



**North Atlantic Treaty Organization
Research and Technology Organization
HUMAN FACTORS AND MEDICINE PANEL**

29 November 2010

CALL FOR PAPERS

HUMAN FACTORS & MEDICINE PANEL

HFM-207 SYMPOSIUM

on

**A SURVEY OF BLAST INJURY ACROSS THE
FULL LANDSCAPE OF MILITARY SCIENCE**

(Unlimited Unclassified)

***This Symposium is OPEN to Partnership for Peace (PfP),
Mediterranean Dialogue Initiative (MD) and Selected Contact Nations***

to be held in

**Halifax (CANADA)
3-5 October 2011**

DEADLINE FOR RECEIPT OF ABSTRACTS:

25 February 2011 for US Authors

11 March 2011 for Authors from other Nations

NATO's Research & Technology Organization (RTO)

RTO is the single focus in NATO for Defence Research and Technology activities. Its mission is to conduct and promote cooperative research and information exchange. The objective is to support the development and effective use of national defence research and technology and to meet the military needs of the Alliance, to maintain a technological lead, and to provide advice to NATO and national decision makers. The RTO performs its mission with the support of an extensive network of national experts. It also ensures effective coordination with other NATO bodies involved in R&T activities.

RTO reports both to the Military Committee of NATO and to the Conference of National Armament Directors. It comprises a Research and Technology Board (RTB) as the highest level of national representation and the Research and Technology Agency (RTA), a dedicated staff with its headquarters in Neuilly-sur-Seine, near Paris, France. In order to facilitate contacts with the military users and other NATO activities, a small part of the RTA staff is located in NATO Headquarters in Brussels. The Brussels staff also coordinates RTO's cooperation with nations in Middle and Eastern Europe, to which RTO attaches particular importance especially as working together in the field of research is one of the more promising areas of initial cooperation.

The total spectrum of R&T activities is covered by the following 7 bodies:

AVT: Applied Vehicle Technology Panel	SAS: System, Analysis and Studies Panel
HFM: Human Factors and Medicine Panel	SCI: Systems Concepts and Integration Panel
IST: Information Systems Technology Panel	SET: Sensors and Electronics Technology Panel
NMSG: NATO Modeling and Simulation Group	

These bodies are made up of national representatives as well as generally recognized 'world class' scientists. They also provide a communication link to military users and other NATO bodies. RTO's scientific and technological work is carried out by Technical Teams, created for specific activities and with a specific duration. Such Technical Teams can organize workshops, symposia, field trials, lecture series and training courses. An important function of these Technical Teams is to ensure the continuity of the expert networks.

RTO builds upon earlier cooperation in defence research and technology as set-up under the Advisory Group for Aerospace Research and Development (AGARD) and the Defence Research Group (DRG). AGARD and the DRG share common roots in that they were both established at the initiative of Dr Theodore von Kármán, a leading aerospace scientist, who early on recognized the importance of scientific support for the Allied Armed Forces. RTO is capitalizing on these common roots in order to provide the Alliance and the NATO nations with a strong scientific and technological basis that will guarantee a solid base for the future.

The Human Factors and Medicine Panel (HFM) covers the fields of three domains which are complementary and represent the three 'Area' Committees of the HFM Panel:

A) The **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, sustainability and survivability. This encompasses research in the field of military medicine, physiology, psychology and human protection technology. Areas of interest include, among others, medical diagnosis, prevention, treatment and evacuation. HMP also focuses on enhancing human protection research on physiological and physical influences, e.g. of cold, heat, air pressure, noise, vibration, ionizing and non-ionizing radiation, acceleration, motion, biological and chemical effects on the human body, and developing appropriate countermeasures.

B) The **Human Effectiveness Area (HE)** optimizes individual readiness and organizational effectiveness by addressing psycho-social, organizational, cultural and cognitive aspects in military action. Contributions on individual readiness cover values and ethics, leadership, multi-national operations and coping with new demands on the individual. Contributions on organizational effectiveness encompass human resource management, training, interoperability, shared decision-making, synchronized situational awareness, understanding terrorism, psychological operations and coping with new demands on military organizations.

C) The **Human System Integration Area (HSI)** optimizes the performance of human-operated technical systems by addressing the human-machine interactions, processes, tools and measures of effectiveness. Specific contributions cover complexity, total life-cycle affordability, human error and fatigue management, intelligent agent, human-system communication, human cognitive and physical resources management, anthropometry, interface, design of information displays and controls, human-human communications and teamwork, performance enhancement and aiding, training and function allocation in automated systems.

**A SURVEY OF BLAST INJURY ACROSS THE
FULL LANDSCAPE OF MILITARY SCIENCE**

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A SURVEY OF BLAST INJURY ACROSS THE FULL LANDSCAPE OF MILITARY SCIENCE

THEME

1. INTRODUCTION

Blast Injury is one of the most important sources of casualties in current NATO operations. The term “blast injury” creates considerable confusion in military medicine. Simply stated, “blast injury” includes the entire spectrum of injuries that can result from exposure to an explosion. It is generally accepted that the taxonomy of injuries can be assigned to five categories: primary, secondary, tertiary, quaternary, and quinary. These are based on the mechanism of injury. Primary blast injuries result from the high pressures created by the blast itself. The high pressures, known as blast overpressure, can crush the body and cause internal injuries. Primary injuries are the only category of blast injuries that are unique to blast. Secondary blast injuries result when strong blast winds behind the pressure front propel fragments and debris against the body and cause blunt and penetrating injuries. The strong winds and pressure gradients also can accelerate the body and cause the same types of blunt force injuries that would occur in a car crash or a fall. These are known as tertiary blast injuries. Quaternary blast injuries are the result of other explosive products, such as heat, light, and toxic gases that can cause burns, blindness, and inhalation injuries. Finally, quinary blast injuries refer to the clinical consequences of “post-detonation environmental contaminants”, including bacteria, radiation (dirty bombs), and tissue reactions to fuel and metals.

The broad issues here are prevention, treatment, and rehabilitation and the continuum of care for the injured from acute treatment to return to duty. To address this wide spectrum of injuries a multi-disciplinary approach is required.

This topic is related to current HFM activities including HFM-175 (Medically-Unexplained Physical Symptoms in Military Health), HFM-193 (Mild Traumatic Brain Injury), HFM-198 (Injury Assessment Methods for Vehicle Active and Passive Protection Systems). However, it is important to state that the current range of issues, injuries and outcomes are broader and more multi-disciplinary than is represented by current HFM or any other RTB activity.

This activity will serve to bring a broad knowledge and expertise base together in a forum to share national experiences and evidence-based approaches to begin the process of identifying best practice guidelines and standards that might be adopted by NATO.

This symposium is open to partnership for Peace (Pfp), Mediterranean Dialogue Initiative (MD), and Contact Nations.

2. OBJECTIVES

Provide a forum and a focus for the most important multi-disciplinary science and medicine necessary to increase our understanding around Blast Injury.

To identify knowledge gaps requiring additional research.

Provide understanding and direction for the work necessary to sustain the rapid pace of improvement of our clinical and protective policies and procedures. In particular, acquire more data on the prevention and treatment of brain and lung injuries.

This activity is related to LCTR A-6, Battlefield Medical Attention, A-12, Counter Improvised Explosive Device (c-IED), A-23, Enhanced Human Performance and A-28, Integrated Personal Protection; DAT #4, Countering IEDs and Hard Problems; Defeat the IED Threat, Grow the Force and Science Foundations for NATO Future Doctrine. Opportunities will also be sought for further NATO/Pfp/MD/Contact Nation collaborations.

3. TOPICS TO BE COVERED

- Best practices in prevention and treatment of blast injuries
Current practices/research (e.g drugs, prosthetics, tissue engineering)
Drugs to prevent and treat blast-induced hearing loss
Reconstructive surgery
- Medical evacuation and blast-related poly-trauma
Lessons learned from recent military operations
Current practices/research concerning haemorrhage
Resuscitation research
Pain management
- Care of poly-trauma (roles 1-5) with respect to blast injuries
Lessons learned from recent military operations
First surgery, first care, prevention, conditioning
Current research
- Epidemiology of blast injuries
Distribution of mTBI, pulmonary injury, ear injury
Effectiveness of pre-deployment stress management optimization programs
Specific effects of mines and IED
- Diagnostics and clinical indicators
Lessons learned and research
Scales to assess injury severity, evolution, prognosis
- Blast-related neurotrauma
Clinical and non-clinical research
Current practices/interventions (e.g. neurosurgery)
Current gaps in knowledge/research
- Psychological and Social Health
Psycho-social health and well being
Psychological resilience
Impact of combat deployment on personnel and families
Assessment methods
Clinical indicators
- Blast and energy specific to IED and similar devices
Blast energy/physics
Explosive threats
- Personal Protective Equipment
Biomedically-based design criteria for protection systems (head, lung, extremities)
Human vulnerability/injury
Materials and armours
- Tests and Computational Modelling of Blast Injuries
Animal injury and post-mortem data to validate
High strain rate material properties for human tissues
Computational Modelling: FEM, CFD (fluid dynamic), heuristic model

INSTRUCTIONS FOR ALL AUTHORS

1. Introduction.

The three days Symposium will be held in Halifax (Canada), from 3 to 5 October 2011. It is supported by the Human Factors and Medicine Panel (HFM) of the NATO Research and Technology Organization (RTO). All sessions of the HFM Symposium will be Unlimited Unclassified. Attendance at the HFM Symposium is by request only. The Symposium audience will include experts from NATO, PfP and MD countries, as well as invited nations.

Authors are invited to submit papers for this Symposium. Papers can be accepted and presentations can be delivered in English or in French. Simultaneous ENG/FR and FR/ENG translation during the Symposium will be provided. The Programme Committee will select papers, based on submitted abstracts that are considered suitable for presentation at the Symposium. It is expected that about 30-40 papers will be selected for oral presentations at the Symposium. **Proposed abstracts are due by 25 February 2011 for US Authors** and **11 March 2011 for other countries**. The selection of papers will be completed in April 2011, and all authors will be notified shortly thereafter by the Programme Committee Chairpersons whether or not their papers are selected.

The time allowed for each speaker is normally 15 minutes, plus 5 minutes for discussion. Equipment will be available for Power Point presentations. Details of the timing will be given in the Programme Announcement, which will be distributed to the NATO, PfP and MD countries by RTA National Coordinators, HFM Panel members, etc. in MAY 2011. The Programme Announcement as displayed at the RTO web site (www.rta.nato.int) will contain enrolment details.

IMPORTANT NOTE:

All presented papers will be published in an **official RTO publication as Meeting Proceedings**. Also note that the written papers will be evaluated for their use by NATO preceding the symposium and must be delivered in time. This action is an important part of the symposium activities as all manuscripts will be made available at the RTO web site for all symposium attendees two weeks prior to the event (password protected).

Authors not submitting a full scientific paper (minimum 5 to 25 pages) will not be allowed to present at the meeting site. Therefore, authors of selected papers **MUST** provide a complete manuscript for publication.

Further details on the manuscripts will be given in the Instructions for Authors which will provide detailed instructions for the presentation, transmission of short biographies, manuscripts and Clearance. Instructions will be **sent in MAY 2011** with the Programme Announcement by the HFM Panel Office c/o Ms. Danielle PELAT: pelatd@rta.nato.int.

Authors of papers selected for presentation at NATO/RTO Symposia are not financially supported by this organization.

2. Abstracts.

All unclassified abstracts of papers offered for the Symposium should contain the following information:

HFM-207 SYMPOSIUM On

A SURVEY OF BLAST INJURY ACROSS THE FULL LANDSCAPE OF MILITARY SCIENCE

TITLE OF ABSTRACT/PAPER

Title/Rank, Full Name of Author/Co-Author(s)

Company/Affiliation

Complete mailing address

Telephone, Fax, E-mail

- A.LENGTH - 200 to 500 words
- B.CONTENT - State for which scenario/ level your paper is intended
- Introduction/relevance to the Symposium
- Rationale
- Description of methods employed (when needed) and results or observations obtained
- Conclusions
- C.IDENTIFICATION - Information on Attachment 1 must be provided with all abstracts
- D. SUBMITTAL - By all authors
- E.CLASSIFICATION - **Abstracts must be unclassified**

2.1 For US Authors and Non US Citizens Affiliated with US Organizations:

Abstracts and the **Attachments 1 & 2** should be submitted via e-mail by **25 February 2011** to the U.S. P.O.C. **ONLY**.

2.2 For Non US Authors (All other countries):

Abstracts and Attachment 2 (Details of Authors Form) should be e-mailed in time to reach the Technical Programme Co-Chairs and Committee Members listed on page 3, as well as to the HFM Panel Office (pelatd@rta.nato.int) **not later than 11 March 2011**.

It is the responsibility of the author to ensure that his/her abstract receives any necessary clearance before it is forwarded, and sufficient time should be allowed for this.

These dates are important and must be met in order to ensure consideration.

Thank you for your contributions which are highly appreciated by all the NATO community.

(Signed)

Ms Danielle Pelat

Human Factors & Medicine Panel Assistant (pelatd@rta.nato.int)

**SPECIAL NOTICE FOR [US AUTHORS](#) *AND*
NON US CITIZENS AFFILIATED WITH US ORGANIZATIONS**

Abstracts of Papers from the U.S. must be sent **ONLY** to the following P.O.C.:

**NATO RTO U.S. National Coordinator
ODDR&E/International Technology Programs
2001 N. Beauregard Street, Suite 210B
Alexandria, VA 22311
E-mail: usnatcor@osd.mil
Tel: +1 (703) 681 4166 ext 106
Fax: +1 (703) 681 4164**

PLEASE NOTE THE FOLLOWING:

1. All US Authors must submit one electronic copy to this POC by **25 February 2011**
2. In addition to their abstract, all U.S. Authors must provide to the POC:
 - A certification (can be signed by the author) that there are no proprietary or copyright limitations;
 - Internal documentation from their local public affairs or foreign disclosure office (or equivalent) that clearly shows:
 - Title of the paper or presentation
 - Level of clearance (i.e., Approved for public release)
 - Name, title, and organization of the approval authority
 - Details of Author(s) Form (Attachment 2)
 - NOTE: Only complete packages (abstract plus all items listed above) will be accepted by the US POC.

After review and approval, the US POC will forward **all US abstracts with the Details of Authors Form** to the HFM Panel Assistant Office (pelatd@rta.nato.int).

All US abstracts must be received directly from the US POC.

US abstracts will not be accepted directly from authors.

3. In the event, there are any questions or concerns with these requirements, U.S. authors are encouraged to contact the US POC as early as possible. Delays in meeting POC deadlines will impact the timely submission of your abstract.

“DETAILS OF AUTHORS” FORM

The purpose of this form is to correctly identify the author(s), the role of authors and co-authored papers, and to enable further communication.

INSTRUCTIONS

Co-authored Papers

- Authors should be listed in the order in which they should appear on the programme.
- Unless otherwise specified, the first listed author will be presumed to be the SENIOR AUTHOR, i.e. the author having the major responsibility for the content of the paper, and a major interest in the result of the selection of papers.

All Papers

- The left-hand side box should include the following details:
 - . Title or Rank, NAME, Surname
 - . Nationality (mandatory)
 - . Position, e.g. Head of Biodynamics
 - . Affiliation, e.g. Firm or Organization
 - . Telephone number - please show area/city code (unless you specify "home," it will be assumed to be your office number)
 - . Fax number
 - . E-mail address (VERY IMPORTANT – we are trying to use electronic Communications wherever possible)
- The right-hand side box is to include:
 - . Correct postal address (Office) including POSTAL CODE

PLEASE COMPLETE THIS FORM ELECTRONICALLY IN CAPITAL LETTERS

Thank you for your co-operation

DETAILS OF AUTHORS" FORM: for HFM-207 SYMPOSIUM, HALIFAX, CANADA, 3-5 October 2011

ATT.2

Title of Paper:

Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: Fax: E-mail address:	Office Address:
Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: Fax: E-mail address:	Office Address:
Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: Fax: E-mail address:	Office Address:
Title/Rank: First name: Last name: Nationality: Position: Affiliation: Telephone: Fax: E-mail address:	Office Address:

*Please complete this form and send a copy with your abstract **before 25 February 2011 for US Authors and 11 March 2011 for others** .:*

*- **US authors:** To usnatcor@osd.mil*

*- **Authors from Other Countries:** All Programme Committee Members and to RTA/HFM Panel Office (pelatd@rt.nato.int)*

