
Organization and Execution of Current Practices of Deployment-related Mental Health Support

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Mental Health support (MHS) is an integral part of the whole chain of events within military organizations. Several countries are delivering this support for troops that are active in the current operation in Afghanistan (ISAF). Between 2009-2010 TNO Defense, Safety and Security, part of the Netherlands Organization of Applied Scientific Research (TNO), executed a project named Assessment of Organization and Execution of Current Practices of Deployment-related MH Support (DRMHS). The main goal of this project was to assess protocols and current practices of MHS during and after operational deployment (i.e., prevention, intervention, and treatment). Because nowadays service members are often deployed several times, MHS after deployment can be considered pre-deployment MHS. Therefore, MHS before deployment was also assessed in this project. The countries Australia (AUS), Canada (CAN), Great Britain (GBR), the Netherlands (NLD) and the United States of America (USA) participated in this project. Information was gathered and evaluated by document-analysis and by interviewing key-players in the field of Military MHS of each nation. Both were undertaken by means of a semi-structured interview protocol, especially developed for this project. The deliverables of this project are a TNO report and scientific paper describing the current practises of DRMHS of the individual countries aswell as a comparison of DRMHS between countries. The current paper focuses on the comparison between countries. The comparison is non-competitive, and aims to identify opportunities for innovative interventions and assessments. The results of the whole project can be used to develop new policies and practices that strengthen the Military MH care the participating organizations currently provide in order to sustain a good work environment, operational effectiveness and MH well-being of their service members. Furthermore, the results can be used to develop an even more efficient collaboration between countries in their mutual MH care efforts, whereby they will be better able to face the challenges of current military missions.

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ABSTRACT

Mental Health support (MHS) is an integral part of the whole chain of events within military organizations. Several countries are delivering this support for troops that are active in the current operation in Afghanistan (ISAF). Between 2009-2010 TNO Defense, Safety and Security, part of the Netherlands Organization of Applied Scientific Research (TNO), executed a project named ‘Assessment of Organization and Execution of Current Practices of Deployment-related MH Support (DRMHS)’. The main goal of this project was to assess protocols and current practices of MHS during and after operational deployment (i.e., prevention, intervention, and treatment). Because nowadays service members are often deployed several times, MHS after deployment can be considered pre-deployment MHS. Therefore, MHS before deployment was also assessed in this project. The countries Australia (AUS), Canada (CAN), Great Britain (GBR), the Netherlands (NLD) and the United States of America (USA) participated in this project. Information was gathered and evaluated by document-analysis and by interviewing key-players in the field of Military MHS of each nation. Both were undertaken by means of a semi-structured interview protocol, especially developed for this project. The deliverables of this project are a TNO report and scientific paper describing the current practises of DRMHS of the individual countries as well as a comparison of DRMHS between countries. The current paper focuses on the comparison between countries. The comparison is non-competitive, and aims to identify opportunities for innovative interventions and assessments. The results of the whole project can be used to develop new policies and practices that strengthen the Military MH care the participating organizations currently provide in order to sustain a good work environment, operational effectiveness and MH well-being of their service members. Furthermore, the results can be used to develop an even more efficient collaboration between countries in their mutual MH care efforts, whereby they will be better able to face the challenges of current military missions.

1.0 INTRODUCTION

1.1 Project Background

Deployment is an important part of a military career. Most service members return from deployment with fulfilment on a job well done. Yet, despite optimal pre-deployment training and preparation a certain percentage of service members will return from deployment with health complaints. The results can manifest in terms of physical, but also MH problems (Engelhard et al. 2007; Hoge et al. 2008; Vasterling et al. 2010; McFarlane, 2010). This is related to the fact that the nature, objectives and operational tempo (OPSTEMPO) of military missions has changed dramatically during history. Combat is safer than it was before, more service members return from battle, with less casualties. Armies have professionalized. However, while few decades ago service members typically participated in one deployment in their career, nowadays service members can participate in a series of deployments in their military career. This OPSTEMPO and the burden of working in dangerous situations puts demands on behavioural healthcare and demands MH care awareness. Military organizations have long started to professionalize the behavioural and MH care they provide, in parallel to the medical care they provide. To illustrate this, just like military (field) hospitals have been equipped with adequate material and specialists, military MH services and disciplines have been installed to deliver care for the injured service member. Also, just like medical *state-of-the-art* practices have been developed derived from scientific insights, this is occurring for MH practices. Moreover, just as military organizations wanted to translate the medical state-of-the-art practices into *medical current practices*, there is the wish to implement *MH current practices*. However, this implementation can follow a different rationale and path across different military organizations. The demand has emerged to share and examine “what are the existing military MH current practices and their rationales?”. This comes from at least three observations:

- Military organizations aim at giving optimal MH care to their personnel in order to sustain a good work environment, operational effectiveness and MH well-being of their service members.
- Clinicians desire to understand and address the trajectories of MH problems such as Post Traumatic Stress Disorder (PTSD) and minimal Traumatic Brain Injury (mTBI) better.
- Facing similar challenges in deployment situations, countries increasingly favour collaboration in current behavioural and MH practices.

Taken together these arguments have stimulated the design of the TNO project entitled ‘Assessment of Organization and Execution of Current Practices of Deployment-related MH Support (DRMHS)’. The overall aim of this project was to assess the protocols and current practices of prevention, intervention and treatment programs of five different countries over the deployment cycle. More details on the project goals are described in 1.2 below. This project was conducted between 2009-2010. At the outset the purpose of the project was to gather information on current practices of MH service of different countries. This was part of a broader research program **BIOSTRESS.mil**, which is being carried out at TNO Defence, Security and Safety, issued by the Netherlands Ministry of Defence (NL-MoD). The time-period of the whole research program is 2008-2011. This research program aims to identify and develop promising assessment and intervention techniques for stress-related processes in service members associated with deployment. However, over the course of the project its goals were embraced by MH experts from different countries, who shared the interest to exchange and compare protocols and practices of DRMHS and the justifications on which protocols and practices were based. This was deemed important as exchanging and comparing of protocols and practices could facilitate collaboration in current behavioural and MH practices. The five countries that participated in this project were AUS, CAN, GBR, NLD and the USA. These nations have shared interests, concerns and needs because they are all active (or were active until recently) in the current NATO-ISAF mission in Afghanistan and the service members of these nations are all exposed to similar occupational hazards. Of course there are more nations (whether active in Afghanistan or not) that have similar needs. These nations were not excluded on any formal grounds. The nations that participated in this project were already involved in a network of sharing information and ideas about service members’ MH formally and informally in different fora (e.g. scientific conferences, NATO RTG-groups, e.g. HFM RTG 179, 175).

1.2 Project Goals

The goals of this project were to:

- Assess existing protocols and current practices of MHS before, during and after operational deployment, focusing on prevention, intervention, and treatment;
- Provide a non-competitive comparison of existing protocols and current practices;
- Identify common bottlenecks for effective DRMHS and promising future developments.

The focus of this project was especially targeted on current practices and new developments with regard to training programs, interventions and treatment procedures of military organization *during and after* deployment. However, when service members are deployed several times, MHS *after* deployment becomes *pre*-deployment MHS. So, MHS after deployment should be considered an integrated part of the whole chain of MHS within the military organization. Therefore, the complete chain of MHS was taken into account. This chain is defined as follows:

- Stress management training (general education of military personnel)
- Readiness training before deployment
- General MHS in-theatre
- Interventions after a potentially traumatic incident in-theatre

- Decompression
- MHS after deployment (at home)

2.0 METHODS

2.1 Protocol Development

Before gathering information about the MH protocols and current practices of the participating countries, a semi-structured interview protocol was constructed using the *Delphi method* (see details below). On the basis of this interview protocol, information about the protocols and current practices of the five countries was gathered by document-analysis and interviews with key-players in the field of DRMHS of each nation. A first draft of an interview protocol was made by the TNO researchers based on a literature search and their own professional expertise. The interview protocol consisted of four different themes:

- Contextual background questions (mission, unit, MH care organization)
- Pre-deployment MHS
- MHS during deployment
- Post-deployment MHS

Within these themes, a distinction was made between questions related to policies and questions related to actual execution of the policies. Furthermore, questions about bottlenecks for effective DRMHS, availability of documentation and evaluation studies were included. The Delphi method was used in order to develop a well-validated semi-structured interview protocol with which the MH experts of the five participating nations could be interviewed and document analysis could be done (see Okoli & Pawlowski, 2004). This method is a systematic, interactive forecasting method, which relies on a panel of independent experts. The carefully selected experts respond to a interview protocol/questionnaire in two or more rounds. After each round, a facilitator provides an anonymous summary of the experts' forecasts from the previous round as well as the reasons they provided for their responses/judgments. Thus, participants are encouraged to revise their earlier responses in light of the responses of other members of the group. It is believed that during this process the range of the responses will decrease and the group will converge towards the "correct" response. Finally, the process is stopped after a pre-defined stop criterion (e.g. number of rounds, achievement of consensus, and stability of results) and the mean or median scores of the final rounds determine the results. In this project the Delphi method was used to ensure that all relevant topics related to MHS during and after deployment were covered in the interview protocol. In total five experts (two researchers, two MH professionals and a commander of the Netherlands Defense Force, NDF) were asked to participate in the panel to develop the interview protocol.

2.2 Information Assessment from Participating Countries

The information about the countries AUS, CAN, GBR, NLD and USA was gathered from 2009-2010 using two levels of data-acquisition:

- During formal/informal meetings with the MH experts of the different nations, during which they gave public presentations and were interviewed one-on-one for 1-2 hours.
- In parallel to that, a formal request was made to the Surgeon Generals of these nations, in which additional documentation was requested and permission was asked to use the information for a unclassified TNO report.

To reduce the amount of information given and improve comparability between the participating countries, the document analysis and interviews were focused on the partner's Afghanistan mission around the year 2008. It should be noted that the information on the protocols and current practices of NLD was gathered by interviewing multiple experienced professionals in the field with the purpose to create a separate (more elaborate) report on the NLD specifically as part of the research program **BIOSTRESS.mil** (see Delahaij, van Ruiten, & Six, 2010). Specifically, the information on NLD was gathered using 1-2 hour interviews with 18 key-players within the NDF. The interviewees included MH professionals, policy makers, researchers and commanders of the different services (Army, Air Force and Navy). In these 18 interviews the same topics were covered as were covered in the interviews with the international experts. The interviewed international experts were GPCAPT A.C. McFarlane, Prof., MD, PhD (AUS), LCOL R. Jetly, MD (CAN), SURG CDR N. Greenberg, Prof., MD (GBR) and COL C.A. Castro, PhD (USA).

2.3 Analysis of DRMHS between Participating Countries

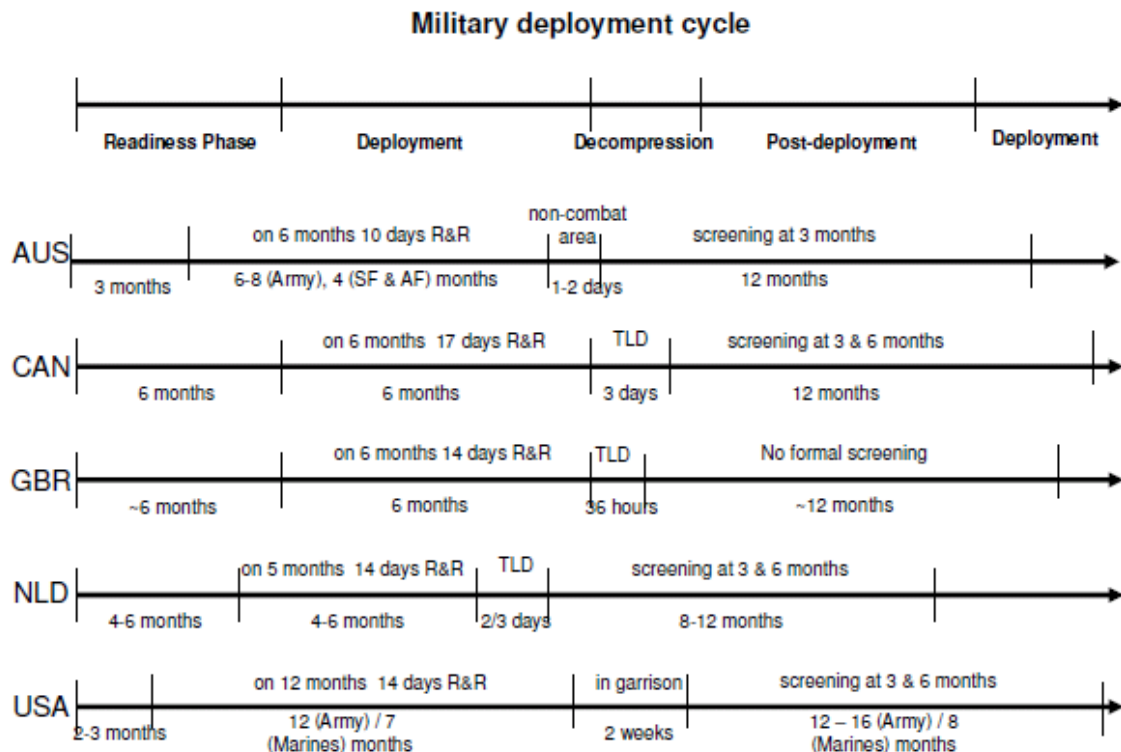
First an assessment and description of the MH protocols and current practices of the individual countries was undertaken. After that, a non-competitive comparison was made between the information of the five countries. The current paper focuses on the cross-comparison between countries. In a second scientific paper currently under preparation more details on the individual countries will be described. Also a full description of the project results can be found in a TNO report on this project (currently under review). In the cross-comparison between countries several questions were considered relevant:

- Did partners adopt the same MH practices in each phase of the deployment cycle?
- Do the adopted MH practices reflect current state of scientific knowledge?
- Do the adopted MH practices fit/work well within military context?
- What seem to be factors in the effectiveness of the adopted MH practices?

Where possible an attempt was made to answer these questions in sections 3.1-3.3 below, which discuss the *main MH current practices* of each deployment phase. It should be noted however that because there are limited methodologically sound studies on the effectiveness of different MH practices and few good evaluations among military personnel exist, no conclusive answers can be given here. Nevertheless, the main aim of the cross-comparison was to establish what appear to be common bottlenecks for effective DRMHS among participating countries and from that identify promising future developments in DRMHS. These two topics will be discussed in a separate section; 3.4 and 3.5 respectively.

3.0 CURRENT PRACTICES OF DRMHS ACROSS FIVE COUNTRIES

Figure 1: The military deployment cycle time-line of AUS, CAN, GBR, NLD and USA for the NATO-ISAF Mission in Afghanistan. This time-line is considered of interest, as it probably significantly influences the MH cycle of service members; that is, going from being in balance/resilient after pre-deployment training, to getting injured by stress in-theatre, back to becoming in balance again during R&R or decompression.



3.1 DRMHS: Current Practices in Pre-deployment Phase

3.1.1 Mission-specific MH Care Plan

All of the participating countries underscore that a MH risk and needs assessment for each (large) mission is essential and most of the countries engender a mission-specific MH care plan on the basis of this. The advantage of this practice is that the required training for service members, command line and the MH team can be tailored to the specific mission, which can have preventative effects. Also, the type and number of MH professionals can be adjusted to the specific mission, which can assure early detection and proper addressing of all MH problems among service members. Basically, carrying out a pre-deployment mission-specific MH risk and needs assessment limits surprises during a mission by making sure proper MH measures are in place. Nevertheless, undertaking such an assessment and doing various adjustments places an additional load on the general MHS system of a military organization. If the general MHS system does not have enough resources to carry this extra load, it may be more efficient not to undertake this effort since it may influence the quality of the MHS actually delivered. Instead, when resources in the system are limited a solution could be to use a more flexible approach and adjust MHS during a mission on the basis of risks and needs as they occur. For example, to fly in a MH team or specific specialists when a serious incident has occurred or for post-mission MH debriefing and screening.

3.1.2 MH Screening

None of the participating countries undertakes formal MH screening pre-deployment. This common current practice is in line with current state of scientific knowledge. Firstly, there is no evidence for clear indicators on which screening can be based; secondly, the predictive value of MH screening using e.g. psychological questionnaires is not supported by evidence; thirdly, screening may have negative effects on the career and MH well-being of service members (see Gaillard et al. 2010; Dunt report; King's Centre for Military Health Research (KCMHR) ten year report, see also 15 year report; Rona et al. 2005; Hyams 2006). Instead, it may be better to informally watch for signs that certain service members may be unfit (currently) for deployment, for instance by conversations of a Medical Officer (MO), Social Worker (SW) or MH nurse with service members. Of course commanders and chaplains should also be aware of MH issues by talking to service members pre-deployment. Additionally, one can use the results of annual health assessments or those of MH follow-up after the former deployment of service members.

3.1.3 MH Education and Training

The importance of MH education throughout the career as well as pre-deployment MH training is generally accepted among participating countries and in literature (see Gaillard et al, 2010). It ensures MH literacy: i.e. knowing how to recognize MH problems of yourself/peers/subordinates; having proper coping skills; knowing how to support others and where to go/refer for formal help if needed. Moreover, it can boost resiliency and thus work preventative. Finally, it has the power to decrease stigma and with it the barriers to MH care. When inspecting the MH education and training currently delivered by the participating countries several aspects can be extracted that seem to be essential. First, having a comprehensive educational approach that uses a MH continuum model or cycle approach with connected programs encompassing the whole deployment cycle and aimed at all ranks as well as family members increases impact. Second, not only using briefings/presentations that are passively absorbed, but also doing interactive exercises with service members such as guided group discussions assures larger effect on service members. Third, integrating MH training in (stressful) operational practices makes it more tangible for service members. An approach that is comprehensive over the deployment cycle and integrated in operational practices will ensure that MH, like physical fitness, will become a part of daily military operations. To optimally support this approach not only MH professionals, but also commanders and peers should be involved in the delivery of MH training and education. Some elements are better delivered by MH professionals such as guided group discussion, since they have the theoretical and practical MH experience needed for this. However, stress training as part of operational tasks can be better delivered by commanders or peers. Commanders and peers can have more effect, since they can better relate to the stress associated to operational tasks. This gives them natural credibility.

3.2 DRMHS: Current Practices in Theatre

3.2.1 MHS by Unit and Commander

It is an accepted practice across participating countries that service members look after one and another, stimulated via the various MH educational sessions delivered during their career. Service members are taught to take note of signals of distress in buddy's, give support to them and stimulate buddy's to go see the commander, chaplain, MO or SW/MH nurse for advice. In general, the command line receives special training on recognition of MH issues, giving advice, adjusting leadership and referral. Moreover, all participating countries consider it the primary role of the executives/managers to ensure that service members know how to access help during operations and to promote an environment where people are encouraged to access support when needed and give support to each other. This is promoted through leadership courses advocating optimal leadership behavior and attitudes. The influential role of leaders on coping of subordinates during missions is supported by various studies (see Gaillard et al. 2010 or papers by Bartone et al. 2002, 2004, 2006). A specific example of MH education aimed at a proper support system in the unit is the suicide awareness and prevention training delivered by most participating

countries. Such training has the aim to increase skills among personnel with respect to the detection of risk factors, providing MH first aid and suicide intervention.

3.2.2 Critical Incident Stress Debriefing (CISD)

Single session psychological CISD is formally abandoned by all participating countries. This a recent corrective measure all participating countries took, based on the extensive empirical evaluation of this practice demonstrating no evidence of its effectiveness and even risks of negative effects on MH, especially for those who are the most visibly distressed (see Gaillard et al., 2010; Greenberg, 2001; or for a meta analysis Emmerik et al., 2002). The current paradigm shared among partners is that: 1) commanders give an operational debrief after exercises and incidents; 2) commanders, chaplains and MH professionals practice ‘watchful waiting’ and 3) they try to stimulate the natural recovery processes by advocating that service members are experiencing *normal* stress reactions to an *abnormal* event, that normalization/readjustment is possible and expected, and that rest/food/clean clothes/getting support of unit members/calling support group home will engender this. However, it is important to note that in case of a severe critical incident (with injuries or casualties) commanders can upscale MHS. In fact, it is considered the responsibility of commanders, across participating countries, to decide whether more specialized debriefing is advised after severe incidents. All participating countries have protocols for more specialized debriefing. Some of the participating countries involve a MH professional in this, to do/be present during a guided group-discussion or an educational brief. However, GBR does not involve MH professionals. Instead, they are focusing on a new approach coming from the UK Royal Marines, known as Trauma Risk Management (TRiM). Characteristic of TRiM is that it is carried out in the unit itself by serving military personnel themselves, who received a short training. TRiM members do work closely with the commander and MO. Prior to its implementation, the British military conducted a randomized controlled trial of TRiM against standard care. Follow up after 12-18 months found no significant change in psychological health or stigma scores in either group; however, the studied groups only encountered low numbers of critical incidents. Moreover, measurements of organizational functioning were modestly better in the TRiM group. It was concluded that within organizations using TRiM may be beneficial and may, in time, lead to an important cultural shift (for more details see Greenberg, Langston and Jones, 2008 and Greenberg et al. 2010). Another example of more specialized debriefing in-theatre is Battlemind psychological debriefings, which are structured group discussions designed for use in-theatre two ways: (1) in-theatre event-driven debriefing that occurs following a potentially traumatizing event during deployment and (2) in-theatre time-driven debriefing that occurs at specified time points during deployment to address the cumulative effects of the deployment (e.g. see Adler, Castro and McGurk, 2009). For all participating countries these more specialized debriefings appear to be aimed at early detection and fast normalization (or limitation) of MH problems after experiencing trauma.

3.2.3 MH Screening

For the same reasons participating countries do not undertake formal MH screening pre-deployment, countries do not undertake formal MH screening in-theatre. For rationale and literature references see 3.1.2. However, it should be noted that USA and GBR carry out in-theatre MH surveillance studies (USA: via Mental Health Advisory Team, see MHAT V Report 2008 and MHAT VI report 2009; GBR: via the Operational Mental Health Needs Evaluation (OMHNE) survey team, see Mulligen et al. 2010).

3.2.4 MH Team On Site

For all participating countries the in-theatre MH team/unit consists of one or more MH nurses/SWs, one or more chaplains and a MH specialist. Some of the countries (CAN, GBR) deploy psychiatrists (GBR has a psychiatrist visiting every ~10 days), but others (NLD, AUS) deploy psychologists. USA deploys both. The rationale for deploying a psychiatrist/psychologist did not become clear, but it may be partly explained by tradition and partly by a shortage in either uniformed psychiatrists or psychologists. Having a MH team or unit available in the deployment area has advantages, as it may lower the barrier to care,

facilitate early detection and addressing of problems and keeping service members with problems part of the unit and mission. This is good for the individual and organization (see more details next section). However, it is important that MH teams/units are easy accessible. Accessibility is easier when the MH team/unit is organic to the unit compared to when there is one MH team/unit per mission area. Further, it is accepted among participating countries that having a multidisciplinary team available is important. The rationale for this is that all sorts of issues can be addressed then. Furthermore, familiarity of the MH providers with the unit and the military context may have a positive influence on effectiveness. Finally, having a good communication between different support providers (i.e. MO, MH nurse, SW, MH professionals and command line) is also deemed an important factor across participating countries. However, a MHS system has to have enough properly trained personnel to send (complete) MH teams to mission areas. If not, it may not be advantageous to try to deploy (complete) MH teams during the whole mission, since it may compromise the quality of rear-party MH care. In this case it could be better to take a flexible approach and send out MH teams/specific specialists at specific (critical) events and/or repatriate individual service members needing formal MHS for proper treatment at home.

3.2.5 MH Treatment and Repatriation

The approach of front-line intervention or ‘forward psychiatry’, first introduced in World War I, is still practised among participating countries. This is in line with the approach adopted after potentially critical incidents (see above), since it means treating the stressed service member as quickly as possible, as close to the front-line as possible, and doing everything to persuade him/her that his is a normal physiological response to the stress of battle, and that after a few days of rest, sleep, clean clothes and hot food, he/she will be able to resume his/her military duties. This approach is substantiated by evidence showing that service members receiving treatment in a forward unit have lower rates of PTSD and other psychiatric symptoms, experienced less loneliness and report better social functioning compared to similarly traumatized soldiers treated in rear units (see Gaillard et al., 2010 or papers by Solomon et al., 1991; Solomon, Shklar & Mikulincer, 2005). In line with this approach, all participating countries make an effort to treat personnel with MH issues in theatre. There are differences in the types of treatments provided in-theatre. On the minimal end of the spectrum only psychological first aid is provided and on the maximum end of the spectrum a full range of treatments is provided (i.e. Cognitive Behavioral Therapy (CBT), Eye Movement Desensitization and Reprocessing (EMDR) and medication). This seems dependent on the type of MH providers available in-theatre for the delivery of treatment. Most participating countries consider it the responsibility of the commander to decide whether someone should repatriate in consultation with either the MO or the MH team. This decision is dependent on severity of illness (i.e. whether more formal/inpatient treatment is required), individual’s response to treatment, specific job and risk of staying versus risk of leaving

3.3 DRMHS: Current Practices in Post-deployment Phase

3.3.1 Decompression (Third Location Decompression, TLD)

Most participating countries have a decompression period before service members can go on leave. The general definition used is that decompression is a formal way to recognize and reward the deployed troops for their experiences and begin to restore them to deploy again or return to civilian life. Decompression programs are conducted outside of and mostly immediately after leaving the theatre of operations and without family members. However, there are differences among participating countries in the precise length and context in which decompression is done (see Fig 1). Several of the participating countries use “holiday-type” third locations (e.g. Cypres or Crete). While it is a practice used by several participating countries there is no evidence yet to support its use. A holiday-type TLD has the advantage of providing a good R&R environment that facilitates unwinding of service members. On the other hand, doing decompression in garrison for a longer period may allow better detection of adjustment problems. There are also differences among participating countries in the amount and type of MH sessions/elements during decompression. Generally, MH briefings and presentations are used to psycho-educate service members

on potential issues they have to cope with during the adjustment at home. However, if these are not combined by guided discussions it remains unsure how service members perceive the messages in the briefings and presentations and whether they gained insight/skills. Although, all participating countries have both MH providers and peers (command line) available, the precise role these persons play in the delivery of MH elements varies. It may be advised that both should play an important part during decompression. MH professionals seem important for their theoretical and practical MH knowledge. On the other hand, command line can serve as a better role model for proper coping with (making sense of) deployment and are up to date about the specific events a unit experienced during deployment. Back home, some participating countries send units back to work several (half) days, before they can go on a leave. This is considered part of decompression and has the purpose of not losing sight of each other immediately, and detection and addressing of potential adjustment problems. Currently, AUS do not have a TLD in strict sense, since they do not send service members to decompress on a third location. Nevertheless, all service members returning from deployment are required to participate in a Return to Australia Psychological Screening (RtAPS). It is mostly carried out in theatre in a non-combat area. While termed 'Screening' RtAPS entails much more than screening (group debrief, psychological screening, interview with psychologist/psychological examiner) RtAPS usually takes two days and besides the above MH elements often also involves presentations and R&R. There will be a MO, psychologist and psychological examiner present. Therefore, the RtAPS could be seen as a form a decompression in non-combat area. Furthermore, AUS is currently in the process of implementing a TLD (Disclaimer: It should be noted that at the time this paper was submitted unfortunately it could not be verified what the latest status of this implementation was).

3.3.2 Follow up and Care by MH Professionals

The type and length of MH follow-up varies among participating countries. Only GBR has no formal MH follow-up post-deployment. The relatively low prevalence of PTSD, as established by the health surveillance research conducted by the KCMHR, together with the low specificity of PTSD screening measures, is used as rationale for not undertaking screening pre-, during or post-deployment (KCMHR ten year report; see also KCMR 15 year report). Long-term detection of operational stress injury is considered the responsibility of the individual service member, commanders, colleagues and family. GBR does have routine, periodic and special medical examinations of individual's known to have returned from an operational deployment. MO's are instructed to be alert for signals of psychological injury. The other participating countries do use some form of MH follow up post-deployment, usually between 3-6 months after return. The procedures differ however. There are no methodologically sound studies comparing different types or lengths of MH follow up. Nevertheless, it may be advised that if follow up is done it is best to 1) use multiple validated MH questionnaires, 2) incorporate an individual interview with a MH professional/examiner and 3) undertake follow up at different time moments. Literature has shown that the detrimental effects of combat can be deep and enduring and often follow a complex course (e.g. Solomon and Mikulincer, 2006). While delayed-onset PTSD (i.e., the development of PTSD more than six months post-trauma) is generally characterized by partial or sub-syndromal diagnoses within the first six months, there are individuals who develop PTSD after more than six months who do not meet the criteria for partial or sub-syndromal PTSD before that (Solomon and Mikulincer, 2006; Andrews et al. 2007; Carty et al. 2006). Furthermore, there is a percentage showing exacerbations or reactivations of prior symptoms after more than six months (Solomon and Mikulincer, 2006; Andrews et al. 2007; Carty et al. 2005). Therefore, it may be advised to undertake longer follow up than six months or to be alert for delayed, exacerbated or reactivated PTSD symptoms in annual medical assessments. Modern warfare is characterized by a new weapon i.e. the Improvised Explosive Device (IED) with the new 'signature wound' the (m)TBI. This expression for the IED-related (m)TBI introduced by the Americans and the many Google-hits for the words IED, blast, TBI and war illustrate the enormous hype around this phenomenon. However, a recent Medline-evaluation by Wallace (2009) from 2001-2008 substantiates that IED-related (m)TBI cannot be ignored as one of the most important injuries associated with current military missions. This is recognized among participating countries and addressed in the NATO HFM RTG 193 on mTBI. Also, there is an increased focus across participating countries on proper detection and

treatment of service members having obtained (m)TBI due to blasts of IEDs during their deployment. There is also a focus on other Medically Unexplained Physical Symptoms (MUPS) such as chronic fatigue. This is accomplished through a combination of research, educational programs, and policy development. With respect to the MHS infrastructure available, it can be concluded that all participating countries have multiple services in place for rear-party MHS. Generally, first-line MHS is delivered by MOs and MH nurses/SWs, who are usually available at local bases. For more formal (second-line) case management all participating countries have specialized clinics/centers available having multidisciplinary MH teams. Formal MHS is delivered by psychologists or psychiatrists and consists of a wide spectrum of treatments. For PTSD, CBT and EMDR are the standard treatments. However, medication is sometimes also given. Further, all participating countries have services (programs) in place for addressing other problems such as Anxiety Disorder (AD), alcohol/drug abuse, depression and suicide. Although there is an effort to have MHS delivered primarily by *uniformed* MH professionals, both contracted and/or standard civil MH services are relied on to some extent by all participating countries.

3.3.3 Follow up and Care by Unit and Commander

There is no standardized follow up by the unit or commander after a mission. It is however acknowledged by all participating countries that buddy's and leaders have an important role in: detecting of MH issues, facilitating natural recovery (making sense and proper coping) after an intense deployment, giving support/advise and guiding peers/subordinates to formal support if needed. Some participating countries offer commanders the opportunity to implement a light and fun military exercise combined with psycho-education and/or group discussion to address these issues. Proper dealing with these issues is also stimulated by MH education and pre-deployment training packages. For example, there is the Battlemind training introduced by the USA that has the objectives to assist them in their successful transition back home and to provide the skills to assist their Battle Buddy in the transition to home. This type of training is becoming popular among participating countries (see also BattleSMART training of AUS and Road to Mental Readiness training of CAN). If there is a proper climate (no stigma and proper MH knowledge and skills available) there is no need for standardized follow up by the commander/unit, as the unit is a natural support system. Most participating countries do have some sort of peer support groups/networks in place. Current opinion is that good peer support, with trained peers liaising with MH professionals, is crucial in a good support system. As it is rooted in the military context, it can help in diminishing the remaining stigma around having MH issues and offers a lower barrier to care.

3.4 Bottlenecks or Points of Attention

From the above cross-comparison between participating countries it can be concluded that historically Military MH care has come a long way and has reached an established status that more than ever meets the criteria for state-of-the-art service. Nevertheless, several common bottlenecks in current practices are worthwhile to discuss, since from this discussion promising current or future developments can be inferred that may lead to even more effective DRMHS, thereby assuring its state-of-the-art status. Below first the main common bottlenecks or points of attention will be discussed. Subsequently in 3.5 several promising developments are suggested.

3.4.1 Barriers to MH Care

The first bottleneck for effective DRMHS experienced by most participating countries is the remaining barrier to MH care. This is partly explained by the fact that there is still a certain stigma around experiencing MH issues during/after deployment among serving personnel that prevents them from seeking treatment. Military organizations encourage self-reliance and resilience, appropriately to the nature of the task of service members. Experiencing MH problems is often seen as a failure of self-reliance and is associated with shame and guilt. Admitting to a MH disorder can be viewed as a cause of disapproval from peers. Also, service members are afraid of the negative effects it may have on their career in the military. Another critical factor is the fact that counselling (such as CBT) relies heavily on

verbal skills. Many service members do not find this very attractive or even fearful, because they are not used to talking about problems, instead they are often more action-oriented. This aspect of counselling might therefore hinder service members from seeking MHS, prompt them to terminate their treatment prematurely or render it less effective. This asks for new methods/tools that go around talking about MH problems, with a positive resilience approach and that better fit military context as this would all lower the barriers to care.

3.4.2 Availability of MH Care Providers

The second bottleneck for effective DRMHS experienced by most participating countries is an insufficient availability of MH care providers in theatre. This is partly explained by the fact that in missions such as the one in Afghanistan MH care personnel is highly dispersed due to the geography of the country. Another aspect for some participating countries is a simple shortage in MH professionals, especially uniformed psychiatrists and psychologists. Moreover, these professionals are difficult to recruit and keep. Related to this is the finding that primary care level is sometimes inefficient, because MOs, General Practitioners and SWs lack specific clinical training and skills. A possible solution for this bottleneck could be new tools/initiatives that focus on self-empowerment of service members i.e. that train service members how to recognize and normalize MH problems by themselves/in the unit as this would lower the dependency on the scarce MH care providers.

3.4.3 Linkage between MHS System and Deployment Cycle

An optimal Military MHS system needs to have a seamless correspondence with the cyclic character of deployments. This means: 1) adequate mental resiliency building training pre-deployment, 2) MHS focusing on fast normalization in-theatre and during decompression and 3) adequate MH follow-up post-deployment. Together this will likely lower the chance that service members will experience MH complaints or that MH complaints develop into full-blown MH disorders. All participating countries have already started working with a MH continuum model (cycle approach) with connected programs encompassing the whole deployment cycle. However, there is room for optimization: there could be a better connection between different MH initiatives over the course of the deployment cycle or a better application of MH initiatives in each deployment phase. Also, there is room for new tools optimally suiting a MH continuum model.

3.4.4 Providing an ‘Armor for your Mind’

Further advancement of training packages for service members focused on the promotion of stress resiliency and attaining control over stress reactions is requested. Such training packages are already used to some extent by all participating countries, for example the Battlemind training of USA, the BattleSMART training of AUS and the Road to Mental Readiness training of CAN. Important elements herein are:

- Teaching service members human stress reactions and stress normalization mechanisms
- Learning service members how to recognize stress reactions in themselves
- Learning service members strategies to mitigate the impact of stress reactions, i.e. gaining control over stress

However, there is seems to be room for improvement: integrating these packages in daily operational practices in order to optimize the transfer of training; extension of these packages with new (innovative) tools optimally suited for learning to attain control over stress reactions.

3.5 Promising Future Developments in DRMHS

It can be concluded from 3.4 that there is a request for new methods/tools with a positive resilience approach; that go around talking about MH issues; that are self-empowering; that optimally suit military context and that can be applied in a MH continuum model. Next, we will discuss three promising current or future developments that seem to answer to this request.

3.5.1 Training Social Leadership

There is a growing acknowledgment that MHS is an important part of daily military operations and that commanders play a pivotal role in this throughout the deployment-life cycle. Literature shows that the person characteristics of military leaders play a critical role in the resiliency of military personnel and the risk they will develop MH complaints (see Gaillard et al. 2010 or papers of Bartone and colleagues, 2002, 2004, 2006). Leaders seem to have the power to influence the motivation, thinking and coping behavior of subordinates. Therefore, coaching junior leaders in social leadership can work preventative. Also, it can help diminishing the remaining stigma as leaders can function as role models. Moreover, it lowers the burden on the scarce MH care providers. Ways to foster proper leadership attitude and skill is teaching leaders to:

- Be a role model (leading by example)
- Facilitate open communication in the unit
- Discuss 'lessons learned' after incidents/mistakes (facilitation of making sense)
- Create meaningful and challenging tasks
- Monitor the fulfillment of basic needs, including rest and leisure activities (keeping the unit physically fit)
- Encourage unit members to use the stress control strategies that are most appropriate for them

(See Gaillard et al, 2010 or Bartone, 2004)

3.5.2 Training Peer Counselling across levels

Another promising development is training peer counselling across levels. That is, training peers how to recognize MH issues in colleagues and how to help colleagues in coping with MH issues. This type of training can work preventative as it may facilitate faster tackling of MH issues within the unit, thereby preventing that these develop into more serious MH complaints. This lowers the dependency on MH professionals. Being rooted in military context, a peer support system also has the power to change culture, and in particular to make it more acceptable for military personnel to admit to psychological distress when they experience it, and to present for treatment when they need it. Most of the participating countries are already working with peer support systems (e.g. TRiM peers, 'collegial networkers', Peer Support Coordinators of the Operational Stress Injury Social Support network, Battle buddies), but there seems to be room for advancement. Ways to improve these systems might be:

- Training of more peer counsellors
- Wider administration of the peer support system throughout the deployment cycle
- Improve coordination between trained peers, command line, primary care level and MH professionals (i.e. better communication and clearer roles between them)

3.5.3 Use of Innovative Technologies

A wider use of innovative technologies in current practices can also aid in the above described MH care needs. Specific technologies exist that do not rely heavily on verbal skill of service members or

availability of MH professionals, that fit a positive self-empowering resilience approach and can be employed in different phases of the deployment cycle in support of primary, secondary and tertiary prevention efforts. Two examples of such technologies are *Neuro/Biofeedback* and *Serious Gaming* or *Virtual Reality*. Several decades of feedback research with electro-electroencephalography (EEG) signals have shown that participants can be trained to influence the characteristics of their scalp electric activity when they receive online feedback about the changes occurring in these characteristics in the form of a game/task (Birbaumer et al., 2006). This type of training, using brain signals, is referred to as *Neurofeedback*, while the use of peripheral signals is often called *Biofeedback*. Neuro/Biofeedback training has already successfully been employed to induce behavioural changes and to strengthen treatments (e.g. Heinrich et al., 2007; Tan et al. 2009; Keizer et al. 2010a and b; Raymond et al. 2005). Neuro/Biofeedback training may be especially efficient for stress regulation in service members. An ineffective way of dealing with stress is often not immediately visible as clear stress-related symptoms. However, it may be measured as increased stress responses during a (light) stressful task visible in certain neuro/biological signals (e.g. autonomous responses in reaction to stress like increased skin conductance, heart rate or blood pressure or certain neurological characteristics captured by EEG or near-infra-red-spectroscopy). In other words, by measuring these signals it would be possible to monitor the stress responses of a serviceman during a light stressful task and provide online feedback to the serviceman about these responses in the form of a simple game or listening to music. This way he/she could learn to gain control over these responses and to regulate atypical responses. This type of stress regulation training could be used pre-deployment during operational practices to build stress resiliency. Additionally, it can be used in support of normalization of ineffective stress coping after a potentially traumatic incident in theatre/shortly after deployment, thereby preventing that beginning stress-related complaints develop into more persistent stress-related symptoms. Finally, it can be used as an add-on to standard treatment (e.g. CBT) to treat service members suffering from a stress-related disorder. Although Neuro/Biofeedback training has until now not been tested properly for stress regulation in service members, there is enough evidence to warrant further research and development in this direction (e.g. Heinrich et al., 2007; Tan et al. 2009; Keizer et al. 2010; Raymond et al. 2005). *Serious gaming* can be used to practice certain real-life situations in a safe yet realistic way, e.g. a crisis situation or critical incident that may occur during deployment. This may help service members to recognize their own stress coping during an event and learn how to gain control over this. *Virtual reality* (VR) is often applied in this. Serious gaming or VR could be used for resiliency building pre-deployment, but it could also be used for intervention after deployment. In fact VR is increasingly used as an alternative to standard in vivo exposure to deliver graded exposure therapies. VR integrates real-time computer graphics, body tracking devices, visual displays and other sensory input devices to immerse patients in a computer-generated virtual environment. Graded VR exposure therapy has been used clinically for treating a variety of ADs, including combat-related PTSD (Difede & Hoffman, 2002; Garcia-Palacios et al., 2006; Krijn et al., 2004). While VR presents a realistic context in which exposure therapy can be conducted, clinical trials are needed to assess the efficacy of VR exposure therapy for service members with stress-related complaints. Nevertheless, current clinical evidence is strong enough to warrant further efforts into VR exposure therapy for service members with PTSD (Ready et al., 2006; Rizzo et al., 2009; Rothbaum, 2009; Wood et al., 2007).

To summarize, the cross comparison showed that the participating countries adopted many similar MH protocols and practices. Also, all strive to use evidence-based protocols and practices. For example, none of the participating countries undertakes formal MH screening pre-deployment or in-theatre; nor do countries undertake single session psychological CISM, based on scientific evaluation of these MH practices. Instead, all participating countries make an effort to educate service members throughout their career as well as pre-deployment about MH and stress management. End-goals are: enhancing MH literacy and stress resiliency and creating a proper support system in the unit. Concerning in-theatre MHS, all participating organizations use a MH care approach of forward psychiatry (front-line intervention). In order to do this, all participating organizations have an in-theatre MH team/unit consisting of one or more MH nurses/SWs, one or more chaplains and a (visiting) MH specialist. Post-deployment all participating countries have some sort of decompression period before service members can go on leave to recognize and reward the deployed troops for their experiences and begin to restore them to deploy again or return to

civilian life. When further care is requested all organizations have a MHS infrastructure in place. In concluding, historically Military MH care has come a long way and has reached an established status that more than ever meets the criteria for state-of-the-art service. Nevertheless, there are several points continuing to need attention: e.g. remaining barriers to MH care (stigma around MH illness among service members, suitability of certain MH practices for service members and operational practice) and insufficient availability of MH professionals in theatre. Therefore, across military organizations a consensus exists about the importance of delivering MH programs 1. with a positive resilience approach, 2. integrated in daily military operations, 3. focused on self-regulation, 4. executed and adhered to by peers and commanders, 5. and as part of a MH continuum model. Promising current developments in DRMHS are training social leadership and peer counselling across levels. Besides this, a wider use of innovative technologies in current MH practices may also aid in even more effective DRMHS.

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