Lympstone: Pre-Hospital Emergency Care

Commando Training Centre Royal Marines, Lympstone, Exmouth, Devon, EX8 5AR

Defence Medical Services inspection report

This report describes our judgement of the quality of care at this service. It is based on a combination of what we found when we inspected, information given to us by the practice and patient feedback about the service.

Overall rating for this service	**Good**	●
Are services safe?	**Good**	●
Are services effective	**Good**	●
Are service caring?	**Good**	●
Are services responsive to people's needs?	**Good**	●
Are services well-led?	**Good**	●

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Summary

About this inspection

We carried out this announced inspection on 22 May 2024. We reviewed the Pre-Hospital Emergency Care (PHEC) service delivered at Commando Training Centre Royal Marines (CTCRM) Lympstone. This inspection was commissioned by the Defence Medical Services Regulator (DMSR) in their role as the military healthcare regulator for Defence and was conducted by Care Quality Commission (CQC) staff.

PHEC activity is delivered alongside primary healthcare (PHC), therefore elements of safety apply to both areas whilst only PHC is formally resourced. An inspection of the primary care facility was carried out concurrently and, to prevent duplication, sections of this report that apply to both PHEC and PHC have been transcribed.

As a result of this inspection the service is rated as good overall in accordance with CQC's inspection framework.

Are services safe? – good

Are services effective? –good

Are services caring? – good

Are services responsive to people's needs? – good

Are services well-led? – good

CQC does not have the same statutory powers with regard to improvement action for Defence delivered healthcare under the Health and Social Care Act 2008, which also means that Defence delivered healthcare is not subject to CQC's enforcement powers. However, as the military healthcare regulator, the Defence DMSR has regulatory and enforcement powers over Defence delivered healthcare. DMSR is committed to improving patient and staff safety and will take appropriate action against CQCs observations and recommendations.

This inspection is one of a programme that CQC will complete at the invitation of the DMSR in their role as the military healthcare regulator for the DMS.

At this inspection we found:

The PHEC service was led by a suitably qualified and experienced clinical lead and underpinned by a sound governance framework.

PHEC specific governance had been incorporated into the clinical governance system of the medical centre to assure the safety and effectiveness of PHEC activity.

Access to emergency care was in place both within the camp and when out on exercise. The ambulances available included off-road vehicles used to transport patients when the general purpose vans could not gain access.

There was a comprehensive system to ensure that staff completed the required mandated training and held the appropriate professional registrations. This was supplemented by regular simulated scenario training.

Staff understood the Mental Capacity Act (2005) and how it applied in the context of the service they provided.

The system for recording pre-hospital clinical records was standardised and made use of a Patient Report Form. The PHEC lead was collating a database of themes and trends using historic records.

Risks in relation to PHEC provision had been identified and recorded by the medical centre team. When escalated, risk ownership was transferred to Defence Primary Healthcare or Navy Command.

We found the following areas of notable practice:

The service had developed good lines of communication with subject matter experts and with educational institutions in order to set up a framework of external peer discussion and review whilst pioneering many of the treatment pathways being used. This knowledge and experience was shared widely within both the military and civilian space and there was a clear objective to upskill the medics.

We recommend to the PHEC service:

Set a standard level of skills and competency checks that define the scope of practice for clinicians involved in the delivery of PHEC.

Complete and submit a risk assessment for Ketamine (or equivalent rapid-acting painkiller) to be included in the locally held emergency medicines and for Cricothyroidotomy kits (used to secure an airway in an emergency situation) to be included in the locally held emergency equipment.

Consider the introduction of a scope of practice document to provide clear guidance for the service on accessibility and eligibility, and detail what treatment should be provided in terms of PHEC.

We recommend to DPHC:

Ensure there are appropriate arrangements for the technical support, maintenance and replacement of damaged or defective specialist PHEC equipment

Our inspection team

This inspection was led by a CQC inspector with input from a specialist advisor primary care doctor with experience of both PHEC and urgent care.

Background to Lympstone Commando Training Centre Royal Marines (CTCRM) PHEC service.

CTCRM Lympstone provides phase 1, 2 and 3 training for Royal Marine Commandos. Training is arduous and trainees are necessarily exposed to a high risk of musculoskeletal and exertional heat injuries (EHI). Recruits are generally highly motivated, have high levels of cardiovascular fitness and were reported by the medical centre team to present late, even when significantly unwell with the later stages of EHI or sepsis.

The medical centre provides a limited scope of PHEC practice which has evolved holistically over the years and is targeted to injuries known to be associated with the output of the training unit. These are almost exclusively EHI, the early management of sepsis while waiting for transfer to an NHS emergency department and musculoskeletal injuries. The scope of practice has been informed by comprehensive records of presentations and outcomes dating back over 10 years. PHEC response is limited to camp, and the training areas surrounding it; CTCRM does not provide PHEC to non-entitled patients in the community. Mobilisation is exclusively by a direct call to the medical centre or by mobile telephone when deployed on exercise.

The medical team has developed world-leading expertise in the management of EHI and is actively involved in forming Defence and national policy on the management of this condition.

The medical centre patient list size is variable, but typically there are between 1,000 and 2,000 service personnel under their care, with between 1,000 and 1,400 trainees.

A total of 79 patients had received pre-hospital emergency intervention in the preceding 24 months. This included 38 cases of EHI and of these, 16 were classed as level 4 heat injury (heat stroke). Musculoskeletal injury presentations including complex fractures form the bulk of the remaining cases.

This limited PHEC service is delivered in the field at point of wounding and in an enhanced treatment room at CTCRM Lympstone. The primary response to incidents is by a medic on foot from the medical centre sickbay (a doctor will accompany when required). A driver and ambulance vehicle are on stand-by when the Tarzan assault course is in use. More commonly, the training teams evacuate the patient from the training area to the enhanced treatment room (on foot or by car). The medics are supported by 3 trained GPs providing 24-hour on call cover in addition to providing routine primary care outputs during the day. Care is supported by a bedding down facility (BDF) which can monitor patients following initial treatment. This is most

commonly used (from a PHEC perspective) for monitoring patients following cooling for EHI.

The nearest hospital with an accident and emergency department is the Royal Devon and Exeter Hospital, a 20-minute road move from Lympstone.

The Medical Centre workforce establishment at the time of the inspection (the establishment of staff includes dual roles with staff working for both the medical centre and PHEC activity).

Position	**Numbers**
Principal Medical Officer (PMO)	One
Deputy Principal Medical Officer (DPMO)	One
Civilian medical practitioners (CMP) – one acted as the PHEC lead	Two (1.4 full time equivalent)
Military Medical Officer (MO)	One
Senior Nursing Officer (SNO)	One
Ward nurses	Seven – (four Royal Navy and three civilian)
Practice manager	One
Deputy practice manager	One
Administrative staff	Three (one vacancy)
Pharmacy technicians	One
Radiographer	One
Medical Assistants	Thirteen (ten Defence Primary Healthcare and three field medics – two vacancies)
Physiotherapists	Six

Are Services Safe?

We rated the pre-hospital emergency care (PHEC) Lympstone as good for providing safe services.

Safety systems and processes

PHEC activity occurs alongside the delivery of primary healthcare. Safety systems are common to both services.

A Service Personnel Support Committee meeting was held on a monthly basis. There was a good working relationship reported between the welfare team, with regular communication outside of schedule meetings.

A safeguarding adult/child policy was held by the medical centre and was regularly reviewed. The appointed leads for safeguarding had completed level 3 safeguarding training. All staff had completed safeguarding and safety training appropriate to their role and knew how to identify and report concerns. A safeguarding register was held by the medical centre on the clinical operating system (known as DMICP) with access limited to appropriate staff members.

The medical centre identified vulnerable patients and registers were maintained. Staff working within the PHEC service were aware of patients identified as vulnerable.

There was a nominated resuscitation officer (RO) who was responsible for the quality and safety of PHEC. These duties were appropriately reflected in a set of terms of reference (TOR). Doctors undertaking PHEC were required to be in-date with advanced life support (ALS) training. In addition, there was a sign-off process conducted by the RO, which doctors had to complete before being allowed to manage exertional heat illness (EHI) cases independently. The medics were in-date for basic life support, AED and anaphylaxis training. The PHEC lead also held the Diploma in Immediate Medical Care of the Royal College of Surgeons of Edinburgh.

Competency board/competency matrix extending to doctors and medics underpinned the training given and ensured currency was maintained. This included key skills such as spinal trauma, analgesia and sedation and management of EHI.

Doctors arrived at the unit with various levels of experience and interest in PHEC. At the time of the inspection, all doctors were actively engaged, held appropriate qualifications and involved in a process of focussed continuous learning and reflective practice. However, there was no defined key skill set that defined suitably qualified and experienced personnel (SQEP) nor currency check that addressed any skill fade.

Training was comprehensive with regular scenario-based moulages (simulation training) focussed on the enhanced treatment facility. More broader training was available and this was factored in and dependant on need. For example, validation

exercises were conducted for EHI, trauma and sepsis. Staff we spoke with felt confident they were sufficiently trained and equipped to deal with presenting emergencies. There was a positive culture of support and clinical supervision.

All clinical staff were in date with basic life support, AED and sepsis training. Sepsis posters were seen throughout the medical centre. Regular training on sepsis was delivered to medics and nurses. This was important as the patients could present at a late stage due their high levels of fitness.

Immediate hot debriefs were carried out using the Royal College of Emergency Medicine process after every patient treated in the enhanced treatment room. These debriefs included discussion around any potential improvements or changes as a result of lessons learnt. An example of a change brought about as the result of a debrief was the pack used for the treatment of sepsis. Antibiotics were held in ready packs to minimise delay in administering while waiting for an ambulance to transport a patient to hospital.

Equipment and medicines

The enhanced treatment room was spacious and well equipped and included a bespoke bay for the rapid cooling of a patient. Specialist equipment included a Bair Hugger and fluid warmer so hypothermic symptoms could be treated.

Medicines were held in the dispensary and in the enhanced treatment room (ETR) for rapid access. However, Ketamine had been withdrawn by Defence Primary Healthcare (DPHC) without consultation. The practice had built up the evidence to demonstrate a need but was yet to put a risk assessment together to allow this to be included in the locally held emergency drugs. Cricothyroidotomy kits had also been withdrawn without consideration or a risk based approach. Again, a case or risk assessment had not been submitted. Both of these had occurred in the past 3 months.

Risks to patients and staff

The Principal Medical Officer held the overall responsibility for risks and owned the risk register.

Clinical staff who delivered the PHEC service worked an on-call rota, with a 1 in 4 or 1 in 3 week commitment depending on numbers of available doctors. Doctors also provided cover for the bedding down facility. Doctors felt that as call out numbers were low, the workload was manageable and did not report problems with fatigue. High-risk events such as the 30-mile speed march were deconflicted with periods when medical staffing did not allow for safe levels of cover.

The ambulance vehicles were suitably equipped and well maintained. We highlighted to staff some minor improvements in the general cleaning of the inside of the vehicles. Staff told us that the vehicles were reliable and suitable for the purpose used including when accessing more remote areas using 4-wheel drive vehicles. Equipment within the vehicles including stretchers were suitable for extraction and there was space inside the vehicles to move around an injured patient.

Delivery of the PHEC service was underpinned by an appropriate set of standard operating procedures (SOP) There was a nominated clinical lead (the RO) with TORs reflecting a responsibility for training, performance standards, equipment maintenance, audit, PHEC-specific drugs, communication of adverse events to single service and DPHC Chain of Command. The SOPs were found to reflect national guidance, for example, Resuscitation Council UK guidelines.

Management of EHI was found to be in accordance with DPHC policy and it was noted that the RO was actively involved in developing new national guidelines for the management of EHI.

Safe and appropriate use of equipment and medicines

The RO was nominated lead for PHEC medicines management.

An emergency drugs pack was held in a temperature-controlled environment to be grabbed by doctors when responding to PHEC incidents. This contained small amounts of controlled drugs (CDs) which were appropriate to the expected presentations. This pack was checked regularly by the pharmacy technician for presence and expiry dates of the drugs and was secured by a tamper-proof seal.

Appropriate CD management was checked and assured as part of the medical centre inspection. Where drugs were taken from the temperature-controlled environment and potentially exposed to temperatures in excess of 25 degrees, a shelf life of 6 months was imposed by the pharmacy technician.

Information to deliver safe care and treatment

The practice ran on a clinical system known as DMICP. Following each case, a record was scanned onto DMICP by way of a patient report form (PRF). A policy was in place to detail the process. In this way, the PHEC system had an effective process for sharing information with staff and other agencies to enable them to deliver safe care and treatment..

Completed PRFs were reviewed by the PHEC lead.

Lessons learned and improvements made

Military practices have a system and policy for recording and acting on significant events (referred to as ASERs) and incidents. All staff had access to the system and ASERs were a standing agenda during the healthcare governance meeting, a multidisciplinary meeting attended by all members of staff. Those unable to attend could access the minutes following the meeting. There were no PHEC related ASERS outstanding and there had been no PHEC ASERS raised in the last 12 months. The PHEC lead confirmed there had been no serious adverse events or patient deaths while undergoing treatment during their time in post.

Are Services Effective?

We rated the pre-hospital emergency care (PHEC) Lympstone as good for providing effective services.

Monitoring and improving outcomes for patients

Each presentation in the enhanced treatment room was subject to a hot debrief which reflected Royal College of Emergency Medicine best practice. There was continuous audit against standard operating procedure (SOPs) and patient outcomes, including a 100% check of each patient review form (PRF) by the resuscitation officer (RO). This incorporated evidence that appropriate feedback had been given. Each PHEC presentation and outcome was logged on a patient database. This had been used over the years to establish themes and trends, for example, the tendency for the nets on the assault courses to produce pectoralis major (the largest muscle of the anterior chest wall) rupture. Themes and trends were appropriately fed to those responsible for designing training with modifications to the assault course made as a result.

Recently, the PHEC database had been linked through Power BI (software used for data visualisation) to a dashboard to give anonymised at-a-glance information relating to injuries and related circumstances to the Chain of Command and senior medical team members. This allowed for real-time feedback about injuries to those responsible for delivering and designing the training. In addition, the results from annual audits of injuries were delivered to the Chain of Command. This has resulted in the change of the route of a speed march to reduce the risk of exertional heat illness (EHI).

Effective needs assessment, care and treatment

PHEC presentations were recorded using PRF referred to as an ‘FMED1092’. This allowed for a standardised approach to recording data and for audits of the quality of the care and the quality of clinical note taking. The RO conducted a 100% check of PRFs, and they were audited for quality and completeness. Training needs and learning outcomes were either reflected to individuals or when necessary, a group training session held. The PRF included contemporaneous record of drugs and fluids delivered. Completed PRFs were scanned to DMICP and retained for future audit purposes in suitable locked cabinets.

PRFs were completed by medics and the PHEC lead audited each one individually. The data recorded included the Tempus Pro (a digital tool that automatically combines patient response to evidence-based screening assessments) vital signs print outs. We discussed the completion of the ABCDE emergency checklist on the PRF (when appropriate) as it was included but not completed (we checked 2 forms and it appeared that some fields had not been completed). The ABCDE approach is a recognised method of treating the most life -threatening problems first. The letters stand for ‘airway, breathing, circulation, disability and exposure.

Lympstone had the equipment and expertise to provide a radiology service. Approximately half of the image referrals came from other units. For Lympstone patients, most X-rays were to detect bone stress injuries to prevent significant injury during training. The Principal Medical Officer (PMO) was the main signatory on radiography paperwork and supervision was in place through a tutor based in Plymouth. A Defence Science and Technology Laboratory inspection in November 2023 classed the imaging department as 'very good'. As CQC were unable to provide a radiology inspector or specialist advisor, reliance was best placed on the specialist review in November.

Effective staffing

The medical centre had a comprehensive trade training programme in place to ensure all staff maintained competency for emergency situations. Trade training was adapted to ensure all staff received regular and relevant training. Training provided on a weekly basis over the past few months more specific to PHEC included:

- Sepsis.
- Exertional collapse.
- Spinal immobilisation.
- The deteriorating patient.
- Extrication (freeing a patient from a setting such as a vehicle).
- Exertional heat injury.
- First response emergency care (referred to as FREC) for medics.

How the service encourages primary prevention measures

Feedback from the PHEC service had resulted in measures being taken to reduce the potential as opposed to prevent injury. The route of the speed march and early starts during warm weather were changes that had been made to reduce the potential for EHI. Spinal and upper/lower limb injury incidence reporting on the Tarzan assault course had instigated changes to training and additional safety requirements. Examples included a change of training for the 'punch through net' and the installation of a safety net over the rope slide.

Consent to care and treatment

Staff sought patients' consent to care and treatment in line with legislation and guidance. When providing care and treatment for young patients and when appropriate, staff carried out assessments of capacity to consent in line with relevant guidance.

Staff understood the relevant consent and decision-making requirements of legislation and guidance, including the Mental Capacity Act 2005. Clinicians supported patients to make decisions. Where appropriate, they assessed and recorded a patient's mental capacity to make a decision.

Are Services Caring?

We rated the pre-hospital emergency care (PHEC) Lympstone as good for providing caring services.

Involvement in decisions about care and treatment

The patient report form included free text sections that supported clinicians and staff in evidencing that the views of patients had been accounted for when providing care and treatment. PHEC staff used the Defence Primary Healthcare patient experience questionnaire as a template for patients to give feedback. Data collated was minimal due to the nature of the service being an emergency response. However, the PHEC service often received direct emails from patients with positive comments on the treatment provided.

Privacy and dignity

Staff were able to use the ambulance as a private space to hold a conversation with the patient in the event that a confidential area was not available or if the patient became distressed. Basic needs such as warmth and comfort could be provided by the ambulance crew.

Staff were required to complete training in data protection to guide them on how to manage confidential information.

Are Services Responsive?

We rated the pre-hospital emergency care (PHEC) Lympstone as good for providing responsive services.

Responding to and meeting people's needs

PHEC services had developed holistically over several years and the scope of practice had developed in response to a comprehensive analysis of incidents which had been updated for around a decade. The PHEC lead collated data using the forms completed for every patient who received treatment. The plan was to use this information to ensure that the service met patient needs based on the historical data available. The PHEC service did not have a set target for response times but worked on an 'as quick as possible' approach that was normally within 5 minutes. This was occasionally restricted due to being situational or location dependent and not having a permanent medical driver. Timing of collapse, arrival at the enhanced treatment room and commencement of active cooling was measured for all exertional heat injury (EHI) patients.

A card was given to all trainees to be kept with them and used if seen for medical treatment elsewhere. The card had contact details and invited clinicians to reach back to the clinical expertise at Lympstone for support or handover of the patient.

Timely access to care and treatment

The PHEC service was targeted to either be at the scene when training took place within the camp, or very close by when training took place elsewhere. Appropriate vehicles were used to gain access and these were staffed by trained medics. The nearest A&E department for the Lympstone camp was at the Royal Devon and Exeter Hospital, a drive of approximately 20 minutes. There was also links with the Devon Air Ambulance Trust who were aware of the specific needs and the capabilities that the PHEC service provided. It was accepted that the PHEC service at Lympstone was so specialist that it most likely exceeded the capability and treatment available in the NHS when it came to EHIs.

Pre-alerts and requests to attend were made via the 24/7 dedicated emergency phone by the training teams from the training area. The initial phone call included a MIST handover (MIST is an acronym that stands for 'mechanism, injury/illness, signs and symptoms, treatment mechanism and is used when handing over a casualty to the next level of emergency care). The emergency bell in the medical centre was rung to gather the on-call team (doctor, medics and senior medics to prepare or task the appropriate duty staff to the scene). Out of hours (OOH), medics would only respond when injuries were life or limb threatening whilst the ambulance (air or road) was en-route. The duty doctor was informed of all emergency incidents OOH but was not expected to attend when not required.

Listening and learning from concerns and complaints

The complaints procedure was integrated into the process at the medical centre with the respective lead designated as the responsible person who handled all complaints that related to the PHEC service. The medical centre had a process to manage complaints in accordance with the Defence Primary Healthcare complaints policy and procedure.

Are Services Well-Led?

We rated the pre-hospital emergency care (PHEC) Lympstone as good for providing well-led services.

Leadership, capacity and capability

As the nominated responsible clinician, the PHEC lead had developed a comprehensive, well-governed, limited-scope PHEC service. Clinical activity was supported by a set of standard operating procedures (SOPs) which reflected best practice and national guidelines. For pioneering procedures developed at Lympstone, the team had developed their own bespoke SOPs. Audits were used to monitor and ensure they were being followed. In addition, there was commendable cooperation with national subject matter experts to ensure the best possible treatment for patients with exertional heat injuries (EHI). There was no clear guidance for the service on accessibility and eligibility. The Principal Medical Officer stated that with no scope of practice document, the PHEC service provided was dependant on the skills and experience of the doctors in post. It was defined that heat and cold treatment would always be in place but an injury such as a dislocation would only be treated if there was a suitably qualified and experienced clinician.

The PHEC lead had established excellent relationships with consultants working for local NHS acute trusts which facilitated direct access to definitive management for patients, in some cases, by-passing the need for lengthy emergency department waits and unnecessary imaging.

The PHEC lead ensured their team members were appropriately trained and encouraged continuous reflective clinical practice and improvement of skills.

The reflection of themes and trends was communicated and discussed with Command Training Centre Royal Marines (CTCRM) training teams. There was evidence of how the ongoing analysis of incidents had resulted in modifications to training in order to reduce risk.

Vision and strategy

In clinical settings such as the PHEC service, where populations and their health needs were bespoke, there was a need to design the service and resources around the needs of patients. The PHEC lead was 1 of 3 subject matter experts in the UK and much of the work was more visionary than linked into a written strategy. However, it was apparent that the overall strategy driving improvement was to provide effective treatment at the point of injury to minimise the risk to life and to provide suitable pain relief for onward travel to hospital. With the service being unique and bespoke, the vision was one of continuous improvement and sharing of best practice to upskill other clinicians within the military who encountered similar challenges and scenarios. However, the broader practice vision statements clearly identified and recognised the essential role provided by PHEC:

‘Lympstone Medical Practice combines a range of capabilities all focussed on timely acute triage, assessment, care and rehabilitation according to the dynamic needs of a Command who places critical importance on a safe system of training and divisional care.’

‘Making safe decisions to keep healthy people in training.’

Governance arrangements

The PHEC service was integrated into the governance arrangements for the medical centre. This included attendance at meetings, ASER management, audit, alerts and patient feedback. The Defence Consultant Advisor for emergency care worked closely with the PHEC lead to provide both peer support and assurance.

There was no PHEC focussed meeting but Royal College of Emergency Medicine (RCEM) best guidelines were followed with a hot debrief after each patient treated in the enhanced treatment room (ETR). RCEM guidance had also been used for CRM and human factors relating to the ETR. Guidance from the Royal College Surgeons Edinburgh was used to treat concussion.

Managing risks, issues and performance

Risks in relation to PHEC provision had been identified by the medical centre team and were reflected on the practice risk register. Those that required escalation had been referred upwards through either Defence Primary Healthcare (DPHC) or Navy Command.

Current risks included a lack of appropriately qualified medical officers and a lack of support for the specialist equipment required to provide effective and safe care of patients with thermal injuries. These had been overcome at local level. The practice had bought necessary equipment through a localised purchasing process using single service funding. This has resulted in the equipment being available. However, technical support, maintenance and the replacement of damaged or defective equipment could not be guaranteed.

DPHC lacked the flexibility to support niche activities, such as the provision of PHEC at Lympstone. Existing equipment tables did not support the activities being undertaken and there was no internal governance framework at DPHC level to assure PHEC activity.

Engagement with patients, the public, staff and external partners

Good and effective links were established with internal and external organisations, including with the Institute, Chain of Naval Medicine Command, emergency services and local NHS trusts and hospital consultants. Of particular note was the involvement of national subject matter experts and universities with the development and ongoing improvement of facilities for patients who experienced EHIs.

Continuous improvement and innovation

There was evidence of systems and processes for learning and continuous improvement. Examples included the technology that was used to mitigate the risk of heat injury during arduous training. This provided the facility to measure heart rate, skin temperature and accelerometers (measured any change in gait patterns that may be an indicator of deterioration in the trainee). This technology was being developed so that in future, the instructor could monitor trainees using a Bluetooth link to a tablet.