



Interactive Media Institute-Europe  
Rue de la Loi 28/7, B-1040  
Brussels, Belgium  
Fax: 011 32 2 286 8508  
[www.interactivemediainstitute.com](http://www.interactivemediainstitute.com)

## **NATO ADVANCED RESEARCH WORKSHOP**

### **“Wounds of War: Lowering Suicide Risk in Returning Troops”**

To be held at

**Hotel Amerika-Holzer, Klopeiner See, Südkärnten, Austria  
14 – 17 October 2007**





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## 1. INTRODUCTION

This Advanced Research Workshop is being convened to discuss the topic of increased suicide risk in our service men and women. Research has shown that those who have served in both combat missions and peacekeeping operations are at an increased risk for suicide. Research suggests that this may result from their “wounds of war”. Some wounds may be more “invisible”; such as depression, posttraumatic stress disorder, and chronic pain, while others are more visibly apparent; such as physical disabilities. Whatever the wound, however, it seems they may all lead to an increased risk of suicide.

During this workshop, we plan to discuss how to more effectively deal with this issue. Specifically, some of the questions we want to address are:

1. How do we detect those who are vulnerable to increased suicide risk, possibly due to a combination of genetics and past environmental insults?
2. How do we most appropriately assess for increased risk?
3. Once detected, how do we help to decrease that risk?
4. Are there pre-deployment training methods we can employ to help “inoculate” individuals against increased risk?
5. Are there in-theater and post-deployment methods most appropriate for dealing with this risk?

Our hope is that through this workshop, we can come to understand what programs are already in place for detection, assessment, prevention, and treatment. We can then learn from these existing plans and begin to formulate a more common set of best practices and guidelines which can be implemented throughout organizations in all our countries; having as our common goal to always seek to serve our service members more effectively.





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## 2. SPONSORS

Workshop organizers Interactive Media Institute and Interactive Media Institute-Europe would like to thank the sponsors of this Advanced Research Workshop listed below. Without their support this event could not have taken place.

North Atlantic Treaty Organization (NATO)



Telemedicine and Advanced Technology Research Center



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### 3. CO-CHAIRS

#### **Professor Brenda K. Wiederhold PhD, MBA, BCIA**

Interactive Media Institute  
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Rue de la Loi, 28/7      Tel: +32 2 286 8505  
B-1040 Brussels      Fax: +32 2 286 8508  
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#### **Professor Dragica Kozarić Kovačić, MD, PhD**

University Hospital Dubrava      Tel: +385 1 290 26 18  
Department of Psychiatry      Fax: +385 1 290 37 00  
Referral Centre for Stress-related Disorders      E-mail: [dkozaric\\_kovacic@yahoo.com](mailto:dkozaric_kovacic@yahoo.com)  
of the Ministry of Health  
Regional Centre for Psychotrauma Zagreb  
Avenija Gojka Šuška 6, 10 000 Zagreb, Croatia.

#### **Professor Kresimir Cosic, PhD**

University of Zagreb      E-mail: [kcovic@sabor.sabor.hr](mailto:kcovic@sabor.sabor.hr)  
Faculty of Electrical Engineering & Computing  
Head of the Delegation to the NATO Parliamentary Assembly  
Croatian Parliament

### 4. MEETING SITE

The Advanced Research Workshop (ARW) entitled “*Wounds of War: Lowering Suicide Risk in Returning Troops*” will be held 14-17 October 2007 at:

Hotel Amerika-Holzer am See  
Am See IX  
9122 St. Kanzian  
Südkärnten, Austria  
Tel.: +43 4239/2212  
Email: [hotel@amerika-holzer.at](mailto:hotel@amerika-holzer.at)  
<http://www.amerika-holzer.at>

**Registration on Sunday 14 October 2007** will take place in the Conference area from 17:00 to 20:00.

All participants are kindly reminded to bring a passport or ID card with them in order to obtain a security badge to gain access to the workshop events. A badge





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will be issued to each participant registered. You are kindly requested to take care of your badge. Badges will not be reissued during the week.

**You are requested to wear your Meeting badge at all times in the Conference Area and at all workshop events.**

## 5. **MEALS AND REFRESHMENTS**

### **Refreshments**

Coffee and tea will be served during the morning and afternoon coffee breaks free of charge.

### **Meals**

Breakfast will be included for those participants staying at the Hotel Amerika-Holzer. Lunches and dinners will be available for an additional fee.

## 6. **SCHEDULE**

### **Sunday, October 14**

During day:	Arrival of Participants with complimentary transfer from Klagenfurt Airport (on hotel shuttle; please arrange with the hotel beforehand)
Accommodations:	Hotel Amerika-Holzer, Klopeiner See-Südkärnten, Austria
Workshop Venue:	Hotel Amerika-Holzer
<b>18:00-20:00</b>	Registration
<b>19:00</b>	Welcome Reception





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## Monday, October 15 - 1<sup>st</sup> day

09:00

### Welcome Address

*BrigGen. Mag. Gunther Spath*  
Ministry of Defense  
Austria

09:10

### Opening Remarks

#### **“Overview of Challenges, Goals and Charge to Participants”**

*Professor Dr. Brenda K. Wiederhold*  
CEO, Interactive Media Institute Europe, Brussels, Belgium  
President & CEO, Interactive Media Institute, San Diego, USA  
Belgium

09:15

### **Welcome**

*Professor Dr. Dragica Kozaric-Kovacic*  
Professor of Psychiatry  
Head of Department of Psychiatry and Referral Center for Stress-Related Disorders of the Ministry of Health, University Hospital Dubrava  
Croatia

09:20

### **Welcome**

*Professor Dr. Kresimir Cosic*  
University of Zagreb, Faculty of Electrical Engineering and Computing  
Head of the Delegation to the NATO Parliamentary Assembly, Parliament  
Croatia

## Session I

### **Vulnerability to Suicidal Behavior**

09:25

#### **“Biological Markers in Croatian Veterans with Increased Suicidality”**

*Professor Dr. Nela Pivac*  
Rudjer Boskovic Institute, Division of Molecular Medicine  
Croatia

09:45

#### **“Brain Structure and Plasticity: Relation to Suicidality”**

*Professor Dr. Ivica Kostovic*  
Professor of Psychiatry, University of Zagreb  
Croatia





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- 10:05** **“Combat and Peacekeeping Operations in Relation to Prevalence of Mental Disorders and Perceived Need for Mental Health Care”**  
*Professor Dr. Jitender Sareen*  
Associate Professor of Psychiatry and Community Health Sciences  
University of Manitoba  
Canada
- 10:25** **“Psycho-social determinants of deliberate self-harm in young Ukrainian soldiers”**  
*Professor Dr. Vsevolod Rozanov*  
Human Ecological Health, Odessa  
Ukraine
- 10:45** **Panel Discussion on Vulnerability to Suicide**
- 11:05** **Coffee break**
- Session II** **Diagnostic and Assessment Issues**
- 11:30** **“A Review of the U.S. Army Soldier Suicides in Iraq”**  
*Col. Carl A. Castro*  
Walter Reed Army Institute of Research  
United States
- 11:50** **“Integrative Diagnostic Model for PTSD and Suicidality”**  
*Professor Dr. Dragica Kozaric-Kovacic*  
Professor of Psychiatry  
Head of Department of Psychiatry and Referral Center for Stress-Related Disorders of the Ministry of Health, University Hospital Dubrava  
Croatia
- 12:10** **“Findings of an Intensive Pre-deployment Screening Program in the Canadian Forces”**  
*Dr. Mark Zamorski*  
Canadian Forces Health Services Group Headquarters  
Canada
- 12:30** **“Psychological Health and Screening in the UK Armed Forces”**  
*Dr. Neil Greenberg*  
Surgeon Commander Royal Navy  
United Kingdom
- 12:50** **Panel Discussion on Diagnostic and Assessment Issues**







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**13:20**

**Lunch**

**Session III**

**Prevention**

**14:50**

**“Getting the basics right: Lessons from an in-depth study of soldiers who attempt suicide in the British Army”**

*Dr. Michael Crawford*

Reader in Mental Health Services Research  
Imperial College London  
United Kingdom

**15:10**

**“Interdisciplinary Joint Approach to Suicide Prevention of Warfighters”**

*Professor Dr. Kresimir Cosic*

University of Zagreb, Faculty of Electrical Engineering and Computing;  
Head of the Delegation to the NATO Parliamentary Assembly, Parliament  
Croatia

**15:20**

**“Lowering Suicide Risk: Situation and Prevention Measures in Lithuanian Armed Forces”**

*Captain Danute Lapenaite*

Military Medical Service of the Lithuanian Armed Forces  
Lithuania

**15:40**

**“Lowering the Psychological Impact of Deployment: the importance of prospective research”**

*Professor Dr. Elbert Geuze*

Research Centre, Military Mental Health  
Netherlands

**16:00**

**Coffee Break**

**16:30**

**“Prevention of Suicides in the U.S. Army”**

*Maj. Todd M. Yosick*

Chief, Combat Stress Actions Office  
Chief, Battlemind Training Office  
AMEDD Center and School  
United States

**16:50**

**“Suicide prevention among Polish veterans of the multinational operations”**

*Professor Dr. Stanislaw Ilnicki*

Head, Department of Psychiatry and Combat Stress  
Military Institute of Health Services  
Poland





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17:10

**“Mobile narratives for combating battlefield stress: Rationale and preliminary research”**

*Professor Dr. Alessandra Gorini*

Applied Technology for Neuropsychology Lab  
Istituto Auxologico Italiano, and Professor, Catholic University, Milan  
Italy

17:30

**“Suicide after deployment in UN peacekeeping missions – a Danish pilot study”**

*Lt. Col. Dr. Hans O. Jørgensen*

Danish Armed Forces Health Services  
Denmark

17:40

**Panel Discussion on Prevention Measures**

**Tuesday, October 16 - 2<sup>nd</sup> day**

09:00

**“Brief Review of Day 1 and Introduction to Day 2”**

*Professor Dr. Brenda K. Wiederhold*

CEO, Interactive Media Institute Europe, Brussels, Belgium  
President & CEO, Interactive Media Institute, San Diego, USA  
Belgium

**Session IV**

**Treatment**

09:10

**“Pharmacotherapy of Suicidal PTSD Patients”**

*Professor Dr. Neven Henigsberg*

Assistant Professor, Croatian Institute for Brain Research  
Section for Psychopharmacology and Neurobiology of Behaviour  
Croatia

09:30

**“Importance of Psychotherapeutic Intervention in the Crisis Following Suicide in the Army of Serbia”**

*Professor Dr. Gordana Dedic*

Military Medical Academy  
Department of Mental Health, Belgrade  
Serbia

09:50

**“Suicide of a service member: how to organize support for the bereaved in the emotional aftermath”**

*Dr. John Deheegher*

Military Hospital - Queen Astrid Centre for Mental Health  
Belgium





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- 10:10**                                    **"Completed suicide and suicidal ideation in Norwegian peacekeepers"**  
*Dr. Siri Thoresen*  
Senior Researcher  
Norwegian Centre for Violence and Traumatic Stress Studies  
Norway
- 10:30**                                    **"Understanding combat trauma - the psychotherapeutic meetings of Iraqi veterans"**  
*Maciej Zbyszewski, M.S.*  
Department of Psychiatry and Combat Stress  
Military Institute of Health Services  
Poland
- 10:50**                                    **Coffee Break**
- 11:20**                                    **"Measures of lowering suicide risks in the Austrian armed forces"**  
*Col. MSc. Christian Langer*  
Head of the Military Psychological Service in the Ministry of Defense  
Austria
- 11:40**                                    **"Treatment is More Effective with a Patient: Reducing the Stigma of Help-Seeking Behavior through Context and Content"**  
*LCDR Dr. Aaron Werbel*  
United States Marine Corps  
United States
- 12:00**                                    **"Final Title to be Confirmed"**  
*Professor Dr. Jouko Lönnqvist*  
National Public Health Institute  
Finland
- 12:20**                                    **Panel Discussion on Treatment Issues**
- 13:00**                                    **Lunch**
- Working Group Sessions**
- 14:30-17:30**                              Group 1  
**Suicide Vulnerability**  
*Moderator: Professor Dr. Nela Pivac*

The NATO Science for Peace and Security Programme



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Group 2

**Suicidality: Diagnosis and Assessment**

*Moderator: Dr. Mark Zamorski*

Group 3

**Prevention Measures**

Group 4

**Treatment Issues: How to reduce Suicide Risk due to Wounds of War (such as depression, PTSD, Chronic Pain, TBI and Physical Disabilities)**

**Wednesday, October 17 - 3rd day**

**09:00**

**“Brief Review of Day 2 and Introduction to Day 3”**

*Professor Dr. Brenda K. Wiederhold*

CEO, Interactive Media Institute Europe, Brussels, Belgium  
President & CEO, Interactive Media Institute, San Diego, USA  
Belgium

**Reports from Working Groups:**

**09:05**

**Moderator, WG 1**

*Professor Dr. Nela Pivac*

**09:35**

**Moderator, WG2**

*Dr. Mark Zamorski*

**10:05**

**Moderator WG3**

**10:35**

**Moderator WG4**

**11:05**

**Coffee Break**

**Session V**

**Increased Suicide with Comorbid Disorders**

**11:30**

**“Traumatic Brain Injury in the United States Military”**

*CAPT Dr. Robert Koffman*

BUMED Combat/Operational Stress Control Consultant  
United States





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- 11:50** **“Suicide Policy and PTSD in the United States Military”**  
*Col. Elspeth Ritchie*  
Director, Proponency of Behavioral Health  
Psychiatry Consultant to the US Army Surgeon General  
United States
- 12:10** **“Family homicide-suicide of a military man: a case analysis”**  
*Dr. Merike Sisask*  
Estonian-Swedish Mental Health and Suicidology Institute (ERSI)  
Estonia
- 12:30** **Panel Discussion on Increased Suicide with Comorbid Disorders**
- 12:50** **Lunch**
- 14:20** **“Aggression, impulsivity and stress events in the month before suicide”**  
*Assistant Professor Dr. Peter Pregelj*  
University Psychiatric Hospital Ljubljana  
Slovenia
- 14:40** **“Alcohol Consumption and Suicide Rate in Belarus”**  
*Professor Dr. Yury Razvodovsky*  
Grodno State Medical University  
Belarus
- 15:00** **“Virtual Reality as an Adjunct for Training and Treatment”**  
*Professor Dr. Brenda K. Wiederhold*  
President, Virtual Reality Medical Institute, Brussels, Belgium  
Executive Vice-President, Virtual Reality Medical Center, San Diego, USA  
Belgium
- 15:20** **Panel Discussion on Increased Suicide with Comorbid Disorders**
- 15:50** **Coffee Break**
- 16:20** Closing Comments
- 19:30** **Gala Dinner**





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## Abstracts

### Session I: Vulnerability to Suicidal Behavior

#### Neurobiology of suicidal behaviour

Nela PIVAC<sup>a1</sup>, Dragica KOZARIĆ-KOVAČIĆ<sup>b</sup>, Gordana NEDIĆ<sup>a</sup>, Maja MUSTAPIĆ<sup>a</sup>, Tamara STIPČEVIĆ<sup>a</sup>, Korona NENADIĆ-ŠVIGLIN<sup>c</sup>, Mirjana GRUBIŠIĆ-ILIĆ<sup>b</sup>, Dorotea MÜCK-ŠELER<sup>a</sup>

<sup>a</sup>*Division of Molecular Medicine, Rudjer Boskovic Institute, Bijenička cesta 54, HR-10002 Zagreb, Croatia,*

<sup>b</sup>*Referral Centre of the Ministry of Health and Social Welfare of the Republic of Croatia for the Stress Related Disorders, Department of Psychiatry, Dubrava University Hospital, Avenija Gojka Šuška 12, HR-10000 Zagreb, Croatia,*

<sup>c</sup>*Centre for Alcoholism and other Addictions, Psychiatric Hospital Vrapče, Bolnička cesta 12, HR-10000 Zagreb, Croatia*

**Abstract:** Suicide is a major social and public health problem, one of the leading causes of death, a major complication of the different psychiatric disorders that can evoke great suffering in patients and their families, and carries a financial burden on society as a whole. Suicidal behaviour and suicide are frequently associated with different psychiatric disorders and personality traits. However, most psychiatric patients never attempt suicide, indicating that aside from psychiatric diagnoses, other multiple socio-cultural, environmental, biological and genetic factors are important risk factors for suicide. The biological and genetic contributions to suicide are still not completely understood, and the heterogeneity of the underlying neurobiology makes such investigations particularly difficult. Molecular basis of suicidal behaviour is assumed to involve the changes in different neurotransmitters and neuroendocrine systems (primarily in the serotonergic and noradrenergic systems, the activity of the hypothalamic-pituitary-adrenal axis (HPA). Therefore, research of suicide, which is a major and the most dramatic consequence of suicidal behaviour, should be linked to biological characteristics of suicidal behaviour, to find biomarkers that might predict suicidal behaviour, in order to prevent suicide.

**Key words:** Suicidal behaviour, Posttraumatic Stress Disorder, Depression, Alcoholism, Psychosis, Neurobiology, Hypothalamic-pituitary-adrenal axis, War veterans, Biological markers, Platelet serotonin, Platelet monoamine oxidase, Plasma cortisol, Plasma dopamine beta hydroxylase

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## Abstracts

### Session I: Vulnerability to Suicidal Behavior

#### Brain Structure and Plasticity: Relation to Suicidality

Professor Ivica Kostovic, M.D.<sup>1</sup>

*Croatian Institute for Brain Research,  
School of Medicine University of Zagreb, Croatia*

**Abstract:** In order to reveal biological correlates of suicidal behavior, we have to study three major frontal cortical circuits: 1. orbitofrontal-limbic (OFC-L), 2. mesial (cingular) fronto- limbic (MFC), 3. dorsolateral-prefrontal (DPFC) limbic circuitry.

One of these three major frontal cortical regions, mesial cingular cortex, is traditionally included in so-called limbic cortical structures (limbic lobe). Subcortical limbic structures are the amygdala, the nucleus accumbens, the septal nuclei, the hypothalamus and the limbic midbrain area. The nuclei with identified transmitter systems in the limbic midbrain (LMA) area project directly on three frontal cortical circuits and serve as a major modulatory system: serotonergic (5-HT), noradrenergic (NA), and dopaminergic (DA) system. The neural pathways (structural wiring) of fronto- limbic (FC-L) cortical systems connect: amygdala - orbitofrontal cortex, dorsomedial thalamic nucleus - dorsolateral prefrontal cortex and prefrontal cortex - nucleus accumbens, subcortical limbic nuclei -cingular subgenual cortex, prefrontal- striatum.

For each of fronto- limbic circuits several major functions were proposed: OFC-L is essential for decision-making, and impulse control; consecutively, fine abnormalities of the function of this system are one of the neural substrates for suicidal “diathesis”. The abnormalities were documented in neuroimaging studies in individuals with suicidal attempts and in postmortem studies in people who committed suicide. The abnormalities may involve different levels of circuitry: principal neurons, inter-neurons, afferent enervation pathways, synapses and receptors. It is generally accepted that decrease in serotonin transporter binding is one of the most prominent and most constant finding in people who committed suicide. However, principal abnormality lies in the fronto-limbic circuit upon which 5-HT enervation acts. The abnormalities of DPFC are less documented, however we believe that this circuit is important in cognitive aspects of suicidal behavior because it serves for representation (representational memory) of consequences of a suicidal act and cognitive evaluation of suicidal ideation. For proper

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<sup>1</sup> Corresponding Author: Prof. Dr. Sc. Ivica Kostovic, MD; Croatian Institute for Brain Research, Director & Croatian Society for Neuroscience, President School of Medicine, University of Zagreb; Salata 12, 10000 Zagreb, CROATIA; Phone: +385 1 45 96 902; Fax: + 385 1 45 96 942





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diagnostic assessment of underlying psychiatric disorders and suicidal behavior, it is necessary to obtain the following “neurobiologically” relevant data: imaging on 3Tesla with 3D morphometry and volumetry, tractography and MR spectroscopy, SPECT and in advanced clinical centers functional MRI, and pharmacogenomic screening. For example, the abnormalities can also be found in white matter (patchy hyper intensities) and on MR spectroscopy of fronto-limbic structures. The plasticity in the frontal circuits is present throughout life. The structural plasticity of pathways is present only during prenatal and early postnatal life. Major plasticity of synapses peaks in the third year of life; plateau of plasticity lasts until third decade of life, while plasticity of the receptors presumably lasts throughout life. The MR imaging and pharmacogenomic parameters for frontal cortex circuitry, and protracted plasticity in adolescents and young adults may serve as useful indicators for detection of vulnerable individuals who have, in addition to basic mental disorder, increased suicidal risk.

Using this neurobiologically based approach we hope to succeed in lowering suicidal risk.

**Keywords:** fronto-limbic circuits, suicidal behavior, magnetic resonance imaging, neurobiology of suicide







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## Abstracts

### Session I: Vulnerability to Suicidal Behavior

#### Combat and Peacekeeping Operations in Relation to Prevalence of Mental Disorders and Perceived Need for Mental Health Care

##### *Findings From a Large Representative Sample of Military Personnel*

Jitender Sareen, BSc, MD, FRCPC<sup>1</sup>; Brian J. Cox, PhD<sup>1,2</sup>; Tracie O. Afifi, MSc<sup>1</sup>; Murray B. Stein, MD<sup>3</sup>, FRCPC, MPH; Shay-Lee Belik, BSc (Hons)<sup>1</sup>; Graham Meadows, MD<sup>4</sup>; Gordon J. G. Asmundson, PhD<sup>5</sup>

<sup>1</sup> Departments of Psychiatry, Community Health Sciences, University of Manitoba, Winnipeg

<sup>2</sup> Department of Psychology, University of Manitoba, Winnipeg

<sup>3</sup> Departments of Psychiatry and Family and Preventive Medicine, University of California, San Diego; Veterans Affairs San Diego Healthcare System, San Diego

<sup>4</sup> Department of Psychiatry, University of Melbourne, Melbourne, Australia

<sup>5</sup> Anxiety and Illness Behaviours Laboratory and Traumatic Stress Group, University of Regina, Regina, Saskatchewan

**Context:** Although military personnel are trained for combat and peacekeeping operations, accumulating evidence indicates that deployment-related exposure to traumatic events is associated with mental health problems and mental health service use.

**Objective:** To examine the relationships between combat and peacekeeping operations and the prevalence of mental disorders, self-perceived need for mental health care, mental health service use, and suicidality.

**Design:** Cross-sectional, population-based survey.

**Setting:** Canadian military.

**Participants:** A total of 8441 currently active military personnel (aged 16-54 years).

**Main Outcome Measures:** The *DSM-IV* mental disorders (major depressive disorder, posttraumatic stress disorder, generalized anxiety disorder, panic disorder, social phobia, and alcohol dependence) were assessed using the World Mental Health version of the World Health Organization Composite International Diagnostic Interview, a fully

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<sup>1</sup> **Corresponding Author:** Jitender Sareen, BSc, MD, FRCPC, Department of Psychiatry, University of Manitoba, 771 Bannatyne Ave, Winnipeg, MB PZ430, Canada R3E 3N4; [sareen@cc.umanitoba.ca](mailto:sareen@cc.umanitoba.ca).





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structured lay-administered psychiatric interview. The survey included validated measures of self-perceived need for mental health treatment, mental health service use, and suicidal ideation. Lifetime exposure to peacekeeping and combat operations and witnessing atrocities or massacres (i.e. mutilated bodies or mass killings) were assessed.

**Results:** The prevalences of any past-year mental disorder assessed in the survey and self-perceived need for care were 14.9% and 23.2% respectively. Most individuals meeting the criteria for a mental disorder diagnosis did not use any mental health services. Deployment to combat operations and witnessing atrocities were associated with increased prevalence of mental disorders and perceived need for care. After adjusting for the effects of exposure to combat and witnessing atrocities, deployment to peacekeeping operations was not associated with increased prevalence of mental disorders.

**Conclusions:** This is the first study to use a representative sample of active military personnel to examine the relationship between deployment-related experiences and mental health problems. It provides evidence of a positive association between combat exposure and witnessing atrocities and mental disorders and self-perceived need for treatment.





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## Abstracts

### Session I: Vulnerability to Suicidal Behavior

#### Psycho-Social Determinants of Deliberate Self-Harm in Young Ukrainian Soldiers

Professor Dr. Vsevolod A. Rozanov<sup>1</sup>

*Human Ecological Health, Odessa National Mechnikov University  
Odessa, Ukraine*

This study is based on the results of the Swedish-Ukrainian research and prevention project aimed toward a better understanding of biological mechanisms of suicidal behaviors. General design of the project and instruments selection was determined by principles of the “stress-vulnerability model” of suicide developed by the project leader Prof. Danuta Wasserman. This model is looking at the suicidal process from the point of view of effects of stressors and protective factors on the genetically heterogenic population, in which each personality has a specific set of mechanisms, both biological and environmental, which are in the state of complex interplay and may both contribute to probability of self-harm.

In the database of the project 51 young soldiers, males aged 18-20, were revealed who have been admitted to the psychiatric department of the military hospital for suicide attempt. This group was matched with healthy volunteers, n=41, and civilian suicide attempters, n=132. Existing psycho-social data are distributed between the following sets: demography, anthropometry and attempts characteristics, personality (measured by NEO-PIR, based on “big 5” concept), well-being evaluation (WHO well-being Scale), hopelessness (Hopelessness Scale), depression (Beck Depression Scale), anger (Trait Anger Scale) and violence (Plutchick Feelings and Acts of Violence Scale) as well as life stress (Negative Life Events Accumulation Questionnaire) and psychiatric diagnosis (determined by CIDI inventory, computerized variant). Statistical analysis was based on t-test.

The results of the analysis show that soldier-suicide attempters have much in common with civilian-suicide attempters and differ greatly from healthy volunteers. These differences are mainly in the field of severity of depression, general well-being, hopelessness and personality measurements. Suicide attempters have, in general, higher scores for neuroticism; they are much more introverted, less open for experience, and less ambitious or disciplined. These distinctions are more or less known in suicide attempters

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and have been noticed by many authors. One of the interesting findings is that in inclination to violence in suicide attempters, both soldiers and civilians appeared to be lower than in healthy volunteers. On the other hand, there is also heterogeneity inside the suicide attempters group, with soldiers having higher depression, lower well-being score, and certain personality distinctions. These distinctions are of interest, as they are predominantly within such dimensions as agreeableness and conscientiousness. It may be discussed how personality traits (which are more or less genetically based) can be used to predict stress vulnerability in soldiers, taking into consideration specific risk factors existing in the Army, and what instruments may be useful for this purpose.





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## Abstracts

### Session II: Diagnostic and Assessment Issues

#### A Review of the U.S. Army Soldier Suicides in Iraq

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& Kathleen M WRIGHT, PhD<sup>b</sup>

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Note: The results and opinions presented in this report are those of the Mental Health Advisory Team IV members and do not necessarily represent the official policy or position of the Department of Defense, the United States Army, or the Office of The Surgeon General.

**Abstract.** The Mental Health Advisory Team (MHAT) IV was established by the Office of the U.S. Army Surgeon General at the request of the Commanding General, Multi-National Force-Iraq (MNF-I). The mission of MHAT IV was to (a) assess Soldier and Marine mental health and well-being, (b) examine the delivery of behavioral health care in Operation Iraqi Freedom (OIF), and (c) provide recommendations for sustainment and improvement to command. Part of the MHAT IV mission was to review the status of the theater's suicide prevention and surveillance programs, including an analysis of completed suicides. The MHAT IV assessed the mental health of the deployed force from 28 AUG to 3 OCT 06. Recommendations are based on findings from anonymous Soldier (N = 1,320) and Marine (N = 447) surveys, and on behavioral health, primary care and unit ministry team surveys; focus group interviews with Soldiers and Marines, as well as interviews and focus groups with Army and Navy behavioral health personnel; various secondary sources; and personal observations by team members.

**Keywords.** Suicide, suicide surveillance, suicide prevention, Mental Health Advisory Teams

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## Abstracts

### Session II: Diagnostic and Assessment Issues

#### Integrative Diagnostic Model for PTSD and Suicidality

KOZARIĆ-KOVAČIĆ<sup>a,1</sup>, Dragan GAMBERGER<sup>b</sup>, Igor MARINIĆ<sup>a</sup>, Mirjana GRUBIŠIĆ-ILIĆ<sup>a</sup>, Željko ROMIĆ<sup>c</sup>

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**Abstract.** Suicide is one of top ten causes of death in most countries, and it has a large impact both on families of victims and their environment. Suicide rate in Europe is 17.5 per 100,000 people and various activities from WHO and other organizations are underway with the goal of reducing suicide rate. Different underlying factors can contribute to suicide, and risk factors include both genetic and environmental factors, as well as the probable existence of independent inheritance of suicidal behavior. In this paper we review actual epidemiological data on suicide behavior in Europe and Croatia, novel approaches and theories on suicidal behavior, and present our experiences in the diagnostic process. Some predictors of suicidality from our previous studies in PTSD patients are indicated. We reveal an integrative diagnostic model for PTSD and suicidality, based on integration of psychiatric, psychological, and biological markers. Preliminary algorithms for predicting suicidal behavior using data mining methods are shown and some important variables are pointed out. Further studies with larger numbers of patients and more parameters are needed for future development of this multidisciplinary approach to the diagnostic procedure of suicidal behavior.

**Keywords.** Posttraumatic stress disorder, PTSD, suicidality, suicidal behavior

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## Abstracts

### Session II: Diagnostic and Assessment Issues

#### **Findings of an Intensive Pre-deployment Screening Process for Canadian Forces Members Deployed to Afghanistan in 2003 – 2005**

Mark A. ZAMORSKI, MD, MHSA,<sup>1,2</sup> Melanie GALVIN, BNSc, MBA, MHSc,<sup>1</sup> Terry W. HUMENIUK<sup>1</sup>

<sup>1</sup>*Deployment Health Section, Canadian Forces Health Services Group Headquarters*

<sup>2</sup>*Department of Family Medicine, University of Ottawa Faculty of Medicine*

**Abstract:** Objectives: To describe the findings of an intensive pre-deployment screening process in the Canadian Forces. Design: Cross-sectional study. Setting: Twenty Canadian military bases. Methods: Service members underwent intensive screening several days to several months prior to recent peacekeeping deployments to Afghanistan, with the intention of better identifying those for whom deployment was ill advised. The processes consisted of completion of four detailed, validated health questionnaires followed by a 20 to 40 minute semi-structured interview with a mental health professional. Results: Screenings were completed on 5,257 of 5,562 service members (95%) who deployed. The process required approximately one half-day of service-member time and one hour of staff time to complete. Only 43 individuals (0.8% of those screened) were recommended for deferral of deployment as a result of this process; this was due to extremely low endorsement rates of physical or mental health symptoms, resulting in an unrealistically low apparent prevalence rate (1.0%) of any of six mental health problems. Members evaluated this process relatively positively; a surprisingly small percentage (1.3%) endorsed concerns about their ability to be honest about their health problems. Conclusions: Health status reported in the context of predeployment screening appears to be unrealistically favourable, limiting the administrative, clinical, and epidemiological value of this intensive screening process; dishonesty seems to be a surprisingly small factor. The favourable satisfaction ratings suggest, however, that the process may have other benefits in the eyes of service members.

**Keywords:** Mental Disorders/epidemiology/statistics and numerical data, Mental Health/epidemiology, Canada, Health Status, Military Personnel/psychology, Military Psychiatry, Mass Screening

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## Abstracts

### Session II: Diagnostic and Assessment Issues

#### Psychological Health and Screening in the UK Armed Forces

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Academic Centre for Defence Mental Health  
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**Abstract.** UK military health researchers have investigated the utility of screening within the UK Armed Forces. We will present data which not only suggests that screening does not work within the UK military but that it is not acceptable within a society that favours social inclusion. Our data suggests that for relatively rare outcomes such as PTSD, screening out of cases is not feasible. Furthermore, should this be accepted then screening for even more rare outcomes, such as suicide, is impractical. We purport that in trying to screen in order to avoid rare outcomes military forces risk excluding large numbers of health and effective personnel.

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## Abstracts

### Session III: Prevention

#### **Getting the basics right: Lessons from an in-depth study of soldiers who attempt suicide in the British Army**

Mike Crawford, MD<sup>1</sup>

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Self-harm is of increasing concern to the British Army. While levels of suicide are generally lower than among the civilian population, available evidence suggests that the rate of suicide among young male soldiers may be higher than that in the general population (Standardised Mortality Ratio = 184). Several high profile suicides amongst recruits have increased the focus on this topic.

We were commissioned to undertake an in-depth qualitative of soldiers who self harm and healthcare staff involved in their management. The study aimed to examine factors that lead to self-harm in soldiers, the methods used to self-harm, the nature of welfare provision in the army and what effects soldier's willingness to use them. Staff were also asked to identify strategies that they believed could reduce self-harm and suicide amongst soldiers.

Findings from the study will be discussed in the context of suicide prevention strategies in civilian populations. These include: recognition and treatment of depression, efforts to tackle alcohol misuse and steps to reduce access to means of self-harm. Factors specific to army life will also be discussed including recruitment and retention of staff, access to mental health services, and the impact of separation from families. The relative rarity of suicide among soldiers makes identification of high risk groups difficult, and further emphasises the need to address organisational and cultural issues which influence suicide among military personnel.

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## Abstracts

### Session III: Prevention

#### Interdisciplinary Joint Approach to Suicide Prevention of Warfighters

Krešimir ČOSIĆ<sup>a</sup>, Ph. D., LTG (Ret.)<sup>1</sup>, Miroslav SLAMIĆ<sup>a</sup>, Ph. D.,  
Siniša POPOVIĆ<sup>a</sup>, M. S., Svjetlana DORIČIĆ<sup>b</sup>, M. A., COL

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<sup>b</sup> *Ministry of Defense, Croatia*

**Abstract.** Intense multi-factorial stresses faced by participants in combat operations may cause high levels of psychological suffering, which may progress to serious mental disorders or even suicide. Therefore, the impact of stress and mental disorders on modern military is analyzed, including the role and importance of military training and leadership in protecting the warfighters from devastating combat-related psychological disorders. Mental health indicators and stress-related impact factors, extended with known risk factors for suicide, lead to a comprehensive suicide risk profile. In order to address the issues of psychological suffering and potential suicide of warfighters, the need for interdisciplinary approach and joint efforts of various institutions has been stressed. Finally, the integrated strategy of suicide risk detection and prevention is proposed, based on cross-correlation and probabilistic analyses of an extended vector of mental health indicators and stress-related impact factors. This vector is acquired longitudinally at critical times during the lifelong military professional careers. Regressively analyzing the individuals' databases may help in identifying onsets of a variety of psychological disorders, as well as potential suicide risk.

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## **Abstracts**

### Session III: Prevention

#### **Lowering Suicide Risk: Situation and Prevention Measures in the Lithuanian Armed Forces**

Capt Danute Lapenaite<sup>1</sup>

*Military Medical Service of the Lithuanian Armed Forces*

In spite of the fact that suicide rate in Lithuania is decreasing during the past years it is still one of the highest in Europe. 1-1.5 thousand people commit suicide in Lithuania every year. In 2006 the suicide rate was 30.9 per 100 thousand people. Men commit 84 percent of all suicides. The number of male suicides is six times higher than that of female suicides. Men of average age living in rural area are the group with the highest risk of suicides. The proportion of attempts to commit suicide to committed suicides is 10:1.

Official data on suicides in the Lithuanian Armed Forces has existed since 1992. There have been few suicide cases in the Lithuanian Armed Forces since then. There is almost the same number of suicides among conscripts, officers and non-commissioned officers. The number of military personnel in the Lithuanian Armed Forces is not enough to evaluate the suicide rate per 100 thousand people.

There is an acute need for suicide prevention measures both in the country and in the Armed Forces. Suicide prevention measures should be applied not only to conscripts (as it used to be in the beginning). More attention should be paid to prevention measures for officers and non-commissioned officers.

The findings of the research (Gailiene, D., Skruibis, P., 2004) have shown the extent of service personnel's suicidal behaviour, knowledge about suicides, attitude toward suicides and suicide prevention in the Lithuanian Armed Forces.

Since 2005 the Program of Psychological support in the Lithuanian Armed Forces has been in progress. The efficiency of this program is being assessed now. The Concept of psychological support of military personnel and their families during the deployment cycle was validated at the beginning of this year. Since 2006, incident handling for

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service personnel by psychological support professionals is organised in the mission area as well as in Lithuania.





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## Abstracts

Session III: Prevention

### Lowering the Psychological Impact of Deployment: The Importance of Prospective Research

*Dr. Elbert Geuze<sup>1</sup>*

*Research Centre - Military Mental Health  
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Traumatic stress affects nearly all veterans, but while the majority of veterans learn to live with their experiences, some veterans continue to feel the effects of traumatic stress long after deployment. Research has shown that the failure to regulate emotions, the degree of control exerted on impulsive behaviour, and the extent to which individuals approach problems and challenges (coping), influence the risk for developing posttraumatic stress disorder and other psychiatric disorders. Prior to deployment, Dutch armed forces receive stress management training in order to mentally prepare themselves for their mission. In addition, during and after the mission, several secondary preventative measures are employed. However, in order to provide proper prevention of mental health disturbances, more research into neurobiological and psychological predisposing factors is needed. Prospective research may provide important answers. Recently, the Dutch Ministry of Defense has commissioned a prospective study which attempts to unravel some of the neurobiological and psychological factors which may predispose people to mental disorders. The importance of prospective research in lowering the psychological impact of deployment will be discussed.

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## **Abstracts**

### Session III: Prevention

#### **Suicide prevention among Polish veterans of the multinational missions**

Stanislaw ILNICKI<sup>1</sup>

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of Medical Sciences, Warsaw, Poland*

**Abstract.** This paper presents participation of Polish Military Contingents (PMC) in multinational missions and military operations at UN, OSCE, EU and NATO. The suicide threat in the army during local and foreign military services is discussed. Basic law issues and organization of combat stress disorder prevention in the Polish army were presented. Especially prevention before deployment, during deployment and after returning home is indicated. Achievements and troubles in PTSD prevention and treatment among PMC are discussed.

**Keywords:** multinational military operations, veterans, suicides, Poland.

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## Abstracts

### Session III: Prevention

#### Mobile Narratives for Combating Battlefield Stress: Rationale, Preliminary Research and Protocol

Giuseppe RIVA<sup>1,2</sup>, Alessandra GORINI<sup>1</sup>, Alessandra GRASSI<sup>2</sup>, Daniela VILLANI<sup>1,2</sup>

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**Abstract:** Battlefield stress is the consequence of man being exposed to the hostile environment of combat. Combat stress is specifically caused by man's exposure to the dangers of combat, and is fueled and tempered by other variables such as morale, cohesion, fatigue, confidence, training and intensity of the combat. Treatment is often as simple as giving soldiers time to rest for a few hours or days, to get a shower and some sleep, and to talk about the feelings they have in the presence of a counselor. Only in rare cases do soldiers undergo more serious psychological treatment. One of the best strategies for dealing with stress is learning how to relax. However, relaxation is difficult to achieve on a battlefield. In this paper we suggest the use of mobile multimedia technology--PDA/cellular phones--for providing advanced coping techniques suitable to the battlefield context. Specifically, we developed a protocol based on mobile narratives, to be experienced on mobile multimedia technology: 3G cellular phones, IPODs or PDAs. Mobile narratives are audio-visual experiences, implemented on mobile devices, in which the narrative component is a critical aspect to induce a feeling of presence and engagement. Through the link between the feeling of presence and the emotional state, mobile narratives may be used to improve the mood state in their users. The rationale of the approach, a preliminary test of the proposed method and a protocol for its use on the battlefield are presented and discussed.

**Keywords:** Battlefield stress, cellular phones, PDAs, Mobile Narratives

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## **Abstracts**

### Session III: Prevention

#### **Suicide after deployment in UN peacekeeping missions - a Danish pilot study.**

Hansen-Schwartz J, Jessen G<sup>1</sup>, Andersen K & Jørgensen H O

*Center for Suicidological Research, Denmark*

In Denmark, as in many other UN member states, there has been an increased focus on the physical and mental well being of soldiers, who have been deployed in UN mandated forces (UNMF), and the number of soldiers and other military personnel from both Denmark and various other countries being deployed in UNMF has been increasing. The main objective of this pilot study has been to study the frequency of suicide among Danish soldiers who have taken part in UNMF during the 1990's. In a contingent of nearly 4,000 Danish UN soldiers, four suicides were documented. Two of these committed suicide less than one month before deployment and two committed suicide within a year after discharge from mission. Contributing factors and prevention strategies are discussed.

**Keywords:** UN Military Forces, Post Traumatic Stress Disorder, suicide

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## Abstracts

### Session IV: Treatment

#### Wounds of War – Suicide of war-veterans of wars waged on the territory of former Yugoslavia

Gordana DEDIC<sup>1</sup>, Milivoje PANIC, Slavisa DJURDJEVIC

*Department for Mental Health, Clinic of Psychiatry, Military Medical Academy, Belgrade, Serbia*

**Abstract.** In the territory of former Yugoslavia wars were waged within the period 1991-1995 on the territory of Croatia and Bosnia and Herzegovina, and in 1999 on the territory of Kosovo and Metohia during NATO aggression, resulting in mental consequences, wounds of war, in some of the participants. The aim of our study was to describe the wounds of war, the suicide of war-veterans and professional staff participating in wars. Based on this, our second aim was to suggest some preventive measures, which could help in the further application of the Suicide Prevention Program in the modern Army of Serbia. On the basis of the data obtained by psychological autopsy of suicide, 30 professional staff who committed suicide within the period 1999-2007 were selected; 10 of them were war-veterans and 20 were the control group. War veterans who have positive psychiatric heredity, intensively practice bodybuilding, and were punished due to problems at work while within the scope of the pre-suicidal syndrome manifest isolation more often in comparison with the control group formed of the professional staff who committed suicide in the same period. It is concluded that the further application of the Suicide Prevention Program is focused on four risk factors of suicide in returning troops: the past environmental factors (taking part in wars), exogenic (punishments at work), endogenic (genetic) and behavioral (early recognition of presuicidal syndrome).

**Keywords:** suicide, war-veterans, military environment, psychological autopsy, prevention program, risk factors

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## Abstracts

Session IV: Treatment

### **Suicide of a service member: How to organize support for the bereaved in the emotional aftermath**

CAPT John Deheegher<sup>1</sup>

*Military Hospital - Queen Astrid Centre for Mental Health  
Brussels, Belgium*

**Abstract:** Between 2001 and 2005, 66 members of the Belgian Defence committed suicide. When a service member commits suicide, it not only affects his/her relatives and friends, but also affects the fellow servicemen of the unit. The Centre for Mental Health (CMH of the Military Hospital Queen Astrid, Brussels) of the Belgian Armed Forces has developed a structured crisis intervention program to help the military unit better cope with the suicide of one of its members.

During the current presentation, the consequences of the suicide of a colleague will be discussed at the individual and the organizational level. Next, the goals of the intervention program will be explained. They include: the guidance for key personnel of the unit in preventing social stigma and splitting of painful emotions, the advice on information management (including dispelling rumours), the enhancement of social support for the bereaved, supporting the grief process, and the identification of servicemen at risk and, if necessary, their referral to mental health care services. Further 'verbalization' sessions may be organized when indicated (e.g. when the coping process of a group of bereaved colleagues proceeds in a harmful way). Attention will also be given to the importance of the development of structured crisis intervention procedures and their ad hoc evaluation by the CMH team.

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## Abstracts

### Session IV: Treatment

#### Completed suicide and suicidal ideation in Norwegian peacekeepers

Dr. Siri Thoresen<sup>1</sup>

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*Norwegian Centre for Violence and Traumatic Stress Studies*

**Abstract:** This presentation will summarize main findings from three studies of suicidal behaviour in Norwegian peacekeepers. These studies were initiated to investigate the risk of completed suicide, risk factors for completed suicide, and risk factors for suicidal ideation in the peacekeepers. Study 1: Cause-specific mortality was identified in a cohort of 22,275 peacekeepers and compared to the general population of the same age and gender in the same time period. Only suicides in men were identified. A moderately (40%) increased risk of suicide was found in male peacekeepers. The increased suicide risk was related to a lower marriage rate and to an increased number of suicides by use of firearms in the peacekeepers. Study 2: To investigate risk factors for completed suicide, we conducted interviews with next of kin of those who had died from suicide using two comparison groups: a) interviews with next of kin who had died from accidents, and b) a questionnaire study of a representative sample of peacekeepers. Results: the most important risk factors for completed suicide were: Mental health problems, living alone and recent break-up of a love relationship, negative life events and premature repatriation from peacekeeping service. Study 3: Risk factors for suicidal ideation were analyzed in a representative questionnaire sample of 1,172 peacekeepers. Suicidal ideation was significantly associated with service stress exposure level, even when background factors, repatriation status, negative life events, social support, alcohol consumption, and marital and occupational status were controlled for. Results indicate that the association between service stress exposure and suicidal ideation was mediated by post-traumatic stress symptoms and general mental health problems combined. Implications for prevention will be discussed.

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## Abstracts

### Session IV: Treatment

#### Understanding combat trauma – the psychotherapeutic meeting of Iraqi veterans

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This article describes the process of the therapy in a group of Iraqi veterans, which took place in September, 2006. The psychotherapeutic meeting was organized by Department of Psychiatry and Combat Stress in Warsaw. The group of veterans was composed of 16 male patients homogenous in age and ranking. During the meeting, the participants faced the opportunity to confront and to work through their traumatic experience.

The analysis of the interactions between participants showed an instant process of integration, creation of strong rules and formation of three group leaders. Also, the change of attitude to therapists (from disbelief to trust) occurred. The group rules were based on values such as loyalty and brotherhood transferred straight from the combat area. The power of traumatic experience and range of damage were basic elements of group hierarchy.

The internal transformation of the participants took place during therapy. It resulted from death risk experience and working through the experienced trauma. The positive feedback as well as continuous contact with the clinic suggest that the veterans' problems call for psychotherapeutic treatment.

**Keywords:** combat trauma, PTSD, group therapy, veterans

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## Abstracts

Session V: Increased Suicide with Comorbid Disorders

### Traumatic Brain Injury in the United States Military

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Along with Post Traumatic Stress Disorder, Traumatic Brain Injury (TBI) is one of the two “signature wounds” sustained by US forces deployed in support of Operation Iraqi Freedom (OIF). Given the widespread use of Improvised Explosive Devices (IED) in the combat theater, the US military has experienced significant increases in prevalence of all forms of TBI, particularly mild TBI. The presenter will review current concepts of Traumatic Brain Injury, as well as the prevalence and problems associated with identifying TBI in the field. Additionally, the presenter will characterize the psychiatric conundrum of differential diagnosis, and furthermore, discuss the consequences of impulsivity, poor judgment, and self-injurious behaviors.

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## Abstracts

### Session V: Increased Suicide with Comorbid Disorders

#### **Family Homicide-Suicide of a Military Man: a case analysis**

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In January 2007 Estonia was shocked by the media portrayal of a triple homicide. A young woman (30 years of age) and her two children (7 years and 7 months) were found strangled in their apartment. Their husband and father (33), the main suspect and previous military man, was missing. Two days later the man was found hanged outdoors. The results of the investigation identified the man as the person who had committed both the triple homicide and suicide. The criminal proceedings were terminated.

Public discussion in the media speculated on a range of risk and trigger factors: jealousy and passion, pathological gambling and debts, HIV infection, previous suicide attempts, psychosis, previous military career, and participation in a mission in Kosovo. As stated in the media, the final conclusion of the criminal matter ascertained by post-mortem psychiatric forensic medicine expertise was active gambling during the last 4 years, which harmed both work and family relationships of the accused.

The material for the case analysis to be discussed in the current presentation was collected from the criminal file compiled by the Prosecutor's Office. The main research questions behind the analysis of the family homicide-suicide case were: (1) What are the possible reasons leading a human being to drastic family violence and subsequent suicide? (2) What is the role of participation in military service and the Kosovo mission in the process? (3) What can we learn from the case for early suicide risk and hazardous gambling assessment in the military environment and for prevention of violence in civil life?

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## Abstracts

### Session V: Increased Suicide with Comorbid Disorders

#### **Stress events in a month before suicide, aggression and impulsivity of suicide victims relevant for the military population**

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**Abstract.** Although military personnel are trained for combat and peacekeeping operations, accumulating evidence indicates that deployment-related exposure to stress events is associated with mental health problems and suicidal behaviour. Suicide accounted for substantial mortality among army personnel and veterans. This data could be partially explained with the observation that war-zone exposures may have considerable negative emotional or behavioural consequences. On the other hand, it is also well known that some personal characteristics, such as impulsivity and aggression, could be connected with higher suicide risk. The extent to which violent and aggressive behaviour in the aftermath of deployment can be attributed to combat experience remains an area of debate and ongoing investigation. The aim of our study was to evaluate negative life events of suicide victims in the month before suicide. On the other hand, aggression and impulsivity of suicide victims was evaluated. In the three-year period 90 suicide victims (28 women and 62 men) in the central region of Slovenia were examined using the method of psychological autopsy performed by specially designed questionnaires and from medical documentation. We compared a subgroup of suicide victims with previous aggressive behaviour and subgroup of suicide victims without previous reported aggressive behaviour. We observed that suicide victims with previous aggressive behaviour have a higher number of negative life events in the month before suicide and express higher impulsivity than others. We also observed that suicide victims with previous aggressive behaviour directed toward others have more previous suicide attempts than suicide victims without previous aggressive behaviour. It could be concluded that negative life events of suicide victims with previous experience of aggressive behaviour may additionally contribute to increased suicide risk. In military environments attention should be paid to such vulnerable individuals, especially during pre-deployment periods.

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**Keywords.** Stress events, aggression, impulsivity, suicide victims, psychological autopsy, military personnel, deployment.







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## Abstracts

### Session V: Increased Suicide with Comorbid Disorders

#### Virtual Reality as an Adjunct for Training and Treatment

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**Abstract.** Over the past decade, virtual reality (VR) has made a significant impact on behavioral healthcare, permeating the field with its multiple effective uses. One arena in which VR shines is in providing a continuum of care for soldiers. The Interactive Media Institute and its partner the Virtual Reality Medical Center are funded to provide VR as an adjunct to traditional training and therapeutic applications.

Pre-deployment, VR-enhanced Stress Inoculation Training (SIT) can be used to provide troops (e.g. combat medics, flight medics) with skill sets to accomplish their tasks. The immersive nature of VR allows soldiers to experience a near real-life combat situation, and the precise control VR provides enables users to practice their tasks over and over in identical or varied situations, whichever the individual trainee needs. Stressors can be increased systematically so that the skills learned can be performed under increasingly stressful situations. This creates soldiers who are better able to perform under stressful conditions. In addition, these virtual combat situations evoke physiological responses, creating the opportunity for troops to practice managing their stress reactions to high pressure or dangerous situations. It is hoped that this repetition and practice will produce soldiers who are more resilient.

Post-deployment, VR exposure is a useful tool to be used as a part of traditional cognitive-behavioral therapy protocols for treating Posttraumatic Stress Disorder (PTSD). In work with both active duty and veteran populations, it appears that VR exposure may be more powerful in providing the individual with an environment in which he/she can stop the avoidance behavior which is often a hallmark of PTSD. In the VR world, the individual is transported back into the wartime setting and can slowly and systematically begin to consolidate the fragmented memories and allow emotional processing to occur in order for desensitization to be achieved.

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Finally, VR is being used successfully as an adjunct to traditional treatments for those with chronic and acute pain, and for help in rehabilitating those with physical, cognitive or neurological injury.

**Keywords:** Virtual Reality, Stress Inoculation Training, Posttraumatic Stress Disorder, Pain, Rehabilitation, Military

