Role of the pre-hospital treatment team on the UK military exercise SAIF SAREEA 3

Peter Nicholas Harper,[1] N Taylor,[2] P Royal,[1] MB Smith[1]

ABSTRACT

The prehospital treatment team (PHTT) involves a small team working under the clinical supervision of a clinical lead. The clinical lead can be a general duties medical officer (Post Foundation Years Doctor), military nurse practitioner or more senior clinician. The team is mounted in vehicles appropriate to the environment they expect to operate in. A PHTT is closely located to the front line reducing transportation timelines from the point of wounding to more definitive care. The PHTT can provide medical support on the move or when time is available; a more permanent fully erected treatment facility can be established. Either configuration can provide both trauma and primary care. The size of the team allows for multiple trauma subteams enabling care to casualties that arrive simultaneously. The PHTT can move independently which could leave the team vulnerable as there is no integral force protection within the current structure. In such a small team, the right balance of medical and soldiering skills among team members is essential to success. Exercise SAIF SAREEA 3 represented a large-scale battlegroup exercise to the Middle East in the austere desert of Oman. This provided an ideal environment for employing the PHTT concept is a large deployed force undertaking dynamic activity.

Key messages

- The prehospital treatment team (PHTT) provides an ability to provide medical support close to the point of wounding, and has the ability to move with the force that it supports.
- The PHTT is able to treat patients from the back of vehicles or in a more established facility.
- PHTTs provide medical care across a dispersed area, but geographical isolation of the teams can leave them vulnerable.
- Should the PHTT be used in war it would require its own force protection to allow effective care.

BACKGROUND

Deployed medical care has been an evolving practice since the first documented medical organisation within the British Military in 1660. Within the British Army establishing the most effective evacuation chain from front line to home base has been under constant review as the nature of potential threats changed.[1] The increased mobility available from mechanisation means that medical personnel are now able to move with the units they support. For example, during the conflict in Korea where the terrain was mountainous and the roads poor, the early used of helicopters was seen. In comparison during the First Gulf War, large open desert required the use of armoured vehicles to cover large distance. More recent operations in Afghanistan see the use of both armoured vehicles around the streets of Kabul and helicopters for effective medical evacuation.

What care should be provided at each level has been a perennial challenge.[2] Should you treat casualties close to the point of wounding or should you evacuate them back as quickly as possible? The structure of UK medical support has changed throughout the past century as we moved from World War 2 to the Cold War and into Contingency Operations. Further lessons identified the difference in predicted casualty composition from high intensity warfighting, where trauma is common, to Humanitarian and Peace keeping missions with a higher rate of disease and non-battle injury. Being able to adapt and deal with both situations is therefore desirable.[2] The UK Defence Medical Services have identified the need to maintain clinical skills within the service. This has never been truer than for those clinicians who do not work in a patient facing environment in the firm base in the UK. Large-scale exercises play a part in ensuring that these individuals gain valuable clinical exposure when they are deployed to deliver medical support to exercising troops.[3]

Exercise Saif Sareea 3 (SS3) was the largest Joint and Combined British Military exercise for over 17 years and saw kinetic armoured infantry manoeuvre in the hostile environment of the Omani desert. The exercise comprised an integrated exercise with Host Nation forces involving operating at distance from the medical facilities. The Medical Reception Station and Role 2 hospital was often a 2-hour plus road move from the main body of troops. Thus, two prehospital treatment teams (PHTTs) deployed in addition to the Regimental Medical Officer (RMO, fully registered general practitioner) and seven combat medical technicians (CMTs) of the one Mercian battlegroup. CMTs are non-licensed practitioners trained by the army medical services in prehospital emergency and primary care under direction from a licensed provider.[1]

The presence of the two PHTTs allowed the 1 Mercian medical assets to become more flexible. The integral assets of the battlegroup could be distributed forward to provide close support to soldiers on the front line, rather than stay within the classical Regimental Aid Post (RAP) structure. The RMO provided support to Battlegroup Headquarters (BGHQs) and was able to project forward to support the other medical teams as needed SS3 represented an opportunity to observe this model of healthcare within the context of a deployed battlegroup and its utility for future operations

The PHTT concept

The PHTT is a small clinical team based around a lead clinician with the ability to prescribe. This clinician can be an RMO, a general duties medical officer (GDMO) or a military nurse practitioner (MNP). The MNP is endorsed to treat and prescribe autonomously within their scope of practice.[4] In turn, the clinical lead is supported by a mixed team of CMTs, nursing staff and drivers. The team is able to provide both primary care and prehospital emergency care. Typically two PHTTs work in tandem providing mutual support and an ability to move around the battlespace.[5]

Composition of a PHTT

On SS3 the manning composition of the PHTTs varied (see Table 1). Having CMTs dual trained as drivers provided more clinicians, however, this is caveated with the requirement to ensure sufficient rest to drive and treat patients safely.

[1]5 Armoured Medical Regiment, British Army, Catterick, UK
[2]1 Mercian, British Army, Bulford, UK

Correspondence to LtCol MB Smith, 5 Armoured Medical Regiment, British Army, Catterick DL9 4AS, UK; drmike17@icloud.com

Table 1 Organisation of the prehospital treatment teams (PHTTs)

	PHTT	
Job role	**PHTT 1**	**PHTT 2**
Clinical lead	General duties medical officer	Military nurse practitioner
Senior NCO/Commander	Med sergeant—CMT	Med Sergeant—CMT1
Team member	CMT 1—commander	General nurse
Team member	CMT 1—driver	CMT 1—commander
Team member	CMT 1—driver	CMT 1—driver
Team member	CMT 2	CMT 1—driver

CMT, combat medical technician; NCO, Non-Commissioned Officer.

Transportation of the PHTT

The vehicle platform used in a PHTT is selected to reflect the environment they are operating in. On SS3, the platform used was a Bulldog ambulance variant as the battlegroup were operating with tracked vehicles. However, if the BG were using wheeled vehicles a PHTT could be mounted into a battlefield ambulance or mastiff platform depending on the threat. Mounting the PHTT in a similar platform to that of the battlegroup allows the medical team to closely follow the battle, this enhances the ability for clinical timelines to be achieved. As alternative platforms with medical evacuation capability are brought into service, for example, Boxer, a wheeled armoured personnel carrier medical planners will need to take these in to consideration when creating a PHTT.

On SS3, the PHTTs moved close behind the assaulting companies and the two PHTTs worked in concert with each other. This enabled both teams to move independently of each other, and for one team to provide a working facility while the other team moved forward, thus the battlegroup always had a fully operating medical facility ready to receive casualties at kinetic phases of the exercise. That said, the PHTTs could come together to provide a greater clinical presence if required. Communication is vital between BGHQ and the PHTTs, such information such as location was relayed to the Sub Units via the radio network enabling streamlined evacuation of casualties.

Mobility and flexibility underpin the ability to respond effectively to incidents.[6] This was a theme throughout SS3, the PHTTs were able to move with the battlegroup providing reassurance to the chain of command (CoC) that appropriate medical care was closely located as required. At the basic level, emergency care could be provided from the back of the vehicles, the benefit being optimum mobility was maintained and notice to move times were relatively low, less than 10 min. In contrast the fully erected treatment facility, using all the equipment of the PHTT including camouflage nets and resuscitation bays took approximately 30 min to establish (Figure 1). This provided greater protection from the elements which was particularly useful in the Omani desert and in the treatment of heat casualties, a sizeable proportion of casualties.[7 8] After the teams had practised and developed an appropriate load plan, PHTT establishment became increasingly rapid; a basic treatment bay with monitoring could be erected in less than 5 min from arriving in location (Figure 2). This could in turn be modified if a heat casualty was to be received, a tarpaulin could be erected over the stretcher providing shade from the sun rather than utilising a camouflage net. The use of a tarpaulin to offer shade in this instance afforded a degree of protection from the elements could be provided in a shorter time frame, essential when treating heat casualties.[9] The main time constraint for establishing a fully functioning PHTT, ready to receive casualties as displayed in Figure 2, was the construction and dismantling of camouflage nets. A camouflage net provided some clinical advantages, it offered a large area that was partially shaded for the treatment of multiple casualties and the PHTT personnel. The flexibility of a PHTT provides options to the CoC and enables a form of medical care that keeps pace with an advance. The ability of the PHTT to choose how it is established provides a key advantage that allows greater tactical flexibility and faster medical response.

Function of the PHTT

Initial stabilisation of that casualty relies on forward deployed CMTs or ambulance assets.[6] PHTTs are designed to meet the 1-hour timeline of being treated by a Battlefield Advanced Trauma Life Support trained practitioner in a safer environment than the forward medical assets. The PHTT can take multiple casualties from different locations allowing the forward clinicians to stay with the fighting companies. This provides a forward triage and holding area where casualties can be concentrated, receive life-saving treatment and be sent for more definitive care via the most appropriate means, identifying the highest priority casualties to be moved first.[3]

In SS3, the CMTs integral to the fighting companies decided the clinical pathway depending on the situation. If the casualty warranted immediate medical evacuation to hospital the Medical Emergency Response Team (MERT) was activated. MERT is a concept that came to public awareness during the recent conflict in Afghanistan. They provide advanced mobile care, despite the public perception MERT can use any vehicle and is not confined to helicopters.[10] Identifying the most appropriate clinical pathway for a patient is challenging in an austere environment.[9] Knowing when and where to use a capability provided is critical given the military often operate in resource limited situations.[11] The PHTTs provided forward advanced decision making and a close source of support as needed to the CMTs imbedded within the infantry companies.

Figure 1 Armoured vehicle of a PHTT under cam netting. Supplied by Royal. PHTT, prehospital treatment team.

Figure 2 Casualty treatment Bay in deployed PHTT. Supplied by Maj P Royal. PHTT, prehospital treatment team.

The 1 Mercian RMO was located at BGHQs during the exercise. This meant they could project forward to casualties themselves if required allowing the maximum benefit from the senior clinician on the ground. This differed from the more traditional approach based around a more concentrated RAP but provides scope to position medical support where required with disseminated decision making.[12]

Management of casualties

The skill set contained within the PHTT influences the flexibility afforded to the CoC. If receiving a single patient, a complete resuscitation team could be used with personnel assigned to specific roles. As additional casualties present then the team can be subdivided further with the clinical lead 'hands off' providing advice to each subteam. Examples of possible team configurations are shown in Figure 3. During the deployment, the PHTTs would often see multiple primary care casualties simultaneously, on occasion heat or trauma casualties. Two or more critically unwell casualties diminishes the PHTT's ability to undertake non-clinical tasks such as operate the radio or force protection (FP), an important factor if to be used in a real war fighting situation. Therefore, assistance may have to be drawn from those conducting the casualty evacuation or the CoC accepts that the PHTT loses the FP element if treating multiple casualties.

The diversity of skill sets within the PHTT including the presence of a nurse provided complimentary skill sets lending additional experience and a more holistic approach to running the facility. The PHTT was a valuable learning environment for all members of the team. As mentioned in the introduction those not in a clinical role in the firm base were allowed to reacquaint themselves in a supportive team. This is best demonstrated through the care several unwell casualties received from the PHTT. Casualties included heat injury and road traffic accidents, the teams were able to effectively initially manage these and evacuate to higher level care within timelines. During the exercise, the PHTTs treated several casualties that were triaged to be among the most unwell. These included from heat casualties as well as those from road traffic incidents. The teams were able to effectively initially manage these and evacuate to higher level care within timelines.

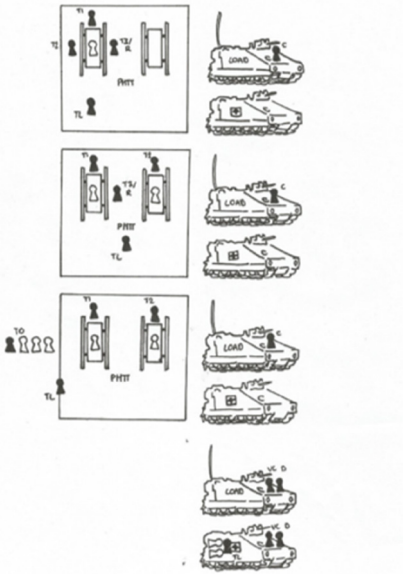

Figure 3 Possible team configurations of a PHTT. Supplied by Maj P Royal. D, driver; PHTT, prehospital treatment team; T, Treatment; TL, team lead; VC, vehicle commander.

Learning points

One of the prime advantages of the PHTT is the flexibility, the use of two in unison provides a medical footprint over a greater area and they can either work in isolation or together for best effect, dependant on the operational requirement. However, this come as at cost within the PHTT was provided internally, there was no battlegroup asset assigned. In a permissive environment, this is not a concern, in the operational environment an isolated PHTT would be vulnerable. Protection is afforded from harm under the Geneva convention,[13] but against an enemy that does not subscribe to this a PHTT would be vulnerable. For a PHTT to be used on operations it would require a supporting defensive force. This would increase the size of the PHTT and manning would have to be taken from within the battlegroup, reducing capability somewhere else.

Basic soldiering skills are essential to the viability of the PHTT; this was a key learning point from SS3. Anecdotally, often basic soldiering skills are often not focused on within the clinical cadres due to other training demands. Oman represented difficult terrain with large expanses of featureless desert, a challenging environment to navigate in. Navigation through this can be easily achieved in the modern era through the use of a Global Positioning System (GPS), and indeed it is apparent how an over-reliance on this technique could easily develop. As seen in recent examples, GPS is not a system[14] that is immune to actions by the enemy and so the ability to use map and compass to navigate through difficult terrain is required. It was noted within the PHTTs that skill levels with regard to navigation, operating radios and maintaining vehicles varied as did the experience with the vehicle platform. An inability to successfully navigate could have a disastrous effect on clinical delivery and survival of the facility. Thus, basic soldiering skills for those within a PHTT should form a key part of future predeployment training package.

The Omani desert is an austere environment where temperatures can exceed 50°C, having a serious impact on sustainable work rate. The PHTT must be able to maintain themselves and their equipment at the same time as providing high level medical care.[15] Therefore, emphasis on the environment a PHTT is going to operate in is required before leaving the UK. The team need to be physically robust to withstand the demand of the job, providing medical care, in an austere environment. Physical training prior to deployment

Box 1 Considerations when employing prehospital treatment teams (PHTTs) in the future

- Force protection needs consideration when deploying a PHTT in the operational environment is key to operation of a PHTT.
- Key to ensure appropriate skills held within the PHTT team including navigation and vehicle maintenance need to be confirmed.
- PHTT represents an important addition to medical assets within a battlegroup.

on operations or overseas exercises to hot countries aids acclimatisation[9] and ensuring that basic soldiering is revised as part of the predeployment training are key to an effective PHTT. A summary of key learning points can be found in Box 1.

CONCLUSIONS

Throughout the course of the exercise the PHTT concept was shown to provide flexibility and mobility. This was seen through the ability to move close to the elements they supported and the multiple options they provided in treatment of casualties. The concept of two PHTTs working in concert allowed an established medical team to be ready to receive casualties while the other moved. The PHTT was able to provide high quality clinical care while moving across a large austere environment. This has shown the concept can be successfully employed in a large complex exercise.

Twitter N Taylor @icemaidennat and P Royal @PeterRoyal13

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