



EMICS (East Midlands Emergency Care Scheme) CIO

## **Social Impact Assessment**

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## **Pre-Hospital Care – the Environment in which EMICS Operates**

Pre-hospital care is a crucial aspect of emergency medicine that involves providing medical assistance before a patient arrives at hospital. It plays a critical role in improving patient outcomes, particularly in cases of time-sensitive emergencies such as trauma, cardiac failure, stroke, bleeding, breathing difficulties and the consequences of serious accidents such as RTCs. Pre-hospital care is often the first point of contact between a patient and the healthcare system and plays a critical role in reducing mortality and morbidity associated with acute illness and injuries.

Pre-hospital care is typically delivered by trained emergency medical services (EMS) personnel who provide a range of treatments and interventions to stabilise patients and prepare them for transport to a hospital. They play a vital role in improving patient outcomes, as early intervention can often mean the difference between life and death or reduced stays in hospital, and the prevention of life changing injuries.

Over the last couple of decades, pre-hospital care has become increasingly sophisticated with advances in technology and medical treatments, allowing EMICS personnel to deliver more advanced care in the field. The integration of technology in pre-hospital care is becoming increasingly pivotal for enhancing patient treatment. The advent of mobile technology has empowered EMS personnel to transmit real-time patient data such as electrocardiograms to hospital, prior to a patient's arrival, ensuring the availability of essential equipment and resources for immediate care. Similarly, new medical treatments and procedures are now administered in the field whereas in the past, they were only available in a hospital setting. These new treatments are a reflection of staff training and the quality and sophistication of the equipment available to EMS personnel.

Time is of the essence in pre-hospital care. EMS personnel need to arrive on scene as quickly as possible and work efficiently to provide critical care. They must be able to work under pressure and prioritise their actions to maximise the chance of a positive outcome. In this context, understanding and effectively managing time and resources is essential for saving lives and improving the result for the patient.

Pre-hospital care providers operate in high-stress environments where they are required to make rapid and accurate decisions to deliver the most suitable treatment for the patient. Due to the urgent nature of pre-hospital care, EMS personnel are frequently exposed to hazardous conditions or violent incidents, which can increase the risk of injury or harm (both physical and emotional) to the clinicians themselves.

Despite the best efforts of EMS organisations, there is often a lack of access to specific medical resources that are typically available in a hospital setting. This means that EMS personnel must rely on their training and experience. As a result, EMS personnel must undergo extensive training and maintain on-going competencies to ensure they stay up to date with the latest technology and best practice. Often this training is delivered 'on the job' with more experienced clinicians supporting ambulance staff and giving them the confidence to use these skills next time.

Other safety and performance concerns that impact the pre-hospital environment are:

- teamwork, team leadership and effective communication between the EMS personnel themselves and between the team and hospital staff who will deliver the on-going patient care.
- risk assessment and scene management (particularly in serious incidents) of both patient and the environment (including other emergency services) in which care is being delivered.
- availability of appropriate medical equipment, drugs and medical consumables with EMS personnel properly protected in terms of clothing. All equipment must be well maintained and functioning correctly.
- the ability to arrive on-scene quickly and safely in vehicles that are properly equipped (including the ability of the driver to avoid causing any further incidents) irrespective of the terrain or the environment.

Whilst the history of pre-hospital care is relatively short when compared to other medical specialties, it would be wrong to presume that it has reached full maturity. As technology advances, new treatments and interventions emerge, the landscape of pre-hospital care is evolving.

Key areas for development are:

- telemedicine which enables real-time communication between EMS personnel and remote medical professionals, allowing for the exchange of vital patient information and co-ordination of care.
- the use of simulation-based training for EMS personnel can improve the quality of care as providers can practice in a safe and controlled environment.
- the use of standardised protocols and guidelines will improve the quality and consistency of care.
- the use of more sophisticated triage and assessment processes and the improved matching of EMS personnels skills and experiences, either as a team or individual, to each emergency.
- with the advent of AI, there is great potential to enhance pre-hospital care by providing faster and more accurate assessments of patient conditions and treatment needs.

### **Hierarchy of EMS Personnel:**

The structure of emergency medical personnel is as follows:

- First Aider
- Community First Responders
- Ambulance Crew – staffed by Paramedics with mixed skills/experience
- Enhanced Skilled Paramedics

- Pre-Hospital Practitioners (e.g. EMICS)
- Air Ambulance (as required or requested)

The level and nature of any pre-hospital care is decided by Ambulance Service Control Room personnel because of a triage process with emergency request callers. However, there is often an escalation process where first on scene personnel request additional expertise from individuals higher up this hierarchy.

### **Who are EMICS and what does the Charity do?**

EMICS is a charity with a 40-year history, which supports the local ambulance service (i.e. the East Midlands Ambulance Service – EMAS), with a team of pre-hospital practitioners who respond to appropriate (in line with the above hierarchy) emergencies across the geographical region served by EMAS. These practitioners are volunteers and hold a range of posts with the NHS. They include:

- Accident & Emergency Consultants
- Anaesthetists
- EMS Professionals
- General Practitioners
- Senior or Advanced Paramedics

All are appropriately qualified and experienced in pre-hospital care. EMICS supports these volunteers with the following physical resources:

- modern and fully operational medical equipment with telematics capability.
- appropriate drugs and medical consumables
- PPE, and
- facilities to respond to emergencies using the Charity's fast response vehicle (FRV) or in responders' own vehicles with blue lights and sirens fitted at the Charity's expense.

The Charity also provides the necessary governance and compliance environment, training resources and risk protection. Much of this governance is recorded and detailed on an internally developed cloud-based IT system which is recognised within the sector as a market leading.

Finally, EMICS provides the appropriate level of welfare and emotional support to its volunteers in recognition of the hazardous and risky environment in which they operate.

EMICS operates under the auspices of the EMAS Care and Quality Commission accreditation and risk regimes and is recognised by EMAS as the only pre-hospital practitioner's organisation it approves and endorses.

Recruiting the right EMS personnel and providing them with a suitable governance environment and the appropriate tools to treat patients, is all undertaken with no financial support from the NHS or any other public body.

## **Impact and Delivery Models**

Since its formation in 1984, it is estimated that EMICS clinical volunteers have responded to over 50,000 emergencies. Historically, the EMS personnel has responded in the appropriately equipped own vehicles and in their own time, alongside their day jobs. This model, does, however, mean that the Ambulance Service has not had 24 hours a day support from EMICS clinicians, even though many responses are made during 'unsocial hours'.

However, after an operational trial, this delivery model is being complimented using a charity-owned fast response vehicle (FRV). This FRV also carries an enhanced level of medical equipment and represents a better value for money alternative to the traditional operational model. As a result, over time, it is likely that the EMICS responding structure will see a reducing percentage of own vehicle callouts and an increase in FRV responses. This change provides the volunteer medics with a better work/life balance and EMAS with a greater certainty of response resources.

## **Financial Impact of Pre-Hospital Care**

As highlighted earlier, there is good evidence that pre-hospital care delivers good clinical outcomes, such as:

- lives saved and improved survival rates.
- reduced chances of negative long-term consequences.
- reduced hospital stays.
- reducing the number of patients who are transported to A & E.

Inevitably, these outcomes can or will have financial implications or benefits for the NHS. To put these benefits into context, a few examples are listed below:

- The Road Traffic (NHS Charges) Act 1999 – enables the NHS to 'recover costs' of £354 for every person who is treated in A & E and without admission, whereas if the patient is admitted, £425 per day can be recovered.
- Recent publicity (The King's Fund) highlighted the costs of treating a patient in A & E at £417, but if admitted, then a further £300 per day can be added.
- Recent research calculated that the overall hospital cost of a survivor of cardiac arrest was £51,000.

These examples are very blunt instruments from a financial perspective, but with them, it can be seen, alongside the clinical benefit for patient, that the NHS benefits from having a patient treated in a pre-hospital environment by specialists in the field.

## **Costs of Responding**

In the hierarchy of EMS personnel shown above, there are several alternative methodologies available to ambulance control rooms to respond to a particular emergency. It should be recognised at the outset, that often, this hierarchy of expertise might be used in combination or in a teamwork environment, depending on the seriousness of the incident.

Certain data, however, is available in the public domain to enable a cost comparison to be made between some of these response methods, such as:

- If an ambulance is sent to a patient and then transports that patient to hospital, the estimated cost is £259.
- air ambulance incident response costs are varied, dependant on activation, treatment and transporting that patient to hospital. Public estimates (Burnett Solicitors) are often more than £4,000 but analysis of a local operator indicates £3,500 is more appropriate.
- the EMICS average cost of a call-out is just under £100 per incident.

As noted above, there can often be joint responses, e.g. Ambulance Service and EMICS where the total costs amount to appx. £359, which is significantly lower than an Air Ambulance response.

These cost comparisons show significant variances – why would that be? The underlying reasons are:

- Air Ambulance pay both clinicians and support staff, whereas EMICS does not pay clinicians and has significantly lower support infrastructures.
- The direct costs of getting to scene and transporting patients is significantly greater, even though air ambulance operations respond with FRVs as well as by air, with a mix of 60 : 40.

Once again, this is a very blunt and oversimplified comparison, but worthwhile in recognition that both air ambulance operations and EMICS are responding to similar types of emergencies and attending a similar number of incidents in a year and delivering similar outcomes.

It should be recognised, as partly highlighted earlier, that EMICS is not a 24 hour a day resource for the Ambulance Service, whereas the Air Ambulance is. This availability comparison does have a significant financial impact but does not fully justify the cost variance to treat similar emergencies.

It also needs to be recognised that the whole infrastructure of an air ambulance charity needs to be of a completely different scale to EMICS. For example, a local air ambulance operation, spends appx. £1.5m per annum on fund raising activities, compared to EMICS who spend £60,000 to deliver adequate income to fund its operations. As EMICS has strategic plans to grow, it will need to invest more in marketing and administration capabilities to fund the increase its delivery capacity, governance requirements and welfare standards.

### **Demand for EMICS Support and Growth Plans**

As EMICS' core objective is to support EMAS, particularly in relation to category 1 & 2 emergencies, it is worth emphasising that the ambulance service continues to be under serious demand pressures. The King's Fund currently confirm that about 8% of all emergencies 999 calls are recognised as 'threats to life'.

In an average year, EMAS might receive 50,000 Category 1 such calls per annum. EMICS currently responds to 2.5% of these incidents.

It is clear, there is no lack of demand, irrespective of the potential clinical benefits for EMICS to justify its own growth aspirations.

To meet this demand, EMICS is currently looking to grow its own capacity by:

- recruiting more clinicians (both doctors and senior paramedics) and building responding capacity to provide EMAS with greater certainty of specialist pre-hospital care.
- adding a further 2 FRVs to the fleet along with the special equipment needed for each vehicle.
- adding the capacity for each FRV to carry blood to improve clinical capabilities.
- adding training equipment to facilitate and improve its situation capabilities.
- to improve its telemedics and AI capabilities, as well as operational protocols.

These growth aspirations will develop alongside the Charity's welfare and governance arrangements.

### **Social Impacts**

EMICS provides clinical benefits to people who are suffering in the most serious illness emergency situations. It treats the patients through a team of volunteers and specialists in pre-hospital care. The Doctors and Paramedics are provided with all the necessary resources (modern, fully functional equipment, drugs & medical consumables, PPE, transport to scene), in an effective compliance/governance environment with welfare support if and when required.

At the present time, approximately 100 patients per month are treated directly by the Charity. However, with the demand on the Ambulance Service still growing, there are aspirations for this number to grow. It should be noted that it is estimated for every individual patient that EMICS clinicians treat, there can be up to an average of 5 family members and friends who might also indirectly benefit when a patient is treated. These indirect benefits might be very emotional in themselves and might even help a grieving process, should the worse happen.

As confirmed by various research papers ( Appendix 1), each patient may have their lives saved by EMICS clinicians or their survival rate improved. It can also be said that EMICS clinicians reduce the potential long-term implications, hospital stay and even avoid the possibility of patients having to go to hospital. The EMICS clinicians effectively bring hospital level care to the patient and thereby benefit the NHS overall.

As potential patients are triage and selected by the Ambulance Service, EMICS is not engaged in any form of discrimination based on gender, religion or socio-economic background.

The EMICS 'service' is provided at no cost to the patient and the organisation receives no income from the NHS or other public sector body. Its activities are self-funded and yet are

delivered whenever and wherever they are needed. In fact, an EMICS clinician is likely to be the first medic on the scene of an incident in 15% of emergencies and more often in some rural areas, where ambulance cover is low. In 10% of those cases, the patient is likely to be a child.

EMICS's role in the local pre-hospital care environment was recognised late in 2024 ( our 40<sup>th</sup> Anniversary) by the awarding of an Outstanding Achievement Award by the East Midland Major Trauma Network.

Patients are treated in their moment of real need by an organisation which can demonstrate that it offers real value for money, particularly when benchmarked against other organisations offering 'similar' services, albeit with different availability constraints.

### Examples of Pre-Hospital Care Research Conclusions

1. Pre-hospital on-scene anaesthetist treating severe traumatic brain injury patients is associated with lower mortality and better neurological outcomes; (Emergency Medical Journal).
2. Research results suggest an outcome benefit from a physician-staffed EMS team when treating a traumatic brain injury when compared to a paramedic team. Pre-hospital intubation by EMS physicians were felt to explain these findings from a similar cohort of patients (Published USA).
3. A Scottish study of 14,280 seriously injured patients, of which 13,500 were treated by ambulance clinicians were compared with 776 whose care included attention from a pre-hospital critical care team. This second group showed an increased chance of survival at 30 days when compared with care provided by ambulance clinicians.

The research also suggests that doctor-led teams offer enhanced experience of managing major trauma, high levels of teamwork, training and triage of patients direct to the most appropriate hospital. The study also suggested that these extra interventions and knowledge benefitted traumatic injury patients above and beyond standard ambulance clinical care (A Maddock & Others Emergency Medicine 2020)

4. A paper published in the Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine in January 2025, which covered a pooled analysis of over 20 other research publications concluded that:  
  
‘Mortality risk was significantly reduced in patients who received pre-hospital care from an interprofessional team led by physicians compared with those who received care from paramedics alone’.
5. A recent review by the Major Trauma Network following the introduction of Major Trauma Centres a few years ago showed mortality rates were reduced by 40% against the original target of 20%. The key driver of this improvement was thought to be the clinical decision, often led by a physician to route the patient directly to the most appropriate specialist trauma centre and to have their care enroute provided by that physician.



**EMICS Doctor's Own Story**

As a voluntary doctor member of EMICS, at the request of East Midlands Ambulance Service I provide advanced medical and trauma care to the immediate rural community where I live. To do this I am provided with and trained to use additional skills, procedures and equipment not carried or provided by the ambulance service.

In terms of medical emergencies, the principal event I assist with is rural adult cardiac arrest. I am often first or near first on scene due to the long distances' ambulance staff must travel to the patient. Under these circumstances, as with trauma, time is critical if the patient has any chance of survival.

In addition to the normal resuscitation process undertaken I carry three additional critical pieces of equipment. The first is the Schillar monitor. This is a compact, lightweight advanced monitor which permits patient assessment, shocking, pacing and arterial blood pressure monitoring. The second is a Lucas 3 device which is an automated chest compression machine. Rapid placement of this device allows for consistent good quality prolonged chest compressions (30 minutes plus) and frees me or another member of the responding team up to address other procedures during the arrest. It also permits long road transfers and continuous compressions during difficult extrications for examples downstairs or across a field.

The third piece of equipment I carry and use at cardiac arrests, as well as for trauma, is a Butterfly ultrasound machine. This compact portable device permits diagnostic observation of heart function and allows early decision making as to whether to continue resuscitation or not. In the case of trauma, it assists with consideration of the pathology of chest, abdominal and pelvic trauma.

For rural trauma the main areas of practice are road traffic incidents, equestrian trauma and falls from a height. I also deal with bleeding injuries from home and industrial incidents. Again, being often first on scene I use my Schiller monitor to rapidly assess the patient and investigate life-saving treatment. I carry special consumable packs for chest, limb, airway and obstetric trauma.

The patient may require a pre-hospital anaesthetic. Although I do not provide the anaesthetic itself, I assist provide it. Once paralysed the patient is required to be placed on a ventilator. I carry a small ventilator to be used again with cardiac arrests, but the larger one is used post trauma anaesthetic to ensure safe transfer of the patient to hospital.

With the type of equipment and additional skills we, as members of EMICS, carry, are trained on and use we could not provide the critical care required for rural medical and trauma patients. This equipment is essential to us and critical to our patients.