

## Technical Evaluation Report

**Colonel Rakesh Jetly OMM, CD, RCMS  
MD, FRCPC**

Directorate of Mental Health  
Royal Canadian Medical Service  
National Defence Medical Centre  
Ottawa, Ontario  
CANADA

[Rakesh.Jetly@forces.gc.ca](mailto:Rakesh.Jetly@forces.gc.ca)

**Commander Kenneth J. Cooper, CD, RCMS (Retired)  
MD, MHSc, FRCPC**

Canadian Forces Health Services Centre (Atlantic)  
Royal Canadian Medical Service  
P.O. Box 99000, Station Forces  
Halifax, Nova Scotia  
CANADA

[Kenneth.Cooper@forces.gc.ca](mailto:Kenneth.Cooper@forces.gc.ca)

### ***ABSTRACT***

*HFM-275 held a symposium on the subject of Military Suicide Prevention in Riga, Latvia from April 3, 2017 to April 5, 2017. 130 people from 29 nations attended the three-day conference, in which three leading experts in the topic gave keynote addresses, and presenters from eleven nations presented papers. Three main topic areas were covered during the three days of the symposium. These topic areas were, in order of presentation, Best Practices and Deployment Factors, Risk and Protective Factors for Military Suicide, and Models and Research Issues for Military Suicide Prevention. There were discussion periods which occurred after every three to four presentations, and these discussion periods were extremely useful in fully developing the topics covered in the presentations. Key findings and recommendations are summarized in this report.*

### **1.0 INTRODUCTION**

Suicide is generally recognized worldwide as a significant public health problem; certainly in 2015 the World Health Organization (WHO) made such a statement. It is estimated that in 2012, with a rate of suicide calculated to be 11.4 per 100,000, 804,000 individuals died by suicide worldwide. Suicide therefore is responsible for an enormous societal burden around the world in terms of both morbidity and mortality.

Military organizations are not immune to this problem. In Western military organizations, there has been an increasing concern and awareness of the impact that suicide and suicidal behaviour has on military organizations and their effectiveness. This has been brought into focus as an issue for a number of nations involved in armed conflict since 2001, mostly in Iraq and Afghanistan. Some nations have noted a marked increase in military suicides. Because of this, NATO as an organization began to take an organized approach to the issue of suicide prevention in military organizations.

NATO has several organizations, one of which concerns science and technology. The overall activities of the Science and Technology Organization (STO) of NATO are vast, and include scientific research, technology development, experimentation, operational research and analysis, application and field testing, and the integration and validation of knowledge derived through the scientific method.

The mission of the NATO STO is to leverage knowledge and technology to the advantage of the defence and security posture of NATO member nations. The STO accomplishes this through the work of six technical panels, a modelling and simulation group, and a committee dedicated to supporting the information management needs of the organization. One of these six technical panels is the Human Factors and Medicine Panel (HFM) and this panel took the lead on suicide prevention. In 2008, HFM stood up an exploratory team (ET) that proposed the creation of Research Task Group (RTG) 218, to study the topic of military suicide prevention. RTG-218 ran from 2011 to 2015, and had several deliverables, including a technical report which was published in 2017. Another deliverable of this RTG was to present its findings at a larger, preferably NATO military suicide prevention symposium. HFM-275 symposium on military suicide prevention, organized by the HFM panel, and held in Riga Latvia from April 3-5, 2017 was a result of this deliverable.

## **2.0 HFM-275 SYMPOSIUM ON MILITARY SUICIDE PREVENTION**

### **2.1 General**

HFM-275 Symposium on Military Suicide Prevention brought together 130 participants from 29 nations, for a three-day symposium on military suicide prevention. The symposium was held in Riga, Latvia from Monday, April 3, 2017 to Wednesday, April 5, 2017. The symposium was organized into three separate sessions, each one dealing with a different topic on military suicide prevention. The first session dealt with Best Practices and Deployment Factors, the second session dealt with Risk and Protective Factors for Military Suicide, and the third session dealt with Models and Research Issues for Military Suicide Prevention. Each session was kicked off by a keynote address by a world-renowned expert in their area of expertise. The keynote addresses were each followed by between 7 and 10 presentations by speakers from various NATO nations.

A detailed list of the sessions, keynote addresses and presentations can be found in the appendix. What follows below is a summary of the keynote addresses and presentations, with key findings highlighted. There will not be a detailed discussion of each presentation as each presenter has provided a paper that is contained within this report.

### **2.2 Session #1: Best Practices and Deployment Factors**

The symposium opened with a keynote address by a world-renowned expert in suicide and suicide prevention, Dr. Robert Ursano from the USA. His keynote address was entitled “Army STARRS – Epidemiological Findings in Army Suicides in the United States”. Ostensibly Dr. Ursano gave a talk on the extensive data set that is the US Army STARRS. It is important to note that this is a huge and ambitious study but as it is on US soldiers it is unclear how much of it is generalizable to other nations. Dr. Ursano emphasized that this is a publicly available data set, and that it is available for use by anyone conducting research in suicide prevention. This opening plenary was much more than simply a description of an epidemiological data set, as he provided a wide-ranging talk on the area of research into suicide and suicide prevention. He reminded the audience that there are various mental health responses to trauma and the trajectory of suicide risk is similar to that of trauma risk. Stress is recognized as a cause of many different mental health disorders. Some interesting findings have come from examination of the data set. For instance, they found that the incidence of mental health disorders

varies directly with the number of killed and wounded in war. Also, child neglect by service members varies directly with deployments and war. They have also found that barriers to care directly increase mental health risk, and that stigma to mental health in the military is a major barrier to access to care. Interestingly, at a population level, conflict may be protective for suicide. The overall suicide rate in the USA for instance, declined during the Second World War. U.S. Army suicide rates have increased from 2001 through 2010. Predictors of suicide include anxiety and impulsivity. Suicide and suicidal behaviour are major causes of morbidity and mortality in Western populations. This is illustrated by the fact that there are more suicide attempts each year than there are first episode heart attacks. One of the major findings from examination of the data set is that the highest risk period for suicide and suicidal ideation is the post discharge period from hospital, if the individual had been hospitalized for a mental health issue. STARRS confirms that all deployments are not created equal, and that exposure to traumatic stress is directly linked to the incidence of mental health disorders as well as suicide and suicidal ideation. Dr. Ursano emphasized that it is important to think about suicidal ideation, suicide attempts and suicide completion as separate elements in the overall problem. It is important to consider concentration of risk, and to ask the following questions: Who is at risk?, When are they at risk?, and Why are they at risk?

Several presentations followed this interesting and stimulating keynote address. These presentations concerned the best practices in several NATO nations related to suicide prevention. Presentations were given by representatives from Canada, Belgium, USA, Netherlands, and Norway. A detailed list of the topics presented can be found in the appendix. Common aspects of programs related to suicide prevention across NATO nations include prevention, intervention, postvention, post-suicide investigation, and performance measurement. Common elements of suicide prevention programs across NATO nations include education programs, the promotion of mental health care, and the reduction of stigma as ways of reducing barriers to care. It was emphasized again that not all deployments are created equal. In most nations, the overall risk of suicide did not appear to be related to deployments. However specific populations did appear to have some association with increased risk, especially in those military personnel exposed to high conflict and severe trauma. A common finding across nations was that trauma is an important variable in suicidal ideation, and that Army personnel are more likely to be exposed to combat and trauma than Navy or Air Force personnel. It has also been a common finding across nations that certain combat experiences are more highly linked to mental illness than other exposures.

The overall impression left by these presentations was that individual NATO nations need to collect data on their militaries in terms of deployment and non-deployment exposure and mental health outcomes and to identify specific populations within the military who may have a concentration of risk.

### **2.3 Session #2 and #3: Risk and Protective Factors for Military Suicide**

The keynote address for these sessions was given by a recognized world leader in operationalizing suicide prevention efforts in clinical settings, Professor Navneet Kapur from Great Britain. His keynote address was entitled "Evidence-Based Suicide Prevention – Preventive Interventions in Clinical Settings". The technical evaluators found this presentation particularly interesting and thought-provoking. Dr. Kapur told us that he was going to inform us of four things that work in terms of suicide prevention in clinical settings, and one thing that "does not work". He then explained that the four things that work are interventions for self-harm, guidelines, focusing on safety in particular settings, and national policies and recommendations. It has been found that interventions for self-harm are important, as the risk of suicide is three times greater in those that undertake self-harm. Many studies suggest that there is a marked increase in risk in the first week after a self-harm attempt. Assessment by psychiatry has been found to decrease the risk for self-harm repetition. In terms of guidelines, there is inconclusive evidence, with some studies indicating that guidelines help and some indicating they do not.

Dr. Kapur is of the opinion that until more definitive evidence is available, guidelines are likely to be a useful tool to help clinicians intervening in clinical settings. He then addressed the topic of focusing on safety in particular settings. What has been found is that this is particularly important in psychiatric inpatient settings. Because of specific measures taken in psychiatric hospitals, overall rates of in hospital suicides are falling. In contrast, during the same time period, rates of suicide and suicide attempts are increasing in the community. Therefore, there is a question as to whether or not there has been a true reduction in suicide and suicide ideation, or rather simply a shifting of the risk from inpatient to community settings. Finally, he discussed the issue of national policies and recommendations. His assertion was that these policies and recommendations are important in lowering suicide rates. These policies include such things as removal of ligature points, assertive outreach, the provision of 24-hour services and follow-up early in the period after discharge from hospital. He presented data to suggest that suicide rates appear to be falling because of these measures. He then went on to discuss the one measure that does not appear to work in preventing suicide. This is risk assessment. Over time there have been a number of scales developed to try to help clinicians assess who is at risk for suicide. However, it has been found that those who die of suicide and had been assessed by a clinician in the immediate time period before their death were often found to have had a low risk of suicide. It is possible that clinicians over time decrease or reset their “risk barometer”. According to Dr. Kapur, the positive predictive value (PPV) of a risk scale is only 5%. His assertion was that we need to move away from prediction and towards “helping people”. Over reliance on risk tools in individual patients should be avoided. His summary point was that risk is not a score, and that risk assessment as risk prediction is essentially nonsense.

What followed this thought-provoking keynote address was an entire day devoted to examining risk and protective factors for military suicide. Presentations were given by representatives from Great Britain, Canada, Norway, Latvia, and France. Presentations in this session were wide-ranging and covered several topics. Again, a detailed list of the topics presented may be found in the appendix. Discussion on the role of leadership in military suicide prevention reminded all of the unique role and responsibility of the military leader. It was recognized that there are two levels of leadership, strategic and tactical. Notwithstanding this, at all levels of leadership it is important to provide certain elements that may eventually lead to a reduction in suicide rates. Leadership can affect the cohesion of units, the social belongingness of military members, they can ensure good homecomings, build resilience in their members, decrease stigma and barriers to care, promote the dissemination of information across their militaries, and ensure that there is proper postvention follow-up after attempted suicides, or in the case of suicide completion, in the units. Risk factors both within the military and outside of the military for suicide were discussed. The idea that certain pathological personality traits in predicting suicidal ideation was raised. Two important traits discussed were depressiveness and self-harm. However, there is no definitive answer as to whether these personality traits are linked to an increased risk of suicidal ideation. In one study, the risk of suicide was increased in those with a mental health impairment. The risk for self-harm increased from 63% in mild mental health impairment to 200% and moderate mental health impairment and then up to a maximum of 300% in severe mental health impairment. There was also found to be an increased risk of suicide in the transition period around discharge and release from the military. This is a common finding across several different studies from a number of NATO nations. Research was presented comparing Army to non-Army standardized mortality ratios (SMRs) for suicide and in most cases, it was found that the Army SMRs are much greater than non-Army SMRs. There is also some evidence to indicate that those who have deployed have an increased risk but in many cases this is not statistically significant. One study explored “nonservice related” risk factors for suicide. This study suggested that the existence of mental illness markedly increased the risk of suicide, but that alcohol use did not appear to be associated in a statistically significant way with suicide. However, there was a marked increase incidence of living with individuals who had an alcohol use disorder prior to enrolment in those who went on to commit suicide. There is also an increased history of pre-enlistment mental disorders in those who complete suicide. An interesting discussion occurred on the comparison of UK and US practices and issues in relation to mental health and suicide. The main outcome of this discussion was the

confirmation that comparing rates between countries is fraught with many difficulties which make it undesirable to undertake such comparisons.

## **2.4 Session #4: Models and Research Issues for Military Suicide Prevention**

The keynote address for this session was given by Dr. Thomas Joiner of the USA, a world-renowned expert in models of suicidal behaviour and research. His keynote address was entitled “Interpersonal-Psychological Theory of Suicide Behaviour and Indications for Military Suicide Prevention”. This model has been the subject of extensive research across NATO nations both inside and outside of the military. Dr. Joiner wanted to emphasize that his model does not really account for either suicidal ideation or suicidal attempts, but deals specifically with completed suicide. The essential elements of this model are the interactions between perceived burdensomeness and thwarted belongingness and the acquired capacity to inflict self-harm. He maintained that there is a deep instinctiveness for self-preservation in human beings, and that this must be overcome in any completed suicide. He presented some very interesting if somewhat controversial ideas. He felt that his model counters the idea of suicide being impulsive. He also maintains that alcohol is rarely associated with a suicide event. He asserted that, in his opinion, all military members automatically acquire the ability to harm themselves. He felt that it was important to differentiate between opportunity and impulsivity. He feels that chronic ideation may suddenly meet opportunity and appear to be impulsive, but in his experience, it is rarely an impulsive act. He also felt that his model can be used to counter ideas that suicide is selfish, suicide is a weak thing, and suicide is cowardly.

The presentations which followed this keynote address were mainly concerned with models of suicide prevention, efforts to use survey data to prevent suicide, and various programs in NATO nations designed to operationalize models of suicide prevention and to try to decrease rates of suicide. Some interesting findings in relation to survey data were that adverse childhood experiences were increased in regular force males compared to a comparable civilian control group. This is significant in that adult mental illness is associated with adverse childhood events. This harkens back to a similar finding presented earlier in the symposium, which found that there was an increase in pre-enlistment mental health disorders in those who complete suicide. In one study, it was found that adverse childhood experiences contribute more to mental health burden in a military population than deployment. Rates of PTSD appeared to be increasing due to combat exposure, but in the same population of military personnel there appears to be a stable rate of major depression. It was also emphasized that major depression remains the most common mental health disorder in a military sample. Canadian data suggests that care seeking in this military sample was greater than in the general population. Various prevention programs were discussed in terms of programs being conducted by the militaries in Germany, Lithuania, Canada, USA, and Great Britain. A general conclusion from these prevention programs was that it was very hard to establish through data that these programs have any effect on reduction of suicide rates. However, it is felt that the outcomes of these programs have ancillary benefits and as such should continue.

## **3.0 KEY MESSAGES**

The key messages which were taken away from the three-day symposium are as follows. It appears to be important in terms of assessing suicide risk to identify who is at risk, when they are at risk and why they are at risk, without an overreliance on scales in determining suicide risk. It is also interesting to challenge some of our notions in relation to suicide, especially as they relate to impulsivity and the relation of alcohol to suicide. Most of the studies presented appear to suggest that a population-based approach is an important factor in the reduction of suicide and suicide risk. Clinicians must remember that they do not work in isolation and that we work with others in a system. There must be good communication between various parts of the system, and that



while suicide risk assessment is an ongoing and evolving effort over time with any given individual, there are also points in time, such as the immediate post hospitalization discharge period, in which suicide risk is elevated and people need to be followed closely. Military leadership plays an important role in military suicide prevention, in terms of setting policy, establishing organizational ethos and culture and funding policy. Given the number of examples of programs that various NATO nations are undertaking to reduce the suicide risk, the programs make sense but at the same time it must be recognized that there is limited evidence that they actually decrease the risk of suicide. Finally, the idea of comparing national suicide rates must be done extremely cautiously as it is fraught with a number of confounding variables. It is much more important for each nation to have a reliable surveillance mechanism that allows tracking over time and identification of trends.

#### 4.0 CONCLUSIONS AND RECOMMENDATIONS

In the World Health Organization (WHO) 2014 publication “Preventing Suicide: A global imperative”, it is frequently stated that “suicides are preventable”. Of course, this should always be our stance, as the alternative, that suicides are not preventable, is fatalistic and provides no room for developing an approach to the problem. And yet this symposium highlighted, not in a direct or purposeful way but by the sheer number of approaches to this problem already in existence in NATO nations, that suicide prevention is a complex problem with no easy solutions. Indeed, it is unclear at this point if any of the approaches presented are actually efficacious in reducing suicide rates. Several approaches have been associated with a reduction in suicide rates in some nations, but causality of the association has not been proven. In other nations, programs initiated to prevent suicide have been associated with stable or increasing rates, but again, there has been no causality proven. The symposium highlighted the complex problems associated with establishing any causality through research. This is likely due to the complexity of suicide coupled with the relative rare occurrence.

The problem with comparing suicide rates between nations was discussed and is discouraged. Such issues as case definition, determination of suicide, differences in military structure, dissimilar deployment policies, and several other differences, such as the definition of regular and reserve forces, or even what constitutes a veteran, confound any meaningful comparisons. National civilian rates vary greatly across NATO nations and likely influence military rates.

Most nations develop and implement programs in suicide prevention. They look very similar and are essentially broad based population based approaches to address mental illness. While the clear reduction in suicidal behaviour has not been demonstrated, few would argue against the ancillary benefits of these programs in military populations. There is, however, an interesting emerging trend, embraced by several nations, to directly target suicidality as the focus of clinical intervention as opposed to singular focus on underlying diagnoses. This approach is promising and studies are underway to demonstrate efficacy.

The Technical Evaluators noticed the absence of any presentation and/or discussions during this symposium on the biological correlates of suicidal behaviour and suicidal risk. However, epidemiological studies, especially twin studies, have established that suicidal behaviour is partly heritable. Therefore, the Technical Evaluators would like to encourage notice being given to the area of heritability and neurobiological perspectives on suicide. There is a large body of research into genetic and biological correlates that may increase the risk of suicide in an individual, such as serotonergic dysfunction that may operate through the serotonin transporter gene (5-HTTLPR) and brain-derived neurotrophic factor (BDNF). Although still in the basic stage, this area of research, in our opinion, should be given regular attention, as it may become in the near future a main predictor of suicidal risk, and inform new biological methods of identifying and treating those at risk of self-harm.

The overall approach in most NATO nations is to take a public health approach to suicide prevention, involving an interaction between leadership, membership and the medical/health care system. Having a fully differentiated public health approach is important, but also vital is the face to face interaction between health care professionals and those who are suffering. Approaches and guidelines that help clinicians in dealing with an individual suicidal patient are as important as organizational-wide efforts to reduce stigma and raise awareness. Dr Kapur reminded us that a meaningful clinical encounter within days of an emergency room visit makes a difference. Perhaps we are encouraged at the individual level, as clinicians, to see these distressed individuals and that giving “hope to the hopeless” is the best suicide prevention.

## **5.0 ACKNOWLEDGMENTS**

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## Appendix – PRESENTATIONS LISTED BY DAY AND TOPIC

### A.1 MONDAY, APRIL 3, 2017 – BEST PRACTICES AND DEPLOYMENT FACTORS

**Keynote Talk #1:** Army STARRS – Epidemiological Findings in Army Suicides in the United States, Dr. Robert Ursano, USA.

- 1) Program Innovation: Canadian Forces Health Services Suicide Prevention Program (Canada).
- 2) Military Suicide Prevention Plan within Belgian Defence (Belgium).
- 3) United States Department of Defence Strategy for Suicide Prevention: Development, Implementation and Recommendations (USA).
- 4) A Comparison between Suicide Rates of Male Servicemen who have been Deployed, Male Servicemen who have not been Deployed, and a Comparable Sample of the Male Civilians (Netherlands).
- 5) Synthesizing and Detailing the Nuanced Relationship between Deployment, Combat Exposure and Suicide-related Behaviours to Improve Suicide Prevention (USA).
- 6) Post Service Suicide Risk among 21,577 Norwegian Male Military Peacekeepers Deployed to Lebanon between 1978 and 1998 (Norway).
- 7) Examining Suicidality and Mental Health in Army versus Non-Army Commands of the Canadian Armed Forces (CAF): The Role of Occupational and Non-Occupational Trauma (Canada).

### A.2 TUESDAY, APRIL 4, 2017 – RISK AND PROTECTIVE FACTORS FOR MILITARY SUICIDE

**Keynote Talk #2 (for Sessions #2 and #3):** Evidence Based Suicide Prevention – Preventative Interventions in Clinical Settings, Professor Navneet Kapur, Great Britain.

- 8) The Role of Leadership in Suicide Prevention (Great Britain).
- 9) Non-Service-Related Risk Factors for Suicide among Canadian Armed Forces Members: Results of a Nested Case-Control Study Using Recruit Health Questionnaire Data (Canada).
- 10) Risk Factors for Suicide in Male Conscripts – Evidence from the Norwegian Armed Forces Medical Services (Norway).
- 11) Utility of Pathological Personality Traits in Predicting Suicidal Ideation in a Latvian Community Sample (Latvia).
- 12) Integration of Suicide Awareness and Prevention into Military Mental Health and Resilience Training for Gatekeepers (Canada).



- 13) Findings from the Canadian Armed Forces 2010-2015 Medical Professional Technical Suicide Review Reports: Examining Factors That May Have Contributed to Member Suicides (Canada).
- 14) Management of the Communication after a Suicide in the Armed Forces: The Role of the Medical Officer (France).
- 15) A Comparison of UK and US Practices and Issues in Relation to Mental Health and Suicide: Some Proposals for Research (Great Britain).
- 16) Epidemiological Suicide Surveillance in the Canadian Armed Forces: Trends in Suicide and Risk Factors over Time (Canada).

### **A.3 WEDNESDAY, APRIL 5, 2017 – MODELS AND RESEARCH ISSUES FOR MILITARY SUICIDE PREVENTION**

**Keynote Talk #3 (for Session 4):** Interpersonal-Psychological Theory of Suicidal Behavior and Implications for Military Suicide Prevention, Dr. Thomas Joiner, USA.

- 17) Using Survey Data to Understand Suicidal Behaviour: Findings from the 2013 Canadian Forces Mental Health Survey (Canada).
- 18) Mental Health in the New Zealand Defence Force – Insights for Suicide Prevention (New Zealand).
- 19) Suicide Risk and Violence Perpetration Risk Assessments in the Canadian Armed Forces Health Information System: A Population – Based Analysis (Canada).
- 20) United States Special Operations Command, Preservation of the Force and Family: Two Case Examples of Initiatives for Suicide Prevention (USA).
- 21) Findings and Recommendations from the NATO Research Task Group on Military Suicide (USA).
- 22) Preventing Suicide by Engaging Elite Military Forces in Mental Healthcare through a Grassroots Developed and Command-Led Mental Health Initiative (Great Britain).
- 23) The Military Suicide Research Consortium (MSRC): Overview, Accomplishments and Recommendations for Implementation in Other Nations (USA).
- 24) Suicide Prevention Programmatic Effects with Military Basic Training: Summary of Prior Research and Current Research Initiative Supported by the United States Defence Suicide Prevention Office (USA).
- 25) Suicidality in the German Armed Forces and Approaches for Suicide Prevention (Germany).
- 26) Dynamic Changes in Suicide Rates in Lithuanian Armed Forces: Impact of a Psychological Support Program (Lithuania).
- 27) United States Department of Defence Means Safety Efforts for Suicide Prevention in the Military (USA).

