



SCIENCE & TECHNOLOGY ORGANIZATION

COLLABORATION SUPPORT OFFICE

HFM-249 SYMPOSIUM

on:

“Emerging Technological Advances in Tactical Casualty Care”

ORGANIZERS:

Human Factors and Medicine Panel

LOCATION:

Warsaw, Poland

DATES:

20 – 22 April 2015

This symposium is open to citizens from NATO, the Partnership for Peace (PfP), the Mediterranean Dialogue (MD), and Contact Nations.

Limited availability so please enrol early to avoid disappointment.

Please note: there are **NO** registration fees involved.

Civilian/Business Attire Required

LATEST ENROLMENT DATE:

23 March 2015

Enrol online at:

<http://www.cso.nato.int>

Once your enrolment is validated, you will receive a General Information Package (GIP) giving you further necessary details about the meeting.



BACKGROUND

The Human Factors and Medicine Panel (HFM) encompasses three Area Committees:

(1) **Health, Medicine, and Protection Area (HMP)**: provides the scientific basis for establishing an operationally fit and healthy force, restoring health, minimizing disease and injury, optimizing human protection, and tackling sustainability and survivability issues.

(2) **Human Effectiveness (HE)**: seeks to optimize individual readiness and organizational effectiveness by addressing psycho-social, organizational, cultural, and cognitive aspects in military action.

(3) **Human System Integration (HSI)**: optimizes the performance of human-operated technical systems by addressing the human machine and its interactions, processes, tools, and measures of effectiveness.

SYMPOSIUM THEME

This three-day symposium will explore the NATO-mandated tenet of providing high-quality medical care to deployed military personnel in all arenas across the globe. The NATO leadership has indeed mandated, and our populace expect, that to the maximum extent possible, the medical care provided to our deployed military personnel will be of the same standard as they could receive in their home countries.

Experiences in recent wars has shown that the judicious applications of advanced medical technologies to combat casualty care has played a significant role in reducing combat-related mortality to the lowest level in recorded history. In these recent wars, analyses of deaths have consistently shown that mortality for casualties who reach a surgical hospital is low, and opportunities for further reducing mortality lie with improvements to pre-hospital care. The new NATO expeditionary strategic concept, with its emphasis on multinational shared responsibility for medical care, reduced deployed medical footprints, and early evacuation, cannot be implemented from a medical point of view without effective use of all available advanced medical technologies in the multinational setting. Future NATO operations will be mobile and flexible, and will take place in remote and austere environments, providing new challenges to deployable medical services. As such, there is a need to gain an understanding on the part of NATO as to what new and medically relevant technologies are on the horizon. In addition, there is a need and desire to have the capability to advise the Military Committee and COMEDS as to effective integration of these technologies into our armamentarium upon request.

This activity will bring together international experts in the development and fielding of advanced medical technologies, with emphasis on improving care at the point of injury and during medical evacuation. The goal is to develop a greater understanding of soon-to-be fielded technologies, and to determine how they can best be applied within the multinational NATO environment. We plan to enhance information interchange between researchers, to reduce unnecessary duplication of effort, and to introduce to the NATO leadership the current state-of-the-art medical technologies and procedures. Evaluation of the potential ability of various new modalities to support NATO goals and objectives will be carried out. Both researchers and industry representatives will be invited to participate in the symposium. Opportunity for poster exhibition/practical demonstrations will be available.

IMPORTANT NOTE

Please note that all participants must make their own travel arrangements and hotel bookings. In addition, please note that all attendees are advised to take special note of any VISA requirements and/or accommodations.

PROGRAMME COMMITTEE

CHAIRPERSONS

Chair: Dr. David BAER (United States)

U.S. Army Medical Research and Materiel Command
Fort Detrick, MD

Tel: +1 210 539 4327

Mail: david.g.baer.civ@mail.mil

Panel Mentor: Col. Prof. Dr. Rafael SCHICK (Germany)

Chief, Dept. of Internal Medicine
Federal Armed Forces Hospital - Ulm

Tel: +rafaelschick@bundeswehr.org

Mail: rafaelschick@bundeswehr.org

MEMBERS

Dr. Stergios STERGIPOULOS (Canada)

Defence R&D Canada

Tel: +1 416 635 2060

Mail: stergios.stergiopoulos@drdc-rddc.gc.ca

Col. Dr. Sylvain AUSSET (France)

Percy Military Hospital

Deputy Head of Anesthesiology
And Intensive Care Unit, Clamart

Tel: + 33 1 4146 6440

Mail: sylvain.ausset@gmail.com

Dr. Pang SHEK (Canada)

Defence RandD Canada-Toronto
Head Operational Medicine Section

Tel : +1 416 635 2127

Mail ; pang.shk@drdc-rddc.gc.ca

TECHNICAL EVALUATOR

Prof Dr. Erik FOSSE (Norway)

Rikshospitalet/University of Oslo

Tel : + +47 2307 0116

Mail : erik.fosse@medisin.uio.no

COLLABORATION SUPPORT OFFICE: POINTS OF CONTACT

HFM Panel Executive

LtCol. Frank WESSELS (NLD)

CSO, Paris, France

Tel: +33 1 55612260

frank.wessels@csso.nato.int

HFM Panel Assistant

Mrs. Marie LINET (FRA)

CSO Paris, France

Tel: +33 1 55612262

marie.linnet@csso.nato.int



HFM-249 SYMPOSIUM

“Emerging Technological Advances in Tactical Casualty Care”

SUNDAY 19 APRIL 2015

15:30 Pre-Registration: Hotel Sofitel Warsaw Victoria
Krolewska 11 00-065 WARSAW

MONDAY 20 APRIL 2015

13:00 Administrative Remarks & Welcoming Address
Poland Host
John Tangney, PhD (USA) - HFM Panel Chair
Symposium Introduction
David Baer, PhD - Deputy Director, Combat Casualty Care Research Program, Ft. Detrick (MD)

13:30 KN1 **Paradigm Shift in the Preparation for Deployment**
Col. Dr. Sylvain Ausset, MD (FR)

SESSION 1 - RESUSCITATION
Chair: Jurandir J. Dalle Lucca (USA)

14:10 1 **C1 Inhibitor with Minimal Fluid Resuscitation Shows Survival Benefit and Reduced Indices of Inflammation in Swine Subjected to Trauma and Uncontrolled Hemorrhage**
Jurandir J. Dalle Lucca (USA)

14:30 2 **Accurate Decision Support for Combat Casualties with Hemorrhage: It's Not About Monitoring, It's About Physiology!**
Victor A. Convertino, PhD (USA)

14:50 3 **Targeting Resuscitation in the Critically-Injured Casualties**
Dr. Emrys Kirkman (UK)

15:10 BREAK

SESSION 1 – RESUSCITATION (CONTINUED)
Chair: Geir Strandenes, MD (NOR)

15:30 4 **The Beneficial Effects of C-Peptide in a Mouse Model of Hemorrhagic Shock and Resuscitation**
Capt. Dr. Raymond LC Kao, USN (CAN)

15:50 5 **From the Battlefield to the Civilian Setting: A Clinical Trial on FDP in the Prehospital Setting**
Col. Jean-Pierre Tourtier (FR)

16:10 6 **Stored Whole Blood is Preserved for 14 Days in Austere Conditions : a ROTEM Feasibility Study During a Norwegian Antipiracy Mission and Comparison to Equal Ratio Reconstituted Blood**
Geir Strandenes, MD (NOR)

16:30 7 **Crisis Resource Management for Damage Control Ground Zero on the Battlefield**
OR 9 (CW0) Jean-Francois Ringeval, French Army (FR)

16:50 END OF DAY 1

TUESDAY 21 APRIL 2015

08:30 KN **Bridging the Gap Between In and Out of Hospital Care: the Role and Limitations of Technology**
Stacy Shackelford, MD, FACS

SESSION 2 - IMAGING
Chair: Dr. Stergios Stergiopoulos (CAN)

09:10 8 **Portable 3D/4D Ultrasound Diagnostic Imaging System (PUDIS)**
Peter K. Weber & Dr. Stergios Stergiopoulos (GER) (CAN)

09:30 9 **A Portable 3D Ultrasound Telemedicine System**
Dr. Georgios Sakas (GER)

09:50 10 **Free Fluid Detection for Blunt Abdominal Trauma Applying 3D Ultrasound**
Matthias Noll & Dr. Stefan Wesarg (GER)

10:10 BREAK

SESSION 3 – PAIN & ANESTHESIA
Chair: Dr. Sarah Watts (UK)

10:20 11 **First Responder Trainers Symposium at MILMED COE**
Col. (Ret.) Márta Eszterbauer, MD (HUN)

10:40 12 **Nasal Or Sublingual Fentanyl Application: A Convincing Way For Battlefield Analgesia?**
Lt. Col. Dennis Ritter (GER)

11:00 13 **Prehospital Pain Medication Use by U.S. Forces in Afghanistan**
Col. Robert V. Gibbons, MD, MPH, FACP (USA)

11:20 14 **Closed-loop Anesthesia and Sedation Based on Neuromonitoring: An Overview of Clinical Studies**
Ngai Liu, MD, PhD (FR)

11:40 15 **Approaches to Sustaining Critically Injured Casualties During Protracted Evacuation**
Dr. Sarah Watts (UK)

12:00 LUNCH

SESSION 4 – DEMONSTRATIONS

-13:00 D1 **Combat Hemorrhage Support**
Victor A. Convertino, PhD (USA)

-13:20 D2 **A Portable 3D Ultrasound Telemedicine System**
Dr. Georgios Sakas (GER)

-13:40 D3 **Modern Trauma Skills: Method & Technique**
Col. (Ret) Mark W. Bowyer, MD (USA)

-14:00 D4 **Keys to Brain Health: ACCS & TBI**
Dr. Michael B. Given (USA)

14:20 BREAK

SESSION 4 – DEMONSTRATIONS

-14:30 D5 **3D-SC1: A Serious Game for *Sauvetage Au Combat* Training**
MED OF-3 Pierre Pasquier (FR)

-14:50 D6 **Combat Wounds: Hemorrhage Control & Survival**
Michael A. Dubick, PhD (USA)

-15:10 D7 **The BIO Nexus Medical Platform: A Full Dynamic, Interactive, Hands-Free Mobile EMR**
Lt. Col. Shimon Elharar (IDF Ret.) (ISR)

-15:30 D8 **Percutaneous Osseointegrated Prosthesis Attachment for Warfighter Amputees**
Roy D. Bloebaum, PhD (USA)

-15:50 D9 **New Devices to Control Severe Hemorrhages in War Surgery**
Prof Dominique Blin (FRA)

16:10 BREAK

SESSION 5 – HUMAN FACTORS & TRAINING
Chair: Pierre Pasquier (FR)

16:20 16 **French Vital-Surgery Module: a New Tool for Surgery Everywhere at Any Time**
MED OF-5 Patrick Jault (FR)

16:40 17 **3D-SC1 A Serious Game for *Sauvetage Au Combat* Training**
MED OF-3 Pierre Pasquier (FR)

17:00 18 **The BIO Nexus Medical Platform: A Full Dynamic, Interactive, Hands-Free Mobile EMR**
Lt. Col. Shimon Elharar (IDF Ret.) (ISR)

17:20 19 **Ethical Reflexions for a Military Intensivist on War Theaters**
Col. Dr. Gilbert Pouliquen (FR)

17:40 20 **PECC Procedures: Patient Evacuation With and Without Manned Vehicles**
Capt. József Kiss (HUN)

18:00 **END OF DAY 2**

WEDNESDAY 22 APRIL 2015

SESSION 6 – HEMORRHAGE CONTROL Chair: Dr. Michael Dubick (USA)

08:30 21 **New Devices to Control Severe Hemorrhages in War Surgery**
Dr. Dominique Blin (FRA)

08:50 22 **Intrathoracic Pressure Regulation for Combat Casualty Care**
Victor A. Convertino, PhD (USA)

09:10 23 **Recent Technological Advances in Hemorrhage Control for Improved Survival from Combat Wounds**
Michael A. Dubick, PhD (USA)

09:30 24 **Control of Severe Intra-Abdominal Hemorrhage with Infusible Platelet-Derived Hemostatic Agents in a Non-Human Primate (Macaca Mulatta) Model**
CDR Forest Sheppard, USN (USA)

09:50 25 **Overview of the Office of Naval Research, Casualty Care & Management Research Program**
Dr. Michael B. Given (USA)

10:10 **BREAK**

SESSION 7 – EXTREMITY & INFECTION Chair: MAJ Stuart Tyner (USA)

10:30 26 **Reduction of Extremity War Injury Infection from Iraq and Afghanistan**
Maj. Stuart D. Tyner, PhD (USA)

11:00 27 **Percutaneous Osseointegrated Prosthesis Attachment for Warfighter Amputees**
Roy D. Bloebaum, PhD (USA)

11:30 28 **Epidemiology of Genitourinary Injury and Extremity Trauma in OEF/OIF**
Jean A. Orman, ScD, MPH (USA)

12:00 **LUNCH**

SESSION 7 – EXTREMITY & INFECTION (CONTINUED) Chair: MAJ Stuart Tyner (USA)

13:20 29 **French Surgical Experience in the Role 3 Medical Treatment Facility of KalA (Kabul International Airport, Afghanistan): the Place of Orthopaedic Surgery**
MED OF-3 Olivier Barbier (FR)

13:50 30 **Treatment of Open Fractures in Austere Setting**
MED OF-3 Pierre Pasquier (FR)

14:20 **BREAK**

SESSION 8 – CRISIS & PREPAREDNESS Chair: Jean-Francois Ringeval (FR)

14:50 31 **Development of a Standardized International Comprehensive Advanced Surgical Readiness Training Curriculum for Combat Casualty Care**
Col. (Ret) Mark W. Bowyer, MD & Capt. Eric A. Elster, MD (USA)

15:10 32 **Initial Deployment of the 14th Parachutist Forward Surgical Team at the Beginning of the Operation Sangaris in Central African Republic**
MED OF-3 Brice Malgras (FR)

15:30 33 **Results of ISAF Lessons Identified Learned L1/LL**
Brig. Gen. Dr. Stefan Kowitz (HUN)

15:50 **BREAK**

16:10 **Closing Remarks**
Eva Erik Fosse (NOR)

17:10 **END OF SYMPOSIUM**

SCIENCE AND TECHNOLOGY ORGANIZATION IN NATO

In NATO, Science & Technology (S&T) is defined as the selective and rigorous generation and application of state-of-the-art, validated knowledge for defence and security purposes. S&T activities embrace scientific research, technology development, transition, application and field-testing, experimentation, and a range of related scientific activities that include systems engineering, operational research and analysis, synthesis, integration, and validation derived through the scientific method.

In NATO, S&T is addressed using different business models:

- The *Collaborative Business Model* where NATO provides a forum whereby NATO Nations and partner Nations elect to use their national resources to define, conduct, and promote cooperative research and information exchange.
- The *In-House Delivery Business Model* where S&T activities are conducted in a NATO dedicated executive body - having its own dedicated personnel, capabilities, and infrastructure.

THE SCIENCE AND TECHNOLOGY ORGANIZATION - STO

The mission of the NATO STO is to help position the Nations' and NATO's S&T investments as a strategic enabler of the knowledge and technology advantage for the defence and security posture of NATO Nations and partner Nations, by:

- Conducting and promoting S&T activities that augment and leverage the capabilities and programmes of the Alliance, of the NATO Nations and the partner Nations, in support of NATO's objectives;
- Contributing to NATO's ability to enable and influence security- and defence-related capability development and threat mitigation in NATO Nations and partner Nations, in accordance with NATO policies;
- Supporting decision-making in NATO Nations & NATO.

ACKNOWLEDGEMENTS:

The Human Factors and Medicine Panel expresses its sincere thanks to the representatives from Warsaw for the invitation to hold this meeting in Poland. In addition, the members are appreciative of the facilities and personnel which make this meeting possible.



<http://www.sto.nato.int>

Science and Technology Organization in NATO

In NATO, Science & Technology (S&T) is defined as the selective and rigorous generation and application of state-of-the-art, validated knowledge for defence and security purposes. S&T activities embrace scientific research, technology development, transition, application and field-testing, experimentation and a range of related scientific activities that include systems engineering, operational research and analysis, synthesis, integration and validation of knowledge derived through the scientific method.

In NATO, S&T is addressed using different business models:

- The Collaborative business model where NATO provides a forum where NATO Nations and partner Nations elect to use their national resources to define, conduct and promote cooperative research and information exchange.
- The In-House delivery business model where S&T activities are conducted in a NATO dedicated executive body, having its own personnel, capabilities and infrastructure.

The Science and Technology Organization - STO

The mission of the NATO STO is to help position the Nations' and NATO's S&T investments as a strategic enabler of the knowledge and technology advantage for the defence and security posture of NATO Nations and partner Nations, by:

- Conducting and promoting S&T activities that augment and leverage the capabilities and programmes of the Alliance, of the NATO Nations and the partner Nations, in support of NATO's objectives;
- Contributing to NATO's ability to enable and influence security- and defence-related capability development and threat mitigation in NATO Nations and partner Nations, in accordance with NATO policies;
- Supporting decision-making in the NATO Nations and NATO.

Acknowledgement

The Human Factors and Medicine Panel expresses its thanks to the representatives from Poland for the invitation to hold this meeting in Warsaw, and for the facilities and personnel, which make this meeting possible

