

EMRTS Annual Report

1 April 2020 – 31 March 2021



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Director's Foreword



EMRTS has spent much of the last year adapting to the demands of the pandemic. Despite all of the challenges, we have not only maintained our level of service but have considerably developed the service to better meet the emergency needs of Wales. Many of our staff also have roles in NHS hospitals and worked hard treating victims of COVID-19. Fortunately, lockdown resulted in less work for EMRTS and, despite temporarily losing some staff, we were able to continue to operate to full capacity and also develop plans to support the NHS hospitals in the event of extreme pressures.

When EMRTS was planned it was always a clear aspiration to deliver a critical care service to all parts of Wales 24 hours a day. After launching in South and Mid Wales, EMRTS became an all-Wales service by joining the Wales Air Ambulance Charity base in Caernarfon in 2017. We still recognised that there was considerable unmet need outside our 12-hour operating days and by partnering with the Charity and our NHS Commissioners we launched a night service in July 2020 (see page 6). We are now operating from the Charity's Cardiff base by rapid response vehicle in South East

Wales and by helicopter to missions further away every night. As a result, we expect to attend an extra thousand emergencies every year.

We have also been approached to help with another service development in the last year. Transfers of critical care patients between hospitals in Wales and elsewhere are frequent and can take away key resources from smaller hospitals. We have now been commissioned to deliver a fully trained and equipped inter-hospital critical care transfer service based in North and South Wales. It will be called the Adult Critical Care Transfer Service (see page 20). Preparations are well underway and this service will be launched in late 2021.

As well as developing new parts of our service we are constantly monitoring our past and current performance. A formal evaluation of the first five years of EMRTS has been carried out by Swansea University based on quality improvement targets set at the launch of the service. A formal report is being written but the data demonstrates that EMRTS has delivered on its objectives. We were delighted with a recent

publication that demonstrated a 37% reduction in mortality in patients attended by EMRTS with blunt trauma (see page 14).

We look forward to continuing to deliver a critical care team to emergencies all over Wales in 2021/22 and also to the exciting developments which will help us reach even more patients when they most need it. We are very grateful for the excellent and enduring partnerships between EMRTS, the Wales Air Ambulance Charity, Welsh Government, Swansea Bay University Health Board and the Welsh Ambulance Service which enable us to function effectively.

[Professor David Lockey](#)
[National Director, EMRTS Cymru](#)



Service Overview

Our Mission

To provide advanced decision-making and critical care for life or limb-threatening emergencies that require transfer for time-critical treatment at an appropriate facility.

Our Vision

EMRTS Cymru has been developed in the belief that it will bring a series of benefits to Wales, as follows:

- EMRTS Cymru will deliver equity of access to pre-hospital critical care for the people of Wales.
- EMRTS Cymru will deliver health gains through early interventions (provided outside of normal paramedic practice by EMRTS Cymru) and direct transfer to specialist care centres. This should improve the functional outcomes of a patient and increase the number of 'unexpected survivors'.
- EMRTS Cymru will deliver downstream benefits for hospitals across Wales. More patients will be taken directly to the most appropriate centre with fewer requirements for secondary transfers which previously would have depleted hospitals of specialist personnel (such as anaesthetists) and created an additional cost for the Welsh Ambulance Service.
- EMRTS Cymru will deliver clinical and skills sustainability in Wales. EMRTS will support consultant and Critical Care Practitioner (CCP) recruitment into Wales by offering opportunities with the Service as a part of the recruitment of appropriate NHS Wales positions. EMRTS Cymru will also support educational activities across NHS Wales.





Our Service

From 1 July 2020 onwards, EMRTS changed from a 12/7 to a 24/7 operation. For more information, see 'EMRTS 24/7' on page 6.

Services offered include:

- Pre-hospital critical care for all age groups (i.e. any intervention/decision that is carried outside standard paramedic practice).
- Undertaking time-critical, life or limb-threatening adult and paediatric transfers from peripheral centres (inc. Emergency Departments, Medical Assessment Units, Intensive Care Units, Minor Injury Units) for patients requiring specialist intervention at the receiving hospital.

In addition, the Service provides an enhancement of neonatal

and maternal pre-hospital critical care - both for home deliveries and deliveries in free-standing midwifery-led units (MLUs).

This includes:

- Transferring neonatal teams to distant time-critical cases by air.
- Supporting midwife units and home deliveries by stabilising neonates and women with life-threatening problems and transferring them to a consultant-led delivery unit.

Finally, the Service provides a multitude of roles at major incident or mass-casualty events and a strategic medical advisor is available 24/7. This advisor is known as a top cover consultant.

When the Wales Air Ambulance Charity helicopters are unable to

fly due to poor weather conditions, EMRTS Cymru has access to a fleet of Rapid Response Vehicles (RRVs). They have been converted into state-of-the-art emergency response vehicles designed to enable the team to reach the scene of a medical emergency, by road, as fast as possible. These vehicles are stationed throughout Wales. Medical equipment has been designed to be interchangeable between the Charity's helicopters and the RRVs.

EMRTS Cymru is coordinated and tasked centrally via the Critical Care Hub (CCH) which is based at the Welsh Ambulance Service headquarters in Cwmbran.





24/7 EMRTS

On 1 July 2020, the process of introducing an enhanced 24/7 operation began.

Why do we need a 24/7 EMRTS/Wales Air Ambulance Service?

It has always been the vision of the Wales Air Ambulance to offer a 24/7 service. Over the past few years, we have analysed the unmet need across 24 hours to identify incidents that:

- we were unable to attend due to being outside of operational hours.
- took place within operational hours but we were unable to attend due to already being tasked.

This analysis found that:

- There was a need for an extended air ambulance service overnight. There were approximately 990 cases of 'unmet need' between the hours of 8pm and 8am over a 12-month period.
- There was a particular increase in demand between 3pm and 12am. This is most prevalent in the South East Wales area.
- Life and limb-threatening incidents between 8pm and 8am were being managed by the Welsh Ambulance Service. In these cases, EMRTS/Wales Air Ambulance was not available to support with its ED-standard treatments.
- For safety reasons, the Civil Aviation Authority introduce more restrictions when flying in the hours of darkness. Any 'after dark' service needed to consider this and find the safest and most effective way of using aircraft to support the service's Rapid Response Vehicles.

The New 24/7 EMRTS/Wales Air Ambulance

Reflecting the findings of our analysis, our service has evolved as follows:

Critical Care Hub (CCH)

The CCH became operational 24/7 from 1 July 2020.

'Daytime' Service

Caernarfon Operation – This remains 8am to 8pm.

Welshpool Operation – This remains 8am to 8pm.

Llanelli Operation – This has become 7am to 7pm.

Cardiff Operation (Patient Transfers) – This has become 7am to 7pm.



'Night-time' Service

1 July 2020

A consultant and critical care practitioner started operating between 7pm and 7am from the Cardiff Heliport base using a Rapid Response Vehicle.

1 December 2020

A double-pilot crew and Wales Air Ambulance helicopter became operational from Cardiff Heliport between 7pm and 7am, ensuring that the service has the capability to attend medical emergencies across Wales.

Future 24/7 Developments

Working with our Wales Air Ambulance Charity partners, we continually monitor demand and utilisation data to identify service improvement opportunities.





Governance Structure

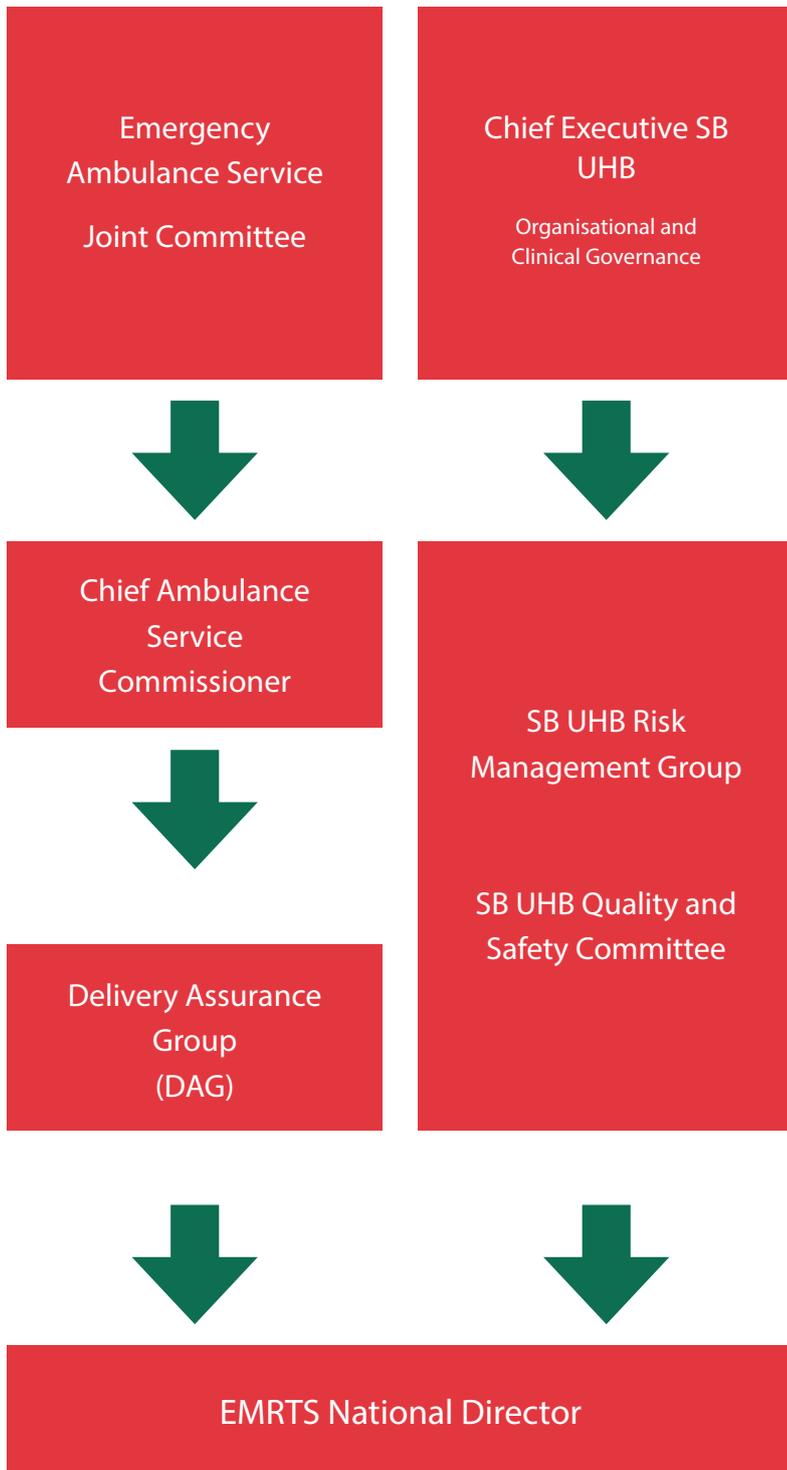
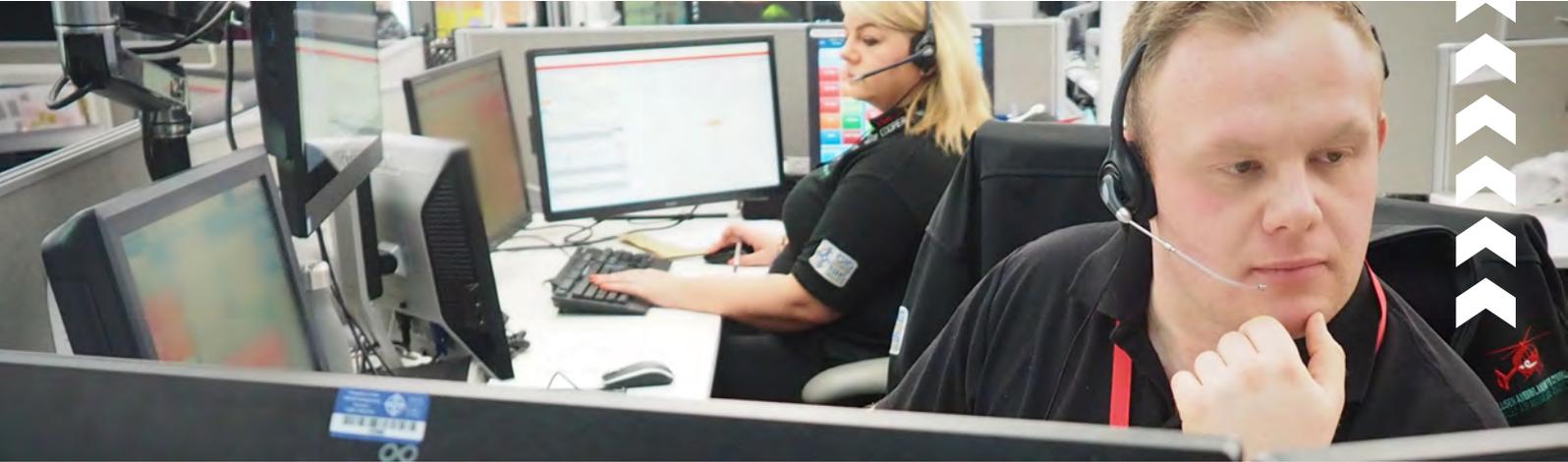
EMRTS Cymru has developed a robust system of organisational and clinical governance. The Service is hosted by Swansea Bay University Health Board (SBUHB) and is commissioned by the Emergency Ambulance Services Committee (EASC). The organisational governance structure consists of an EMRTS Delivery Assurance Group (DAG) which sits as a subcommittee of EASC. The DAG is responsible for the delivery, direction and performance of the Service. The EMRTS Cymru National Director is accountable to the DAG for the delivery and performance of the Service and to the SBUHB Chief Executive for organisational and clinical governance.

Internal governance is led by the EMRTS Clinical and Operational Board which is attended by senior EMRTS personnel and support services, and manages clinical and operational issues relating to the Service. The Board meets on a bi-monthly basis and is supported by the work of several specialist sub-groups.

There are a number of supporting documents underpinning the organisational governance of the

service as follows:

- National Collaborative Commissioning Quality and Delivery Framework - namely CAREMORE.
- Terms of Reference for the EMRTS DAG.
- Collaboration Agreement between SBUHB, the Wales Air Ambulance Charitable Trust (WAACT) and the Welsh Ambulance Service Trust (WAST).
- Memorandum of Understanding between SBUHB and other Welsh health boards and trusts.
- Service-level agreement between EMRTS and SBUHB for accessing support services.
- Terms of Reference for the EMRTS Clinical and Operational Board.



An External Clinical Advisory Group (ECAG) was established at the inception of the service in 2015. The ECAG provided benchmarking of Clinical Standard Operating Procedures and independently reviewed significant adverse events, reporting their findings back to the Clinical and Operational Board.

It is now proposed that a new External Clinical Advisory Panel (ECAP) is established in place of the ECAG. This will require a review of membership, with the new expert panel providing ad hoc advice on specialist issues when requested and providing input to a Clinical Governance Day when relevant issues are being presented. In addition, it is also proposed that an annual meeting or conference is held with the expert panel invited to contribute. The introduction of an ECAP will be explored once the COVID-19 pressures have alleviated.





Financial Statement

EMRTS Cymru met its financial target in 2020/21 by delivering a surplus of £200k against its revenue funding allocation of £5.74 million.

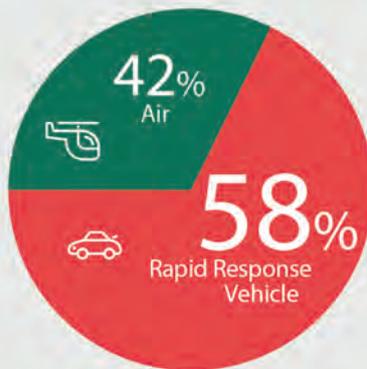
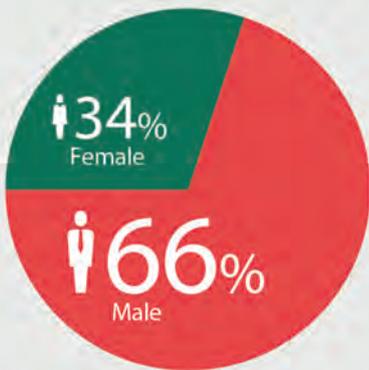
The surplus will be carried forward into 2021/22 to support the ongoing delivery of the service.



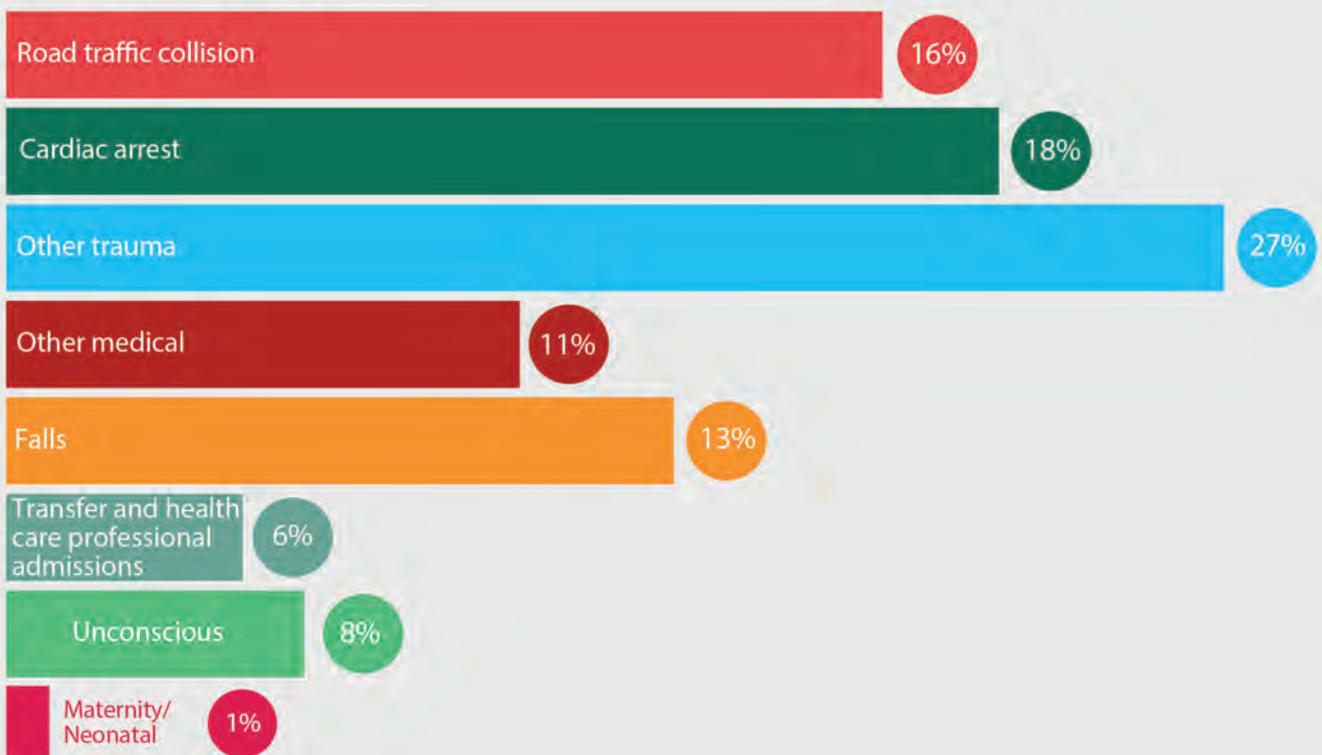


Preliminary Annual Performance Data

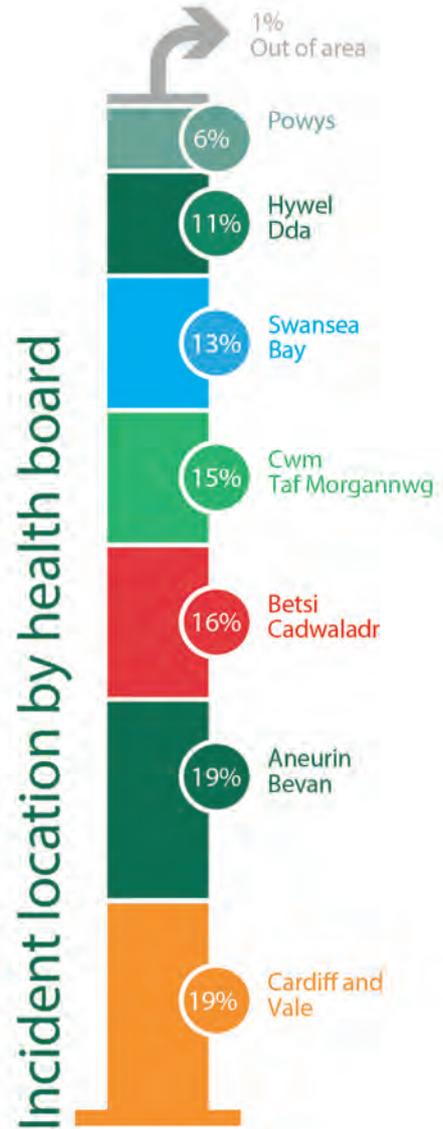
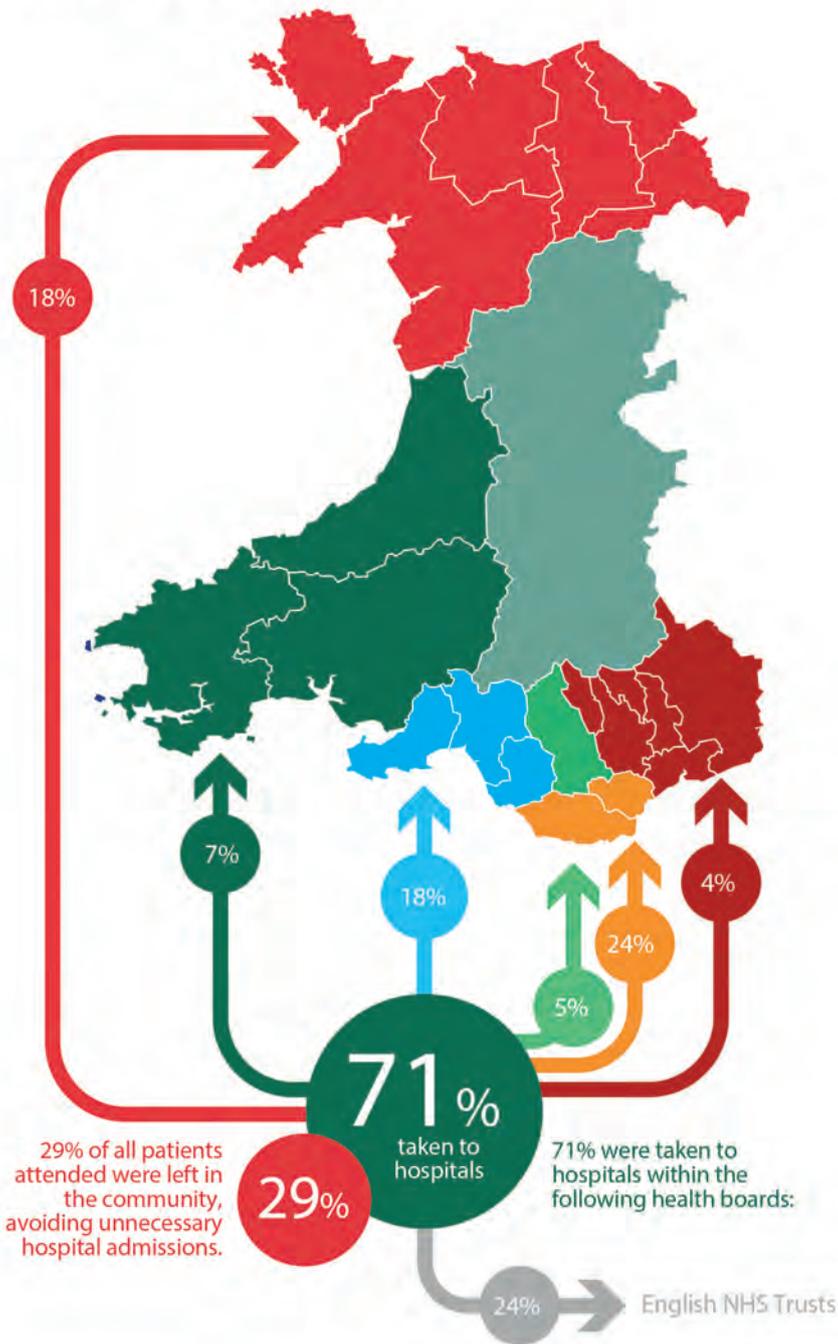
Total number of calls - 3488



Cases attended by category



Patient destinations



306

*Figure pending final audit.

Emergency Anaesthetics



80

*Figure pending final audit.

Blood Product Transfusions





EMRTS Five-Year Service Evaluation

Early Findings

The EMRTS five-year service evaluation, which was set up to assess the impact of EMRTS against key objectives, has now been carried out by Swansea University and will be published, in full, in late 2021.

However, the initial findings have been very positive and the first study examining outcomes from trauma has been published by the UK peer-reviewed journal, *Anaesthesia*. The study was designed and evaluated in conjunction with Professor Belinda Gabbe, Head of the Prehospital, Emergency and Trauma Research Unit at Monash University. It examined the effect of the EMRTS/Wales Air Ambulance service on the mortality of trauma patients in Wales.

Using the excellent SAIL-linked healthcare

databases, over 4000 trauma patients treated with and without EMRTS were identified. The EMRTS patients were significantly more severely injured than those not attended by the service and, after adjusting for these differences between the two patient groups, the odds of 30-day mortality were 37% lower for EMRTS-treated patients.

This very significant improvement in survival is likely to be due to critical care interventions that were carried out on scene instead of much later after arrival in hospital, combined with timely and direct transfer to an appropriate pre-alerted hospital equipped to deliver urgent surgery and treatment.

Reference

The impact of a Physician – Critical Care Practitioner Pre-hospital Service in Wales on trauma survival: analysis of linked registry data. J. Lyons, B.J. Gabbe, D. Rawlinson, D. Lockey, R.J. Fry, A. Akbari, R.A. Lyons. (In Press: *Anaesthesia* 2021)

EMRTS Patient Liaison



EMRTS Cymru has set up a new provision for patients that have been treated by its critical care teams.

Many of the people that the Service has helped will have received critical care treatment at the scene but will have little memory or understanding about what happened to them.

In addition, relatives often have many questions regarding pre-hospital care. Through the aftercare service, and EMRTS patient liaison nurse Jo Yeoman, some of these gaps can be filled.

Recovery from critical illness or injury can be long and challenging as people move between different departments, hospitals and rehabilitation centres before finally returning home. Through the patient liaison service, EMRTS will be able to support patients and relatives on that journey, providing consistency and support throughout, including

after discharge home. This support may include follow-up visits at varying intervals during recovery and will differ from patient to patient depending on their need. It could be shortly after admission or after they have been discharged home, depending on how long their recovery is. The main purpose of these visits, and supporting correspondence, is to provide explanations about what has happened at the scene whilst giving psychological support to both patient and relatives.

A close working relationship has developed with some of the major hospitals which allows a multidisciplinary team approach to patient care, improving communication for all involved. Links have been made with other third-sector organisations so, for patients that have had life-changing illnesses or injuries, there will be a

variety of support that is made easily accessible, and EMRTS will be able to act as a point of contact.

This support also extends to all those who work for EMRTS and who are involved directly in incidents or patient visits, which is being formalised by the introduction of a peer support programme.

Sadly, some patients do not survive and it is important that their loved ones are supported during this difficult time, so a Bereavement Aftercare Service is offered to all relatives. This gives them the opportunity to ask questions, find out what treatment was given and also provides a safe space to talk about their grief.

For more information about the Patient Liaison Service, email emrts.patient@wales.nhs.uk or call 0300 3000 067.

Jo Yeoman, Patient Liaison Nurse





Anonymised Case Studies

Case 1

On a wet winter's evening, two EMRTS Rapid Response Vehicles responded to a road traffic collision involving multiple vehicles. They prioritised the vehicle that had rolled over which contained a mum and her young child inside. The teams were able to split in two and work simultaneously to rapidly assess their injuries.

The mum was in a lot of pain so required some very strong pain relief intravenously. She was breathing rapidly and had low oxygen levels, and it became clear that she had a collapsed lung. The team had to insert a needle into her chest wall to release the air that was compressing her lung. This enabled her lung to re-inflate and her oxygen levels improved.

Meanwhile, the other team were assessing her child, who had an obvious head injury with swelling to the left side. They performed a full neurological assessment and gave her some pain relief. Once they were both stabilised, they were rapidly transferred directly to the Major Trauma Centre for specialist treatment.

Further investigations revealed the child had fractured her skull and had some bleeding on the brain. This was treated conservatively and she was discharged after 2 weeks and, thankfully, has made a full recovery.

The mum had multiple broken ribs, a punctured lung and internal injuries. She was admitted to Intensive Care where she spent a month on a breathing machine before she was transferred back to her local hospital for rehabilitation. She was discharged home nearly 2 months after her accident and continues to make a steady recovery.

Case 2

A 32-year-old man experienced chest pain and suffered a cardiac arrest at home. His mum and partner rang for an ambulance and started chest compressions. Soon after, the paramedics arrived, took over resuscitation and attached a defibrillator. They were closely followed by EMRTS, who took over his breathing with a ventilator. Our crew attached a machine that delivers automatic chest compressions and they scanned his heart to check for any abnormalities. He was given medication to try and restart his heart. They were able to perform a blood test, which before EMRTS was only possible in A&E or Intensive Care, to help further guide their treatment.

After a total of 90 minutes of advanced life support, his heart started to respond and following a discussion with the cardiologist at the hospital, they gave him a specialist drug, which can only be administered by highly trained personnel.

Finally, his heart began beating on its own and he was taken straight to the most appropriate cardiology department for further intervention. This shows the importance of the chain of survival, from the activation of the emergency services, early basic life support by family members and advanced life support and defibrillation by the medical team. He required life support on critical care for over 6 weeks, as well as intense physical rehabilitation and psychological support. He has now been discharged back home to his family and continues to be supported by the EMRTS aftercare service.

Case 3

A young boy who had been previously fit and well was admitted to his local hospital with nausea, headaches and high blood pressure. The hospital started an infusion to keep his blood pressure under control and performed a heart scan, which was normal. Following further investigations, a scan showed he had a rare disorder that was affecting the blood supply to his kidneys. This condition required assessment and treatment from a Specialist Paediatrician at Great Ormond Street Hospital. This was nearly 4 hours by road from his local hospital so it was decided the safest way to transport him was via a Wales Air Ambulance Charity helicopter.

Case 4

The EMRTS team responded to an incident involving a person and a tractor and they were showing signs of heavy bleeding. When the crew arrived, they made a rapid assessment and were able to give a blood transfusion to help stabilise the patient. They transferred the patient to a local Emergency Department so they could have a further 4 units of blood. The team stayed with the patient and undertook the onward transfer to the Major Trauma Centre.

The patient was given a further unit of blood on arrival and was admitted to Intensive Care. Surgery was required to fix multiple broken ribs and her pelvis and she had a prolonged stay in intensive care, spending 2 months on a breathing machine. As a result, she was very weak and couldn't talk or eat for a few more weeks. Once she was able to breathe on her own, she started to make some slow progress, gaining the strength back in her limbs. She was finally discharged back home 59 days after her accident.





The Wales Air Ambulance Charity

What is the difference between EMRTS Cymru and the Wales Air Ambulance Charity?

Our services are delivered via an important partnership. Wales Air Ambulance is a charitable trust which relies entirely on the generosity and support of the Welsh public to help keep the helicopters flying. The Charity does not receive direct funding from the government and does not qualify for National Lottery funding.

EMRTS Cymru, a part of NHS Wales and supported by Welsh Government, supplies a highly-trained NHS Critical Care team.

This partnership between the NHS and the Third Sector demonstrates the benefits of cross-sector models, and the important role charities can play in the provision of healthcare





Who is the Wales Air Ambulance Charity?

Launched on St David's Day 2001, the Wales Air Ambulance Charity is the official air ambulance service for Wales.

The Charity relies entirely on donations to raise £8 million each year. This funds four helicopters across Wales, in Welshpool, Dafen (Llanelli), Caernarfon and Cardiff, through an aviation contract with Babcock Mission Critical Services Ltd. It is the largest air ambulance operation in the UK.

Income generation ranges from community fundraising, legacies and corporate support, to a national retail and trading operation as well as a Lifesaving Lottery.

The Charity's Mission

It is the Charity's mission to aid the relief of sickness and injury, and the protection of human life, by the provision of a HEMS/air ambulance service across Wales.





Adult Critical Care Transfer Service (ACCTS)

Launching in August 2021, the Adult Critical Care Transfer Service (ACCTS) Cymru is a road-based service being developed to ensure the uninterrupted provision of critical care for adult patients requiring inter-facility transfer; for uplift of care and tertiary specialty input, planned repatriation back to their local facility and to support network-wide management of critical care capacity. ACCTS is being commissioned to complement EMRTS, which will continue to provide pre-hospital critical care, time-critical and aeromedical inter-facility transfers.

ACCTS has been created in response to correspondence from the Deputy Chief Medical Officer regarding the need for further improvements across critical care services in Wales. It has been developed by EMRTS and the National Collaborative Commissioning Unit.

In the months prior to launch, recruitment will take place for a variety of clinical positions required to run the service. These positions include doctors and retrieval and transfer practitioners, as well as a number of Clinical Fellow opportunities.

