BRIEF REPORT

Disaster Medical Assistance Teams: What Psychosocial Support is Needed?

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Abstract
Objective: The objective of this preliminary study was to evaluate the perceptions of internationally deployed Disaster Medical Assistance Team (DMAT) personnel regarding the psychosocial support needs of these teams.
Methods: The DMAT questionnaire was sent to 34 members of Australian medical teams involved in deployments to the 2004 Southeast Asian tsunami and the 2006 Java earthquake. Twenty personnel (59%) completed this survey, which reviewed key deployment stressors, specific support strategies, and the support needs of team members, their families, and team leaders. A key aspect of the survey was to determine whether the perceived psychosocial needs would be supported best within with existing provisions and structures, or if they would be enhanced by further provisions, including the deployment of mental health specialists.
Results: There was strong support for brief reviews of stress management strategies as part of the pre-deployment briefing, and access to written stress management information for both team members and their families. However, more comprehensive provisions, including pre-deployment, stress-management training programs for personnel and intra-deployment family support programs, received lower levels of support. The availability of mental health-related training for the team leader role and access to consultation with mental health specialists was supported, but this did not extend to the actual deployment of mental health specialists.
Conclusions: In this preliminary study, clear trends toward the maintenance of current mental health support provisions and the role of the DMAT leader were evident. A follow-up study will examine the relationship between team-leader, psychosocial support strategies and team functioning.

Introduction

There have been a number of studies examining the psychological impact of disasters caused by natural hazards upon affected communities.[1] Increasingly, research is being conducted in relation to those who provide the immediate response to disasters and the risks that this work may pose to their mental health and well being.[2] Members of international rescue and medical teams witness severe injuries, death, and pleas for help, and must make rapid decisions to allocate limited resources. Studies of search-and-rescue workers involved in the early responses to such events indicate that they may be at high risk of developing psychiatric morbidity. Prevalence rates of general psychiatric morbidity (depression, anxiety, and functional impairments) have been identified in 9–32%[3–5] of rescue workers, and rates of post-traumatic stress disorder (PTSD) are found in 11–32%.[6–8] Fullerton *et al* have pointed to the critical role of acute stress during disaster response, not only showing high rates of acute stress disorder (ASD) in this group (25%), but also that ASD was highly predictive of subsequent depression and PTSD more than one year after experiencing the index stressor.[8]

Evidence emerging from the 2004 Southeast Asia tsunami indicates that disaster medical assistance teams (DMATs), which operate from field hospital environments, may experience similar levels of risk, despite different backgrounds, tasking, and exposures. Turkish Red Crescent medical personnel assessed 4–5 weeks after their arrival in Banda Aceh showed high rates of sleep disturbance and PTSD symptoms, with 24% meeting full diagnostic criteria for PTSD.[9] Singapore-based medical teams on shorter deployments (10–16 days) to Indonesia, Thailand, and Sri Lanka showed significant levels of acute stress, with 40% showing moderate to high levels of acute stress as measured by the Impact of Events Scale, including 10% having levels consistent with "probable" PTSD.[10] However, using a comparison of General Health Questionnaire scores, the latter study also showed that deployed personnel had lower rates of general psychiatric impairment than comparable samples of general hospital medical staff.[10,11] These findings indicate that while DMAT personnel may represent a group with higher-level general functioning, they also are subject to significant stress and trauma impacts associated with their deployments. The authors of these studies argued that such findings indicate the need to establish evidence-based psychosocial support strategies to prevent or mitigate psychological trauma amongst disaster medical personnel. More broadly, it has been argued that the development of these functions specifically within the team leader role is likely to be more congruent with team processes and produce better psychosocial outcomes.[12]

Prior to the 2004 tsunami, Australia had a limited history of deploying civilian medical teams to overseas emergencies.[13] Australian DMATs are composed of civilian medical and non-medical personnel with similar tasking and deployment durations as their US counterparts (12–14 days), but generally are smaller in size (i.e., 15–25 personnel). Anecdotal feedback from Australian team members conveys a common view that stress impacts and potential trauma are likely to be mitigated by the short deployments of DMATs and with significant medical/logistics experience of selected personnel. Consistent with this, simple provisions (e.g., written stress management materials and information "briefings") tend to be favored over more comprehensive programs (e.g., stress management training). Practical constraints on team size necessarily limit the inclusion of some specialist personnel, including mental health professionals. However, concerns about potential psychosocial risks facing teams have been noted as part of a recent review of deployment models by the Western Australian government, which included a broad-based study of team needs.[14,15] Central to such processes is an understanding of how team members themselves regard these issues and their management. The current study augments these reviews and aims: (1) to determine the perceived psychosocial support needs of Australian DMAT personnel; and (2) to locate these needs along a continuum from 'modest' provisions to more comprehensive interventions. It was intended that the survey would provide background information for a further, larger study of psychosocial support issues and role functions.

It was hypothesized that respondents would regard psychosocial support needs as being modest and supportable within current team structures; specifically, initiatives that offered general information and support (e.g., written information, briefings, follow-up contacts) would receive stronger support than more comprehensive provisions such as stress-management training and family support programs. Secondly, there would be greater support for the training of DMAT leaders to enhance psychosocial support roles than having mental health specialists deploy with DMATs to perform these functions.

Methods
Design
The Science of Mental Health and Adversity Unit (SCIMHA) from the University of Western Sydney developed the DMAT Questionnaire following a request by the civilian coordinating authority, the Australian Health Protection Committee (AHPC). This Committee was examining the psychosocial support needs of emergency medical staff on international missions. The questionnaire consists of both closed and open-ended questions regarding: (1) participant demographics and their organization's role in a DMAT; (2) key stressors and perceived psychosocial support needs for team members, team leaders, and families (as determined by the team member respondent) in relation to deployment phases; (3) perceptions regarding professional mental health support for team members and leaders; and (4) mental health support needs of affected populations. Team members participating in the current survey, related family member concerns and perceptions— no direct contact was made with the actual family members during the course of this survey. The instrument was validated using a review process involving senior medical staff with deployment experience. The questionnaire was distributed by mail or completed electronically.

Participants
The DMAT Questionnaire was sent to 34 personnel who were involved in deployments to Banda Aceh, the Maldives, Java, or Sumatra between December 2004 and June 2006. Several members had been deployed more than once, though specific information on mission numbers was not gathered. Inclusion criteria consisted of involvement in any international DMAT deployment that occurred under the auspices of the AHPC from the time of the 2004 tsunami and afterwards.

Statistical Analysis
Results for Yes/No responses are provided as [%–Yes, 95% Confidence Interval]. Confidence intervals for proportions were calculated using the Chi-square statistic (S-Plus 7.0, Insightful Corp 2005, Seattle WA). Thematic analysis was used in the review of open-ended questions. Due to the small sample size in this study, some confidence intervals may indicate a null finding where majority support is evident. Therefore, analysis of confidence intervals was augmented by consideration of the percentage agreement results. Cut-offs in the 0–39%, 40–69%, 70–100 ranges were

Team Members	% Agreement	Level of Support
What would be helpful to deal with the stress of a deployment?		
Stress management training beforehand	53	Medium
A card/kit with stress management advice for members to carry	84	High
Briefing about strategies relevant to deployment before departure	100	High
Follow-up for team members afterwards	94	High
On return	86	High
Within the first 2–4 weeks	79	High
Subsequently (medium term)	90	High
Family Members		
What type of support would be helpful to team member's families regarding the deployment of team member?		
Information about common reactions of team members and how to deal with them	85	High
Information about common reaction of team member's partner and how to deal with them	88	High
Information about common reaction of team member's children and how to deal with them	88	High
What would be of value as support for families while the deployed person is away?		
Regular contact from the usual workplace	61	Medium
Support program for families	60	Medium
What would be helpful for families in terms of follow up on return?		
Advice about likely reactions and how to deal with these	90	High
Checking for problems and providing help	75	High
Learning what has assisted others previously	95	High

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Table 1—Support strategies for team members and families

regarded as representing low, moderate, and high support respectively. This system provided a conservative estimate of support, particularly at the upper range.

Results

Twenty questionnaires were completed, representing a response rate of 59%. Survey completion occurred 4–22 months post-mobilization. Eighteen respondents had been deployed while two were involved through base operations in Australia (administration/training staff). Sixteen of the respondents were male and four were female (20%). Occupational roles consisted of 14 medical staff, three logistics support workers, two administration/training staff, and one public health specialist. Three of the respondents (15%) were in designated team leader roles. The gender proportion in the non-responding group was broadly similar (i.e., female 14%), but other information about this group was not available.

The scale of the disasters and awareness of the suffering of local people were specific stressors most frequently noted in the open-ended questions. The most common theme overall was uncertainty regarding the various aspects of the deployment, particularly the unknown location and site conditions during pre-deployment. While safety and security concerns were mentioned, it is noteworthy that 85% of those surveyed did not nominate this issue as their primary source of stress.

Proposed strategies to mitigate stress indicated that respondents were well-informed regarding adjustment issues on return (e.g., filming of significant events at home, family members communicating their anticipation of the team member's return). Similarly, there was recognition of the need to minimize family relationship strain by actively "negotiating" the deployment at the outset and communicating regularly. This selection at the family level also was reflected in processes at the team level. Comments regarding selection criteria emphasized the ability to work flexibly and as a team player. Several respondents highlighted the proactive management of stress that occurred through "getting the right people" at the outset. Likewise, team leaders were seen as needing to be more than senior technical experts and needed the ability to anticipate and manage a broad range of situations.

Table 1 outlines team and family member perceptions regarding deployment support strategies. There was high level of support among team members for specific pre-deployment briefings about stress management strategies [100%, 77–100%], as well as the issuing of written information on this topic (i.e., brief card/kit) [84%, 60–96%]. More comprehensive strategies, such as pre-event stress

	% Agreement	Level of Support
What type of preparation would be helpful for team leaders to manage team issues (stress, conflict, fatigue, mental health)		
Basic training in terms of group process and management	88	High
Stress management training for team leaders and others	81	High
A brief card/kit with advice and simple management strategies surrounding stress and conflict	87	High
Briefing about issues that may arise with specific deployment	100	High
Basic techniques for assisting members with stress and conflict issues		
Problem solving strategies to negotiate goals and flexible response	88	High
Team review and operational debriefing at the end of deployment	100	High
What type of support would be helpful to the team leader during deployment?		
Mental health expert advice to be available	79	High
Contact person to be available	100	High
Should there be follow-up for the team leader on return?		
Follow-up for team leaders on return?	100	High
Immediately	83	High
2–4 weeks	86	High
Subsequently	75	High

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Table 2—Strategies to support and develop the DMAT leader role

management training as part of general preparation, received moderate levels of support [53%, 32–73%]. In the post-deployment phase, there was a high level of support for the proposition that health and welfare follow-up checks of the team members be provided [94%, 69–100%], including all the proposed intervals; immediately upon return [86%, 56–97%], 2–4 weeks later [79%, 49–94%], and longer than one month [90%, 54–99%] were supported.

The predominant concern for family members, as related by the DMAT personnel themselves, was the safety and security of their loved ones on deployment. This was the primary stressor for 60% of respondent's families, compared with 15% of the respondents themselves. There was strong support for having written information concerning common reactions to deployment and management strategies also available for family members. This included information regarding common responses of team members [85%, 61–96%], their partners [88%, 62–98%], and children [88%, 60–98%]. More comprehensive programs for families received moderate levels of support, including family support programs [61%, 36–82%] and regular contact from the team members' usual workplace [60%, 33–83%] during the deployment. However, consistent with findings for team members, there was strong support for more specific family advice and checking processes post-deployment. This included advice about likely reactions and their management [90%, 67–98%], checking for problems and providing indicated help [75%, 51–90%], and information as to what had assisted other families previously [95%, 72–100%].

Table 2 outlines the role and support needs pertaining to DMAT leaders. There was strong support for team leaders receiving specific training to manage stress and conflict within teams [94%, 68–100%]. This included skills development with problem solving/negotiation [88%, 60–98%], group process [88%, 60–98%], conducting team operational debriefings [100%, 76–90%], and personal stress management [81%, 54–95%]. There also was strong support for the suggestion that team leaders receive specific briefings about team issues that may arise on a particular deployment [100%, 75–100%] and that cards/kits regarding stress and conflict management strategies be developed as a specific resource for them.

The availability of a consistent contact person [100%, 70–100%] and expert mental health advice to the team leader [79%, 49–94%] also received high support, as did follow-up checks of the health and welfare of team leaders post-mission [100%, 68–100%], including the three nominated intervals; post-deployment [83%, 51–97%], 2–4 weeks later [86%, 56–97%]) and medium term [75%, 36–96%]. There was a lower level of support for medium term follow-up among DMAT leaders, compared with team members themselves.

Perceptions as to whether it would be helpful to have a mental health professional deploy with DMAT teams were highly dependent on the specific role of this member (Table 3). There was low support for this professional acting as a primary support for team members [39%, 18–64%], but high support where this role involved direct care to affected populations [77%, 46–94%].

	% Agreement	Level of Support
Would it be helpful to have a mental health professional as part of a DMAT team to support team members?	39	Low
Would it be helpful to have a mental health professional as part of a DMAT team to support affected populations?	77	High

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Table 3—Mental health professional support for team members and affected populations

Discussion

It has been recognized for some time that disaster response workers may be at heightened risk of developing psychiatric morbidity. The evidence for this has come mainly from studies of search and rescue teams, but also from workers involved in longer-term aid programs.[16] It often has been assumed that DMAT personnel are at reduced risk due to their different tasking and shorter deployments. The emerging evidence regarding the potential vulnerability of DMAT personnel remains mixed, but does raise important ethical issues regarding the psychological preparedness of civilian teams deployed to potentially traumatic environments. None of the respondents in the current survey identified stressors that normally would be classified as potentially traumatizing events.[17] However, responses did indicate strong identification with the affected populations and feelings of helplessness. These may represent more subtle stressors, which have been associated with forms of vicarious trauma.[18] Overall, these results are consistent with a lower exposure view of the missions represented, but with some possible secondary exposures that may warrant more specific information and monitoring during future missions.

The concerns of family members were heavily weighted toward potential dangers and the security of their loved · ones. This may reflect a more macro view on the part of family members, who are not preoccupied with specific details of the mission. Since safety issues represented the primary stressor for the majority of family members, coordinating bodies may need to provide more targeted information and updates for families regarding security strategies that are in place.

In broad terms, support levels for psychosocial interventions decreased as they became more complex or were associated with greater compliance costs. Provisions at the modest end of the spectrum received the highest support, which confirmed the first hypothesis. This compares with the moderate support observed for pre-deployment stress management training and family support programs. The greater diversity of views regarding these latter programs also was consistent with the first hypothesis. Overall, these results seem to reflect a general perception that both team and family members would show adaptability in relation to deployments. In this sense, the provisions perceived to be most useful (i.e., written information, briefings) were those that provided key reminders and a checking function, but would otherwise support high levels of background knowledge and autonomy. Nonetheless, there were trends toward more comprehensive provisions. Views were evenly divided about formal stress management training as part of general preparation, while a small majority favored more intensive family support programs during deployments. Several cited the deployment welfare model of the Australian Defence Force as a benchmark for information materials and family support practices. A future study with a larger sample may allow stronger determinations regarding these perceived needs and whether they represent the views of particular sub-groups of personnel.

There was a high amount of support for the team leader role and its further development in relation to psychosocial support functions. Beyond the support for more traditional functions such as operational debriefing, there was strong recognition of the need for skills in the areas of group dynamics and conflict resolution. These findings clearly supported the second hypothesis; personnel support specific DMAT leader training in stress-management skills for teams. This is consistent with the view that the team leader is the most appropriate person to integrate occupational mental health functions within team processes, rather than external consultants or even deployed specialists. In fact, this latter option received the lowest level of support of any provision noted in the survey, which also supported the original hypothesis.

The findings regarding the team leader are consistent with the "low-intervention" themes that emerged with team and family members—that psychosocial support is necessary, but that it must be pragmatic, support the resilience that exists within teams, and not unduly affect team structures. Experts in the recovery field have offered support for such a view. Weiseth has argued that training of team leaders in this area allows integration of psychosocial support and monitoring functions, while avoiding the role confusion (and splitting) which may ensue from the deployment of mental health specialist staff.[12]

While the prevailing view for this type of deployment was against embedded mental health professionals, it is important to note that more than one-third· of respondents did feel such a role was warranted, especially in large scale or extended operations. It was argued that such personnel would need significant emergency training and experience and be "dual-hatted" (e.g., willing to assist with logistics or administration when not engaged in their primary role). It is noteworthy that there was a substantial increase in support for this role when it was directed toward support of the local population. This was consistent with participants' awareness of significant unmet psychosocial needs, although

there also were cautions regarding the cultural validity of such a role and its placement within a primary medical team.

A number of study limitations are recognized. The small sample size requires that some conclusions be drawn with caution. The post-mission follow-up of team and family members for example, while generally supported, would benefit from analysis within a larger sample. On the other hand, the lack of support for deployment of mental health personnel represented the strongest determination against a proposed provision and, as such, is likely to represent the broad current perceptions of deploying teams. The respondents were a sample of convenience, but could be seen as representative of the total personnel pool of approximately 150, which has a similar gender ratio. The views of families were related by team members themselves, and may reflect the bias of this perspective. Finally, this study represents the perceptions of a key stakeholder group. While the views of experienced personnel are a central consideration, the impetus for further mental health resources may come from a range of other sources. Over time, increasing provisions may alter perceptions regarding occupational mental health needs in this context.

Although the current survey tool was designed to assess the perceived needs of deployed Australian teams, its con-tent and results are relevant to other national teams, albeit with the limitations of the current sample size. A planned follow-up to this pilot study will examine a larger sample closer to the deployment period, include a direct examination of family member perceptions, and investigate the relationship between adopted psychosocial support strategies and measures of team functioning.

Conclusions
Efforts to establish and assess psychosocial support practices for civilian medical teams must incorporate the views of personnel as to what is both needed and supportable within a disaster response scenario. There was a clear perception in the current study that specific support processes for family and team members are needed, but that these should involve modest provisions that do not substantially alter current levels of preparation or team composition. Consistent with this, the deployment of mental health specialist staff generally is not considered necessary, while the development of core skills in occupational mental health is seen as a logical extension of the DMAT leader role. Further development of these aspects of the role, through training, is strongly supported by DMAT personnel with recent deployment experience.

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