

PERFORMANCE INDICATORS FOR PREHOSPITAL COMMAND AND CONTROL DEVELOPED FOR CIVILIAN USE TESTED IN A MILITARY TRAINING SETTING, A PILOT STUDY

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Abstract

Objectives: The aim of this study was to determine if a set of performance indicators for command and control (C²) primarily developed for civilian use could be applied also to a military training context as well.

Method: The initial decision-making in the on-scene medical management in a multinational military medical evacuation exercise in Afghanistan was studied, using this set of indicators.

Results: Two performance indicators were appropriate to this setting. Of the nine applicable indicators, the standards set for civilian use were met in four, in three other they were not met, and there was a lack of documentation in two indicators.

Conclusion: Measurable performance indicators for prehospital command and control were to some extent found to be applicable also to a military environment. Future developments may make it possible for the concept of measuring results using civilian performance indicators to become a quality control tool in a military setting.

Introduction

Military medicine, as well as disaster medicine in general, often has been considered a descriptive discipline. Scientific studies are difficult to perform and there are obvious difficulties in comparing results from different types of incidents. Shortcomings are often expressed in general terms, making it difficult to know exactly what needs improvement. Furthermore, prehospital care might embrace a variety of time frames, ranging from a short prehospital time where the patient is transported to a sophisticated trauma and emergency centre, to a comparatively long prehospital time where the patient is transported to a small and sometimes unsophisticated receiving unit [1].

One way to approach this issue is to develop performance indicators where results from training as well as from real incidents can be measured and compared to standards, and analysed using quantitative methods. This has been done in Sweden, by using results from the modelling processes that served as background in the development of a national management doctrine for major incidents and disasters [2]. Previous reports have indicated that sets of performance indicators could, to some extent, be applied retrospectively, in an attempt to validate the developed indicators [3,4]. The Utstein template also has provided a tool for a more scientific approach to this problem as well as other forms for reporting data from major incidents [5 - 7]. Results from the civilian use of the Utstein template in the prehospital training of command and control have previously been published [8].

To our knowledge, no results have been published from the application of this systematic approach to a military setting. The use of measurable performance indicators could lead to a

more specific evaluation also in the military setting. This would provide a possibility to specify, more accurately, likely areas for improvement.

The aims of this study were twofold. Firstly to determine if the technique of using a set of performance indicators for command and control that primarily was developed for civilian use, could be applied also in a military training context. Secondly to determine whether civilian standards for prehospital command and control are applicable in a military setting.

Material and Methods

A set of previously developed performance indicators for prehospital command and control was used in a multinational military medical evacuation (MEDEVAC) exercise, with air evacuation of wounded military personnel. The study covered the initial decision-making in the on scene medical management [8]. The standards set in the indicators were developed by extracting the key processes from the modelling results and appending either the desired time or content [2].

The exercise took place in northern Afghanistan in 2006. The scenario was an incident (intentional attack or accident) where members of a military observer team were wounded. The ambulance dispatch centre was the Tactical Operations Centre (TOC). Two "military ambulances" (armoured personal carrier, APC) with one trauma nurse and one medic in each were dispatched, together with a Quick Reaction Force (QRF) to cover and protect the area. The strategic level of command and control was the Rescue Coordination Centre (RCC). The personnel of the first APC had a command role, while the personnel of the second APC acted as first responders, providing trauma care and stabilisation at the site of injury. MEDEVAC helicopters performed the final evacuation, in order to bring casualties safely and within set time limits to the nearest military field hospital with a capacity for damage control surgery.

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Activity	Objective/goal to be achieved	Results
1. Putting on tabard indicating medical and ambulance incident officer.	Immediately	Not applicable
2. First report to dispatch centre	Within 2 minutes	Yes
3. Correct content of first report	METHANE*	Yes
4. Formulate guidelines for response	Within 3 minutes	No documentation
5. Establishing contact with strategic level of command and control.	Within 5 minutes	Six minutes
6. Liaison with fire and police incident officers on scene	Within 5 minutes	Yes
7. Second report from scene (to strategic management)	Within 10 minutes	13 minutes
8. Correct content of report	Verifying first report and indicating when first patient transport can take place	Yes
9. Establishing level of medical ambition.	Within 10 minutes	No documentation
10. First patient evacuated	Within 15 minutes	35 minutes
11. Information to media on scene	Within 30 minutes	Not applicable

* Major Incident Medical Management and Support [9].

Table 1. Proposed performance indicators and results from military exercise compared to standards developed for prehospital non-military settings (all times are from when arrival on scene).

The scenario was considered as a compensated major incident, i.e. one where resources are available but where the key issue is to transfer casualties to the correct place in proper time [9].

Results

Two performance indicators were not applicable to this setting. One was “putting on tabard” to indicate officers’ (medical) ranking and role responsibilities. The other indicator not applicable was “information to media from scene”.

Of the nine indicators that were applicable, the standards set for civilian use were met in four, standards were not met in three, and there was a lack of documentation in two (Table 1).

In the present study, the indicator “liaison with fire and police incident officers on scene” was interpreted as indicator “liaison with rescue and security personnel on scene”. In this particular military context, a medical team would not be allowed to enter a potentially dangerous area, prior to the area being secured by other military troops, such as a Quick Reaction Force (QRF), Explosives and Ordnance Disposal Team (EOD) or a Rescue Team.

Discussion

The results indicate a need for modifications when applying this set of indicators. Examples of this are that some indicators were not applicable to this particular setting, for instance putting on tabard and information to media.

In a simple military setting, there is no need for tabards, as ranks and responsibilities are already well known within the organisation. However, complex situations involving military as well as civilian personnel are becoming more common, therefore necessitating the use of tabards to indicate different categories of personnel on the scene.

Media had no access to this particular exercise area. However, military personnel should be aware of the vital importance of the proper handling of media in international scenarios these days.

Templates for reports should be developed according to an international standard. It is not suitable to have different report formats depending on who is in overall command of the situation. The report template used in the civilian setting was developed with the objective that it is equally important for the receiver of the information to know what to expect, as for the sender to know what to report.

Of the indicators that could possibly apply, results were according to the standards in four cases, and acceptable in three cases. These results were almost identical regarding the performance indicators to those achieved when first tested

retrospectively in a report from a serial car crash in 2003 [3]. The indicators that did not fulfil the standards were:

- establishing contact with strategic level of command (“Gold level”)
- second report from scene, and
- the evacuation of the first patient [9].

The first two indicators were just shy of the goal, but the third, “first patient evacuated”, was only achieved in 35 instead of 20 minutes. These results indicate that the two first-mentioned may be applicable and that improved teaching may lead to improved results. The third demonstrated that in a military setting the evacuation of patients is depending on other circumstances than in the civilian setting, such as variations due to different tactical situations. Therefore, this indicator could be subject to adjustment.

On the other hand, it is understood that the indicators cannot, and will not, be fulfilled in all instances and that this is acceptable as long as a good explanation exists. These indicators were developed with regard to the requirement for patients to be evacuated rapidly after trauma. This requirement, of course, is the same in both military and civilian settings.

For two indicators, “formulate guidelines for response” and “establishing level of medical ambition” there was no documentation available. These indicators have shown poorer results when applied in civilian training, but in our view it is important that these decisions are made in time, and documented and communicated to others in the response team. It is understood that decisions per-se could have been made, thereby fulfilling the standard set by the indicator, but it is important for the evaluation process that all important decisions also are documented. Lack of documentation is one of the shortcomings that so far have made the evaluation of incidents difficult. Efforts should be made to improve this in the future [10].

This pilot study from one training session in a military setting demonstrates that the set of performance indicators for civilian prehospital command and control could to some extent be applicable in a military setting. More importantly, the concept of using indicators was applied and future development could make it a potential quality control tool. Results can be measured, analysed and compared and shortcomings can be demonstrated and corrected during training. Applications of the same performance indicators in real situations could also make it possible to compare and analyse results and possibly also contribute to *lessons learned* instead of what is common today, *lessons observed*.

Conclusions

Measurable performance indicators for prehospital command and control could to some extent be used in a military training context. Future developments may make it possible for the concept of measuring results using civilian performance indicators to become a quality control tool in a military setting as well.

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