependence on efficient medical evacuation system in order to meet the NATO treatment timelines. The civil-military cooperation under the Law of Seas and liaison and cooperation with the available ashore civilian treatment facilities are important tools in the maritime medical support framework.

The aim of this publication is to present the Civil-Military Cooperation in Maritime Medical Support to NATO-led Operations

Materials and Methods: By the means of descriptive method civil-military medical cooperation during some of the latest NATO operations are described. Deductive analysis was applied in order to analyse how this cooperation could be ameliorated in order to be of greater use for the military and civilian medical support to sailors.

Conclusions: As a result of performed analyses several educational, training and planning proposals are emphasized.

Key words: Civil-Military Cooperation; Maritime Medical Support; Law of Seas; Mass Casualty Situation, Medical Evacuation

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OP 2/4 Lessons Learnt of Medical care Delivery from Terrorist Attacks

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All-Russian Centre for Disaster medicine "Zaschita"

Introduction: The principle objective of this study is info sharing of Medical care delivery experience for injured in terrorist attacks and local military conflicts.

Results: Specialists of All-Russian Disaster Medicine Centre have accumulated an experience of medical care delivery for civilian peoples and militaries injured in emergencies complicated either by the local military conflicts or by terrorist attacks.

The most important difficulties for the delivery of emergency medical care to the affected peoples, injured and patients in RF are the absence of sufficient and detailed information, long distances to the focus of emergency, short time necessary for a



deployment of mobile field hospital, the late and uncertain decision making process in time by the authorities on the upper level of management.

The Authors propose for description and characteristics some groups of major terrorist attacks or emergencies complicated by local military conflicts (man-made emergencies according the classification of Prof. W. Guun).

The main factor of decision making for sending of disaster medical teams on site of emergency is a total (partial) destruction or insufficiency of local medical facilities (Stavropol region, Chechen Republic, Ingushetia, Dagestan, Budennovsc, Beslan, and Tschinvali). The field hospital deployment is evident in major emergencies and is been prepared on site in closed collaboration with local facilities. The injured in major terrorist attacks are evacuated to the nearest regional specialized hospitals (Rostov, Stavropol, Voronez, Sanct-Petersburg, Moscow) after being primary treated on-site. The time of evacuation by air takes 1 – 5 hours. The mechanisms, ways and detailed procedures of evacuation by different means are proposed for discussion. Since the first conflict in Chechen Republic (1995) the medical care was delivered by the staff of RF Disaster medical centre for more then 200000 injured.

Issues: Taking into consideration the characteristics of field activities and staff preparedness the issues are:

- A model of the emergency is the base of action plan for emergency medical care delivery and the range of models is to be analyzed in central Head Quarters;
- The disaster response plan is to be prepared for all potentially conflict region or terrorist attack aftermath beforehand the emergency occurs;
- In daily activities it is beforehand evident to play the exercises of the various scenario or models of major terrorist attacks;
- The staff of Disaster Medical Teams and of Mobile field hospitals is to be regularly trained and the best is the being on duty on their working posts.

OP 2/5 Civil-Military cooperation in disaster and humanitarian relief operations - IOs and NGOs perspective

Author: Gianni Rufini

Introduction: Last decades have recorded a dramatic increase in the frequency and severity of man-made and natural disasters. The disaster response community has significantly increased over the last 20 years becoming more professional and better skilled. Along with the traditional presence of NGOs and IOs a large number of actors are now involved in these operations, including governmental agencies, non-specialised international organizations, the military, civil protection agencies and private companies, who now participate in disaster response and reconstruction processes. All of them, working based on different principles, mandates and missions, but all sharing the same



commitment to save lives and relive suffering. In order to avoid gaps in assistance or overlapping of activities, and harmonize the efforts of such diversified actors, coordination has become of paramount importance.

The NATO comprehensive approach to crisis management has provided a sound basis for cooperation with these organisations, whenever the conditions are given.

Also the technical aspects of assistance have evolved, allowing better quality of aid, although much still needs to be done (for instance in health assistance) to optimise the approaches and the use of resources.

The aim is to present the IOs and NGOs view of Civil-Military Medical cooperation in disaster relief operations, within NATO Comprehensive.

Materials and Methods: Historical review, problems analysis and identification of best practices.

Conclusions: The author presents some recommendations, aimed at streamlining and enhancing the civil-military cooperation.

Key words: Non-Governmental Organizations; International Organizations; Humanitarian Operations; Disaster Relief; Civil-Military Medical Cooperation; Comprehensive Approach

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OP 2/6 CBRN Medical Teams protection in Case of Disasters

Authors: Dr Giuseppe Noschese, MD; COL Dr Rostislav Kostadinov, MD, PhD

Introduction: The threat level of CBR contamination as a result of calamities is increasing nowadays. The explanation of this trend is related not only to the wide spread of chemical, biological and radiological industries, but also to the broaden possibilities of deliberate usage of chemical, biological and radiological materials as a weapons. The adequate and appropriate protection of the medical teams in case of CBRN event is of utmost importance for the medical support to the affected population.

The aim of this publication is to present the required algorithm for protecting medical teams in case of CBR contamination.

Materials and Methods: By the means of descriptive method the roles, responsibilities and procedures of medical teams in case of CBRN event are described. Deductive analyzis was applied in order to analyse the required knowledge and skills for ensuring best medical teams protections in case of CBR contamination as a result of a disasterous event and the possibilities of Civil-Military Cooperation during the medical teams training.

Conclusions: As a result of performed analyses some educational and training proposals are emphasized.



Key words: Disaster Medicine; CBR Contamination; Medical Teams' protection; Medical Teams' Training; Civil-Military Cooperation

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OP 2/7 Approach to radiological tests in polytrauma

Author: Dr Luigia Romano

Nowadays the triage is applied to all patients who access the emergency department that indicates a potentially greater trauma is related to the type of mechanism of injury, injury and clinically manifest alteration of vital signs. The necessity of acquiring a maximum time diagnostic, led to the continuous search in technologies that can allow to shorten the time required for the execution of the radiological tasks, with a simultaneous increase of diagnostic accuracy.

The radiological diagnostic approach can be based on direct radiograms associated to ultrasound of the abdomen and CT of the skull (Conventional Trauma Protocol). Only in the case of positivity of chest X-ray and abdominal ultrasound is prompted a further investigation with CT. However in the last decade the multidetector CT (MDCT) has played an increasingly important role in the diagnostic evaluation of multiple trauma, that has led to a gradual change in study protocols of trauma. The Conventional-trauma-protocol (CTP) began in the Resuscitation Room with a Mobile X-ray equipment and ultrasound and provides a radiograph of the cervical spine and chest and an ultrasound of the abdomen. The integration with radiographs of the pelvis, spine, lumbosacral is then performed in the X ray room, following the clinical evaluation of the patient. The advent and spread of the MDCT- in the II level of DEA has substantially modified such methodological approach also thanks to a series of studies comparing the two protocols radiological relative to the CTP and the MDCT Protocol (MDCTP), that have appeared in recent years in literature. The duration of the protocol MDCT is about 50% of the CTP (18-20 min. Vs. 40-45 min.). The MDCTP involves an exposure dose of about 20-30 mSv while the CTP of 9 mSv. Surely the association Ultrasound-Radiology (CTP) has a cost and a lower exposure dose to MDTCP, but the risk of under-diagnosis is very high (74% of cases). Failure diagnosis is due to an increase in preventable deaths, of early and late complications of prolonged hospitalization and increased disability. If MDCT is used for diagnostic evaluation in basic trauma "more", with a marked increase (74%) of the possibility of unexpected injury to identify "high degree" with a change in the color and a significant impact on the management of the trauma is justified even the highest dose of exposure. Following these considerations quite recently appeared in the literature numerous papers have shown the need to use the MDCT as the only diagnostic procedure in patients with polytrauma.



OP 2/8 The urethral trauma in spine surgery

Author: Dr P. Fedelini

Urologia A.O.R.N. "A. Cardarelli" Napoli

Introduction:

The urethral lesions of iatrogenic nature can usually depend on a gynecological surgery or colon one. Rarer are the injuries whose nature is urological (ureteroscopy, TUR, retroperitoneal lymphadenectomy). The urethral injury secondary to spinal surgery are truly exceptional and difficult to diagnose. In the last 3 years two cases come to our attention.

Materials and Methods:

Case 1: I. M. 34 years old presents clinical observation following a septic fever linked to an urethral obstruction tied high by a calculation of 1.5 cm. The acute event is resolved by the immediate placement of a stent Double J. Then it's followed by ESWL that even if shatters the calculation does not result from a spillage of fragments. A second urethral obstruction, this time without septic state, is faced with urethroscopy both rigid and flexible which highlights the urethral obstruction by a foreign body metal, exactly orthopedic screws, inserted to fix the spine in a patient with severe scoliosis associated with spinal muscular atrophy (the operation of the application of vertebral fixation was achieved by combined anterior and posterior in childhood). It is subjected to uretheroplastic laparoscopic successfully.

Case 2: M.F. 30 years old undergoes surgery for vertebral disc herniation. In the post-operative develops a fever not attributable to the intervention primary. It was carried out a TAC showing retroperitoneal urinary spreading. An attempt is made to place a stent that does not give a favorable outcome. Persisting and worsening the state septic, the patient is subjected to retro peritoneal access and urethral reconstruction (gap of 5 cm) of double-J stent. After an immediate fistulization the patient comes to be observed. The stent continues to be applied for 2 months with catheter and the fistula heals. After 1 year with ordinary sostitutions, the stent is removed. Remains a urethral and asyntomatic sub-stenosis.

Treatment:

Urethral injury is a rare but serious complication of spinal surgery. In the reviewed literature only 24 cases are reported (C. de Quintana-Schmidt 2011). The prone position of spinal surgery may promote the urethral injury due to compression which undergoes the urheter on the spine especially in the stretch L4-L5 (Sarikaya 1996). There are few cases of urethral injury practiced with anterior approach: they are usually diagnosed quickly (within 48 hours) and treated with endoscopic technique - stenting or percutaneous nephrostomy (Isiklar 1996).



Predisposing causes may be reno-ureteral malformations such as renal ectopia Crusade (Wymenga 1996), patients who are very thin, defect or absence of the annulus anterior retroperitoneal or previous surgery. Although the initial symptoms can be qualified early diagnosis is essential to avoid major complications such as sepsis and loss of function of the kidney (C. de Quintana-Schmidt 2011). The lesion may be partial ureteral more frequently, but also complete and this affects the clinical picture and its therapeutic approach. The most common treatment solution adopted in the literature was the uretero-uretero end to end anastomosis carried out open (10 cases). In 6 cases of partial lesions has been placed a stent double-J, in 4 cases has been practiced nephrostomy, in 2 an autotransplant, in one anastomosis uretero-ileal and in one the pielo-ureteroplastic. The laparoscopic approach has already been described by us in 2008, recently reported in the literature reviewed by Kaffenberger with hand-assisted technique (2010).

OP 2/9 Biotechnologies applied to traumatic injuries treatment: State of the art

Authors: Dr Gabriele Pitingolo, Dr Sigismondo Castaldo, Dr Daniele Di Napoli

Centro di Biotecnologie A.O.RN. "A. Cardarelli"

The biomaterials are an enormous number of applications for the treatment of traumatic injuries and of course vary widely depending on the type of application required.

A **biomaterial** is "any substance (other than drugs) or combination of substances synthetic or natural in origin, which can be used for any period of time, as a whole or as a part of a system which treats, augments, or replaces any tissue, organ, or function of the body".

Due to advances in **defensive technology** and medical care, soldiers are more likely to survive engagements in Afghanistan and Iraq. However the number of soldiers suffering amputations is more than twice what has been seen in previous wars; The **main injuries** affecting the military are: Amputations, Burns, Orthopedical Traumas, Gunshot Wounds.

Trauma, degeneration and **diseases** often make surgical repair or replacement necessary. When a military has a traumatic injuries the main concern is the relief of pain and return to a healthy and **functional life style**. This usually requires replacement of skeletal parts that include knees, hips, finger joints, elbows, vertebrae, teeth, and repair of the mandible.

The objective of this presentation is to give an overview of Biotechnologies utilized for the treatment of traumatic injuries combat and medical disasters.



OP 2/10 Combat Trauma: Management of Otological Organ Damage

Authors: Dr D. Napolitano, Dr P. Capasso, Dr F. Oliva, Dr F. Ricciardiello

Unità Operativa Complessa di Otorinolaringoiatria, A.O.R.N. "A. Cardarelli" Hospital, Naples.

A blast injury is a complex type of physical trauma resulting from direct or indirect exposure to an explosion. Blast injuries occur with the detonation of high-order explosives as well as the deflagration of low order explosives.

Blast injuries are divided into four classes: primary, secondary, tertiary, and quaternary. Primary injuries are caused by blast overpressure waves, or shock waves, the ears are most often affected by the overpressure, followed by the lungs and the hollow organs of the gastrointestinal tract. Secondary injuries are caused by fragmentation and other objects propelled by the explosion.¹ These injuries may affect any part of the body and sometimes result in penetrating trauma with visible bleeding. Tertiary injuries may present as some combination of blunt and penetrating trauma, including bone fractures as temporal bone and coup contre-coup injuries. Quaternary injuries, or other miscellaneous named injuries, include flash burns, crush injuries and respiratory injuries.

Blast injuries could affect middle as well barotraumas or auricular hematoma and inner ear as acoustic acute trauma.

Middle ear includes the eardrum and the space behind it. The connection between middle ear and the oropharynx is a thin canal called the Eustachian tube.

Ear barotrauma can occur when these tubes become blocked or partially block

Barotrauma refers to injuries caused by increased air, shock waves or water pressure, such as during airplane flights, explosions or scuba diving.

Damage occurs in the tissues around the body's air spaces because gases are compressible and the tissues are not. During increases in ambient pressure, the internal air space provides the surrounding tissues with little support to resist the higher external pressure. During decreases in ambient pressure, the higher pressure of the gas inside the air spaces causes damage to the surrounding tissues if that gas becomes trapped.

The symptoms are: conductive Hearing loss (to varying degrees), mild to severe pain in the ears, or over the cheekbones and forehead, dizziness, sometimes tinnitus.

Exposure to very intense sound such as impulse noise from a firearm or explosions can result in sudden hearing loss. This is called acute acoustic trauma. The incidence of hearing loss from exposure to weapon noise was 28% and 20-30% among British Army and US Army personnel, respectively.

The sound pressure levels capable of causing acoustic trauma vary between individuals but average around 130-140dB. The degree of hearing impairment seen after acoustic trauma is also variable and may range from a mild to profound SNHL. The mechanism of injury in acoustic trauma is thought to affect not only the sensory cells of the inner



ear, but also the supporting cells, nervous structures and blood vessels. The outer hair cells (OHC) are more vulnerable to noise injury than the inner hair cells (IHC). Patients suffering from acoustic trauma tend to present within a short time period following the event. They report a sudden, sometimes painful hearing loss that is often followed by a new onset tinnitus. Otologic examination is often unremarkable. Audiogram may show the typical 3-6kHz sensorineural notch that is seen with chronic NIHL but down-sloping or flat audiograms that effect a broad range of frequencies are more common. Conductive losses will be seen in cases of tympanic membrane perforation or ossicular discontinuity. Management of acute acoustic trauma injuries most often involves observation with strict noise avoidance. Some improvement can generally be expected in the days immediately following the injury and serial audiograms are performed until hearing levels stabilize.

OP 2/11 Combat Trauma : Temporal Bone Fracture. Role of Otorhinolaryngologist

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Temporal bone fracture is a frequent consultation otolaryngologists face in the emergency setting. Appropriate evaluation takes into account the spectrum of severity and the sometimes subtle symptoms of otologic trauma.

Temporal bone fractures occur in approximately 14-22% of all skull injuries and are classified as tertiary blunt injuries. Traditionally temporal bone fracture has been classified into longitudinal fracture (~ 80%) and transverse.

Longitudinal fracture results from temporo-parietal impact and the most frequent structures involved are the tympanic membrane, the roof of the middle ear, facial paralysis is often delayed in onset, Vestibular involvement and sensorineural deficits are relatively uncommon and are attributed to concussive effects rather than direct trauma on the vestibular labyrinth and cochlea.

Transverse fracture results from fronto-occipital impact and courses perpendicular to the long axis of the petrous pyramid from the foramen magnum through the posterior fossa; the facial nerve is involved in 50% of cases. Otic capsule and internal auditory canal are frequently involved as well.

Hemotympanum and blood in the external auditory canal are some of the common findings in temporal bone fractures, however High resolution CT scan (HRCT) is the most commonly used radiographic modality in evaluating the patient with temporal bone trauma.



Transverse fractures involving the otic capsule and internal auditory canal frequently cause severe sensorineural hearing loss. Longitudinal fractures are more likely to cause conductive or mixed hearing loss.

Facial nerve is injured in approximately 15-20% of longitudinal fractures and 50% of transverse fractures. There is general consensus supporting the conservative treatment of patients with an incomplete paralysis, treatment of a complete paralysis is much more controversial, however.

CSF otorrhea in temporal bone fractures usually occurs within minutes of the accident but may be delayed in its presentation if it is draining through the nasopharynx, Management of cerebrospinal fluid leak begins with conservative measures including head elevation, bed rest with head elevation, and, in selected patients, placement of a lumbar drain.

Vertigo after temporal bone trauma may be secondary to either vestibular concussion in OCS or vestibular destruction in OCD setting. It is usually self-limiting and resolves within 6 to 12 months from central adaptation

Temporal bone fracture is a common injury in acute head trauma. Early management involves stabilization of the patient and collaboration with the trauma service. Early conservative management is recommended for hearing loss, CSF leak, and facial paresis. Long-term follow up is necessary to address hearing loss and monitor for intratemporal and intracranial complications

OP 2/12 Disaster Medical Management: Emergency Tracheal Access

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Emergency access when there is an upper airway obstruction can usually be achieved by cricothyroidotomy or very rarely by tracheostomy. An emergency tracheostomy is a far more complex operation and is sparingly used in the emergency setting.

Cricothyroidotomy involves establishing an opening into the airway at the level of the cricothyroid membrane which is trapezoidal and extends from the inferior border of the thyroid cartilage to the superior border of the cricoid cartilage. This relatively high midline area of the neck is away from the vascular thyroid gland, anterior jugular veins, and nervous supply to the larynx. This surgical accessibility is a major advantage of cricothyroidotomy. Cricothyroidotomy is indicated for emergency airway control in the following circumstances:

1. immediate airway management in patients in whom oral or nasal endotracheal intubation is contraindicated or not possible.
2. relief of upper airway obstruction;



3. emergency airway access in patients with severe facial trauma rendering other techniques impossible..

The techniques for performing cricothyroidotomy can be classified as anatomical, surgical, or puncture techniques.

In Pediatric age group due to different anatomical landmarks cricothyroidotomy should not be undertaken and emergent tracheostomy, or orotracheal intubation with in-line cervical stabilization may be preferred.

The optimal timing of elective tracheostomy remains nebulous, and universal selection criteria cannot be broadly applied.

Infants, children, and adults may have a tracheostomy for several reasons, such as:

1. To bypass an obstruction in the upper airway due to trauma, surgery, or a birth defect
2. To allow clearance of secretions
3. To provide long-term mechanical ventilation of patients with chronic respiratory problems, injuries to the lungs, major central nervous system deficits, or severe muscle weakness.

Various techniques for tracheostomy have been developed; however, use of percutaneous dilation techniques with bronchoscopic control continue to expand in popularity throughout the world.

OP 2/13 Defense Support to Civil Authorities, "Working with Partners in the Homeland"

Author: CAPT James Terbush US Navy, MD MPH

United States Northern Command

Introduction: After the terrorist attacks of September 11, 2001, there needed to be a single US Military Command designated for response in the Homeland. The United States Northern Command (NORTHCOM) was established October 1, 2002. In addition to Homeland Defense Missions, the Command supports a designated Lead Federal Agency, in disasters, under the National Response Framework (NRF).

The author is describing and explaining the three mission areas of NORTHCOM, how it is organized and the partner relationships essential in the NRF process. Finally he focuses on the importance of engaging with the Private Sector and NGOs in advance of a disaster medical response.

OP 2/14 Operation Unified Response, US NAVY Operations in Haiti, "Working with Partners"

Author: CAPT James Terbush US Navy, MD MPH



United States Northern Command

Introduction: In the immediate aftermath of a devastating 7.0 earthquake in the Haitian capital city of Port au Prince, US Navy assets were deployed in what became the largest NAVY Humanitarian assistance mission, ever.

Preparations for; humanitarian response, coordination w Interagency, International and NGO (Non-Governmental organizations) responders are discussed and thoroughly analysed. The author notes the significance of communication, cooperation, and processes and organization of these capabilities. The results of these Civil Military(Civ-Mil) collaborations are held up as possible examples for future International and Domestic (United States) disaster responses.

OP 2/15 Hepatic trauma

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The liver is one of the most frequently injured organs in either war or general abdominal trauma

Statistics showed a progressive decrease in the mortality rate: 60% in World War I, 27% in World War II, 14% in Korea and 8.5% in Vietnam

Application of the principles established by military experience had greatly improved the management of hepatic trauma in civilian trauma centers

According to the data from recent civilian series, the mortality rate of 10 to 20% has been reported

Surgical management of casualties depended on available material, conditions of the combat, dynamics of the injured influx, surgeon's experience

In the pre-World War II surgeons were reluctant to operate on patients with liver injuries over the next 50 years.

In 1904, Tilton reported on 189 injuries of the liver

He emphasized that wounds to the liver are very frequently associated with injuries of other organs.

He discussed current therapy and acknowledged that some surgeons recommended non-operative management and stated, "This seems a wrong principle to work on.

Though the World War II–1965 years a major paradigm shift in the management of liver injuries in the European Theater.

In 1965, Root et al introduced diagnostic peritoneal lavage(DPL), used in diagnosing intraperitoneal bleeding following blunt trauma.



The year 1981 marked the introduction of computed tomography for diagnosing visceral injuries following blunt trauma :

the concept of nonoperative management (NOM) of liver injuries was also reintroduced. The experience of the last twenty years showed that deep sutures of the liver parenchyme were replaced by:

- typical resection of the liver in the treatment of complex liver injuries.
- direct ligation of bilio-vascular elements,
- selective ligatures of the hepatic artery,
- limited resective debridement,
- omental packing and perihepatic packing

The mechanism of hepatic injury can be blunt or penetrating.

In the first it is caused by acceleration-deceleration forces, rapid deceleration, central crash injury, ribs fractures, rupture of the Glisson's capsule.

In the penetrating mechanism liver injury is determined by gunshot, stab or impalement and produces minimal parenchymal disruption.

The classification of liver trauma has been revisited by AAST in 1994 and indicates six grade of injury (Gabriel et al).

Diagnostic modalities include US, CT-scan and Angiography.

Management of the both blunt and penetrating hepatic trauma includes a range of operative and non-operative treatment modalities.

Currently available methods include:

Observation (NOM)

Embolization

Laparotomy with direct suturing

Gauze packing

Application of fibrin tissue glue

Mesh hepatorrhaphy

Limited debridement resection

Partial hepatectomy

Total hepatectomy with liver replacement

Nonoperative management has become the standard for >80% of the blunt liver injuries and is indicated in presence of hemodynamic stability, absence of involvement of other abdominal injuries and availability of a good multidisciplinary team.

In the cases where operation is required, current operative management emphasizes packing, damage control, and early utilization of interventional radiology for angiography and embolization.

The packing is the method of choice in the event of :



Extended bilobar liver rupture

Ruptured or extensive bilobar haematoma

Transfusion –related coagulopathy

Unstable patients with complex liver trauma in whom primary treatment is not possible

As a bridging procedure when adequate primary cannot be provided and the patient must be transported to a specialized centre

This procedure is technically possible but certain principles must nevertheless be observed:

No compression of venous outflow, sufficient mobilization to permit adequate compression

avoidance of excessive compression of the subphrenic cava.

The longer the compression, the higher the risk of infection (definitive treatment should be applied within the first 24 to 48 hours)

The appropriate role of hepatic resection in the management of blunt hepatic injury has been controversial. Liver resection is thought to have minimal role in the management of hepatic injury because of the high morbidity and mortality in many reports. The management of complex liver injuries with anatomic or nonanatomic resection can be accomplished by experienced trauma surgeons, in conjunction with liver surgeons in some cases, with low morbidity and mortality related to the procedure.

Resection of the injured portion of a liver can definitively control bleeding eliminate devitalized tissue and avoid bile leak.

The surgical aim is: control of hemorrhage, preservation of sufficient hepatic function

and prevention of secondary complications Indication for laparoscopic management are: minor and solitary injuries (electrocoagulation, UltraCision or fibrin glue, suturing of a hollow viscus) whereas contraindication are: - unstable circulation, severe shock, major haemorrhage (US detection) sepsis.

OP 2/16 Le lesioni traumatiche del diaframma

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Trauma lesions of the diaphragm are a rare lesion secondary to blunt or penetrating thoracoabdominal trauma. Their actual incidence is difficult to determine due to the high number of diagnoses that are unrecognized during the initial assessment and treatment phase of the trauma patient and that are performed too late. If diagnosis is performed during initial treatment there is a 1-7% incidence in major blunt trauma and 10-15% incidence in penetrating trauma.



Often the diagnosis is provided during surgery for lesions to other organs or during an urgent laparotomy in hemodynamically unstable patients. In a multicentric case history review of 12,000 trauma patients lesions of the diaphragm were recognized in 11% of the patients undergoing surgery.

Trauma of the diaphragm in countries with a high rate of crime is secondary to a penetrating trauma in approximately 50% of the cases while in countries with a low crime rate 80-90% of the cases are attributable to a blunt trauma secondary to road accidents.

A lesion of the diaphragm as concerns lesions resulting from blunt trauma is more frequent on the left due to the protective effect of the liver on the right hemidiaphragm. In addition, in these cases lesions are more extensive, compared to those secondary to penetrating lesions which are generally small, difficult to diagnose and often become obvious only subsequently, when their progressive increase in size lead to herniation of the abdominal viscera, in some cases associated with obstruction and ischemia of the viscera located in the chest.

Diagnosis is provided by clinical symptoms, some of which are pathognomic, including evidence of intestinal noise noted upon auscultation of the chest.

During the initial assessment phase of the trauma patient, diagnostic confirmation makes use of a chest x-ray with the patient in supine position in the shock room, but 20-50% of patients with lesions of the diaphragm have a negative chest x-ray. Second level inquiries on a haemodynamically stable patient are the abdominal CAT and magnetic resonance. Another diagnostic test that can be performed in a haemodynamically normal patient and that in some cases can assume therapeutic value is laparoscopy.

Treatment of lesions of the diaphragm envisages suturing with non absorbable string by thoracotomy or laparotomy. The choice is usually based on the location of the associated lesion of greater significance. The thoraco-phreno-laparotomy method is not recommended as this may worsen the resistance of the diaphragm. Diaphragm defects greater than 25 cm² may require prosthetic repair of diaphragmatic injuries.

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OP 2/17 International Health Cooperation: our experience

Author: Dr Santolo Cozzolino, MD

Center of Biotechnologies coordinator – Responsible for International Health Cooperation activities - A.O.R.N.A. Cardarelli, Naples

Globalization brings significant challenges, it is also an opportunity for unifying health-care activity across international boundaries.

International Health Cooperation can be, and actually is regarded as an indicator of quality for the issuing country as well as a way to share and spread scientific knowledge to other countries, developed and less developed.

Since 2001 Cardarelli Hospital is involved in the field of International Cooperation.

Through the Center of Biotechnologies, the Hospital provides clinical, surgical and scientific support to a wide range of cooperation projects, recognized and supported by the Italian Ministry of Foreign Affairs, the Italian Ministry of Health and Campania Region, such as the Collaboration with Charles Nicolle Hospital in Tunis; “Surgiland” Project, an integrated network for surgical and microsurgical training in cooperation with Tunisia and Morocco; GuineAid Project, a collaboration with the main Hospitals of Conakry (Guinea).

The main goal has been the sharing of knowledge, experiences, protocols and procedures - to be used both in peace and in wartime - for effectively preventing and combating diseases.



DAY 3

Panels

1. DISASTER MEDICAL MANAGEMENT AND SUPPORT – EDUCATION AND TRAINING

Moderators:

Prof Paolisso

Dr Tugnoli

RA Simonetti

2. CIVIL MILITARY MEDICAL COOPERATION IN DISASTER MEDICAL MANAGEMENT AND SUPPORT – WAY AHEAD

Moderators:

RA Simonetti

CAPT US N Terbush

Prof Kipor



OP 3/1 Military and Civilian Advanced Trauma Training Programmes

Author: RA Dr Simonetti, MD

Advanced Trauma Training Programmes (ATTP) for the members of the military medical corps and civilian first responders should be quite similar: their overall objective is to provide them with state-of-the-art knowledge and hands-on skills required to respond to real-life emergency situations, whether on the battlefield overseas or to natural and/or man-made catastrophic events at home. It appears of paramount importance both on the battlefield and in disaster management to mitigate the existing gaps between individual medical providers' capacities to deliver the correct pre-hospital trauma life support interventions at the correct time in the continuum of combat trauma care and/or catastrophic critical event care. Enormous strides have been made in the recent years in the initial treatment and stabilization of trauma patients, but technological advances alone cannot improve outcome. It is the medical responders' training which will ensure that the trauma victim gets adequate and updated treatment. Important elements of trauma training are realism, human-specific injuries and treatments, volume of trauma exposure and team building. Various worldwide models in use to provide training in trauma response techniques are examined, ranging from lecture demonstrations to live animal training, training on realistic simulators as well as on cadavers. Key elements to ensure improved outcomes in severely injured polytrauma patients are identified in the attitude of operating in multidisciplinary teams in austere environment and in the adherence to basic critical care fundamentals.

OP 3/2 The MIMMS Course: the ITAF Experience

*Authors: Maj G. Stella, COL D. Di Blasio & MG E. Tomao **
*Villafranca Main Medical Wing; *ITAF Health Service Command*

Major Incident Medical Management and Support (MIMMS) course develops knowledge, skills, and judgement to efficiently manage the scene of a major incident.

The emphasis is on the scene management and the pre-hospital care, taught through:

- structured lectures,
- table-top exercises,
- practical exercises in radio communication and triage scenarios,
- workshops,
- field exercises for command training.



Since 2002, over 54 courses have been successfully carried out in Italy and approximately 1202 providers received proper training. There are two different courses available: a Basic Course and an Advanced Course.

The Advanced course runs over 3 consecutive days; the contents includes command, safety, communication assessment, triage, treatment and transport and it is relevant for those in senior positions likely to acquire a coordination or a command role.

Post-courses questionnaire showed that MIMMS was highly relevant for emergency service personnel and that the majority had put the skills into practice.

OP 3/3 Disaster Medicine in the Medical University program - objective and challenges

Authors: COL Dr Rostislav Kostadinov, MD, PhD; Prof Dr Rumen Stefanov, MD, PhD

Introduction: Medical University, Plovdiv consists of four faculties and one Medical College. The medical activities performed for protecting the citizens' life and health in case of natural and man-made disasters were part of students' educational programs from the University foundation in 1945. The medical science development and the recorded increase in disasters frequency and severity, as well as the public expectations, in last decades have had significant impact on Disaster Medicine teaching.

The aim of this publication is to present the objective and challenges of Disaster Medicine education in Medical University, Plovdiv.

Materials and Methods: By the means of descriptive method the objectives of the established Disaster Medicine program in Medical University, Plovdiv are described. Comparative method was applied in order to analyse how the theoretical and practical exercises during students education respond to Disasters' Medical Management and Support.

Conclusions: As a result of performed analyses the advantages of established educational program, as well as the ways for its improvement are presented.

Key words: Medical University, Plovdiv; Educational Program; Disaster medical management and support; Disaster medicine training

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OP 3/4 Medical and Military Medical Education - common aspects and differences

Authors: Prof Giuseppe Paolisso, MD

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Dear colleagues,

first of all, I would like to thank you for the nice and kind invitation, giving me the chance to be here today; I offer you the best greetings from Rector of the Second University of Naples and the entire teaching staff of the Faculty of Medicine. I should emphasize that I am very glad to be here today, for the great cultural significance of such an important meeting.

Medical schools are used to train medical students with the acquisition of knowledge since the early years, from the basic sciences to following clinical forms. This training is very solid from the point of view of the core curriculum and it has been articulated and revised over the last years as the result of numerous legislative changes which have occurred and, most importantly, it allowed an integration of medical knowledge at European level, helping to create what we now call the "Graduate masterful". This latter is one of the most important acquisition in the field of European university education, since creating homogeneous parameters for all European Faculty of Medicine, it allowed automatic recognition of qualifications obtained in all countries of Western Europe, not only facilitating the flow and exchange between people, but also promoting an important cultural osmosis. To this reason the cultural training leading a medical student to graduate in Rome, Paris, London or Brussels are completely homogeneous, but unfortunately this does not mean they are able to make a general doctor, completely, that means able to know the different and numerous aspects of the general medicine as whole. Certainly an area educationally neglected is the Military Medicine. It is known that Military Medicine, beyond the aspects of the Forensic Medicine, has some peculiarities concerning community-related diseases occurring in places where military operations are carried out, as well as traumatic and surgical diseases or most importantly diseases due to psychological stress of soldier obligated to take an action, even danger and far away from native places and family. If we want to have a doctor able to stand up all the described issues, he needs to acquire skills in at least 5/6 of residency: Forensic Medicine, Hygiene, Infectious Diseases, Surgery General / orthopedics and psychiatry.

It is clear that this possibility is completely not feasible since often for each single problem we are used to refer to the specialist in that specific field. However it would be enough to provide from the Central Government a residency in Military Medicine allowing young medical doctors to acquire, in a sufficient period of time 5-6 years-all the skills necessary to train military doctors. The Faculty of Medicine have no expertise to know-how to reach this goal, whereas what is really lacking, is the legislative



instrument, in other words, the institution of a new speciality. Otherwise, also structuring a master may have a teaching value but, certainly would be less effective than a dedicated residency.

In conclusion, the Military Medicine today represents a multidisciplinary approach, in line with the actual various applications that the army can offer, and therefore we need an update of the laws able to take care of what it is asking, in other words, it would be appropriate to be in line with the time and to switch, from a post hoc training to an ad hoc training, ie training in prefigured and studied ways.

OP 3/5 Trauma Surgeon Education and Training

Author: Dr Gregorio Tugnoli, MD

Ospedale Maggiore Bologna, Responsabile U.O.S.D. Chirurgia del Trauma

The treatment of the thoraco-abdominal trauma has always represented a surgical challenge, owing to the peculiarity of these injuries. The need for specific training for surgeons involved in the care of these patients is justified by the difficulties in obtaining an exhaustive preoperative assessment, the need for prompt decision-making, and the often limited available resources. Furthermore, the number of surgically treated trauma patients has markedly decreased in recent years.

Thus, all these factors have prompted a discussion about the future of trauma surgeon training.

A variety of didactic methods, based on "simulated training", have been suggested and computer simulation or computer-controlled dummies have been employed. Another proposed training method involves practice on cadavers or animal models. The use of *in vivo* animal models, generally large-sized swine, which simulate human thorax and abdomen quite well, enables extremely realistic situations to be recreated, even to the point of putting the participants under stress.

Conclusions: On the basis of the results obtained previously in our courses and those of similar education programs, we can conclude that a theoretical and practical course, such as the "Trauma Surgery Course", is a good updating tool on trauma pathology for surgeons who work in Hospital Emergency Surgery Units or those belonging to Humanitarian Organizations, who are used to dealing with this pathology in foreign countries. Skills in trauma surgery should be an integral part of the surgeon's training and it would be important to gain the support of Scientific Societies to carry out these courses. Integration with other courses would lead to a wider diffusion and recognition of the teaching method.



OP 3/6 Medical Logistics- education, planning, training

Author: COL A. Costume, MD

The purpose of this work is to illustrate, briefly, the logistics military health through the joint analysis of the aspects of education, planning and training, pointing out that, even today, is not given the right importance taking into account both the current needs of the Forces Italian Armed employed abroad and the globalization that characterizes the current historical epoch.

Through an historical overview of the aspects of the healthcare logistics in the years from the 2nd World War until today are presented. Any proposals for the future, in the light of new technological knowledge acquired and applied recently in health care will be highlighted.

OP 3/7 MEDEVAC - Education, planning, training

Author: COL F. Fabi, MD

The aim of the work is to briefly illustrate the structure of MEDEVAC (medical evacuation) in case of abroad mission done with whenever means available, both by land and by air. Furthermore it will be also provided a distinction between CASEVAC, MEDEVAC and STRATEVAC and all the means utilised specifically. In conclusion will be illustrate all the new training strategies and the criticalities that this particular medical evacuation in critical areas still meets and all the eventual proposing to ameliorate a tool able to attend quickly and able to save numerous human life.



POSTER SESSION

PP 1/1 Aeromedical Evacuation: indications and contraindications

Authors: Lai Alberto, Rispoli Fabio, Tripodi Romano, Lupini Gabriele

Italian Red Cross – Military Corps

The use of airplanes to evacuate the ill or wounded from war zones or areas of environmental disasters is a complex process that requires the coordinated use of numerous components to allow for successful accomplishment of this type of mission. To the organizational and logistical aspect we must add the medical one. In order to ensure immediate and effective assistance, we must always consider the limitations inherent to moving patients inside such a limited area as the cabin of an airplane, small in size and a source of risks due to the difficulties involved in performing emergency surgery on patients who are not sufficiently stabilized and in whom there are relative or absolute counter-indications, such as exposure to sub atmospheric physical environments.

The poster illustrates the pros and cons of transporting critical patients by air and the possible strategies to be implemented in stabilizing patients for MedEvac.

PP 1/2 Bulgarian Surgical Team in Haiti - Lessons Learned

Authors: COL Alexander Parashkevov, MD; COL Rostislav Kostadinov, MD, PhD

Military Medical Academy, Sofia; Military Medical Detachment for Emergency Response

Introduction: On January 22, 2010, the tenth day after the Haiti earthquake, Bulgarian surgical team headed to devastated country. The team, part of Military Medical Detachment for Emergency Response of Military Medical Academy, Sofia was convened under the Republic of Bulgaria Prime Minister direction and Minister of Defence Activation Order.

The aim of this publication is to present the Lessons Identified from the mission and the proposals for changes in the military medical specialists' training program made on their basis. **Materials and Methods:** By the means of descriptive and comparative methods the medical activities performed by the Bulgarian military surgical team are analysed. The Lessons Identified and related proposals are presented via cluster analysis.



Conclusions: The proposed changes' objective is to enhance the efficiency and effectiveness of the training in order to meet the demands of changing medical environment in humanitarian missions and disaster medical management and support.

Key words: Disasters, Disaster Medical Management and Support, Military Medical Teams' Training, Surgical Care, Humanitarian Missions

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PP 2/1 Recent employment in the Afghan operative theatre of a Military Corps C.R.I. medical officer

Authors: S. Pauciulo, R. Tripodi, F. Rispoli, G. Lupini

Military Corps of the Italian Red Cross

Medical officer recently employed in Afghanistan at Forward Operating Base "Lavaredo" Bakwa, such as medical support for the Italian Armed Forces and personnel of the Afghan National Security Forces. Later employed at Combat Out Post "Snow" Buji, Gulistan.

Special cases, the most important were:

- 1) three Afghan soldiers involved in the explosion of an IED with serious injuries on the face, skull and chest, treated and stabilized on site and then evacuated;
- 2) a child of 10 months overdosed on opium;
- 3) a child of 10 years bitten by a poisonous snake right upper limb;

Frequently found burns, even serious, in children, due to outbreak of lanterns or engines.

Reported some critical points that emerged during the relief effort

PP 2/2 Civil-Military Medical Information Exchange in NATO - objective and challenges

Authors: COL Dr Rostislav Kostadinov, MD, PhD; COL Dr Wynand Korterink, MD; COL Dr Zoltan Vekerdi, MD

Introduction: NATO has started to implement the comprehensive approach to crisis management since the Riga Summit in 2006. Medical is usually the least contentious aspect of NATO cooperation with the wider International Community. Medical can provide a start-point for interaction and generation of mutual understanding with the wider International Community. In order to achieve better communication, cooperation



and situational awareness, NATO medical community initiated a process of medical information sharing with non NATO national, international, non-governmental entities

The aim of this publication is to present the objective and challenges of Civil-Military Medical Information Exchange within NATO Comprehensive approach to crisis management.

Materials and Methods: By the means of descriptive method the objectives of Civil-Military Medical Information Exchange are described. Comparative method and deductive analysis were applied in order to list identified and expected challenges in the medical information exchange. **Conclusions:** As a conclusion authors present some projects under development and implementation in the NATO medical community medical information flow management, designed to facilitate and broaden the medical information sharing.

Key words: Civil-Military Medical Information Exchange; Comprehensive Approach; Medical Information Flow Management

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PP 2/3 Complex injuries of lower limbs: Essential therapeutic approach on the field

Author: COL Maurizio Pisapia, MD

Italian Military Hospital of Rome

The field hospital is the cornerstone of our soldiers healthcare during military missions abroad carried out by Italian Armed Forces. In this medical facility both emergency treatments of war wounds and reconstructive surgery of their outcomes are performed. The surgical activity is directed both to the military personnel and to the local civilians. The treatment of lower limbs war injuries requires a diversified approach depending on the traumatic mechanism; moreover it requires a specific training of medical and paramedical personnel acting in the field surgical area.

The high number of complex wounds coming to our attention stimulated the development of new management and remote monitoring systems like telemedicine, helpful in case a consultation with a specialist plastic surgeon in motherland is needed.

PP 2/4 Psychosocial Aspects in Disaster Set: Indifference and Solidarity

Authors :Dr Domenico Nardiello¹, Dr Enrico Girmenia, Dr Lucia Nardiello, Prof Giorgio Caviglia

1. Corpo Militare della Croce Rossa Italiana



CIMIC Operations are usually play in a set of human disasters (armed conflicts, epidemics, natural disasters, etc.) and they carrie with them a lot of psychological and social implications.

The Poster illustrates, in a simple and clear way, psychological dynamics that cross minds of people involved in disaster theaters, with a particular reference of two main spectator's reactions: Indifference and Solidarity.

These different "choices" of people are not free! These choices can be the access to some personal emotional experiences that can lead people to specific psychological reactions

PP 2/5 The STAI an instrument in missions' abroad preparation

Authors: Cap Dancho Dilkov, MD; LTC Toni Donchev, MD, PhD, COL Rostislav Kostadinov, MD, PhD

Military Medical Academy, Sofia; Psychiatry Department

Introduction: The State-Trait Anxiety Inventory (STAI) is an instrument that quantifies anxiety. This particular instrument is used to simplify the separation between state anxiety and trait anxiety, feelings of anxiety and depression. The STAI consists of two tests are with the focused areas including: worry, tension, apprehension, and nervousness. In a pivotal study the STAI was applied during pre- and post-deployment psychological examination of Bulgarian servicemen.

The aim of this publication is to present the results of STAI within military personnel preparing for first deployment abroad compared to group with three and more deployment.

Materials and Methods: A modified STAI is applied to measure the anxiety within groups militarymen with and without experience in missions abroad. Comparative method is applied for presenting the obtained results.

Conclusions: Notwithstanding the achieved results in the "frame of norm", as a conclusion authors note the requirement of further development of anxiety measurement as a prerequisite for better servicemen preparation for deployments abroad

Key words: The State-Trait Anxiety Inventory; Missions Abroad; Anxiety; Pre-deployment Training; Psychological Examination

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PP 3/1 The collaboration between the Military Corps of the Italian Red Cross and the University of Salerno for the training of medical students.

*Authors: F. Rispoli, G. Lupini, A. Lai, R. Tripodi, O. Piazza **

Military Corps of the Italian Red Cross

* Università degli Studi di Salerno, Cattedra di Anestesiologia e Rianimazione

The paper emphasizes the peculiarity of the Military Corps of the Italian Red Cross, made up almost entirely of professionals who routinely work in the civilian health, but they are trained for their special status, even to systems and military procedures. Students, learning the emergency hospital setting, are able to draw on military customs (including methods of communication) and to approach the apparatus used in mass events, hostile environments, etc., with particular regard to the methods used by the Special Rescue of the Italian Red Cross, a specific CRI sector of training. Great emphasis is given to practical and to the preparation of realistic simulations for educational purposes.

The collaboration between the Military Corps of the Italian Red Cross and the University of Salerno - Faculty of Medicine, has the possibility of significant development, even in the field of post-graduate training and among different faculties.

PP 3/2 The training to health aid: operating synergies between the Military Corps of the Italian Red Cross and the Carabinieri

Authors: F. Rispoli¹, R. Tripodi², G. Passaro³, L. Spirito³

1. X Centro di Mobilitazione, Military Corps of the Italian Red Cross.
2. Ispettorato Nazionale, Military Corps of the Italian Red Cross.
3. 10th Battalion Carabinieri "Campania".

In the last five years in Campania collaboration between the Military Corps of the Italian Red Cross and the Carabinieri has led to the development of intensive education and training in health care.

There have been numerous courses for rescuers to BLS-D, courses OPSA (Polyvalent Water Rescue Operator), Approaching aircraft courses, courses in International Humanitarian Law (IHL).

The section open water courses OPSA and the simulations at the end of the course, were made thanks to the cooperation of the patrol boats of the Provincial Command of Naples Naval Service and the availability of the Lido Carabinieri of Salerno.



Courses Approaching aircraft were carried out at the 7th Nucleus Helicopters Pontecagnano (SA), which also provided the contribution of its own military for the study of technical subjects.

In Campania collaboration between CRI Corps and Carabinieri, active in many regions of Italy, has brought substantial benefits to the mutual training of medical aid, as a basis for the development of synergies in teaching and training aspects.

PP 3/3 The surgeons' training for Disaster Medical Management - Moldavian experience

Author: Dr Tatiana Josu, MD

Introduction: The surgeon has a central role in provision of medical support in case of Disaster s in Moldova. The surgeons are postgraduate trained for fulfilling their duties as leaders of medical teams, field hospitals or triage site managers. The cooperation between civilian healthcare system and military medical service in the process of surgeons' training is significant. **The aim** of this publication is to present the civil-military cooperation in the training of surgeons and medical teams for Disaster Medical Support.

Materials and Methods: By the means of descriptive method the roles and responsibilities of surgeons in disaster medical management and support in Moldova are described. Comparative method was applied in order to analyse the areas of civil-military cooperation in the surgeons' educational and training process for ensuring required knowledge and skills achievement. **Conclusions:** As a result of performed analyses the civil-military cooperation in the educational and training process of Moldavian surgeons for disaster medical management and support are presented.

Key words: Disaster Medicine; Surgeons' Training; Disaster Medical Management and Support; Moldavian experience

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