



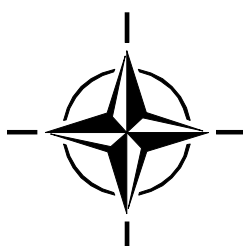
**RTO MEETING PROCEEDINGS**

**MP-HFM-157**

# **Medical Challenges in the Evacuation Chain**

(Les défis médicaux dans la chaîne d'évacuation)

Papers prepared for the RTO Human Factors and Medicine Panel (HFM)  
Specialists Meeting which was held in Siegburg,  
Germany from 2 to 3 December 2008.



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# The Research and Technology Organisation (RTO) of NATO

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

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

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

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

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

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

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# Medical Challenges in the Evacuation Chain

## (RTO-MP-HFM-157)

### Executive Summary

Up to and including the First Gulf War, medical support was organised with large medical footprints in the mission area, able to treat and hold substantial numbers of casualties, and included definitive surgical care and early phases of recovery. Only larger NATO countries had Aeromedical Evacuation-systems in full operation, and these were typically set up to move large numbers of stable patients at a relatively late stage in their treatment and recovery, often weeks after injury. In later conflicts the development has been towards decreasing the medical footprint, while at the same time increasing the level of sophistication of especially the surgical treatment of injured soldiers, and implement that treatment faster for the relative smaller number of casualties. This has resulted in challenges for the various echelons of patient transport between Roles 1 through 4 of the patient treatment system, since patients are transported at a much earlier stage, and often only after resuscitation and preliminary stabilising surgery. Today, an injured soldier will typically be under definitive treatment in a major hospital in his home country after 24-48 hours. As a consequence, some patients need very sophisticated care, and sometimes emergency surgical procedures, during transport.

The RTO/HFM Specialist Meeting 157 was arranged to look into the present state of patient evacuation in present day NATO and Coalition operations, with the purpose of identifying shortfalls and areas where NATO should attempt to sponsor development and/or coordination of efforts. Participants were from 16 countries, mostly "old" NATO-countries, but also a couple of PfP-countries. The presentations demonstrated many developments to achieve the best possible outcome for patients, but also that these developments were typically nationally driven by a few larger NATO-nations. In summary, the overall state of the patient treatment and evacuation continuum is good, but fragile, and there is room for improvement. In terms of patient outcome, results are the best in recorded history, but not yet the best possible.

In conclusion, recommendations are as follows. 1. Developments should be evidence driven, and all alliance countries should strive for the same high level of patient care. Therefore a registry of patient evacuation experiences should be established, to collate all NATO countries experiences related to procedures and equipment in the evacuation chain, since most countries cannot accumulate enough data on their own for this purpose. Such a registry could be a supplement to, or an addendum to, the NATO Trauma Registry, which will hopefully be established shortly, to allow the same evidence based development for surgical treatment procedures. The RTO/HFM Operational Medicine Area Committee should consider an Exploratory Team to assess the possibilities for creating a sort of evaluation and quality control system for patient evacuation. 2. There are differences among nations in the education content and titles for health care professionals, which can be confusing and have legal ramifications. It should be considered to establish a database of all relevant health care education and training programs for NATO countries to allow for more transparency. 3. It is vital that specialists from the patient evacuation field exchange information, to improve and coordinate developments in this area. Meetings such as HFM 157 should take place annually or biannually. PfP and other coalition partners should be invited, given the strong participation of non-NATO countries in today's conflicts.

# Les défis médicaux dans la chaîne d'évacuation

## (RTO-MP-HFM-157)

### Synthèse

Jusqu'à la première Guerre du Golfe incluse, le soutien médical était organisé dans de larges installations médicales implantées dans le secteur de la mission, capables de traiter et d'héberger un grand nombre de blessés, et comprenait des soins de chirurgie définitive et les premières phases de la convalescence. Seules les grandes nations de l'OTAN disposaient de systèmes d'évacuation sanitaire aérienne pleinement opérationnels, qui servaient généralement à déplacer un nombre important de patients stables à une étape relativement avancée de leur traitement ou de leur convalescence, souvent plusieurs semaines après qu'ils aient été blessés. Lors des conflits ultérieurs, la tendance s'est orientée vers une réduction d'importance des installations médicales et, simultanément, vers une augmentation du degré de sophistication, en particulier du traitement chirurgical des soldats blessés, et une mise en œuvre plus rapide de ce traitement pour les blessés relativement moins nombreux. Cela a engendré des défis pour les divers échelons du transport des patients entre les Rôles 1 à 4 du système de traitement des patients, dans la mesure où ces derniers sont évacués à un stade bien plus précoce, souvent juste après la réanimation et une chirurgie stabilisatrice initiale. Aujourd'hui, un soldat blessé reçoit généralement un traitement définitif dans un grand hôpital de son pays d'origine au bout de 24 à 48 heures. En conséquence, certains patients nécessitent des soins extrêmement sophistiqués – et parfois même des procédures chirurgicales d'urgence – au cours du transport.

La Réunion de spécialistes RTO/HFM 157 a été organisée en vue d'étudier l'état actuel de l'évacuation des patients dans les opérations contemporaines de l'OTAN et de la Coalition, avec pour mission d'identifier les lacunes et les domaines dans lesquels l'OTAN devrait s'efforcer de promouvoir le développement et/ou la coordination des efforts. Les participants étaient originaires de 16 pays, pour la plupart de « vieilles » nations de l'OTAN, mais également quelques pays du Partenariat pour la paix. Les présentations ont révélé de nombreux développements visant à obtenir le meilleur résultat possible pour les patients, mais ont également démontré que ces développements étaient en général les initiatives nationales de quelques-unes des plus grandes nations de l'OTAN. En résumé, l'état général du continuum d'évacuation et de traitement des patients est bon mais fragile, et peut être amélioré. En ce qui concerne les résultats pour les patients, ils sont les meilleurs jamais enregistrés à ce jour, mais pas encore les meilleurs possibles.

En conclusion, les recommandations sont les suivantes. 1. Les développements devraient être fondés sur des témoignages, et tous les pays de l'alliance devraient s'efforcer d'atteindre le même niveau élevé de soins aux patients. Un bureau d'enregistrement des expériences d'évacuation de patients devrait donc être créé, en vue de collationner les expériences de l'ensemble des nations de l'OTAN relatives aux procédures et au matériel de la chaîne d'évacuation, dans la mesure où la plupart des pays ne peuvent rassembler par eux-mêmes suffisamment de données à cet effet. Ce bureau d'enregistrement pourrait représenter un supplément ou un addendum au Bureau d'enregistrement des traumatismes de l'OTAN, qui devrait bientôt voir le jour, afin de permettre les mêmes développements fondés sur des témoignages pour les procédures de traitement chirurgical. La Commission RTO/HFM pour la Médecine opérationnelle devrait envisager de constituer une équipe exploratoire ayant pour mission d'évaluer les possibilités de créer une sorte de système d'évaluation et de contrôle de la qualité pour l'évacuation des patients. 2. Des différences existent entre les nations au niveau de la formation et des titres des professionnels de santé, qui peuvent être déroutantes et donner lieu à des retombées juridiques. Il devrait être envisagé d'établir une base de données de tous les programmes pertinents d'enseignement et de formation des professionnels de la santé pour les nations de l'OTAN, afin de permettre une plus grande transparence. 3. Il est essentiel que les spécialistes de l'évacuation des patients échangent des informations, afin d'améliorer et de coordonner les développements en ce domaine. Des réunions telles que l'HFM 157 devraient avoir lieu sur une base annuelle ou semestrielle. Les pays du Partenariat pour la paix et les autres partenaires de la coalition devraient y être conviés, étant donné la forte participation des nations non membres de l'OTAN dans les conflits actuels.

# REPORT DOCUMENTATION PAGE

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