



AMBIWLANS AWYR CYMRU
WALES AIR AMBULANCE



Emergency Medical Retrieval and Transfer Service (EMRTS) Cymru

Business Justification
Case
Welshpool Service

5th December 2014

GLOSSARY OF TERMS

Pre-Hospital Care

The term 'pre-hospital care' covers a wide range of medical conditions, medical interventions, clinical providers and physical locations. Medical conditions range from minor illness and injury to life threatening emergencies. Pre-hospital interventions therefore also range from simple first aid to advanced emergency care and pre-hospital emergency anaesthesia. Care providers may be lay first responders, ambulance professionals, nurses or physicians of varying backgrounds. All of this activity can take place in urban, rural or remote settings and is generally mixed with wider out-of-hospital and unscheduled care.

Primary Transfer

This is where a patient is retrieved from a pre-hospital environment.

Secondary Transfer

This is a planned transfer of a patient due to capacity issues or ongoing repatriation of the patient to a local facility.

Retrieval

The use of expert medical teams to assess, stabilise, package and subsequently transport a patient from one site to another. The aim is replicate to the delivery of critical care that you would expect to receive any major hospital facility.

Pre-Hospital Critical Care

Draws on the experience of hospital critical care and resuscitation and translates this into pre-hospital medical care.

Pre-hospital Trained Critical Care Consultant

A doctor who has the ability to make decisions and carry out interventions outside standard paramedic practice.

Critical Care Paramedic

These are paramedics who have acquired enhanced decision making and clinical skills outside JRCALC. Currently there is no national standard established for practice.

HEMS

This stands for Helicopter Emergency Medical Service. This takes advantage of speed and access to difficult locations in order to reduce the time required for the patient to gain access to specialist intervention.

Mass Casualty

A mass casualty incident (often shortened to MCI and sometimes called a multiple-casualty incident or multiple-casualty situation) is any incident in which emergency medical services resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties.

Major incident

A major incident is defined as a significant event, which demands a response beyond the routine, resulting from uncontrolled developments in the course of the operation of any establishment or transient work activity. The event may either cause, or have the potential to cause, either Multiple serious injuries, cases of ill health (either immediate or delayed), or loss of life.

Serious disruption or extensive damage to property, inside or outside the establishment.

Pre-Hospital Emergency Medicine

Pre-Hospital Emergency Medicine (PHEM) is a General Medical Council approved sub-specialty for anaesthesia and emergency medicine. As an approved sub-specialty, those who complete the sub-specialty training will have their Certificate of Completion of Training (CCT) in Anaesthetics annotated with sub-specialty of Pre-Hospital Emergency Medicine.

Injury Severity Score (ISS)

The Injury Severity Score (ISS) is an anatomical scoring system that provides an overall score for patients with multiple injuries. Each injury is assigned an Abbreviated Injury Scale (AIS) score and is allocated to one of six body regions (head, face, chest, abdomen, extremities inc. pelvis, external). Only the highest AIS score in each body region is used. The 3 most severely injured body regions have their score squared and added together to produce the ISS score. An ISS of 9-15 implies moderate trauma and an ISS >15 implies major trauma.

Glimm Lights

Type of lighting to light up a helicopter landing site.

Windsock

A windsock is a conical texture tube designed to indicate wind direction and speed. It is a mandatory requirement by the Civil Aviation Authority for all helicopter landing sites.

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1. PURPOSE

- 1.1** Following approval of the Strategic Outline Programme (SOP) by Welsh Government on the 22nd August 2014, with support from key stakeholder organisations involved in its development, this Business Justification Case (BJC) seeks approval of £0.752m Capital, £0.996m recurrent Revenue and £0.131m of recurrent non-cash funding for the establishment of the Welshpool service for EMRTS. The Swansea BJC seeks approval for £1.143m Capital, £1.872m recurrent Revenue and £0.206m of recurrent non-cash funding for the establishment of the Swansea service.

This gives a total for the EMRTS service of £1.895m Capital, £2.868m Recurrent Revenue and £0.337m recurrent non-cash funding. The total funding to be approved is as per the SOP submission and approval letter received from Welsh Government.

- 1.2** In the SOP, the service was described as two separate phases occurring simultaneously:
- Phase 1 Swansea service
 - Phase 2 Welshpool service.

In these Business Justification Case (BJC) submissions, these will be referred to as the Swansea and Welshpool Service respectively. This BJC relates to the Welshpool development. A sister BJC submission will be submitted in relation to the Swansea development. Although the governance intentions of both developments are the same, there are differences in the operational and workforce requirements. It has been considered beneficial, therefore, to produce two separate BJCs for the Emergency Medical Retrieval and Transfer Service (EMRTS) Cymru Programme.

- 1.3** The BJC addresses the Stakeholder and Welsh Government requirements set down following SOP approval and proposes solutions to requirements raised by Health Boards and other Partners in their letters of support.
- 1.4** The BJC expands on the governance work outlined within the SOP, in particular the clinical, operational, commissioning and financial pathways between the host organisation and key stakeholders. This work aims to clarify the lines of accountability and responsibilities of the host organisation, partner organisations and the EMRTS service. The finalised financial schedules have been tested against actual value and are included in this BJC.

- 1.5** Detailed workforce planning has been carried out to support Health Boards understand the mechanism by which Consultants could be released to support the EMRTS service. The BJC shares the engagement with Health Boards to facilitate this outcome. From this engagement, a 'blended' recruitment strategy was recommended by National Clinical Director(s) providing reassurance to Health Boards that EMRTS will not deplete local workforce. On the contrary, it should be the catalyst to creating new posts within Wales by making currently unfilled, vacant posts more attractive.
- 1.6** The BJC expands on the patient flow analysis carried out in the SOP, and outlines proposed remuneration pathways, particularly for importing Health Boards. The BJC also aligns itself with the major trauma patient repatriation work currently being completed by the South Wales Collaborative and provides a number of proposals of how EMRTS patients could be repatriated when specialist management is complete. Such pathways are already well established within North Wales.
- 1.7** A formal Gateway review will be undertaken after 12 months and a full Benefits Realisation Plan is included within this BJC to facilitate this. The 12 month review aims to examine the clinical and operational benefits of the EMRTS through the use of information provided from bespoke Information Technology. A section within the BJC looks specifically at how EMRTS will capture these benefits. Future expansion of the service is discussed which includes an expansion of the role of the Caernarfon base. A comprehensive risk register has been compiled providing assurance that the risks identified have been mitigated wherever possible.
- 1.8** Finally, a description of the operational management of the service is given together with a detailed implementation plan clearly defining delivery timescales. Transitional arrangements are also described within this context.
- 1.9** It is recommended that the BJC is read in conjunction with the previously approved SOP.

2. STRATEGIC CASE

2.1 Introduction

In February 2014, a Strategic Board was established to develop a Strategic Outline Programme (SOP) for the implementation of an Emergency Medical Retrieval and Transfer Service (EMRTS) for Wales. The Strategic Board included representation from all stakeholder organisations. The structure of this group consisted of a senior responsible officer, clinical leads, strategic leadership from ABMU Health Board, financial support from ABMU Health Board and independent input by Ernst and Young.

The SOP was submitted in July 2014 to the Infrastructure Investment Board following extensive engagement with Health Boards, Wales Air Ambulance Charity, Welsh Ambulance Service and Welsh Government. Confirmation of approval was received on 22nd August 2014 with support from the majority of stakeholder organisations. The EMRTS proposal was explored in detail in the SOP. The SOP is summarised below and any developments to the context and planned activities from the earlier submission highlighted.

2.2 The Strategic Environment and the Case for Change

The strategic environment of Wales continues to be an important driver for the development of the EMRTS. This includes national drivers for change, the NHS Wales service change plans. Some of these changes were already well underway prior to the SOP, including the establishment of a Trauma Network covering North Wales and feeding into the regional Major Trauma Centre at University Hospital North Staffordshire. Other changes have occurred since the approval of the SOP, including changes to the delivery of paediatric, neonatal and maternity services in Hywel Dda. Others are due to happen soon, including the opening of a central cardiac catheterisation laboratory for emergency cardiac patients in North Wales. Thus there remains a strong strategic case for the implementation of EMRTS to support service changes that are occurring now, and those expected in the near future. The Welshpool base, in Mid-North Wales, is ideally situated to support these changes across the principality and, in particular, those affecting trauma and cardiac patients in North Wales.

In the section describing the case for change, several high level investment objectives were defined. A SMART analysis was carried out which identified equity, health gain and clinical and skills sustainability as being key investment objectives. These form the basis of a benefits realisation plan as part of this BJC submission. The case for change also highlighted the clinical and organisational requirements for the service which led to the development of the agreed clinical service model. The clinical service model included the following:

- Pre-hospital critical care for all age groups (i.e. any intervention/decision that is carried outside standard paramedic practice)

- Time critical, life or limb threatening adult transfers from peripheral centres (including Emergency Departments and Minor Injury Units) requiring specialist intervention at the receiving hospital
- Enhancement of neonatal pre-hospital critical care (both for neonates born at home and those delivered in standalone midwifery led units - MLUs)
- Transfer of neonatal teams to distant time critical cases by air
- Support of midwife-led maternity units by stabilising women with life threatening problems and transferring them to a consultant-led delivery unit
- Provision of medical advisor role at major incidents or mass casualty events.

Work undertaken as part of the ongoing Programme has indicated that these elements of the clinical service model will be deliverable once the service is fully operational.

2.3 Economic, Commercial and Financial Case

In the SOP a comprehensive evaluation of all options for the delivery of the operational model was conducted. Qualitative and quantitative appraisals were undertaken. An independent economic analysis identified Option 2A as the preferred option in terms of value of money. The preferred option is described in more detail within Chapter 3 of this BJC. It remains the agreed operational model for the service with a formal Gateway review at the end of year one to determine the need for expansion.

The commercial case described each phase of the preferred option being progressed through a separate BJC submission and identified that the Programme would work with NHS Wales Procurement Services to deliver and execute appropriate procurement approaches. The procurement aspects of this case are covered in more detail within Chapter 12.

The financial case sets out detailed financial schedules outlining that the BJC includes finalised capital and 'incremental' revenue costs for each phase of the service. Details of these are provided in Chapter 13. These financial schedules have been produced on basis of additionality and that stakeholder organisations (such as the Wales Air Ambulance Charity) continue to contribute existing funds to existing activity. Confirmation of these arrangements is provided in the chapter related to commissioning of the service, Chapter 4 and in the chapter relating to Organisational Governance, Chapter 6.

The Financial chapter also includes a mechanism to enable the remuneration of the change in patient flows, in particular to importing Health Boards. The processes to aid the timely repatriation of the EMRTS patients, once specialist interventions have been completed, is set down in the Operational Management chapter, Chapter 8.

2.4 Management Case

The Management section in the SOP outlined the governance arrangements of the Programme including a assessment of risk to the Programme and the operational service. Subsequently, a comprehensive risk register and strategies for mitigation of risk have been developed to keep the Programme on track and deliver each phase of the service on time. The Programme continues to work with the Welsh Government External Assurance Review Process.

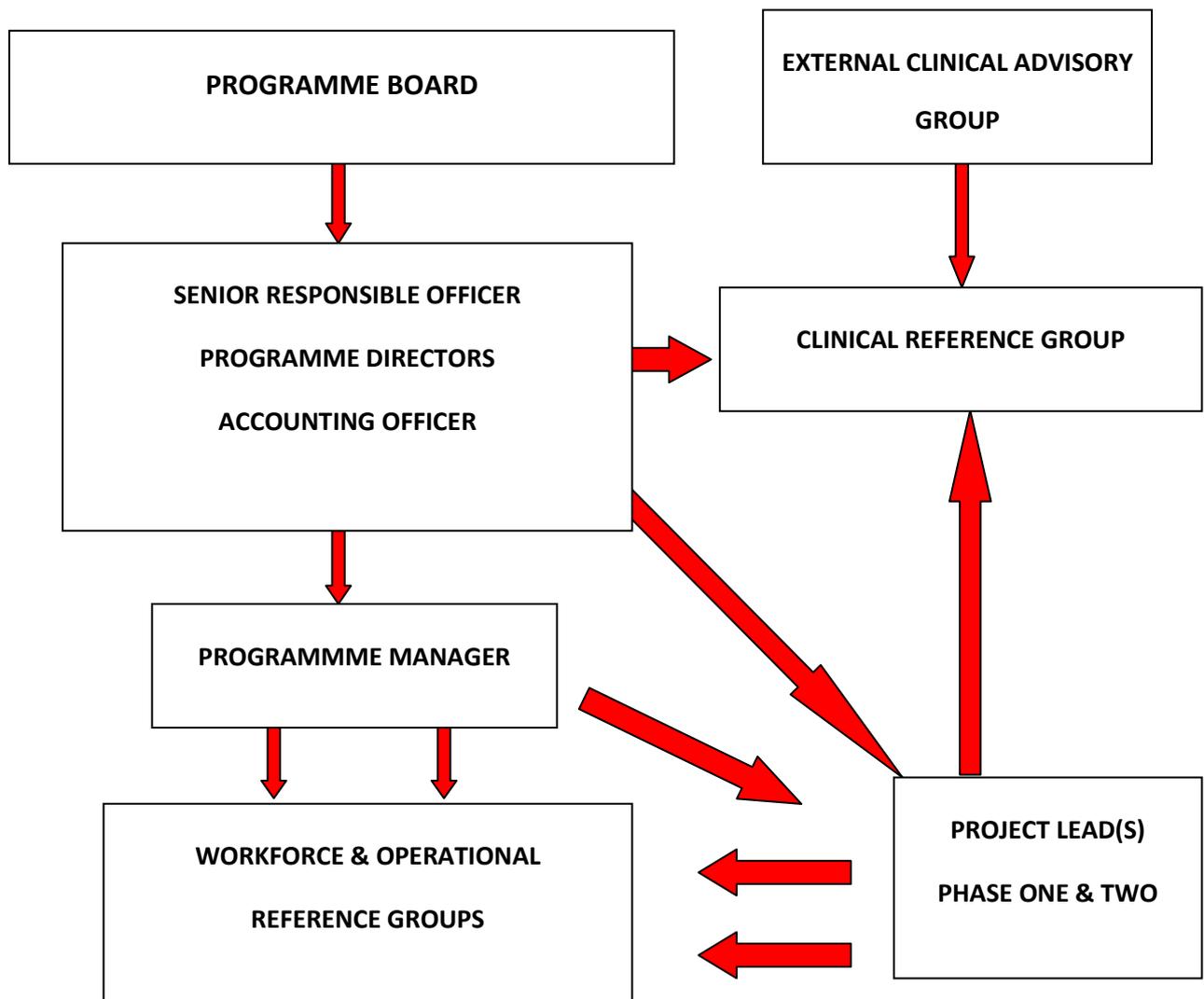
Following approval of the SOP, the EMRTS Programme arrangements have continued to develop the BJC submission. A Programme Board has been established as a continuation of the previous Board, with a review of its membership and terms of reference. New membership has included colleagues from Welsh Government, Critical Care Networks and the South Wales Collaborative, and from experts in pre-hospital care in North and South Wales. The Terms of Reference are attached as [Appendix A1](#).

Dr Grant Robinson continues in his existing role as a Senior Responsible Officer supported by Mr Huw Llewellyn, as Accounting Officer, with Dr Dindi Gill and Dr Rhys Thomas as Programme Directors. In addition to financial support from ABMU Health Board, a full time Programme manager and two project leads for each phase complete the core Programme team. An expansion of this Programme resource has been described in Chapter 14 on the transitional management arrangements.

The purpose of the core Programme team has been to develop the BJC submissions and implementation plan including key milestones that need to be successfully completed. A Programme plan has been created to ensure that developments keep to time and highlight where escalation may be required to avoid unnecessary delays.

In order to progress these milestones, a number of reference groups of specialist advisors have been established, with accountability directly to the Programme Board. These include a Clinical Reference Group (supported by an External Clinical Advisory Group), a Workforce Reference Group and an Operational Reference Group. A list of the specialist advisors to support the programme is provided in [Appendix A2](#).

The relationship between these various groups and core Programme members is illustrated below:



The Clinical Reference Group, with representation across all stakeholder organisations, has been established. The aim of this group is to gain agreement on the overarching Clinical Governance Framework and draft and review all Clinical Standard Operating Procedures. A number of subgroups, covering Emergency Anaesthesia, Training and Information Technology, have been established. These have informed the clinical direction of service development, benefits realisation and financial implications of delivering the clinical service model. National benchmarking of the work undertaken by the Clinical Reference Group will be provided by the external clinical advisory group.

Members of the Workforce Reference Group, including Health Boards and the Welsh Ambulance Service, have engaged in a range of activities including correspondence with National Clinical Directors, collation of workforce questionnaires, finalisation of job descriptions, development of rotas and advertising and selecting personnel.

Concurrently, the Operational Reference Group has overseen the evaluation, tendering and procurement of high level equipment, development of standard operating procedures and interface issues with aircrafts, road vehicles and bases. A detailed implementation operational plan is provided in this submission.

Finally, the material links between the EMRTS Programme Case and a business case being developed for the South Wales and Powys Trauma Network are acknowledged. With cross-representation of senior members on both cases, ongoing joint work (e.g. on patient flows) and demonstration of shared clinical pathways, the EMRTS Programme Board is engaged to ensure that this collaborative activity will assist both cases being delivered effectively. The Welshpool Service is a key feature of this work.

3. PREFERRED OPTION

- 3.1** In the Strategic Outline Programme a long list of options for the operational model were developed. One of the operational model options, which met the deliverability of key investment objectives, was expanded and a shortlist of six options was developed. A high level analysis (based on demand and geographical coverage) was undertaken including advantages and disadvantages of these options. Each option was then qualitatively evaluated by scoring against a series of benefit and risk criteria. This analysis was used to inform a value for money test of each option in accordance with HM Treasury guidance. The conclusion of this independent economic analysis by Ernst & Young was that Option 2A offered the better value for money against the benefits criteria compared to the other options. Option 2A was taken forward as the preferred option and approved by the Programme Board. The introduction of the preferred option will occur as the implementation of two simultaneous phases.
- 3.2** Phase two of the preferred option relates to the development of the Welshpool Service and is covered within this BJC. This phase is defined below. The agreed clinical service model for the service is described in the Programme Case chapter.

Welshpool Service	Air and Road service (operational between the hours of 9am-9pm)
Coverage (30 mins)	12 hours: 95% population (air), 46% population (road)
A designated Clinical Lead and Deputy nominated for the Caernarfon Base occurring at the same time as the Welshpool development.	
After 12 months, a formal gateway review will be conducted to strongly consider the need for further phased expansion to include additional cover in Caernarfon.	

- 3.3** The service, which will be provided over a 12hr period (9am-9pm), was based on a demand analysis undertaken in the SOP.
- 3.4** Clinical care will be led and delivered by consultants from Emergency Medicine, Anaesthetics and Intensive Care Medicine in conjunction with Critical Care Paramedics. These teams will base themselves at the Welshpool airbase during operational hours.
- 3.5** A tier of remote ‘top cover’ consultants will provide support to the service and medical advisory roles at major incidents and mass casualty events. There will be an overlap with the Swansea Service as this will not require duplication of workforce.

- 3.6** Consultants will be provided by their Health Boards through the mechanisms described in the chapter on Workforce Delivery. Significant support for this approach has been demonstrated by the Medical Directors of the Health Boards.
- 3.7** The Welsh Ambulance Service, a key stakeholder, will provide paramedics. These will rotate to the EMRTS on a 3 yearly secondment basis.
- 3.8** Strong strategic partnership has formed between the Wales Air Ambulance Charity and partner organisations to provide the best clinical care possible for critically ill and injured patients in Wales. As such there is an agreement that the Wales Air Ambulance Charity will provide the Welshpool aircraft to support the delivery of high quality patient care. This will allow the service to reach 95% of the population of Wales by air within 30 minutes of activation from the two bases.
- 3.9** Road vehicles designed with the ability to convey patients will be utilised in the event of the aircraft not being operational. This adds significantly to the resilience of the delivery of care. This will allow the service to reach 46% of the population of Wales by road within 30 minutes of activation.
- 3.10** The Welshpool service is key to adequate coverage. Without it, only 69% of the population could be reached within 30 minutes by air.
- 3.11** A paramedic led central co-ordination hub in Cwmbran will be established to co-ordinate all pre-hospital and retrieval taskings as detailed in the chapter on Operational Management. This will be provided by the Welsh Ambulance Service as part of the development of their Clinical Contact Centre. Appropriate tasking of the service is fundamental to the delivery of patient care and the intended benefits realisation plan. Positive engagement of the Welsh Ambulance Service in this process is further evidence to support the strong partnership arrangement that the Programme case has developed.
- 3.12** The service will use state of art advanced resuscitation equipment and monitoring, which includes access to blood and blood products. Details are provided in the chapter on Operational Management.
- 3.13** The EMRTS has invested in a programme of concurrent academic activity which will independently review patient outcomes and intended of benefits of the service as part of a one year service evaluation. This is the first time in Wales that a national data registry will be created to capture all of the above.
- 3.14** It is anticipated that the service will deliver the full breadth of the clinical service model and, with time, the benefits identified in the realisation plan over its period of operational activity. A formal one year Gateway review will define the ongoing role of the Caernarfon base.

4. COMMISSIONING ARRANGEMENTS

4.1 Introduction

The purpose of this section is to set down a Commissioning Framework for EMRTS, the outline Commissioning Intentions, and the proposed host selection process.

4.2 Commissioning Context

The Minister for Health & Social Services has endorsed the Welsh Government's support for the initiation of the Emergency Retrieval and Treatment Service from April 2015. EMRTS Cymru will be responsible for:

- Responding to medical and traumatic emergencies at the scene, including the provision of medical support at major incidents and mass casualty events
- Stabilisation and retrieval of time-critical patients from district general hospitals to specialist centres
- Critical care support providing enhanced stabilisation and transfer of mothers and babies
- Provide air support to rapidly transfer neonatal teams to time-critical life threatening emergencies; and
- Paediatric retrieval – transfer of time-critical patients, currently undertaken by the referring hospital.

There has been a significant amount of work completed by the Programme Board, chaired by Grant Robinson, and supported by ABMU Health Board, over the last year; and Welsh Government officials have been closely involved with the development of the Strategic Outline Case.

The Programme Board is currently developing the Business Justification Case (BJC), with the intention of submitting it to Welsh Government by 5th December 2014 for its consideration and approval.

Meanwhile, the Welsh Health Specialised Services Committee (WHSSC) has been approached by the Chief Executive of NHS Wales/Director General DHSS to draw together a commissioning framework; and to commission the service in the first instance. This is an interim commissioning responsibility while the Emergency Ambulance Services Committee (EASC) concentrates on its immediate emergency service challenges. The intention is that this responsibility will move to EASC once the initial commissioning for year one has been completed.

Over recent weeks, the Welsh Health Specialised Services Committee Director has consulted with a wide range of stakeholders, who are involved in the development of the service, from its initiators to service personnel, to Welsh Government officials and consulted with all of the Health Board Chief Executives to develop a direction of travel for commissioning arrangements.

This section sets down an approach that envisages the Welsh Health Specialised Services Committee Joint Committee commissions the service as requested by Welsh Government against the timescale announced by the Minister.

4.3 Commissioning Framework

Welsh Health Specialised Services has been asked to put together the commissioning arrangements for the EMRTS service. Welsh Health Specialised Services Committee will use its standard commissioning approach as follows:

- Development of commissioning intentions
- Development of service specification and commissioning contract offer
- Progression to negotiation
- Progression to final agreement
- Oversight of contract agreement implementation; and
- Oversight and performance management of service.

4.4 Commissioning Intentions

Chief Executives have now been canvassed for their views on commissioning intentions. Some Health Boards have also submitted letters of support with caveats that are being taken into account as part of the development of the BJC commissioning intentions. The outline commissioning intentions are set down below.

Commissioning Model

The service will be commissioned by the Welsh Health Specialised Services Committee for one year in the first instance, with the opportunity for the service to be evaluated for further expansion. This will provide an opportunity for the benefit of the service to be evaluated, to include a strategic view on the long term hosting organisation, the fit with the emerging trauma network solution, potential movement to a 24 hour service and potential movement to an increased number of EMRTS bases to provide all Wales coverage.

Medium to Long Term Commissioning

The medium to long term commissioning framework for this work will be covered by EASC and the Ambulance Commissioner. It is intended that the medium to long term commissioning is informed by the first year's programme of activity and its evaluation.

Workforce Arrangements

The EMRTS service will need to have a strong and flexible workforce model that supports the core ED, critical care and anaesthetic services of Health Boards.

The EMRTS Service will be:

- Expected to be an attractor for consultants
- Working to ensure that the core service (ED consultants, intensivists and acute physicians) is not depleted by the service; and
- Anticipating that Health Boards will act cooperatively to ensure that a mix of sessional time from consultants is made available to staff the service, providing that core services are robustly staffed.

Maximisation of NHS Service Utilisation

The EMRTS service will work to ensure that it fits well with other elements of NHS Wales in emergency and in hospital environments. There must be an avoidance of duplication and an emphasis on complementary, well handled transition to facilitate handover.

The EMRTS service will be requested to:

- Have a clear service specification defining exactly what it will and will not provide
- Have clear criteria for deployment
- Have clear protocols which define clinical thresholds so that all available NHS Services are properly aligned and any duplication is avoided (especially in the case of Welsh Ambulance Service NHS Trust)
- Have clear protocols that determine where patients will need to go dependent on presenting condition
- Have clear protocols on cross border arrangements
- Anticipate the development of the trauma network and make provision for linkages with it as it develops; and
- Have clear protocols in place in receiving centres to ensure the complexity of the patient's needs are dealt with effectively.

Managed Co-dependencies

The EMRTS service will have a significant number of co-dependencies with other NHS Wales institutions which will need to be clearly laid out.

The EMRTS services will be requested to put in place clearly drafted Service Level Agreements with:-

- Its host organisation
- Welsh Ambulance Service for central coordination hub infrastructure and land transportation
- The Wales Air Ambulance charity given that it will be utilising its air assets and base infrastructure.

The EMRTS service will also work with hospitals receiving the critically ill patient to assist the development of optimum patient pathways. The EMRTS service will need to support, with the national Unscheduled Care Programme, a connection between in hospital and out of hospital service efficiency. The EMRTS service will also need to put in place appropriate Service Level Agreements with cross border providers in order that trauma flows to the east can be accounted for.

Evaluation

The EMRTS service will be evaluated by the commissioner. It is anticipated that the evaluation will cover:

- Patient outcome
- Success of clinical model
- Service and availability performance
- System contribution
- Performance of the host; and
- Cost effectiveness.

The evaluation will also provide a view on performance, based on benchmarking and demonstrable best practice from other systems. The outcome of the evaluation will inform the future commissioning strategy.

Clinical Leadership

The EMRTS service will require excellent clinical and managerial leadership and engagement.

The EMRTS service will establish a Clinical Reference Group with appropriate representation to cover activation, Emergency Medicine, Critical Care and Acute Medicine, to ensure that as the service develops, it remains aligned with developments in professional practice in each area.

Service Development

The EMRTS service will align with service reconfiguration as the Alliances' and All Wales Collaborative work continues to develop across Wales in Emergency Medicine, Paediatrics, Neonates and their support functions. It will also respond to the development of the trauma network as that develops; and take account of emerging plans for managing rurality in Powys and Hywel Dda.

Governance

The EMRTS service will require strong governance to provide reassurance to its host body and its Commissioners.

The governance arrangements should have appropriate:

- Clinical and quality focus
- Workforce engagement
- Escalation processes for concerns and Serious Untoward Incidents (SUI); and
- Assurance mechanisms.

Communication and Consultation

The EMRTS service will require effective communication, internally to the service and externally to the public. EMRTS will require:

- An internal communications strategy so that its protocols, procedures and service offer are broadly understood by NHS Wales staff; and
- An external communications strategy so that the public understand the service offer – crucial in this in its initial stage is the understanding that this will be a 12 hour service.

EMRTS will both be an important and visible out of hospital service.

4.5 Hosting arrangements

A key activity in order to support the commissioning of the service will be to select a host. In the first instance it is appropriate to keep this process both transparent and simple.

The suggested approach will be to:

- Immediately request expressions of interest from all potential hosts for year one
- Request a statement of preparedness for service hosting in year one from those expressing interest; and

- Run a selection panel in early January to test host capability against the commissioning intentions.

It will be important to have the host identified by the end of January 2015 to enable the Programme's timeline.

4.6 Commissioning Team

There will need to be a commissioning team to take this work forward and it is proposed that this will constitute:

- John Palmer, Lead Director, Welsh Health Specialised Services Committee
- Stuart Davies, Director of Finance, Welsh Health Specialised Services Committee
- Stuart Ide, Interim Ambulance Commissioner
- Val Whiting, Head of Capital, Welsh Government
- Representatives nominated by Management Group
- Representatives nominated by Welsh Health Specialised Services Committee.

The team will meet on a regular basis to complete the commissioning activity.

4.7 Commissioning Timeline

In order to successfully commission the service by April 2015, the Joint Committee, with Management Group's support, will take action to ensure a:

- Commissioning framework and intentions, as well as the host selection process, is in place
- Chair's action for host selection, contract offer, negotiation and agreement is actioned in January; and
- Confirmation of commissioning, at the January Joint Committee, (EASC or Welsh Health Specialised Services Committee depending on final governance advice).

The Welsh Government will receive the final Business Justification Case from the Programme Board on 5th December 2014. At this point, the current Programme and Commissioning processes will need to join up, so that the service delivered can be shaped according to the Joint Committees commissioning intentions.

5. CLINICAL GOVERNANCE

5.1 Clinical Governance Structure

The Clinical Governance Framework for the EMRTS will be identical for both Swansea and Welshpool developments. It has been based on the recommendations from The Air Ambulance Association (AAA) – Framework for a high performing Air Ambulance Service 2013 document. It is critical that a robust and consistent approach is taken in order to ensure that the service is able to meet its measurable benefits whilst minimising risk to both patients and personnel.

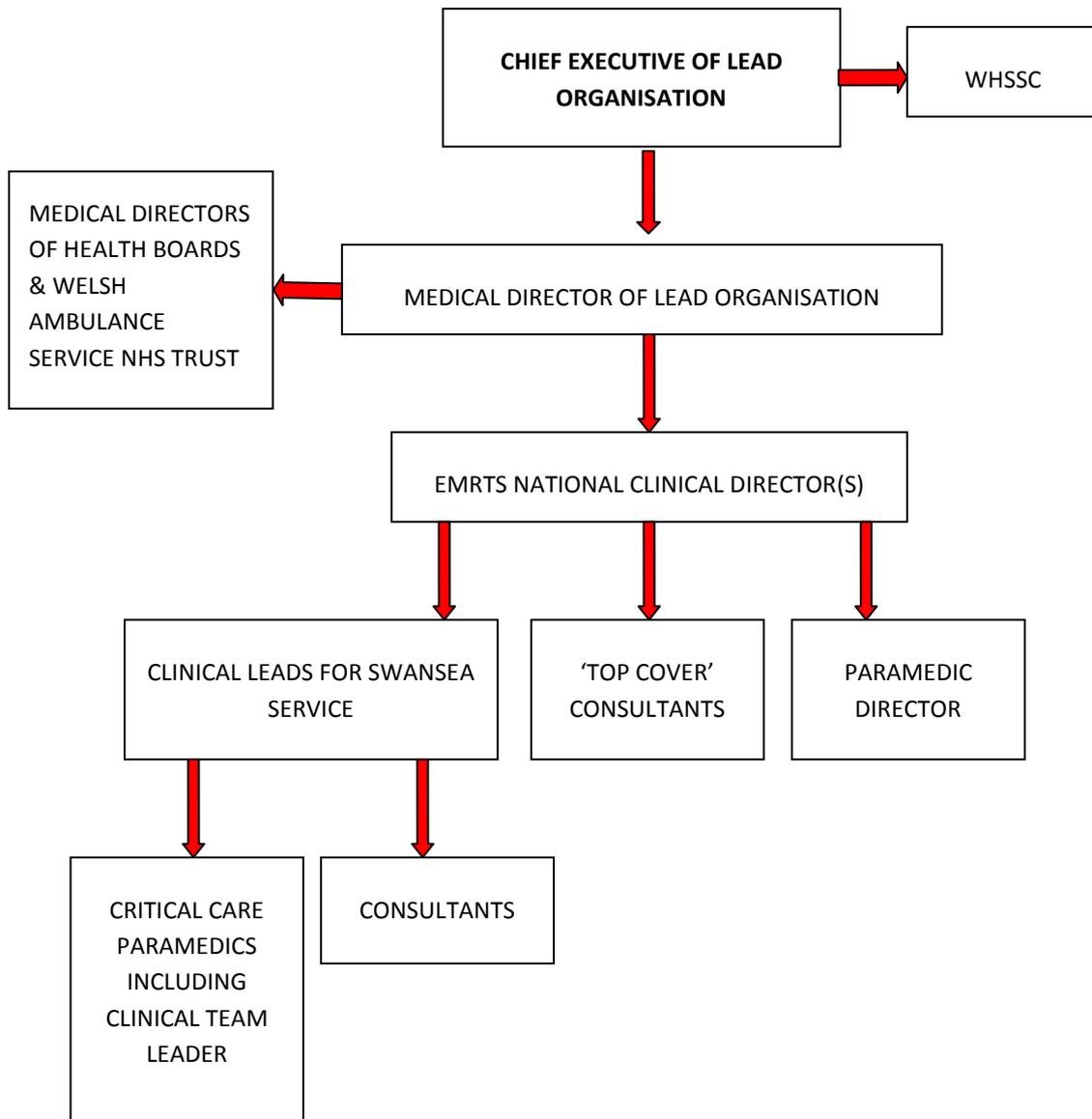
Before considering the clinical governance framework in detail it is important to understand the managerial structure to define clear lines of clinical accountability within the EMRTS and its host organisation. Clinical accountability will be the responsibility of the 'host' organisation. The responsible officer for clinical governance will be the Chief Executive of the host organisation who will be accountable to the Welsh Health Specialised Services Committee Joint Committee for the Clinical Governance of the service. It is proposed that the EMRTS will be directly accountable to the Medical Director of the host organisation and, through them, accountable to the Medical Directors of Stakeholder Boards. The EMRTS service will be led by the National Clinical Director(s).

Although the Wales Air Ambulance Charity will maintain operational governance of the bases, pilots and aircrafts they will not employ the consultants or paramedics. Therefore they will not be responsible for clinical activity of the service. This will be further delineated in a Service Level Agreement between the lead organisation and the Wales Air Ambulance Charity.

The governance structure which will pertain in Caernarfon requires special mention. Whilst Caernarfon will not operate as a fully-staffed EMRTS base, it will continue as a WAACT facility, with EMRTS involvement in the form of a Clinical Lead and Deputy. These individuals will be appointed from the pool of EMRTS consultants, and will have dedicated time to devote to the Caernarfon base. This aims to ensure equity of access for the North West Wales population, and to 'bridge the gap' in terms of paramedic training and base development. The Clinical Lead and Deputy will undertake clinical shifts at Caernarfon and, while they are present, the clinical governance framework will be identical to that of Welshpool and Swansea. When the Clinical Leads are not present, clinical governance will devolve to the WAACT/WAST, as before. There will be no infrastructure investment in the Caernarfon base at this stage.

A representation of the clinical governance hierarchy is shown below although the final structure will need to be agreed by the host organisation once this is defined:

Proposed Clinical Governance structure



As part of the Programme Case, a shared role was created between two clinicians acting as Joint Clinical Directors of the Programme. This way of working has proven to be effective in delivering the key milestones of the Programme Case. It is anticipated that a similar approach of job sharing could be adopted for the National Clinical Director position.

5.2 Joint Stakeholder Group

A Joint Stakeholder Group will represent the EMRTS collaboration between all stakeholders and designated Network leads. The group will meet quarterly to discuss key stakeholder activity. This includes clinical service activity and operational performance (e.g. service demand, appropriateness of tasking and patient flows). This group will have an advisory role to support the other governance processes outlined below.

5.3 External Clinical Advisory Group (ECAG)

The ECAG has already been created consisting of membership from Regional Trauma Networks, Anaesthesia/Critical Care, Emergency Medicine, Neurosurgery, Acute Surgery, Paediatrics and Senior Pre-hospital Critical Care and Retrieval Specialists. It includes a nominated chair for the group. In line with recommendations from the Air Ambulance Association (2013) the purpose of this group will be as follows:

- To provide benchmarking of the Clinical Standard Operating Procedures (CSOP's) produced by the Clinical Reference Group
- These CSOPS will then require sign off by the lead organisations own clinical review process
- To meet 6 monthly in the first year to support the development of the service
- Independent review of significant adverse events
- Report back to the Governance Steering Committee.

It is considered that the requirement of the ECAG will be reviewed one year after the start of service.

5.4 EMRTS Clinical and Operational Management Board

The EMRTS Board will manage the clinical and operational issues as both these elements often overlap. Membership will consist of the National Clinical Director(s), Paramedic Director, Clinical Leads and Clinical Team Leaders. In addition, this Board will also include a representative from the host organisation. This representative will be an Executive Director, or a Senior Manager with appropriate authority. This Board will have a formal structure and a clear Terms of Reference. In relation to clinical issues, the Board will meet bi-monthly and have the following roles:

- Review monthly reports of service activity and performance (incl. compliance with key performance indicators and audit standards)
- Review monthly report of complaints and clinical incidents incl. investigations and future mitigation. Provide recommendations to improve patient care
- Decision making in any major changes in clinical practice (e.g. new equipment, clinical standard operating procedures)

- The Board may request the ECAG for independent review of any aspects of clinical care
- Ensure the financial management of the EMRTS service.

This group will supersede the existing Clinical and Operational Reference Groups.

An Airway Sub Group will conduct a monthly review of all emergency anaesthetic procedures given by the service providing a high level of mitigation in relation to this intervention and report to the EMRTS Clinical and Operational Management Board. In addition to the above the following leads have been defined:

- Paediatric and neonatal lead (service consultant)
- Educational and training lead (service consultant) – 1 per base for doctors and paramedics
- Audit lead(s)
- Equipment lead.

5.5 Clinical Incident Reporting and Risk Management

Incident reporting and risk management will follow existing policies within the host organisation. Reported incidents will be entered onto the DATIX system. There will be a robust monitoring system to detect clinical incidents and 'near misses' and an agreed 'trigger list.' These incidents should be provisionally scored by allocating an assessment of harm and likelihood of recurrence. Any member of the EMRTS will be entitled to report an incident. A trigger list will include the following. This list is not exhaustive:

Any death under the care of the EMRTS deemed a significant incident
Monitor or ventilator failure during transfer
Missing equipment or other equipment failure leading to delayed patient care or harm
Drug error and error with administration of blood products
Accidental IV/IO access removal
Iatrogenic injury to patient
Re-intubation during transfer

Investigation of clinical incidents will initially be sent to the National Clinical Director(s) who may delegate the investigation to the Clinical Leads of each base. Any overlapping operational issues will be handled by the Paramedic Director. The National Clinical Director(s) may choose to involve organisations outside the EMRTS if it is deemed appropriate to do so. Equally if organisations outside the EMRTS (e.g. receiving or referring hospitals) have concerns an optional form for reporting incidents will be provided.

Upon investigation the incident category score should be reviewed and if necessary re-scored. Those with the most serious outcomes i.e. death or serious life threatening or potentially life threatening incidents need to be reported upwards through the clinical governance structures of the host organisation. Independent review will be provided through the ECAG.

Most incidents will not need urgent action but need to be analysed carefully. Any recommendations will be made with reference to Standard Operating Procedures, medical evidence or consulting the ECAG. Some incidents may not be substantiated in which case they can be rejected and the outcome fed back to the referrer. Involvement of the ECAG will help with disputed investigations and achieving resolution.

The EMRTS will hold a record of all clinical incidents. A number of recommendations may be made for improvement. Feedback will be a standard agenda item within all of the following forums:

- EMRTS Board (feedback into the Quality & Safety Committees of the host organisation and Welsh Health Specialised Services Committee)
- External Clinical Advisory Group
- Clinical Governance Days.

5.6 Handling Complaints

The service will operate a system for recording and responding to enquiries and complaints. The system will follow the host organisation's complaints procedure and all complaints will be initially handled by the complaints department.

The service will ensure that all staff and organisations outside the EMRTS (e.g. receiving or referring hospitals) are aware of how to register complaints. Complaints in relation to clinical care will initially be sent to National Clinical Director(s) who may choose to delegate investigation to the Paramedic Director or Clinical Leads. Lessons learnt and future mitigating response will be provided through the forums described above.

5.7 Medical Indemnity

All Clinical staff will be indemnified in the usual manner by the host organisation for clinical and operational activity. Consultants may choose to take out additional cover through medical protection societies.

5.8 Clinical and Equipment Standard Operating Procedures (CSOP's and ESOP's)

As part of the work currently being undertaken by the Clinical Reference Group an extensive list of CSOP's and ESOP's have been developed. The CSOP's define the minimum standards of practice. Clinical members of EMRTS will be required to sign up and adhere to these procedures to ensure safety and consistency of the service.

Each SOP will have a specific review period defined and some will have specific audit standards attached to them. Authors have also been asked to interface with third parties (e.g. critical care network, neonatal/paediatric retrieval services) to ensure that clinical pathways are consistent. Each SOP will then be reviewed by another member of the reference group followed by independent review by the ECAG. Formal 'sign off' of the SOP's will be through the host organisations review process.

In addition a series of clinical key performance indicators (KPI's) have been developed. Details of these and the SOP's are provided in [Appendix B1](#).

5.9 Clinical Audit

Clinical audit cycles will be carried out against clinical KPI's. This will be essential to ensure KPI's are being achieved and to prove the value of the service. Data will be extracted and collated by the audit lead and presented at clinical governance days. Audit will be presented for individual units and collectively. If standards are not being met, an action plan will be initiated before a period of re-audit. This will be facilitated by the EMRTS Board.

Results from clinical audit will be discussed at EMRTS Board meetings, clinical governance days and ECAG meetings. An annual report will be produced outlining service audit activity and performance.

An example of successful audit – Emergency Anaesthesia

An audit form will be completed for every emergency anaesthetic undertaken by the service, with an electronically attached summary of the patient's observations from the monitor. The audit forms will be reviewed by the Airway Subgroup against the KPIs and presented monthly at the clinical governance days. Results will be forwarded to the ECAG and remedial action will be communicated to the National Clinical Director(s). These may require action by individuals or the entire service (further training, change to SOP etc), with a period of re-review. National Clinical Director(s) and Clinical Leads will have access to these forms and this will enable them to provide accurate immediate feedback to doctors and paramedics working for the service. This will be an excellent opportunity for individual personal development and appraisal.

5.10 Clinical Governance Days

Each unit will organise monthly clinical governance days (one in Swansea and one in Welshpool) and one in Caernarfon organised jointly with WAACT). These days will involve presentation of operational activity, regular audits (e.g. intubation), case presentations and review of core skills. This monthly event will be open to healthcare providers from outside the unit and individuals interested in joining the service.

There will be quarterly national clinical governance days, presenting national operational activity, audit data, significant cases and outside guest speakers.

5.11 Training, Accreditation and Appraisal

Consultants will be specifically selected so that they will already possess the knowledge and skills required within their hospital practice. The purpose of initial training will be acquiring the ability to translate this into the pre-hospital and retrieval environment. Initial training will consist of the following:-

- A two-week accelerated pre-service training course covering the knowledge, skills and attitudes of pre-hospital critical care and retrieval. Assessment period at intervals during the course
- Medical passengers briefing for flight operations
- Advanced driving course for top cover consultants
- Series of shifts with direct mentoring over 6 weeks (lead time prior to service being fully operational). A number of competencies will need to “signed off” during this period before independent practice.

Ongoing training will consist of daily focused training at the base (when operational) and contribution to clinical governance days (minimal attendance 6 days per year). The ethos and philosophy of the service will be one of training when not clinically active. There will be annual appraisal and review of personal development portfolio for doctors by the National Clinical Director(s) and Clinical Leads. This will assist with revalidation purposes.

Paramedic development as part of the service must be balanced against the requirement to initiate the service in a timely fashion. Initially Paramedics will be trained to assist with critical care interventions, but will be encouraged with time to develop their level of competency and practice. The following training will need to occur initially:

- HEMS crew member course (if not already conducted elsewhere)
- Parallel training with Consultants on the two-week accelerated pre-service training course

- Series of training shifts at same time as doctors over 6 weeks (lead time prior to service being fully operational).

After successfully completing six months initial training and evaluation, the service paramedics will be entered into a two-year online postgraduate certificate in critical care practice from Cardiff University. Concurrently they will complete a programme of training to become Critical Care Paramedics through direct clinical care working with EMRTS consultants and hospital shifts.

As a routine all staff will undergo hot debriefs. Trauma Risk Management (TRiM) training will be provided for on-going psychological support to individuals and teams. Detailed plans for training for consultants and paramedics (including resource implications) are provided in [Appendix B2 and B3](#).

5.12 Clinical Information

EMRTS has developed a comprehensive electronic database. A new data collection system is being designed to include capture of 'measurable benefits', adherence with KPI's, outcome analysis and strategic planning of the service (i.e. future expansion). This will be essential to ensure KPI's are being achieved and to demonstrate the value of the service. Data will be extracted and collated by the audit lead and presented at clinical governance days. Audit will be presented for individual units and collectively.

A specific record of documentation for primary and secondary transfers will be required. "Real time" electronic recording of data will be carried using portable tablets and printed for the receiving hospital. Selective data from this electronic patient care record will then form part of the daily operational log sheet and database. The database will have integrated audit tabs. This will be a national database, such that data can be shared and viewed across units.

In addition the database will form part of a trauma registry. A similar system to this exists in Victoria, Australia and has led to extensive, high quality pre-hospital studies on major trauma being published (Victoria State Trauma Outcomes Registry – VSTORM).

All data stored electronically will be held in accordance with the Data Protection Act 1998. Medical records will be controlled in accordance with NHS guidelines and each unit will have a nominated Caldicott Guardian (National Clinical Director(s)).

A separate chapter, Chapter 9, provides details on the I.T. infrastructure required and the benefits that this will bring EMRTS.

5.13 Medicines Management

Use of drugs outside standard hospital practice (especially controlled drugs) requires additional governance measures to be in place to ensure patient safety and clear lines of accountability as shown below:

- Development of a drug formulary.
- Pre-filled/pre-labelled anaesthetic drugs (reducing chance of drug error).
- Use of Omnicell automated pharmacy dispenser.
- Daily bag sign out/in
- Daily Controlled drug sign out/in.

Further details will follow in the Operational Management, Chapter 8.

6. ORGANISATIONAL GOVERNANCE

6.1 Introduction

This section sets out the organisational governance arrangements for EMRTS Cymru and the responsibilities of the 'host' organisation, including the services it is intended the host will provide to the EMRTS Cymru Service, as it is operationalised.

It is proposed that the responsibility for managing and accommodating EMRTS Cymru will transfer to the identified host organisation on the 1st April 2015, prior to the operational 'go live' date. Responsibility for servicing and accommodating the management and relevant workforce, including the National Clinical Director(s), will transfer to the host organisation at that date and the host will be responsible, after transition, for providing the services specified in this section.

It is proposed that the Welsh Government shall provide the host with funding for this purpose, in accordance with the financial provisions set down below. Any funding provided for the function of host shall be accounted for by the host in accordance with the requirements of the Welsh Government and shall be used exclusively for the purposes of providing the services.

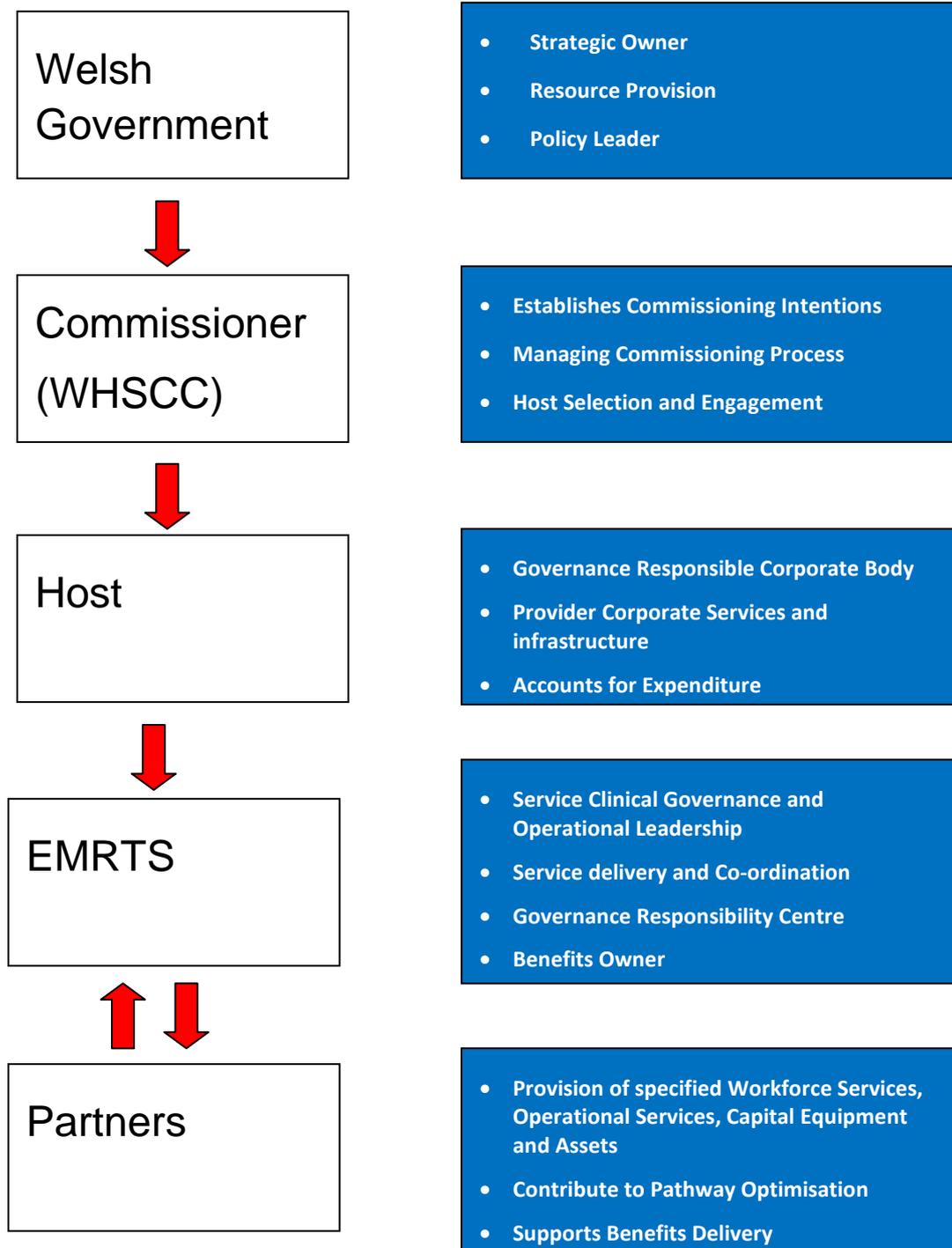
In fulfilling its obligations and responsibilities the host shall not be required to do, or not do, anything which does not comply with the host's statutory powers and duties, Standing Orders and Standing Financial Instructions, Corporate Governance requirements, procurement requirements or any other legal obligations.

6.2 Organisational Governance Framework

The Organisational Governance Framework for EMRTS Cymru overarches the Clinical and Operational Governance arrangements set down in the BJC.

The Organisational Governance arrangements clearly set down the obligations of the host organisation, the hosted EMRTS Wales Service, Partner organisations, the Commissioner and the Welsh Government. Each organisation has specific and identified responsibilities that require effective discharge in order to facilitate the effective functioning of EMRTS Cymru.

The following graphic represents the relationships and responsibilities at high level:-



Each element above requires ownership and leadership within each organisation.

6.3 Commissioner Responsibilities

The Commissioner shall undertake the following responsibilities on behalf of the Welsh Government:

- a) To establish and agree Commissioning intentions for the EMRTS
- b) To select and enable a host organisation for the EMRTS
- c) To lead the Commissioning process on behalf of Welsh Health Boards for the EMRTS service and engage with the EMRTS through the host
- d) To allocate EMRTS funds to the host annually at the start of the year
- e) To maintain a rolling three-year plan for EMRTS, and an associated 'ring fenced' funding allocation
- f) To indemnify the host's costs in managing, settling or otherwise dealing with claims arising from the EMRTS service, to the extent that such costs are not covered by the host's arrangements under the All Wales Risk Pool.

6.4 Hosting Responsibilities and Services

The host should provide the following services to support the function of the EMRTS Wales:

- a) To provide a management environment for the EMRTS service, expend resources in support of the EMRTS as defined in the EMRTS Programme case and BJC and:
 - Ensure compliance with the host's Standing Financial Instructions and procurement rules
 - Provide Financial Management, HR, I.T. and other Corporate services to the EMRTS service
 - Upon approval of sufficient resources by the Commissioner, provide the EMRTS service with management and operational infrastructure.
- b) Maintain and make available such information as is reasonably required by the Commissioner and the Welsh Government
- c) Maintain a separate Income and Expenditure Account in respect of the EMRTS; such an account to be separate from all other funds
- d) Enter into such contracts with third parties as may be required by the National Clinical Director(s), provided that the Chief Executive of the host Organisation is satisfied that due process has been followed and the Commissioner is providing relevant resources to meet the requirements of the contracts
- e) to expend, on behalf of the EMRTS, any capital or revenue resources that are made available to it by the Commissioner or Welsh Government, for the purposes of delivering the EMRTS service, and to distribute these resources for those purposes to other organisations and agencies as advised by the EMRTS National Clinical Director(s).

For the sake of clarity, the host will not be responsible for the validity or efficacy of the EMRTS Service strategies or plans. In addition, the host shall, on the basis it has discharged its obligations as host, not suffer any financial detriment as a result of its status as the EMRTS hosting organisation.

6.5 Formalised Partnership Arrangements and SLA with WAACT

A formal SLA will be agreed between the host organisation and WAACT and this will clearly define roles, expectations and responsibilities for both parties in relation to the EMRTS service, a sub group has already been established (by WAACT) to complete this task.

The SLA will be based on WAACT maintaining the commitment and resource as per the current service on an ongoing basis and will focus on the operation of the air bases and the use of WAACT helicopters and will include:

- Defined roles and responsibilities for each stakeholder
- Governance arrangements
- Standard Operating Procedures (SOP's) to be followed
- Responsibility for resource and asset management
- Resource commitments
- Communication and meeting arrangements
- Responsibility and reporting to Boards
- Review and monitoring periods and mechanisms
- Relevant performance measures and standards
- Risk and incident reporting
- Details of any payments due and due dates and funding mechanisms
- Asset ownership
- Security (employee's and assets)
- Disciplinary Procedures
- Major Incidents and Exceptional circumstances
- Press communication
- Branding
- Service Delivery
- Employment Contracts and Payroll Responsibility (where relevant).

6.6 Formalised Partnership Arrangements and SLA with Welsh Ambulance Service NHS Trust

A formal SLA will be agreed between the Host Organisation and WAST and this will clearly define roles, expectations and responsibilities for both parties in relation to the EMRTS service, a sub group will be established to complete this task.

The SLA will be based on WAST maintaining the commitment and resource as per the current service on an ongoing basis (recognising the cost of upgrading existing Paramedic staff for relevant bases and hub) and will focus on the operation of the Communications Hub and the role of the CCP in the EMRTS service and will include:

- Defined roles and responsibilities for each stakeholder
- Governance arrangements
- Standard Operating Procedures (SOP's) to be followed
- Responsibility for resource and asset management
- Resource commitments
- Communication and meeting arrangements
- Responsibility and reporting to Boards
- Review and monitoring periods and mechanisms
- Relevant performance measures and standards
- Risk and incident reporting
- Details of any payments due and due dates and funding mechanisms
- Asset ownership
- Security (employee's and assets)
- Disciplinary Procedures
- Major Incidents and Exceptional circumstances
- Press communication
- Branding
- Service Delivery
- Employment Contracts and Payroll Responsibility (where relevant).

6.7 Partnership Arrangements with Health Boards

The appropriate agreements will be put in place with Health Boards to cover the release and appropriate funding of Consultant Sessions to support the EMRTS Service.

Clear agreements and mechanisms to cover:

- Honorary Contracts
- Session payments for individuals (as part of host job plan)
- Reimbursement to Health Boards
- Management of sick, annual and study leave
- Rota Co-ordination
- Clinical Negligence
- Risk and Governance
- Recruitment
- CPD and SPA.

6.8 Dispute Resolution

In the event of any dispute between the host and those involved with the EMRTS service, such dispute shall be escalated as appropriate to the Chief Executive of the host and to the EMRTS National Clinical Director(s).

If such dispute cannot be resolved in this way it shall be referred to the Chair of WHSCC and the Chair of the host.

If such a dispute cannot be resolved in this way, it should be referred to the Minister for resolution.

6.9 Access to Information

The EMRTS National Clinical Director(s) and the host's Chief Executive shall be responsible for ensuring that each has such access as the other requires to all information, including financial information to ensure the efficient operation of the EMRTS in accordance with the host's Standing Orders and Standing Financial Instructions.

6.10 Financial Flows

Funds for the EMRTS service to be contracted by the Commissioner on an annual basis and, thereafter, the host provides financial management services to the EMRTS service.

For the purpose of clarity, the following responsibilities are set down:

- a) The Commissioner will authorise the transfer of funds to the host in line with the agreed funding level and these resources to be accounted for by the host as income to the EMRTS service
- b) The National Clinical Director(s) can authorise the expenditure of funds up to the level of the income received by the host in accord with instructions from the host
- c) The EMRTS National Clinical Director(s) will instruct Shared Service Partnership to act on behalf of the EMRTS service on any procurement to be carried out for the EMRTS service
- d) The host is to maintain an EMRTS Income and Expenditure Account. The EMRTS National Clinical Director(s) shall make spending decisions in accordance with the host governance arrangements.

6.11 Asset Ownership

Unless the Welsh Government shall direct otherwise, all assets (including intellectual property rights) acquired by the host in connection with the EMRTS Service, including contracts entered into with third parties, shall belong to the host, but in effect be held on behalf of the EMRTS service.

The host shall transfer ownership of, and any other rights in, the assets to such party or body as the Commissioner shall require and within such timescales as the Commissioner shall reasonably require.

The Welsh Government shall indemnify the host in respect of any costs incurred in respect of maintaining or transferring such assets.

In the event that any income is derived from such assets or from their disposal, such payment shall be regarded as part of the EMRTS Income and accounted for accordingly.

7. WORKFORCE DELIVERY

7.1 Introduction

In the Programme Case an evaluation of a long list of options for the EMRTS workforce was undertaken as part of the operational model appraisal. It concluded that the optimum team configuration was that of the consultant grade doctor and critical care paramedic (CCP) as this provided the best opportunity to meet the key investment objectives of the service.

Additionally, an evidence based review was undertaken that supported this approach. At this stage it was agreed that consultants would come from the relevant parent specialties of Emergency Medicine, Anaesthetics and Intensive Care Medicine.

A summary of planned workforce composition for the National and Welshpool service follows:-

- 12-16 consultants (including direct clinical delivery and some 'top cover' consultants)
- 5 critical care practitioners (direct clinical delivery)
- 1 National Clinical Director(s) – inclusive of Swansea and Welshpool services
- 1 Paramedic Director – inclusive of Swansea and Welshpool services
- 1 Business manager – inclusive of Swansea and Welshpool services
- 1 Clinical Lead for the base (from above consultant pool)
- Lead and deputy lead for Caernarfon base.
- 1 Clinical Team Leader for the base (from above paramedic pool)
- 1 base administrator.

7.2 Consultant Workforce

Engagement

In the current phase of the Programme, there has been extensive engagement with all stakeholders including Chief Executives, Medical Directors, Directors of Planning, Directors of Finance and Welsh Government colleagues. Consequently letters of support from Health Boards have provided positive support for the recruitment of consultants from Health Boards to the EMRTS and to make unfilled, vacant posts attractive.

As part of the Programme Case, a Workforce Reference Group has been established with an invitation of membership extended to all stakeholders (including colleagues from Human Resources) through correspondence with Medical Directors [Appendix C1](#). The purpose of the Workforce Reference Group has been to create specific job descriptions, person specifications, selection criteria and rotas for the service.

In parallel a questionnaire was sent to all existing consultants currently working in Wales from the above specialties who had previously expressed an interest in working for the EMRTS [Appendix C2](#). The collated results allowed the reference group to form a decision that national recruitment within Wales supplemented by some recruitment to unfilled, vacant posts would be feasible.

Workforce Planning

In addition to the above, a formal medical workforce request was sent to Medical Directors to engage with their clinical workforce in order to determine how interested consultants could be released and also provide details of any planned or current consultant vacancies. The specific question around current or planned consultant vacancies was pertinent because an opportunity to offer more attractive joint Parent Speciality/Pre-hospital Emergency Medicine appointments could be made in the future. This would help to bridge difficult recruitment and retention issues that exist within Wales (especially in Emergency Medicine) and reduce Health Board expenditure on locum or agency fees. Following a presentation to Medical Directors on 3rd October 2014 a ‘blended’ approach to recruitment was agreed and detailed workforce planning was requested.

This “blended” approach described the following options:

- **Consultants already job planned in Pre-hospital Emergency Medicine (PHEM)** – transfer sessional commitment to the EMRTS
- **Consultants working for EMRTS over and above their existing job plan** – as extended session
- **Re-job plan existing consultants interested in working for the EMRTS** – sessions in the parent specialty would need to be backfilled whilst consultants work for the service
- **Recruit to unfilled, vacant posts in parent specialty with PHEM** – to fill 2014/15 vacant posts and make these posts more attractive particularly in Emergency Medicine.

Based on an appraisal of the above and the results of the questionnaire a final workforce proposal was developed and sent to Medical Directors with agreement to proceed [Appendix C3 and C4](#). This includes internal recruitment of 12 consultants to the Swansea phase and the opportunity to advertise to 6-8 unfilled, vacant posts in parent specialty with PHEM across Wales. These PHEM posts could then be used to work for the EMRTS.

Recruitment to the Welshpool base represents a specific challenge for workforce planning. The number of consultants currently working in Mid/North Wales who have expressed interest in working for EMRTS is small. This reflects smaller population densities, ongoing recruitment difficulties, and the relative isolation of

the airbase when compared with Swansea. Even with consultants working additional hours, it would be impractical to start a service based on the numbers available. For this reason, and to allow time for the workforce to develop, it has been necessary to widen the initial area of recruitment to include consultants working at the Royal Stoke University Hospital (RSUH, formerly UHNS). This site has been chosen for the following reasons:

- It is already the receiving Major Trauma Centre for North Wales, and has an established track record of service to the people of Wales.
- North Wales Hospitals form part of a trauma network including RSUH, and benefit from strong ties of governance and accountability. The provision of retrieval doctors from RSUH will strengthen these bonds.
- RSUH is within commuting distance of Welshpool.
- A number of consultants within RSUH have expressed interest in working for the service. It should be emphasized that these individuals will be subject to the same appointment process as doctors based in Wales (see below).
- RSUH has embraced the EMRTS concept and has, on risk, taken steps to appoint extra consultants with an interest in Pre-hospital and Retrieval Medicine.

Even with the extra tranche of consultants from RSUH, it is likely that doctors working in Welshpool will have to contribute extra hours to the service in its early phases. It is envisaged that, as time goes by, the presence and reputation of the EMRTS will act as a draw to Wales for high-calibre individuals completing training or seeking a career move. These individuals will lessen the burden on the original group of EMRTS consultants, and will help populate North Wales hospitals with consultants in shortage specialties.

The plan to involve RSUH in the recruitment process has agreement from the relevant LHB (BCU), and the BCU Medical Director.

Selection Process

Application packs including a job description and personal specification were sent to all interested consultants in Wales and Health Boards for dissemination on 4th November 2014 [Appendix C5-C7](#). Concurrently an approach to recruiting to unfilled, vacant posts was also provided encouraging Health Boards to advertise these posts expediently given the proposed timescales for implementation of the service and this is attached as [Appendix C8](#).

Following short listing of suitable applicants the selection process has been defined as follows:

- A functional fitness test
- Two clinical simulated scenarios run by independent simulation and human factors experts, focusing on relevant proficiencies required by an EMRTS consultant
- An interview conducted by a senior panel consisting of the EMRTS Senior Responsible Officer, an EMRTS Programme Director, an independent clinical expert, a ambulance service representative and a Medical Director representing Health Boards.

This selection process will recruit for both EMRTS consultant and 'top cover' consultants. The selection process is undertaken in a completely transparent and independently validated manner where all applicants regardless of their current or future role within EMRTS are tested against these criteria to ensure fairness and quality. It is anticipated that the internal recruits will be selected by early December with formal appointment following approval of the BJC. If successful, applicants will hold an honorary contract with the host of the EMRTS whilst on duty with the service.

Rotas

In order to underpin the workforce planning process, sample rotas have been designed to provide proof of concept to ensure adequate cover with appropriately qualified staff during all service operating times. These rotas have been designed in line with the Welsh Consultant Contract.

Once candidates have been selected the rotas will be populated for the clinical shifts and 'top cover' shifts. The minimum contribution to the clinical rota will be 2 shifts per month. However it is expected that most consultants will work 3 to 4 shifts per month. This will be converted to a weekly sessional contribution when populating the rota. The principles of the top cover consultant rota will be similar to that of the consultant rota outlined above. An average contribution of 3 shifts per month will be required to run the rota. All top cover consultants will be expected to contribute to the clinical rota at a minimum of 2 shifts per month.

Details of the rotas pertaining to the above have been provided in the job description in [Appendix C6](#).

7.3 Critical Care Practitioner (CCP) Workforce

Introduction

It is anticipated that a national recruitment process will be utilised to recruit to these post which will last 3 years. These will replace the existing air ambulance paramedics whose secondment will end in Spring 2015. A process to manage transitional arrangements is being established to manage this change in workforce.

Existing air ambulance paramedics will be entitled to apply for these new posts. The employer of these paramedics will be determined by a decision on the host organisation. A job description and personal specification has been developed by the Workforce Reference Group as [Appendix C9](#). These posts will be advertised in early January and the selection process will mirror that of the consultants. See Appendix E5 for job descriptions.

CCP Workforce Planning and Recruitment

Five paramedics will be required for the Welshpool service development to support additional roles within the service.

CCP Rota

The roster will cover the following duties:-

- 7 x 12hr clinical shifts for EMRTS
- 37.5hrs of CCP education per week
- Enough relief to cover absences (i.e. annual leave, sickness and any other absences that may arise).

7.4 National Clinical Director(s), Paramedic Director, Business Manager, Clinical Leads of the Base and Administrator

Job descriptions and personal specifications for the above roles have been developed by the Workforce Reference Group. It is anticipated that these appointments will take place in January 2015 once the BJC's are approved.

7.5 Information Technology Leads

Data collector and data analysis roles are described in the chapter on Information Technology, Chapter 9, later in the BJC.

8. OPERATIONAL MANAGEMENT

8.1 Operational Management Structure

Introduction

The first part of this chapter discusses the overarching operational governance framework and supporting activities (Section 8.2). The rest of this chapter provides information pertaining to the implementation of the service and once the service is fully operational (Sections 8.3-8.5).

8.2 Operational Governance

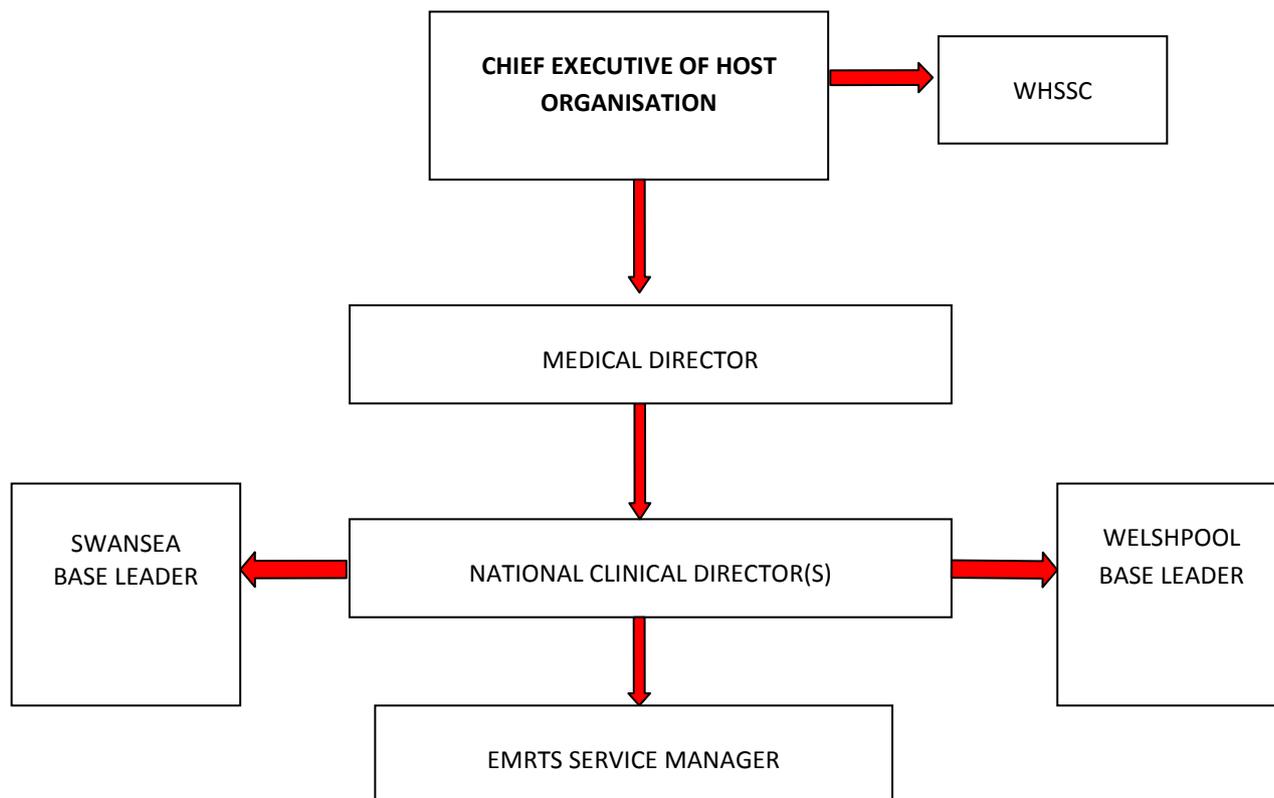
EMRTS Operational Structure

“Operations” is an over arching term used to describe how an organisation delivers its core functions on a day-to-day basis. This chapter provides details on how EMRTS will deliver this.

Clinical governance has already been described in Section 5.1 and the operational structure will broadly follow this but with significant additional “buy in” from partner organisations. These are crucial to allow the service to deliver its key clinical activities. These partner organisations include the Wales Air Ambulance Charity and the Welsh Ambulance Service, who are key partners in this regard.

Operational accountability will be the responsibility of the ‘host’ organisation. The responsible officer for operational governance will be the Chief Executive of the host organisation who will be accountable to the WHSSC Joint Committee for the operational governance of the service.

A representation of operational hierarchy is shown below although the final structure will need to be agreed by the host organisation once this is defined:



The operational management of EMRTS is charged to the EMRTS Clinical and Operational Management Board. This is discussed below.

EMRTS Clinical & Operational Management Board

The Board will manage the clinical and operational issues as both these elements often overlap. Membership will consist of the EMRTS Business Manager, National Clinical Director(s), Paramedic Director, Clinical Leads and Clinical Team Leaders. In addition, this Board will also include executive board representative from the lead organisation. This Board will have a formal structure and a clear Terms of Reference. In relation to operational issues, the Board will meet bi-monthly and have the following roles:

- Review monthly reports of service activity and performance (incl. compliance with key performance indicators and audit standards)
- Review monthly report of complaints and clinical incidents incl. investigations and future mitigation. Provide recommendations to improve patient care
- Decision making in any major changes in operational practice (e.g. new equipment, operational standard operating procedures)

This group will supersede the existing Clinical and Operational Reference Groups. An equipment lead will also be defined within the operational management structure of the EMRTS.

Service Level Agreements

The day-to-day logistical management of two bases requires an appreciation of multiple work streams across many levels. It requires an understanding of complex medical equipment, drugs, real estate issues, specific aviation and road issues as well as liaison with multiple agencies. The operational governance structure, guided by a series of service level agreements (SLA's), will bring together all parties to allow the EMRTS to deliver its clinical service model.

SLA's between the host organisation and partner organisations including the Wales Air Ambulance Charity, the Welsh Ambulance Service and Health Boards have been described in Chapter 6. These SLA's will provide the lead organisation and WHSSC confidence in relation to a number of operational activities incl. aviation governance and tasking.

In addition a number of contracts will be drawn up between the host organisation and providers of the service and equipment. Service providers will include those pertaining to information technology, pharmacy and blood products.

Clinical Incident Reporting and Risk Management

Incident reporting and risk management will follow existing policies within the lead organisation. Reported incidents will be entered onto the DATIX system. There will be a robust monitoring system to detect clinical incidents and 'near misses' and an agreed 'trigger list.' These incidents should be provisionally scored by allocating an assessment of harm and likelihood of recurrence. Any member of the EMRTS will be entitled to report an incident. A trigger list will include the following but this list is not exhaustive:

Staffing (Staff absence resulting in delay/cancellation of service, injury to staff member, staff stranded without transport, needle stick injury)
Communications (Miscommunication of information leading to harm/possible harm, network/system security, breach of confidentiality, equipment failure, failure to complete daily log sheet and database activity)
Delays (Delay or lack of tasking leading to harm/possible harm, substantial delay in activation for pre-hospital and retrieval response, inability to arrive on scene or referring/receiving hospital due to aviation/road related issues, aircraft/road vehicle offline for a significant period due to maintenance)
Aircraft and road vehicles (Any accident involving these)
Drug error and error with administration of blood products
Equipment (Missing equipment or other equipment failure leading to delayed patient care or harm, ventilator or monitor failure during patient transport, stock out of drugs, lack of delivery of blood products)

Investigation of operational incidents will initially be sent to the EMRTS Service Manager who may delegate the investigation to the Paramedic Director or Clinical Team Leaders of each base. The National Clinical Directors will handle any overlapping clinical issues. The EMRTS Service Manager may choose to involve organisations outside the EMRTS if it is deemed that they have responsibility (e.g. Bond Air Services). Equally if organisations outside the EMRTS have concerns an optional form for reporting incidents will be provided.

Upon investigation the incident category score should be reviewed and if necessary re-scored. Those with the most serious outcomes i.e. death or serious life threatening or potentially life threatening incidents need to be reported upwards through the operational governance structures of the host organisation.

Most incidents will not need urgent action but need to be analysed carefully. Any recommendations will be made with reference to Standard Operating Procedures and consulting all stakeholders. Some incidents may not be substantiated in which case they can be rejected and the outcome fed back to the referrer.

EMRTS will record all operational incidents. A number of recommendations may be made for improvement. Feedback will be a standard agenda item within all of the following forums:

- EMRTS Clinical & Operational Management Board (feedback into the lead organisation and WHSSC)
- Governance Days.

Handling Complaints

The service will develop a system for recording and responding to enquiries and complaints. The system will follow the host organisations complaints procedure and the complaints department will initially handle all complaints.

The service will ensure that all staff and organisations outside the EMRTS (e.g. receiving or referring hospitals) are aware of how to register complaints. Complaints in relation to operational issues will initially be sent to the EMRTS Service Manager who may choose to delegate investigation to the Paramedic Director or Clinical Team Leaders of each base. Lessons learnt and future mitigating response will be provided through the forums described above.

Operational Indemnity

All staff will be indemnified by the host organisation for clinical and operational activity. However, members of staff will be encouraged to take out personal polices for accident or injury.

Operational Standard Operating Procedures (OSOP's)

As part of the work currently being undertaken by the Operational Reference Group an extensive list of OSOP's is being developed ([Appendix D1](#)). The OSOP's define the minimum standards of practice. Members of EMRTS will be asked to sign-up and adhere to these to ensure safety and consistency of the service.

Each SOP will have a specific review period defined and some will have specific audit standards attached to them. Authors have also been asked to interface with third parties (e.g. aviation services, equipment manufacturers and medical physics) to ensure that operational pathways are consistent. An internal review process has been defined pending 'sign off' of these SOP's through the lead organisation.

In addition a series of operational key performance indicators (KPI's) have been developed to include rota adherence, operational cover, asset availability, sickness, equipment and data capture ([Appendix D1](#)). Results of these will be reviewed through the forums described above and as part of the 1 year service evaluation.

8.3 Service Operations

The operational reference group has been involved in series of activities in relation to implementation and service operations which need to be completed prior to the commencement of the EMRTS. An in-depth description of these activities is provided below in order to demonstrate the considered approach taken to develop this element of the service and mitigate risk where possible.

Base operations

As described in Chapter 3 the preferred option for the operational model includes the existing Swansea and Welshpool bases, which will continue to be run by the Wales Air Ambulance charity. However, these bases will need some additional infrastructure investment by the EMRTS as shown below:

- Increased real estate to house additional equipment, drugs, office space and overnight accommodation
- An enhancement of communications to support the planned developments outlined in the chapter on Information Technology.

This investment is reflected in the financial schedules of the BJC. Ongoing maintenance of these bases will remain the responsibility of the Wales Air Ambulance charity and will be further delineated in a SLA. At this stage there will no infrastructure investment at the Caernarfon base by the EMRTS.

Daily routine

A timetable of daily activity base (when not being tasked) will be instituted and supported by OSOP's to include:

- Drug and equipment checks on the aircraft and car
- Moving the aircraft to and from the hanger to make it ready for deployment
- Daily team briefing lead by the pilot to discuss any weather and aviation restrictions, fuel and performance issues and crew resource management
- Next day follow-up of patients and feedback to referring unit
- Clinical training where the EMRTS team will work through clinical scenarios practicing a specific skill set
- Stock checking of equipment.

Activation of the EMRTS

The activation process of the EMRTS by road or air will be coordinated by a single central coordination hub at Vantage Point House in Cwmbran ([Appendix D2-D3](#)). The central coordination hub will be manned by an EMRTS paramedic during the operational hours of the service. All three Wales Air Ambulance charity aircrafts will be tasked from this desk. Each tasking will be overseen by the central coordination hub.

Identifying a clinically vulnerable patient at an early stage and dispatching the correct resource is related to patient outcome. The dispatch process also ensures the efficiency of the service by reducing the risk of unnecessary deployment.

As defined by the Civil Aviation Authority (CAA), there are two categories of patient to whom aircraft can be dispatched. These are: HEMS flight (primary) or Air Ambulance flight (secondary):

“HEMS: A flight by a helicopter operating under a HEMS approval, the purpose of which is to facilitate emergency medical assistance, where immediate and rapid transportation is essential, by carrying: Medical personnel, or Medical supplies (equipment, blood, organs, drugs), or Ill or injured persons and other persons directly involved.”

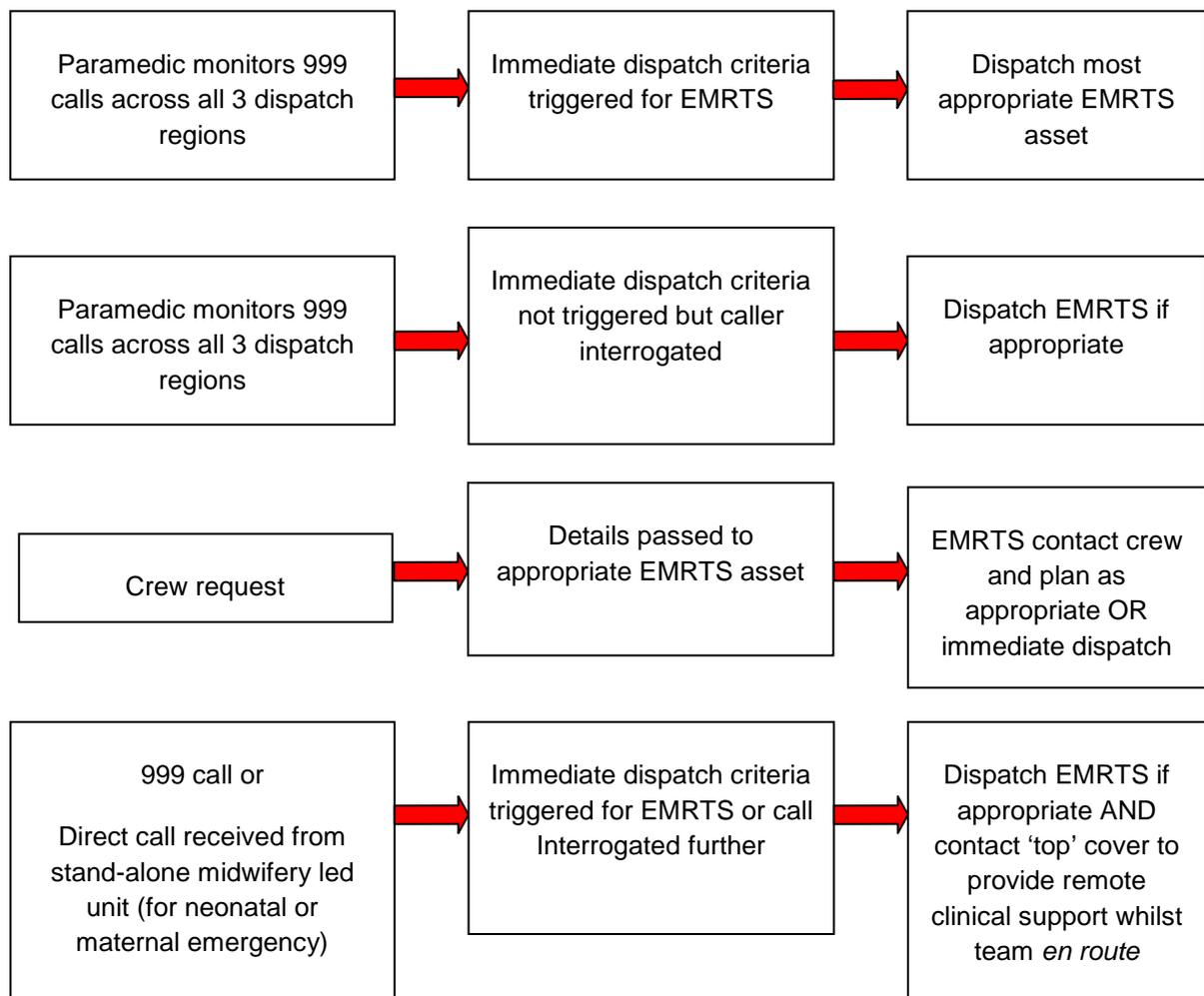
Or

“Air ambulance flight: A flight, usually planned in advance, the purpose of which is to facilitate medical assistance where immediate and rapid transportation is not essential”

The vast majority of EMRTS flights will be completed under HEMS criteria incl. time critical transfers from peripheral hospitals.

Pre-hospital Activation

The following diagram describes the approach to activation of the EMRTS for air or road based pre-hospital taskings. Further details are provided in Appendix D3. It must be noted that all pre-hospital activations will still trigger a parallel response from the Welsh Ambulance Service.



As defined above HEMS dispatches (or pre-hospital taskings) are defined as *immediate dispatch, interrogated dispatch and crew request*.

Immediate dispatch criteria are intended to capture incidents where the risk of serious injury is high, or where further information will not affect the decision to launch. Requests for HEMS from other emergency services such as Police, Coast Guard and Fire and Rescue are also deemed to satisfy the criteria for an immediate dispatch.

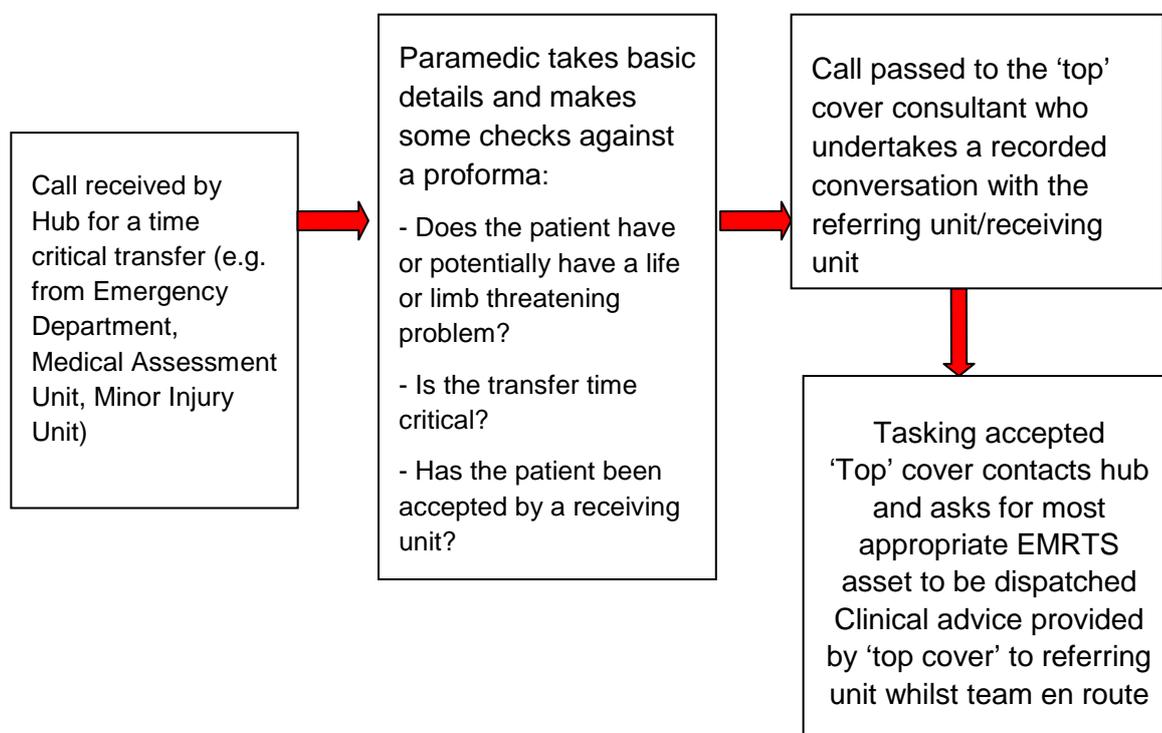
Interrogated dispatch criteria refer to incidents identified by the central coordination hub as potentially time critical, remote or requiring the use of extended skills. The coordination hub paramedic will seek further information, with a view to activating EMRTS team if appropriate.

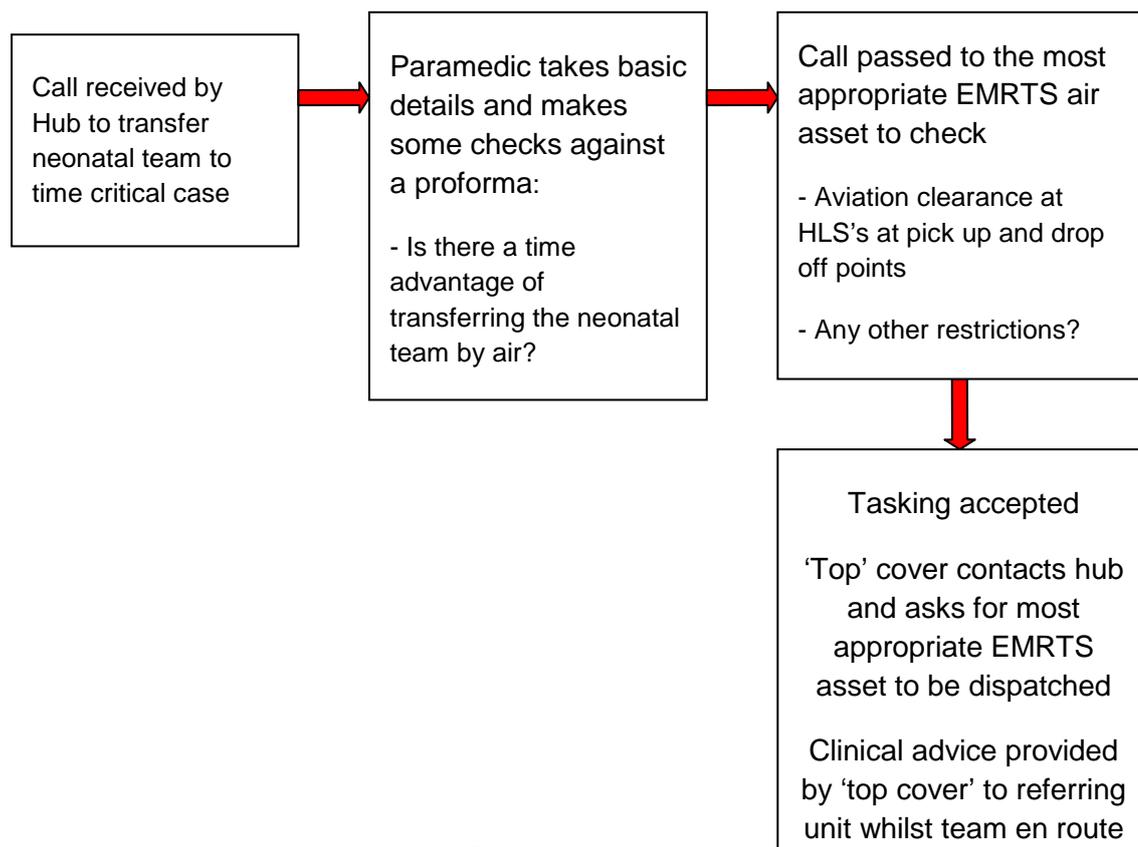
Crew requests are where Welsh Ambulance Service crews identify a patient who feel may benefit from extended skills, clinical intervention, immediate or rapid transportation. When a crew request EMRTS, the decision to launch must be balanced between the clinical advantages of attending, and the disadvantages of delaying patient transport for arrival of EMRTS. In some cases it may be appropriate for ground crews to start their journey toward the receiving hospital and meet the EMRTS team *en route* using an interception approach.

Where requests do not meet HEMS criteria they will be classed as Air Ambulance flights, in these cases HEMS flight exemptions do not apply. Since HEMS exemptions are required to land in any public area (e.g. built up areas, public parks and sports fields), the pilot would have to identify a surveyed secondary landing site such as a hospital helipad. EMRTS is thus unlikely to launch in this situation, unless the circumstances are exceptional.

Retrieval and Transfer Activation

The following diagram describes the approach to activation of the EMRTS for air or road based retrieval and transfers.





Enhancing Helicopter Landing Sites in Wales

The enhancement of helicopter landing sites (HLS's) throughout Wales is integral to the strategic reconfiguration which is already leading to centralisation of services that manage critically ill and injured patients. It is also an opportunity to support the vision of the Wales Air Ambulance charity to increase their operational activity and future 24/7 air capability.

Furthermore the delivery of the clinical service model of the EMRTS is dependent upon the availability of suitable HLS's at referring and receiving hospitals. Therefore it is essential that suitable HLS's are identified for this purpose as part of this service development. The key clinical activities that this will support include the following:

- Pre-hospital critical care by using HLS's as rendezvous points for ambulance crews if aircraft cannot land near the incident due to geography, darkness or bad weather
- Time critical, life or limb threatening adult transfers from referring hospitals (incl. Emergency Departments, Minor Injury Units)
- Support standalone midwifery units by stabilising women and babies with life threatening problems and transferring them to appropriate hospital
- Transfer of neonatal teams to time critical cases in peripheral hospitals.

Therefore access to these peripheral hospitals will be essential to ensure timely delivery of the EMRTS team and specialist equipment to patients. Additionally the ability to land at these HLS's after dark will increase the operational hours of the aircraft, particularly in winter and will future proof subsequent phased developments of the EMRTS (e.g. implementation of a 24hrs service in South Wales).

A number of tasks have undertaken by the operational reference group in order to address the above. This includes a scoping exercise to identify appropriate HLS's across Wales and the level of infrastructure investment required in order to ensure that they are operational 24/7.

Further tasks will be completed once funding is secure as part of this BJC submission and these include:

- Surveying of all identified HLS's for 24/7 operational capability. This will be contracted to Bond Air Services, who currently hold the aviation contract for the Wales Air Ambulance charity
- The acquisition of portable GLIMM lighting and lit wind indicator (windsock) for each site.
- In conjunction with the Wales Air Ambulance charity and Health Boards, develop rural volunteer or hospital response teams to man these sites when alerted to the arrival of an aircraft
- Use the EMRTS programme to encourage Health Boards to consider the construction of permanent lit helipads to develop the capability of 24/7 time critical transfers.

Presently a number of hospitals in Wales have existing HLS's which are either co-located at the hospital or some distance away requiring a secondary transfer by road. Currently only three HLS's in Wales that support 24hr landings:

- Ysbyty Gwynedd in Bangor
- Ysbyty Glan Clwyd in Rhyl
- Morriston Hospital in Swansea

University Hospital Wales is equipped with night lighting capability but has **not** yet been approved for night use. Work is underway by helicopter operators in conjunction with the CAA to complete this work before the commencement of the EMRTS.

The following HLS's have been cleared for day landings but not for night operations. If identified as suitable, these HLS's will institute volunteers or hospital teams to deploy GLIM landing lights and windsocks. These sites will be a first phase priority and include the following:

- Bronglais - Penglais School playing fields, Waunfawr, Aberystwyth
- Withybush - existing hospital helipad/ Haverford west Airport
- Carmarthen - existing offsite helipad
- Singleton - Field behind Singleton Fire station
- Royal Gwent Hospital – existing offsite helipad
- Neville Hall - existing hospital helipad
- Royal Glamorgan - existing hospital helipad
- Merthyr - existing hospital helipad
- Wrexham Maelor Hospital - requires new HLS for darkness
- Brecon site for Powys - Dering lines MOD facility

It is essential that the above HLS's are considered first as they will allow the service to deliver its key clinical objectives.

A further 27 HLS's have been identified as a second phase priority for surveying and infrastructure investment. Locations identified currently are:

North	Central	South
Abergele	Port Talbot	Barry
Tremadog	Cardigan	Aberdare
Pwllheli	Llandovery	Rhondda Cynon Taff
Denbigh	Carmarthen	Llwynypia
Dolgellau	Knighton	Pontypridd
Holywell	Llandrindod Wells	Ebbw Vale
Llandudno	Llanidloes	Hengoed
Mold	Newtown	
Holyhead	Swansea	
Rhyl		
Tywyn		

Road vehicle specific operations

The vehicle chosen for EMRTS represented the best combination of safety, usability, economy and durability with an already proven track record with South Wales Police (SWP). This gave an added benefit, in that as our preferred driver trainer provider, SWP already had experience with this vehicle and were aware of its strengths, and also how to mitigate any inherent weaknesses. The exact specification of the base vehicle is shown below:

- Audi Q7
- 4.2L Diesel Turbo
- S line “plus” which has additional safety features:
 - Sports Suspension (for better handling at speed with increased payload)
 - Improved brakes over standard model
 - Google earth satellite navigation which gives satellite mapping into the vehicle. The incident location can be sent remotely over the internet directly to individual cars from the Critical care hub.
 - Audi “connect” which uses the vehicle antenna for 3g enhancing mobile communications.

In addition a comprehensive package was fitted to the vehicle to make it “fit for purpose” for EMRTS missions. Examples are listed here:

- A comprehensive “state of the art” visual and audible warning system with an additional intersection clearing audible warning system developed in the USA. EMRTS is the first service in the UK to use this for all its vehicles
- The ability to carry a patient on a stretcher in the vehicle. This has involved detailed collaboration between the coachbuilder, stretcher manufacturer and members of the operational reference group to agree a specification that would work into a novel and workable design. The ability to transfer the patient will confer a significant advantage by not denuding the local ambulance for prolonged transfers. However a number of factors will influence the decision to use the vehicle for this purpose including patient weight/length restrictions, distance and clinical condition
- Comprehensive driver safety aids such as front and rear cameras with DVR recording facility, vehicle tracking, the run-loc system, which allows the vehicle to be kept running to prevent battery failing when at scene but allows the vehicle keys to be removed, preventing theft, and a journey logger which has the facility for data downloading of vehicle speed should an accident occur with one of the vehicles
- Comprehensive second battery power management system.

The EMRTS Q7 will use the standard yellow/green Battenberg markings on a background of red (to indicate affiliation to Wales Air Ambulance Charity). Although a base colour of red has some similarity to fire service vehicles, the large surface area of yellow/green markings will make this distinction clear. It will have standard chevrons in a yellow/red configuration to the rear. All graphics will be 3M diamond grade retro-reflective material which is widely regarded as the best material available at present.

To provide proof of concept for road operations and to allow timely training of the core clinical group, one vehicle and set of equipment was purchased ahead of approval of the BJC's. This vehicle will be available early January 2015. The equipment carried on the road vehicle and aircraft is interchangeable. The decision to utilise the road vehicle or aircraft will be based on a number of factors including distance, geography and weather factors.

In order for the EMRTS vehicle to be tested and used for real time training a comprehensive insurance policy has been negotiated by the operational reference group to accommodate blue light driver training and response training.

Helicopter specific operations

Two helicopters are available to EMRTS Cymru currently leased to the Wales Air Ambulance charity from Bond Air Services:

- Helimed 57 – Swansea base
- Helimed 59 – Welshpool base

Helimed 61 (Caernarfon) will be available to the EMRTS when the lead and deputy lead clinicians are operational. It will be tasked by the central coordination hub in Cwmbran. However as previously discussed there will be no other infrastructure investment in Caernarfon at this stage.

The aircrafts are Eurocopter (Airbus) EC135 T2 airframes and are bespoke configured for the role of air ambulance missions. The EC135 is a twin-engine civil helicopter widely used amongst police and air ambulance services and for executive transport. It is capable of flight under instrument flight rules (IFR) and is outfitted with digital flight controls.

The Welshpool aircraft is the latest within the fleet and equipped with full night vision instrument systems, night vision capability and weather radar. Future modifications to the Swansea aircraft are planned within the charities aircraft replacement plan.

All current aircraft in the WAACT fleet are equipped and certified for operations by day or in darkness from lit HLS to lit HLS using IFR, all pilots are qualified and certified for IFR flights. It is clear that aircraft specification allows for operations in darkness, but the current HLS's in Wales do not. This is further justification for the investment. For the investment in HLS's as outlined above.

The aircrafts are fitted out for single pilot operations allowing for one front seat HEMS aircrew, 2 aircrew/ patients seated in the rear and 1 stretcher. Minimal changes to the aircraft will be required to accommodate the new equipment carried by the EMRTS. Electrical testing for air worthiness will be carried out prior to the commencement of the service.

Several aircraft daily checks and maintenance checks will be carried out to ascertain the aircraft and aircrews' worthiness prior to the start of each shift.

Equipment

A comprehensive “state of the art” equipment portfolio has been compiled after extensive discussion with services in Europe and military services throughout the world. The operational reference group has either worked with, or been in contact with these services and include pre-hospital systems in Scandinavia, South Africa, Switzerland, Australasia, USA and military systems within NATO.

In addition, many of the doctors leading this project have deployed with the British Military Medical Emergency Response Team (MERT) gaining a wealth of experience in dealing with severely ill patients in great numbers under difficult circumstances. Much of this equipment, whilst in widespread use in mature pre-hospital systems in Western Europe, South Africa and Australasia has not been used within the UK up to now.

EMRTS was keen to learn from the leaders in pre-hospital and retrieval medicine and has therefore incorporated the best from both military and civilian settings into the service. EMRTS aims to be the most comprehensively equipped pre-hospital service in the world in terms of personnel, equipment, blood products, drug, diagnostics and data collection. A list of high level equipment is provided in [Appendix B and G](#).

Blood products

Blood products will be carried by EMRTS to be used at an incident or during subsequent transfer to hospital. This is a vital, evidence based requirement of the EMRTS benchmarked against any credible pre-hospital and retrieval service in the world. The ability deliver blood products close to the time of injury or illness is even more essential given the distances required to transfer the patient to specialist care.

The transfusion requirements for the Swansea base will be met through the Blood Transfusion Service at Morriston Hospital, Swansea.

The Blood products required at each base will be:

- 4 units (4 x 250mls) of Blood (or Packed Red Blood Cells, PRBC's) for each base in 2 x 1L Credo blood transport boxes
- Plasma (or LyoPlas) x 4 (with a supply held at each base due to long shelf life)
- Fibrinogen (4g on board and 4 day's supply held on site = 20g)
- Pro thrombin Complex Concentrate (2000IU on board and 4 day's supply held on site = 10 000IU).

The PRBC requirements for Welshpool base will be met through the Blood Transfusion Service at the Royal Shrewsbury Hospital (RSH). Morriston Hospital will additionally supply RSH with LyoPlas, Fibrinogen and Pro thrombin Complex Concentrate for onward supply through RSH to Welshpool base. A number of contracts will be developed between the EMRTS and service providers to both bases.

Two boxes of PRBC's (4 units in total) will be carried for use at all times with 2 units of PRBC's in each. These specialised blood transport boxes (or Credo boxes) require cooling (preconditioning) before use. The Credo boxes are placed at -20 C for approximately 18 hours, then optimised at room temperature for 30 minutes before use. The boxes are then suitable for maintaining PRBC's between 2-8C for up to 72 hours. However the PRBC's will be changed every 48 hours if not used and then used only by the hospital if the full integrity of the cold chain has been protected.

This will be monitored continuously within the Credo boxes by means of a temperature logger. At the hospital laboratories these temperature loggers are interrogated, giving temperature data covering the whole preceding 48hrs. This gives the hospital assurance that the PRBC's can still be used safely within the hospital. Furthermore, each box will require documentation generated in order to trace the blood as required by the British Transfusion Society and allow follow-up regarding any non-conformity.

Additional refrigerator storage will be required and this cost will be met by EMRTS, together with staffing costs required to administer, control and develop the service, ensuring up to date procedures are in place to assist with the appropriate clinical and operational governance.

It is envisaged that both supplying hospitals will provide a courier service through a team of part-time band 2 graduate employees, trained on the requirements of the service and how products should be handled.

The above description demonstrates the importance of ensuring the provision of blood products to remote locations and justifies the associated investment in ensuring that it is both reliable and consistent.

Drugs

The ability of the EMRTS to deliver critical care is dependent on being able to carry drugs outside standard paramedic practice. The EMRTS will draw its drug stock from the pharmacy at Morriston Hospital to support the Swansea and Welshpool bases. Again a contract will be drawn up between the EMRTS and service provider.

Careful consideration has been given to the legal and safe possession, storage and supply of these medicines.

The supplying hospitals are required to hold a Home Office licence to hold and supply controlled drugs (CD's) to which the most stringent of legislative controls apply. In addition, the supplying hospitals are required to hold a wholesale dealers license in order to supply these and other drugs to both bases.

The bases are also required to hold licenses to keep these CD's but before these are granted, both bases will need to undergo inspection by the Home Office and Police CD liaison officers prior to receiving and holding stocks to ensure appropriate safe storage of all drugs. These will occur with sufficient time prior to the commencement of the service. All such license and inspection fees have been included within the BJC financial schedules.

The drugs will be stored within a device called an Omnicell. These are not conventional Controlled Drugs (CD) cabinets and their use is subject to the granting of specific exemption by the Home Office.

The Omnicells are alarmed and stored either within the aircraft hangar or within a sufficiently secure building. Where the building or container has windows these will be need to be reinforced glass and/or or have appropriate metal bar/grill protection. Locks will need to be sufficiently robust and an alarm system linked to a monitoring company to detect any attempted break-ins.

These Omnicells are currently found within Emergency Departments in hospitals and provide a fully audited and rapid keyless access to the necessary drugs in emergency situations. At the base of the Omnicell will hold a large draw that will house the 'drug bags' and 'pouches' that contain a pre-packed supply of drug vials and pre-filled syringes that can be retrieved once EMRTS is tasked. These drug bags are placed in the equipment bags that EMRTS will take with them.

The Omnicell comes with its own electronic CD register which is a mandatory requirement for audit purposes of these CD's.

In addition the supplier will be providing "Flexlocks" which attach to a conventional medicines grade refrigerator to record access and monitor the fridge temperature. The Omnicells together with the "Flexlocks" will allow for the following:

- Automatic reordering of stock via email
- Automatic recording of access identity
- Automatic monitoring of fridge temperatures.

Such electronic features are made available through integration of Omnicell within the main IT server.

An asset register will be maintained for all drugs, blood products and other equipment and these checked every day as part of the daily routine at each base.

The Omnicells having emailed the supplying pharmacy with the specific drug usage will then start the replenishment process. The drugs will be transported from hospital to each base at the required frequency using the in house transport service above, or where necessary through trained couriers working through a tight contractual arrangement to ensure drivers receive appropriate training in the safe handling and storage of drugs and the maintenance of cold chain integrity.

8.4 Branding

EMRTS has multiple stakeholders and partners all of which have their individual identities. To this end, the EMRTS also required its own internal brand within the Welsh healthcare system. Following discussion at several workshops attended by stakeholder organisations a number of graphic designers were tasked with developing a brand for the service through a logo design. A logo, designed by colleagues from the Wales Air Ambulance charity, was chosen as it demonstrated the following:

- Welsh identity
- Contained “EMRTS” within the logo
- Recognition of its position as a health care provider
- Parallels with the imagery used by the Wales Air Ambulance charity for whom maintaining their brand is an important part of maintaining public identity.

The EMRTS logo is displayed on the front cover of BJC alongside its partner organisations to illustrate the close working relationship with the Wales Air Ambulance charity, NHS Wales and Welsh Government. Although branding on the aircrafts will not change, the road vehicles will exhibit the logo of all four partner organisations.

8.5 EMRTS ‘Road Shows’

During the implementation phase and first few months of the service a number of ‘road shows’ will be conducted by the core team to increase the awareness of the clinical and operational capabilities of the service by potential service users.

It will also provide information on how to access the service through the central coordination hub. It will be essential that the EMRTS is used appropriately and to avoid ‘mission creep’ and distraction from critical care taskings. The ‘road shows’ will use a variety of media to deliver information through direct delivery of information and electronically. A number of phases will be developed:

- Phase 1 – Welsh Ambulance Service stations and Emergency Departments
- Phase 2 – Standalone midwifery units and minor injury units
- Phase 3 – Medical assessment units and intensive care units.

This activity will be initially overseen by the operational reference group and later input sought from the communications team of the host organisation.

9. INFORMATION TECHNOLOGY

9.1 Informatics Approach

Data collection will play a pivotal role in the evaluation of the effectiveness of the service. It will be complex due to geographical spread, and the nature of patient flows, moving between two or more Health Boards, including cross border into England. With this in mind, a robust data collection and analysis plan is outlined here.

As a service, we have already planned a data collection system that will primarily act as a patient record, providing a reliable record of the patient's journey through the service. This will ensure a comprehensive handover of care to receiving hospitals. It has also been developed to provide a national registry of patients attended by the service, which can form the basis of evaluation of effectiveness and benefits realisation and ultimately risk mitigation.

9.2 Informatics Partnerships

To achieve the aims set out in this document, close working will be required with a number of partner organisations. The level of co-operation varies ranging from retrospective access to their data to active participation in ongoing data entry.

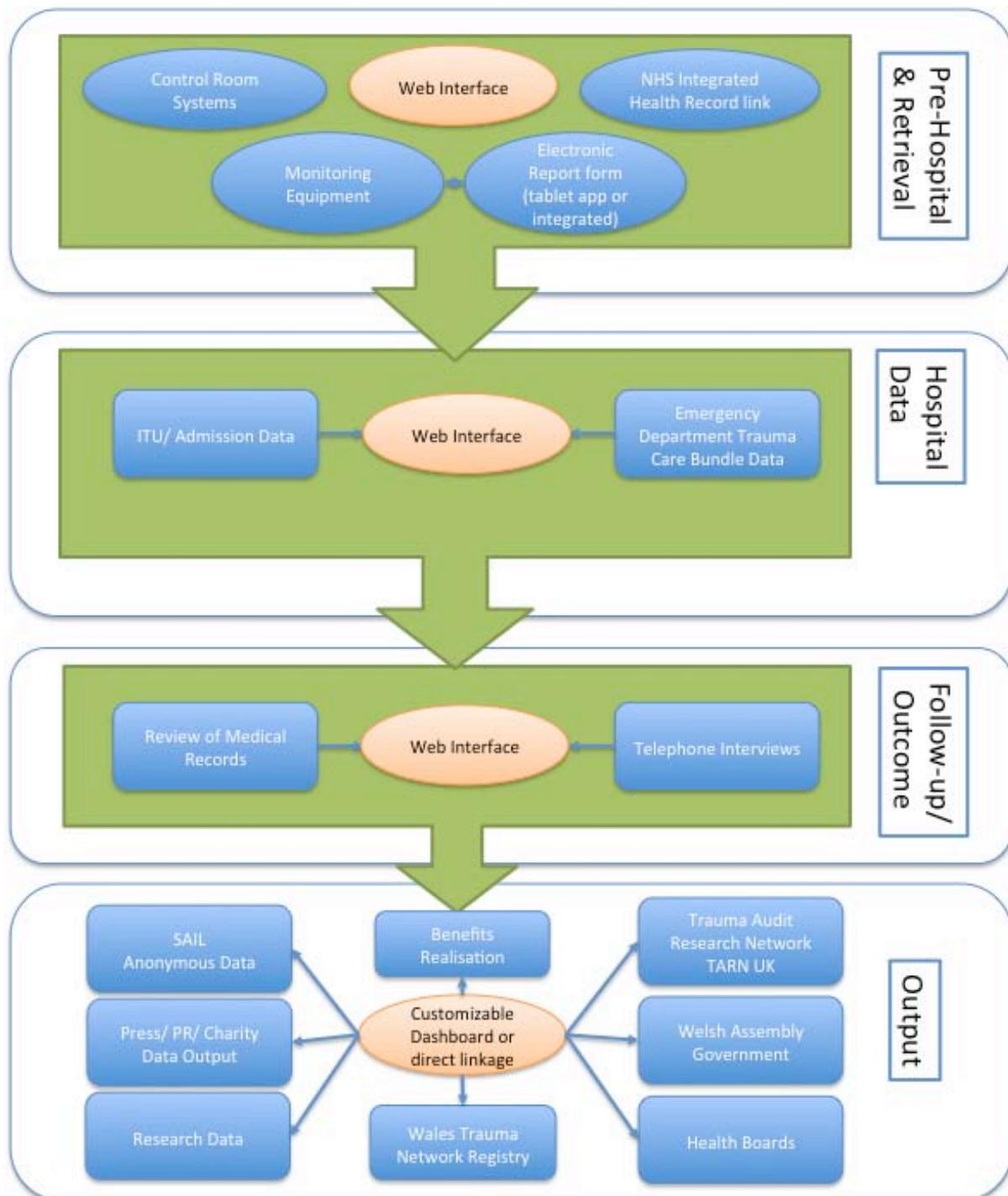
Organisations include:

- Swansea University: Farr Institute of Health Informatics Research; Health Informatics Research Unit
- NHS Wales Informatics Service (NWIS)
- All Wales Health Boards
- University Hospital of North Staffordshire NHS Host (Trauma Centre)
- Welsh Ambulance Service NHS Trust (WAST)
- Wales Air Ambulance Charity (WAACT)
- Welsh Ambulance Pre-Hospital Research Unit (PERU)
- Trauma Audit & Research Network UK (TARN)
- Resuscitation Council UK (RCUK)
- Intensive Care Audit Research network (ICNARC).

In addition we are working closely with industry to deliver integrated data collection systems, including Nugensis Ltd, and Remote & Diagnostic Technologies Ltd.

9.3 Overview of Data Flow

The data flow for the service is set down in the graphic below:



The integrated nature of the data flow across the patient pathway is key to the effective management of the information and, ultimately, the realisation of benefits.

9.4 Database

The following section details the proposed core database for EMRTS Cymru.

Function

The database has been designed to facilitate the following:

- Clinical care record
- Handover of care to other health care professionals
- Database for service evaluation of effectiveness of the service/Trauma Network
- Provide evidence of “measurable benefits” of the service
- Provide Key Performance Indicators
- Logistical and financial planning of the service
- Training benefits
- Individual health care professional logbooks for professional development/ revalidation evidence
- Public relations information output
- Comparison with other services
- Output suitable for:
 - Trauma Audit & Research Network (TARN) UK
 - Resuscitation Council (UK)
 - Wales version of “VSTORM” with Swansea University
 - Trauma network.

Development

During development of the EMRTS Cymru data-set a number of external data-sets were reviewed to ensure maximum international comparability. This includes published datasets from the following organisations:

- Victorian State Trauma Outcomes Registry (VSTORM)
- Trauma Audit & Research Network (TARN) UK
- Ulstein Trauma Template (Euro TARN)
- Welsh Critical Care Network
- UK HEMS
- Royal College of Physicians proposed data standard for ambulance services, NHS Informatics Unit
- Scotland Emergency Medical Retrieval Service
- Wessex working group report
- Information Health Record (IHR)

- A Consensus-based template for documenting and reporting in physician-staffed pre-hospital services, Kruger et al. Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2011, 19:71
- North Staffordshire BASICS EPRF Project.

This comprehensive data set is fundamental to the benefits driven approach of the EMRTS service.

9.5 Data Collection

Overview

A full list of database headings can be found in [Appendix D](#). We have divided data collection into Pre-Hospital, Hospital and Outcome/Follow up data to represent the different sources of data collection. These data-sets will be linked into a bespoke registry database, which in turn will be used to produce reports required for various parts of the service, and external agencies. These reports are detailed later in the document. Data-points described will be recorded as a single instance per record unless otherwise specified (e.g. observations where there will be multiple instances for each data-point in each record).

Database Specification

The database will sit within NHS servers, with all data being securely held to presently accepted standards. For research and analysis purposes the data will be anonymised and linked to multiple other datasets utilising the Secure Anonymous Information Linkage (SAIL) system and the UK Secure eResearch Platform (UKSeRP) maintained by Swansea University on behalf of NISCHR and the MRC Farr Institute of Health Informatics Research respectively. This linkage will be facilitated utilising the National Research Data Appliances (NRDA) created by the Swansea University Farr Institute Centre with MRC funds that will be provided free to every Health Board in Wales.

Features of the service database include:

- Accessible securely via internet across Wales at multiple sites
- 100 Users, with varied levels of individual access
- 8 Mobile terminals linked to database (3rd party system with universal output)
- Web interface
- 3200 New records per year
- 500 Data Points
- Multimedia Data collection including digital photographs, annotated diagrams
- Ability to work offline on mobile terminals (Data Input only)
- Customizable dashboards for management, clinicians, research and partner agencies.

Method of Data Collection

Data collection starts with EMRTS chosen monitor, Tempus Pro (RDT Ltd). This utilises data to full potential, automating physiological data collection, and providing real-time remote access to supervising staff, and receiving hospitals. This also has the benefit of freeing up the clinician from aspects of data collection to direct clinical care.

This will be linked with a tablet computer based electronic patient care record (ePCR), which will be used to enter data such as patient demographics, medical history and incident details.

This will be provided in partnership with Nugensis Ltd, who have already been working with EMRS Scotland on such a system. A great deal of work has already gone into this system based on past experiences, and as such it should be ready to use within a shorter timeframe than designing a new system. There is the added advantage of being able to easily compare data with Scotland, to allow comparison of service, and research. As the system is already mostly developed, the cost of implementation is also significantly lower than other options we have explored.

Preview of user interface



Temperature Probe?	Urinary Catheter?	NG or OG Tube?	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Drugs / Fluid / Route / Time:			
Drug	Fluid	Route	Time
Drug Option	Fluid Option	Route Option	Time Option
Drug Option 2	Fluid Option 2	Route Option 2	Time Option 2
Click the ADD button to add a new Drug / Fluid / Route / Time			ADD

1. General Details				
EMRS Consultant	2nd Team Member	Paramedic		
<input type="text"/>	<input type="text"/>	<input type="text"/>		
Patient Location	Mission Number	Date		
<input type="text"/>	<input type="text"/>	<input type="text"/>		
Team	Additional Detail			
<input type="text"/>	<input type="text"/>			
Referral Source				
<input type="text"/>				
Activation Time	EMDC Cal Time	EMDC Decision	Team Ready	Airborne Time
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
On Scene	Depart Scene	Arrive Hospital	Back at SECC	Additional
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Delay Reason				
<input type="text"/>				

Physiological Monitor data recording

This consists of Tempus Pro monitors. The costs associated with this come under the medical equipment section. There are no ongoing costs for software, with updates being provided for free following initial purchase of the equipment.



ePCR/ Database / Integration with all systems

Nugensis will provide a customized system based on that of Scotland EMRS, and will charge for the installation, local customisation, and integration with the Tempus Pro monitors. Future developments planned include integration with national ICT systems.

Overview of data links



9.6 Post Implementation: Database hosting arrangements

Due to the relatively short timeframe of development of the Programme, discussions are ongoing regarding hosting of the database. There are a number of options being considered in order to deliver the system in time for the start of the clinical service.

Option 1

Server hosted by NWIS

This would provide a high level of security, and system redundancy from the start. The disadvantage is the potential delay in project start date due to internal processes required, and resources that would need to be secured. There are also a number of other national projects on-going which make use of existing resources. This would also incur significant up-front cost for the database host.

Option 2

Host organisation server hosting, with migration to NWIS in future

This option could provide a shorter time frame to implementation, in line with the overall project delivery. There will be a delayed cost for the migration, but this could be planned during the first year, and a business case developed for the additional funding.

Option 3

Commercial server hosting with migration to NWIS in future

This would allow rapid implementation, but would incur significant cost. It would face the same issues as Option 2.

Following this scoping exercise, Option 2 appears to provide the best opportunity in the short term with the potential to move to Option 1 as the service expands. Option 2 will also provide the service full I.T. capability required for data acquisition and analysis as part of the pre- and post-one year evaluation.

Integration with external agencies e.g. TARN, ICNARC, Critical Care network database have not been mentioned, as these are likely to form part of the university research work. This will range from data export periodically, and fixed reporting from the system right through to full data linkage via research data appliances.

9.7 Redundancy

Whilst the system design and infrastructure will be to a critical level, plans have been made for fall-back solutions in case of equipment failure. This will be in the form of custom paper based report forms, which will be available for clinical teams, control room staff and top- cover consultants. Data entry will be completed by the team retrospectively, supported by the clinical informatics coordinator once the system is restored. Data will be verified against other systems to ensure integrity.

9.8 Research

In addition to providing feedback on Key performance indicators, and performance against measurable benefits in the benefits realisation plan, it is recognised that there is considerable academic research potential with the new service. This section details the research plans in conjunction with Swansea University. A research proposal will be produced to inform this development.

Aims and Methods

Research is an integral part of continuous quality improvement. Services need to be able to continually evaluate innovation to assure best patient and population outcomes as has been shown clearly in the system used in Victoria, Australia (Gabbe B J *et al*, 2014)

- To collect a baseline of data relating to Mortality and Morbidity from major trauma and patients sustaining out of hospital cardiac arrest who are successfully resuscitated in Wales for two years preceding the introduction of EMRTS
- To collect data from these areas following introduction of the service
- To compare these outcomes before and after
- More detailed patient outcome data for those accessing the service in terms of their functional outcome/ quality of life at 1 year post injury or insult Utilising the extended Glasgow Outcome Scale (GOS-E) which has been internationally validated.

Data collected during the service operation will range from continuous physiological data from monitoring devices, logistical data such as locations, timings and staffing, right through to structured interviews carried out by telephone to ascertain functional outcomes.

To achieve our research aims, there are two main methods in play, ICT systems, and staff resources.

ICT systems

The systems that are proposed have been developed to allow as much automation of data collection as possible, not only reducing keying errors, but also freeing up clinical staff time for the care of critically ill patients. Those aspects that cannot be collected automatically can be input by frontline staff easily using tablet devices, or simultaneously by staff in the control room. The system development builds on work already carried out by EMRS Scotland, an already established service of similar nature. This allows not only a reduced lead time for development, but potential to directly compare data between two UK services.

Staff Resources

There is a considerable amount of work integrating data from many sources, ensuring data are anonymised and that privacy is protected. This includes linking a number of routinely collected databases, to measure outcomes, impact on subsequent health service utilisation and adjust for co-morbidity. To this end, the staffing requirements are detailed below. There will be two distinct fixed job roles:

- Clinical Informatics Coordinator (host organisation based)
- Data analysis (University based).

The first role will involve accessing a number of existing databases, including, but not limited to TARN, ICNARC, Welsh Ambulance service, and Health board patient administration systems. Whilst some of these are conveniently centralised, and accessible remotely, some are not. In addition, some data will need to be collected directly from hard copies of patient records. There will also be a significant element of telephone follow-up of patients that survive. Whilst some of these tasks can be delegated to service staff including CCP's, PHEM trainees and administrators, there needs to be a central coordination of the activity. This will ensure the integrity of data, and the timely completion of the service database.

The second role will be university based, and will provide an independent analysis of data provided, and data linkage with other information sources. The analysis will be guided by requirements set out by the measurable benefits and risk workshops, in addition to projects as guided by Professor Ronan Lyons at Swansea University.

Ethical Approval

The National Research Ethics Service (NRES) allows research on anonymised data to be performed without individual project approval, and this will be the case for data held in SAIL. For data to be collected by the service pertaining to patients, research ethics approval will be sought via the host organisation's ethics panel. This includes follow-up interviews to ascertain functional outcomes.

9.9 Stages of Data Collection

There are three stages to data collection, and these are detailed below:

Pre-Service (April 2013-2015)

This will require a retrospective data trawl of a defined patient population from a variety of databases. This will include patients who have accessed the Welsh Ambulance Service over the two year period, preceding introduction of the EMRTS. Data will also be requested from TARN in relation to outcomes. This will give a baseline to compare with the introduction of pre-hospital critical care. This will require close support from the Pre Hospital Research Unit (PERU), part of the Welsh Ambulance Service NHS Trust.

The workforce for this will be in the form of a Clinical Informatics Coordinator role, tasked to build relationships between the key partners and facilitate data collection and entry into a temporary database for this phase. During this time, development of the in-service data collection system will be taking place, and be guided by feedback from all partners involved in the initial data collection. There will also be opportunity to trial the user interfaces of the in-service system, and ensure they are fit for purpose from the start of the service.

Data collected during this period will be fed to the University Data analyst to perform appropriate statistical methods on, and answer questions posed in the benefits plan. This will also provide the baseline data-set for comparison of certain factors, especially mortality once the service is running.

In-Service (April 2015)

This will make use of the system commissioned from Nugensis Ltd, and will collect prospective data on all patients who access the service, and receive critical care interventions. This will include follow up at 1 month, 6 months and 1 year. The latter two will be functional outcome information and will be completed by telephone interview.

Issues that are envisaged include ensuring accurate and up to date contact details for patients, ensuring patients are not deceased, to avoid inappropriate phone calls, and compliance with interviews. These can be mitigated by careful coordination of data collection, verification and access to relevant NHS databases.

It is anticipated that much of the data can be collected by EMRTS workforce as shown in the adjacent figure, although a clinical informatics co-ordinator will be required to ensure this is reliable, and cover the complexity of working across multiple sites.

Data	CCP Control	CCP Clinical	PHEM Doc	Consultant	Data Coordinator	Automatic Ambulance
Pre Hospital	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Hospital			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
1 Year follow-up		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

The data co-ordinator will also be able to use the system to create the various customized reports and data required by stakeholders.

As the initial service will provide 12 hour cover from two bases (day time), there will also need to be data collection overnight and 'missed' taskings in NW Wales, where patients may not receive input from the service. This can be coordinated by access to TARN records, cross-referenced with records from Welsh Ambulance Service NHS Trust, and other organisations providing out-of hours pre hospital care such as MedSERVE Wales, a volunteer group. There is also potential to liaise with colleagues working in their base specialities to pick-up any missed cases during regular EMRTS clinical governance meetings.

Data will need to be anonymised and fed into the SAIL service as detailed earlier.

Post Introduction Evaluation (1 year)

This will aim to provide a comparison of patient outcomes, between times of no EMRTS service, and a 12 hour service. There will also be comparison between no service overnight, and the day service, as well the testing equity of access to NW Wales. This will be used to justify further expansion of the service to a 24 hour provision in South Wales and introduction of the Caernarfon service as appropriate. This will take the form of an academic publication, with Swansea University taking the lead and providing independent data analysis.

The benefits register produced during the development of the service is summarised below, and will form the basis of the post introduction evaluation.

- Access to specialist care not available at patients nearest acute hospital
- Timeliness of access to specialist care for all patient groups
- Enhanced perception of equity by health care professionals, Health Board representatives and patient representatives
- Improvement of patient functional outcome
 - Major Trauma
 - Cardiac Arrests
- Reduction in mortality of various clinical conditions
- Reduction in length of hospital stay
- Critical care intervention or any decision outside of standard paramedic practice
- Objective improvement in the clinical condition of patients
- Downstream benefits in hospital
- Avoidance of hospital transfer and emergency department admission
- Enhanced perception of health gain by health care professionals, Health Board representatives and patient representatives.

9.10 Proposed Dataset and Reporting

Details of the proposed dataset is provided in [Appendix E](#). The proposed dataset for pre-hospital care, transfers, hospital care and patient outcomes has been constructed using a number of nationally and internationally validated sources. The dataset aligns itself with that of other similar services such as EMRS Scotland. Thus opportunities will arise for collaborative research with other regions through pooling data sources.

The reporting of the data will allow the EMRTS to determine whether it is meeting its key clinical and operational performance indicators and will provide a direct link to determine whether the key benefits of the service are being realised. Furthermore anonymised datasets will be able to sent to other organisations (e.g. Wales Air Ambulance Charity, Welsh Ambulance Service, Critical Care Networks) in order to provide communication of relevant activity of the service.

9.11 Training & Standard Operating Procedures

As part of the implementation of the proposed systems, there will be a package of training provided to new and existing staff. This will be delivered in-house during the lead up to the operational start date. To support this a range of Standard Operating Procedures (SOP) will be authored to support users as outlined below.

Patient care record procedures	EMRTS OSOP 047
Database entry and interface with other systems	EMRTS OSOP 048
Patient follow-up procedures	EMRTS OSOP 049
Smart phone app	EMRTS OSOP 050

9.12 Additional ICT support

There are a number of other aspects of the service where ICT has a potential to support activities, and these are covered below.

Shared Resource and Website

A website will be created in-house, providing a public facing presence, informing of news and events. This will also have a secure password protected area for staff to access resources such as standard operating procedures (SOP's), statistics and materials relating to clinical governance days.

Operational Application

In keeping with other international services, it is planned to commission a customised version of the Scotland EMRS application, which will be installed on both operational devices and staff personal devices. This allows up to date distribution of rotas, contact details, SOP's, and some assistance for location based decision making. The application has won multiple national awards, and has a distinct role compared to the patient reporting application we are commissioning from Nugensis.

Social Media

A presence has already been developed on Facebook & Twitter, and these are continuing to reach a wider audience as time progresses. These will be used to engage with the public, and publicise both public and professional events. Content will be governed by a strict social media protocol, and undergo regular review.

10. BENEFITS REALISATION

10.1 Benefits Driven Approach

In the SOP a series of benefits of the EMRTS service were developed against the key investment objectives of equity, health gain and clinical and skills sustainability. These benefits were generated through a workshop involving a wide range of stakeholders. Subsequent to approval of the SOP the Programme Board recognised the need to establish a set of metrics, by which the benefits of the service could be assessed. A central goal of the benefit management process is to bring structure, accountability, clarity and discipline to the definition and delivery of the benefits inherent to a service development such as this. Whilst it is recognised that the benefits arising from implementing new pathways can be challenging, the BJC further develops the benefits from the original SOP.

10.2 Stakeholder Benefit Engagement

On 8th October 2014 colleagues from Welsh Government facilitated a further workshop to build on the original benefits and identify measurable benefits that the service could deliver both in the short, medium and long term. This workshop was also attended by a large group representing the stakeholder organisations involved in the Programme Case. This included colleagues from the Wales Air Ambulance Charity, Welsh Ambulance Service, WHSSC, Health Boards and the South Wales Collaborative. The agenda, presentation and list of attendees are provided in [Appendix F1](#).

10.3 Benefits Realisation Plan

Using the information gathered from this workshop a comprehensive benefits realisation plan has been developed (Appendix H). Each of these measurable benefits has a unique number for recognition and monitoring purposes. Each describes the type of benefit, the key beneficiaries, dependencies, performance measures, targets, full year value (where appropriate) and timescales for achieving these. It is clear that some of these benefits will be realised at different stages post implementation, largely governed by the establishment of revised processes at other points in the patients care (e.g. trauma networks).

It is important to highlight that the EMRTS has been built on the basis of improving quality of care and enabling reorganisation and modernisation of Health pathways both with secondary and tertiary care. There are also cost savings to be realised, particularly as other parts of the system mature and develop. This is reflected in the potential cost savings indicated in the register.

In order to provide clarity on and inform the benefits outlined in [Appendix F2](#) further details of these are provided below. This section is intended to be read in conjunction with the above appendix.

10.4 Equity

Access to specialist care not available at patients nearest acute hospital (001)

The nearest acute hospital may not necessarily have specialist services that the patient will require. Specialist services include those pertaining to major trauma, cardiac disease and stroke. With NHS service changes ongoing, and the creation of trauma networks imminent, there is an opportunity to improve equity of access through creation of the EMRTS. Currently many patients are transferred to the nearest acute hospital and experience significant morbidity due to delayed secondary transfer and access to specialist care. Baseline data will be collected based on this current model of care.

With the introduction of the EMRTS, a senior clinician will be able to deliver advanced clinical interventions and decision making at the scene, justifying the added distance of transferring the patient to specialist care. This benefit will be measured through increasing nearest hospital bypass, comparison with baseline data and a reduction in time critical secondary transfers which would have otherwise be carried out by the Welsh Ambulance Service. Evidence points to a 30% reduction in secondary transfers using this approach (Botker MT *et al*, 2009).

A key dependency to ensure equity of access to specialist care will be the capacity of these centres to be able to receive EMRTS patients directly. The change in patient flows and financial remuneration for importing Health Boards described in the BJC should enable this.

Timeliness of access to specialist care for all patient groups (002)

Evidence points towards improved effectiveness of critical care interventions and reduced mortality by translating critical care interventions and senior decision making forward in time (Morrison JJ *et al*, 2013). EMRTS will achieve this by bringing the Emergency Department Resuscitation Room to the patient.

Equally by transferring patients directly to specialist care, time to access specialist care will be reduced. An analysis of the Trauma Audit Research Network (TARN) for Morrison Hospital, Swansea demonstrated that there is an average 8hr delay in the transfer of severe head injuries to specialist care falling significantly short of the four hours recommended national standards (NICE Guidance 2014).

Baseline data will be collected to define the current situation and a reduction in time benchmarked against operational key performance indicators.

Enhanced perception of equity by health care professionals, Health Board representatives and patient representatives (003)

An independently commissioned evaluation by the Scottish Government of the Emergency Medical Retrieval Service (EMRS) used a consultation process to effectively explore the opinion of various patient groups. With changes occurring to the provision of acute services across Wales, patients should still feel that they are receiving timely and expert care regardless of their geographical location. This consultation process will test whether the provision of the EMRTS is helping to maintain equity.

Health care professionals working locally and at specialist centres will also be contacted to give their opinion on whether patients are being disadvantaged or receiving suboptimal care (e.g. at a standalone midwifery unit) due to geographical location.

This benefit will also be used to evaluate the need for future expansion of the service.

10.5 Health Gain

Improvement of patient functional outcome (major trauma and cardiac arrests) (004)

Evidence from developed trauma networks such as the Victorian State Trauma Service in Australia has started to show improvements in functional outcome. This service includes an integrated pre-hospital critical care system and the ability to perform hyper-acute secondary transfers. Furthermore a study from Victoria has also demonstrated better functional outcomes (measured using the Extended Glasgow Outcome Score) with a coordinated system of retrieval compared to those retrievals undertaken without coordination. Over time it is the aim of the EMRTS to also demonstrate improvements in functional outcome using the internationally validated Extended Glasgow Outcome Score as a measure. Collection of baseline data will be challenging but will be undertaken by determining the outcome of patients outside the operational hours of the service.

Two groups of patients with respect to functional outcome will initially be examined. These are patients with major trauma and patients who are successfully resuscitated from out of hospital cardiac arrests. These patients will be regularly managed by the EMRTS, and represent patient groups where critical care interventions have been proven to make a difference.

Pre-hospital major trauma interventions include pre-hospital anaesthesia, chest procedures, administration of blood products and splinting of fractures. These interventions will allow patients to be transferred directly to a Major Trauma Centre to benefit from specialist care that they may otherwise not receive. This includes timely access to specialist rehabilitation. The presence of a pre-existing trauma network in North Wales with access to a major trauma centre will create

the ideal conditions for EMRTS work, and allow for an environment where gains made at the roadside are not lost by delays in access to specialist care. This will facilitate measurable outcome benefits as opposed to process benefits.

For patients who are successfully resuscitated from an out of hospital cardiac arrest, the ability to perform immediate critical care and effect transfer to a specialist cardiac centre, gives the best possible chance of making a good functional recovery. As the new North Wales cardiac centre comes on line, these interventions will result in joined-up, 21st-century care, where EMRTS can expect to make a measurable contribution to improved outcome.

As mentioned above, there are key dependencies for improving functional outcomes, primarily the state of development of the downstream parts of the patient pathway. Benefits set up by EMRTS can, therefore, only be fully realised when such pathways are fully formed.

Reduction in mortality (005)

Evidence points to a reduction in mortality from the initiating timely advanced interventions and decision making prior to the arrival in hospital or a specialist centre. Therefore this should result in an increase in the number of 'unexpected' survivors. The evidence for this is strongest for major trauma patients, but also pertains to a number of other time critical conditions.

Clinical scoring systems will be used to determine predicted mortality to define the baseline and this compared to actual mortality. Similarly to functional outcome, a reduction in mortality will be dependent on other pathways being developed. Equally the EMRTS may increase the number of who arrive in hospital alive and then subsequently die, due to the severity of injury or illness. The reduction in mortality of patients treated by EMRTS may be negatively skewed by this effect.

Reduction in length of hospital stay (006)

Research undertaken by the South Central Strategic Health Authority (Hyde P et al, 2012) has demonstrated a reduction in overall length of stay in hospital and days on an Intensive Care Unit. The EMRTS intends to demonstrate this compared to a baseline patient case series.

Critical care intervention or any decision outside standard paramedic practice (007)

A list is provided in [Appendix F2](#) of life or limb saving interventions that the EMRTS will provide outside standard paramedic practice. This information will be collected using a standard dataset inputted into an advanced database that the EMRTS will be using. These benefits will be realised earlier than those of described benefits 004 and 005. They will highlight the breadth of clinical capability and decision making that the EMRTS will provide from the outset.

Objective improvement in the clinical condition of patients (008)

Evidence suggests that a rapid improvement in a patient's condition will lead to better survival and functional outcome. This benefit will be achieved early in the development of the service as it is not dependent on the integrity of patient pathways 'downstream' of the EMRTS. Adherence with clinical key performance indicators as outlined will be used to inform this benefit.

'Downstream' benefits in hospital (009)

With more patients being taken to the most appropriate centre from the outset, there will be fewer requirements to undergo secondary transfers (Celsob et al, 2006). This will help receiving specialist centres meet national standards in relation to specific clinical conditions (e.g. time to CT and surgical intervention). Hospitals who would have otherwise received these patients will see a reduction in secondary transfers undertaken by anaesthetic personnel (as outlined in benefit 001). These transfers often denude local hospitals of anaesthetic personnel, which can have significant deleterious effects on other services that the hospital provides. This reduction in secondary transfers could be quantified as a financial saving for the Welsh Ambulance Service and Health Boards.

Avoidance of hospital transfer and Emergency Department admission (010)

Although not the main role of the EMRTS, advanced decision making will avoid certain groups of patients being transferred by the Welsh Ambulance Service to an Emergency Department. There are two groups of patients where this is particularly likely to apply. Firstly, patients with neck pain from road traffic collision may be deemed safe for discharge without further assessment in hospital. Second, patients suffering out-of-hospital cardiac arrest where EMRTS provides advanced critical care interventions yet the patient fails to respond. In such cases the EMRTS will be able to declare death outside standard paramedic practice, thus preventing an unnecessary transfer to the Emergency Department. This spares relatives the psychological trauma and uncertainty associated with such a transfer. This practice has been evidenced by other pre-hospital services, and can additionally be quantified as a financial saving for the Welsh Ambulance Service and LHB's.

Enhanced perception of health gain by health care professionals, Health Board representatives and patient representatives (011)

As part of the consultation process the above groups will receive a questionnaire to get their opinion of whether the service is truly delivering the benefits pertaining to health gain. The evaluation will occur in similar way to benefit 003. This benefit will also be used to evaluate the need for future expansion of the service.

10.6 Clinical and Skills Sustainability

Increased consultant appointments especially in Emergency Medicine (012)

There are a number of unfilled, vacant consultant posts throughout Wales, especially in Emergency Medicine. EMRTS will be world-class service attracting recruitment from in and outside Wales. Carefully considered workforce planning has given Health Boards an opportunity to recruit to at least 7 unfilled, vacant posts across Wales. This strategy for recruitment will be replicated as the service expands in years to come.

Increased educational interventions to doctors, paramedics, nurse practitioners, midwives (013)

The EMRTS will be working alongside a number of different healthcare providers as it treats different cohorts of patients. This will provide opportunistic educational activities to occur as EMRTS interacts with healthcare providers in their own hospitals and spark enthusiasm for more structured educational events to be planned collectively in the future. These educational opportunities will be recorded by the service particularly if they improve patient care.

10.7 Benefits Capture and Delivery

In practice these measurable benefits will be captured by the Information Technology systems adopted by the EMRTS. For convenience the Benefits Realisation Plan outlines these database entries against each benefit.

Chapter 9 on Information Technology provides further details on how these benefits will be captured and measured. It outlines the research proposal and commissioning of an academic study which will be utilised to inform the post introduction 1 year service evaluation and ongoing assessment of the delivery of the benefits register. This chapter also provides details on how baseline data will be collected and used comparatively with data generated from service to quantify the effect of some of these benefits. Review of these benefits by colleagues in Swansea University and Informatics has indicated that these will be measurable as part of the research proposal.

The delivery of these benefits will be led by the EMRTS National Clinical Director(s) and their EMRTS Clinical and Operational Management Board. The management arrangements, clinical governance arrangement and operational arrangements will all focus on a benefits driven approach.

11. RISK MANAGEMENT

11.1 Risk Management Process

The EMRTS Programme is fully engaged with the Health Boards, Welsh Ambulance Service and Wales Air Ambulance Charity and the Welsh Government to deliver the EMRTS. The Welsh Government endorsement of the Programme Case, its preferred option, and the potential future expansion of the service and as part of a one year gateway review process is the context for this risk management work.

The EMRTS Programme Case has been assessed as a high risk Programme (as determined by the RPA 1 assessment) and, therefore, requires focused risk management so that the service is able to meet its measurable benefits whilst employing strategies to mitigate risk where possible.

Due to the involvement of multiple partner organisations significant efforts have been made to communicate and engage with all partner organisations and clinical networks. In the SOP a broad categorisation of risks was also provided. All of this engagement has allowed the Programme to minimise risk up to this stage.

11.2 Risk Identification and Assessment

A workshop was held on the 8th October 2014 facilitated by colleagues from Welsh Government to support the development of a comprehensive risk register for both the ongoing Programme BJC's and the implementation of the service through its first year. This workshop was also attended by a large group representing all stakeholder organisations involved in the Programme Case. This included colleagues from the Wales Air Ambulance Charity, Welsh Ambulance Service, WHSSC, Health Boards and the South Wales Collaborative. The agenda, presentation and list of attendees are provided in [Appendix G1](#). The purpose of this workshop was to identify risks and outline strategies for mitigation.

The risk register provided in [Appendix G2](#) is a reflection of the discussions and agreements that took place at the workshop. The register will be considered at the Gateway review after the first year to determine if any of the risks outlined have changed.

Most of the risks identified are service risks. Each risk has been given an identification number and has been further categorised into the following sub-groups – planning and availability, demand and volume, performance, operational, planning and funding.

Each of these has been further divided into specific risks related to that sub-group. The likelihood and potential impact of these is then quantified. Finally countermeasures to mitigate risk where possible have been defined. Many of these have already been deployed indicating that the Programme Board has given significant recognition to risk management in the context of this complex Programme Case.

11.3 Risk Mitigation

Although a number of risks to the delivery of the Programme and service have been described, this chapter focuses on those risks where there is a moderate or greater likelihood of occurrence and where the impact may be high. These service risks are intended to be read in conjunction with [Appendix G2](#). These high level risks have been described in two distinct categories – pre-service and post-service implementation.

Each risk has a developed risk mitigation strategy in order to manage these risks as effectively as possible.

11.4 Pre-Service Implementation Risks

Planning and Availability (001)

Reluctance and inability of Health Boards to release consultant workforce within agreed timeframe

The deliverability of the consultant workforce is heavily dependent upon the Health Boards agreeing to release them. To mitigate this risk the CEO's, Executive Teams and Clinical Leads of all relevant Health Boards have received communication throughout the recruitment process. Using a 'blended' approach to recruitment will reduce the risk of denuding sessional commitment to core specialties. The majority of interested consultants are willing to do extended sessions for the EMRTS in the first instance and may choose to re-job plan at a later date. All shortlisted consultants are to attend interviews with a written letter confirming support from their Clinical Director.

Planning (005)

The EMRTS Programme fails to deliver the service within the stated timescale of late April 2015. Thus compromising the reputation of the Programme

The process of internal recruitment of consultants has already begun and selection will be complete with appointment once the lead organisations are defined. Timelines have been devised which will allow the new workforce to undertake comprehensive training prior to April 2015 and an additional resource has been defined to assist with this task.

One road vehicle and full set of equipment has already been procured which will support training prior to April and lead times for the acquisition of high level equipment has been finalised.

Commissioning arrangements and a host organisation must be defined in a timely fashion as there are many concurrent streams of activity occurring that rely upon this being complete. The host organisation must be able to move quickly into a position of governance responsibility, no later than 1st April 2015, once appointed, given the timelines for delivery.

Commissioning arrangements fail to delineate clear lines of accountability between lead organisation and other stakeholders

Clear service level agreements must be designed to meet the specific requirements of EMRTS and the host organisation. There must be a single point of clinical and operational governance which will be defined in part by the organisational framework of the EMRTS service.

Choice of lead organisation leads to tensions with other stakeholders

Regardless of who the host organisation is, it is vital that the focus of all stakeholders remains the delivery of the service within the agreed time frame. Any issues that may potentially jeopardise this should be quickly escalated within the host Board to Welsh Government.

11.5 Post-Service Implementation Risks

Demand and Volume (002)

Health Boards fail to accept the change in patient flows and in particular the funding implications of this. Increased workload and resentment within receiving Health Boards. Failure to realise benefit numbers 001-005

Moderate changes in patient flows have been estimated in the SOP using a top down modelling approach. As part of the BJC submission, financial quantification and a mechanism of appropriate reimbursement to importing Health Boards have been developed. The Programme Board will seek to gain support for this approach from Health Boards. This remains a priority for the Case.

Net-importing Health Boards have no capacity to adequately manage EMRTS patients due to lack of repatriation of patients back to local hospitals or community. Failure to realise benefit numbers 001-005

A moderate change in patient flow will occur as result of the EMRTS. Repatriation (and therefore ongoing medical care and rehabilitation) from specialist centres to local hospitals will be addressed through the South Wales Trauma Network business case. More appropriate transport will be commissioned by Health Boards to facilitate this backflow of patients.

Performance (003)

The EMRTS is not able to deliver the clinical outcomes proposed in the benefits realisation plan

It is vital that the host organisation has the opportunity to receive, in a timely fashion, the EMRTS for the service to realise its intended outcomes. Careful selection of the host organisation will be required. The host organisation will also need to be made fully aware of the costs and risks pertaining to service before giving commitment.

Certain clinical outcomes will be achievable in the short term, but some may take much longer, and many are reliant on other systems being in place and working effectively in order to achieve success. These have been highlighted in the benefits register as key dependencies. Early liaison with key clinical stakeholders to develop and agree on clinical pathways will be required. This has been undertaken as part of the work of the Clinical Reference Group.

Finally appropriate selection of the workforce will be required and this is being addressed through a comprehensive selection process to the service.

The EMRTS delivering worse clinical and functional outcomes by resuscitating patients that would otherwise not have survived, thereby increasing the burden of severe disability

Some benefits will take time to be realised and depend upon other systems or services outside of EMRTS to function effectively. A number of studies show that increases in disability free years and improved functional outcomes become more apparent with time (Gabbe BJ, et al, 2014).

11.6 Risk Management: Pre-Service Implementation

Prior to the introduction of the service, the responsibility for managing risk lies with the Programme Board. In order to ensure an appropriate level of risk management of the Case, a governance structure has been developed to demonstrate clear lines of accountability between the Programme Board and its reference groups. This structure has allowed any areas of risk being immediately highlighted to the senior responsible officer.

Through a process of extensive stakeholder engagement it has been possible for the Programme to effectively manage any areas of risk within its remit of control. However as discussed above certain areas of risk are not within the control of the Programme itself. These include the timely identification of a host organisation and commissioning arrangements. Therefore these could impact on the deliverability of the service within the timeframes described.

11.7 Risk Management: Post-Service Implementation

The host organisation for the service will be responsible for appropriate risk management once the EMRTS has been implemented. This will occur through the organisational, operational and clinical governance frameworks that are set down in this BJC and that will have been put in place. These frameworks will be used as a vehicle to manage risks as they are identified as posing a significant impact on the delivery of the service.

It is suggested that the host, once identified, undertakes a review of the risk management arrangements for post service implementation to quality assure the process.

12. PROCUREMENT

12.1 Introduction

This section of the Business Justification Case sets out how the required equipment will be procured.

12.2 Procurement Strategy

The Procurement Strategy will enable the procurement of the goods and services to be planned and run effectively and efficiently, to meet the Programme (the “Awarding Authority”) or hosts of the Emergency Medical Retrieval Transport Service Cymru requirements and satisfy procurement regulations and value for money principles.

The Procurement Strategy will form an integral part of the audit trail for the procurement activity as it sets out the intentions of the procuring body in advance of the commencement of the formal process.

12.3 Procurement Considerations

The principle objectives of the procurement activity are to:-

- Procure the goods and services required in compliant with EU Directives, Public Procurement Regulations and host Standing Orders/Standing Financial Instructions
- Ensure value for money principles are adhered to via a procurement provisioned to support a national service
- Meet the investment objectives of the project as outlined in Chapter 2.

12.4 Scope of the Procurement Activity

The scope of the procurement is to deliver:-

- Existing, market ready goods and services, that is already operational and capable of being deployed immediately or within agreed project timescale, upon contract award
- Implementation, configuration, and necessary training services to enable the host of the service to meet the ‘go live’ date.

12.5 Procurement Regulations and Additional Procedures

As NHS Wales are public sector bodies, all NHS Wales procurements must comply with Standing Orders/Standing Financial Instructions and The Public Contracts Regulations 2006 which were subsequently amended in 2009.

Where the value of procurements exceeds current EU thresholds of £111,676, the procurement must comply with the Public Contracts Regulations 2006, including the requirement to place and advertisement in the Official Journal of the European Union. In the event that there are pre-existing Framework Agreements that have already been subject to the EU and Public Contracts Regulations 2006 procurement process, the host may utilise these agreements, negating the need to undertake a formal procurement exercise.

Access to Framework Agreements will be either on a Direct Award or Mini Competition basis. The Direct Award approach allows the host to place an order directly to any one listed supplier, having satisfied itself that the proposal represents value for money. Where a Mini Competition is required, a specification will be agreed and issued to all participating suppliers and evaluation/selection will be determined through utilising the pre-determined criteria and scoring methodology.

12.6 Equipment Delivery and Implementation

An analysis of lead times for equipment delivery is provided in [Appendix H](#). There are a number of purchases of specialist equipment which are summarised below:-

- Vehicles, coach building and equipment installation
- Specialist equipment to include ventilators and monitoring
- Personal protective equipment
- Infrastructure for medicines management
- Blood and blood products
- Infrastructure for helipads
- Information technology

Of these the timely acquisition of the vehicles and coach building carries a significant risk to the delivery of the service by the end of April 2015. A strategy to manage this critical purchase has been outlined in Section 12.8.

To further address the procurements will address concerns and issues in relation to the delivery and implementation of equipment and shall consider any supplier's capability and capacity to deal with demanding lead times in a manner which meets operational and financial objectives.

12.7 Procurement Management and Support

NWSSP Procurement Service's nominated Head of Procurement will oversee the procurement activity and work closely with the Operational Project Team to ensure that the following activities are carried out, ensuring the processes are run in accordance with the principles of the Public Procurement Regulation (2006): equal treatment, non-discrimination, mutual recognition, proportionality and transparency.

Additional support will be provided by one of the Procurement Business Managers from within the Procurement Services Team. The key procurement activities are listed below:-

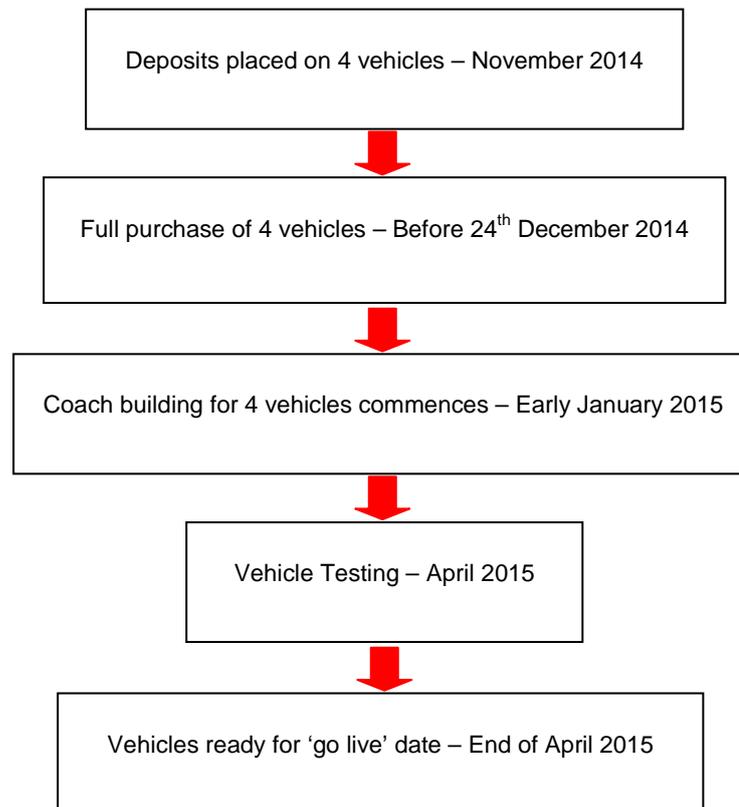
- Provide specialist procurement advice, particularly to EU Procurement principles listed above
- Administer and manage the procurement process
- Attend key meetings
- Aid evaluation teams in setting selection and award criteria and attend evaluation meetings
- Review technical, functional and service specification for consistency of approach
- Manage communications with bidders/suppliers during the process and ensure timely responses to queries are provided
- Provide procurement quality assurance on the process and outputs of the procurement.
- Ensure that appropriate contracts are developed in line with value for money principles
- The procurements are delivered in accordance with the planned timescales.

12.8 Procurement Routes and Lead Times

As part of the Programme Case a resource has been identified in order to procure one vehicle prior to approval of the BJC's. This has been necessary in order to interrogate the coach building process and for this first vehicle to be used for training and testing purposes prior to the start of the service. At this point it will become operational. This strategy has been adopted in order mitigate risk given the lead times for purchase and coach building. As outlined in Appendix H the first vehicle has now been purchased and is in the process of being coach built. A single set of high level equipment has also been purchased to accompany this vehicle (Vehicle 1 Procurement Strategy referred to in [Appendix H](#)). It is anticipated that the completed vehicle and associated equipment will be available by early January.

The Programme has now placed a deposit on four additional vehicles prior to the BJC's being approved, in order secure these vehicles and for coach building to commence early January 2015.

This will assist with timely delivery of the service in late April 2015. The following flow chart described the timescales for this:-



From the above flow chart it is clear that there no contingency of time built into the vehicle procurement process and coach building. Therefore it is imperative that the funding is made available for the purchase of these vehicles within the stated timescales in order to ensure delivery of the service at the end of April 2015.

Furthermore to this Appendix H also contains the Procurement Strategy for all other aspects of service delivery. Where procurement routes and leads have yet to be defined, it is indicated that these will be confirmed in the final submission.

13. FINANCIAL MECHANISMS AND AFFORDABILITY

13.1 Introduction

The Strategic Outline Programme (SOP) detailed the Economic, Commercial and Financial case for change which supported the preferred option included in this Business Justification Case Submission.

This section should be considered alongside the submitted SOP, the financial information included has been further developed (from the original SOP) based on the work of the Operational, Workforce and Procurement reference groups (that report to the Programme Board).

The Programme Board and NHS Wales received confirmation on 22nd August 2014 (copy of the letter included in [Appendix 11](#) that the EMRTS SOP had been approved by Welsh Government, with support in principle (subject to the BJC submissions) for the funding requirement of:

- Capital funding in 2014/15 of £1.895m
- Recurring revenue funding from 2015/16 of £2.868m
- Revenue funding of £0.683m in 2014/15
- Recurring non cash funding from 2015/16 of £0.344m
- Non cash funding in 2014/15 of 0.056m.

13.2 Funding Assumptions

The Business Justification Case is a submission to the Minister and Welsh Government for capital and revenue funding to establish an EMRTS service in Wales. This is an enhanced service and the additional incremental costs form the basis of the affordability analysis and funding requirement (from Welsh Government) as set out in this Finance section.

The case has been developed by the EMRTS Programme Board, a multi-disciplinary team made up of representatives from Health Boards in Wales, WAST, WAACT, North Staffordshire Foundation Host and Welsh Government.

There is a requirement for Health Boards to release relevant Consultant Sessions to support the EMRTS service, these sessions will be reimbursed at an appropriate rate to enable the host organisation to fund backfill arrangements for their own services (including DCC and SPA sessions and to cover annual and study leave). Health Boards will be required to fund the balance of any non EMRTS sessions that provide services to the Health Board, in job plans for any new related posts.

WAST and WAACT have confirmed that they will continue to fund and operate against the current service configuration, the current cost of Paramedics (16wte), Coordination Centre, Helicopter running costs (including potential additional

flying time) and maintenance and air base operation and running costs will continue to be met and funded on an ongoing basis by the relevant organisation. The additional cost of establishing and running the EMRTS service above this baseline is included in the case (additional CCP's, uplift from current Paramedic to CCP posts, training, equipment, infrastructure and HLS Lighting).

The impact of the proposed service on Patient Flows has been forecast (in patient numbers) for each Health Board with indicative costs for the potential impact. Section 13.8 details the proposed mechanism for accounting for these changes to ensure that receiving organisations are appropriately reimbursed for any additional activity.

13.3 Capital Assumptions

The Capital Costs are based on the work completed by the operational and procurement reference groups and are as detailed in the table below with assumed Useful Economic Life (UEL) as stated.

The assumption is that assets will be replaced at the end of their Useful Economic Life with the capital investment being the subject to a BJC to be developed by the host organisation.

The capital funding arrangements, on items that will be the assets of other Organisations (other than the host), will have to be confirmed and funding may have to be allocated via Welsh Government grant to comply with finance regulations and asset ownership (e.g. Helicopter Equipment to WAACT).

For the purposes of affordability modelling, capital costs are inclusive of VAT (at 20%) and inflation (assumed at 2.5% per annum) in accordance with HM Treasury Greenbook guidance. Capital items are assumed to be replaced at the end of their Useful Economic Life.

The table below sets out the estimated capital funding requirement of the service over the next 10 years, the full list of Capital items is also included in [Appendix I2](#):

Summary Capital and Lifecycle Requirements

Capital and Lifecycle Costs	FY15	FY16	FY 17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
General Inflation %	0.00 %	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %	2.50 %
	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000
Welshpool Base	752	0	0	0	0	594	0	289	0	0
Total	752	0	0	0	0	594	0	289	0	0

There is a total capital requirement of £752,000 in 2014/15 and £1,635,000 for a 10 year period.

For information, the Swansea phase requirement is £1,143,000 in 2014/15 and £2,437,000 for a 10 year period, this gives a total of £1,895,000 in 2014/15 and £4,072,000 for a 10 year period (as per original SOP).

13.4 Capital Requirements

The table below sets down the required Capital equipment and its planned cost, included is a contingency to cover the cost of additional Glimm Lighting to support the additional 29 landing sites as referenced in the Operational chapter.

Emergency Medical Retrieval and Transfer Service for All Wales – BJC Phase 2 Welshpool

EMRTS

Capital Equipment	Purchase Price (Exc VAT) £	Purchase Price Inc VAT £	Av Life	Welshpool No	£
Vehicle Purchase and Conversion					
Vehicle	42,083	50,500			
Ambulance conversion (including bespoke stretcher)	17,833	21,400			
Ambulance fit (Terrafix,AVL etc)	4,000	4,800			
Total	63,917	76,700	7	2.00	153,400
Vehicle and Helicopter Equipment (Per Vehicle/Helicopter)					
Pac Rac	200	240			
Ferno Scoop	615	738			
Spine Board	300	360			
Tempus Pro Monitoring	29,371	35,245			
Syringe drivers x4	6,795	8,154			
Airtraq rigid fibreoptic larygoscope x4 2 small/2 Large	120	144			
Emma in line digital end tidal CO2 monitor	995	1,194			
NoninPulse oximetry monitor	537	644			
Suction unit	730	876			
EPOC blood gas monitoring	7,793	9,352			
Lucas chest compression device	10,542	12,650			
Ventilator	16,850	20,220			
Temp com interface SL150R-USB	239	287			
Temp logger	100	120			
Crede Cube Blood transfer box	500	600			
CAT Tourniquet	34	41			
BreatheSafe bite blocks size 1,2,3 (20 each)	100	120			
EZIO bone drill /humeral /Adult/Paed IO	568	682			
SAM pelvic splint med	94	112			
Oleas Blast bandage 6"	74	89			
Oleas bandage (blast bandage)	75	90			
Thomas pack x2	850	1,020			
Vacuum splints x1	450	540			
Celox ribbon gauze	59	71			
Portex chest drain kit	78	93			
Gigli Saw & Blades	82	99			
Large trauma scissors	111	134			
Blizzard Heat blanket	595	713			
Kendric Traction Device	73	88			
Easiflex Vacuum Mattress	935	1,122			
VAC Mattress Paediatric	250	300			
Sager splint SX405	445	534			
Contingency - Blood/Pharm/Sundries	5,000	5,000			
Total	85,560	101,671	5	2.00	203,343
Consumable stock for Vehicle Set Up	50,000	60,000	5	0.50	30,000
PPE Set Up Costs					
Flight Suit x2	1,180	1,416			
Fluorecent Jacket	29	35			
Fluorecent Trousers	19	22			
Flight Boots	159	191			
Flight Gloves	36	43			
Rescue Extrication Gloves	48	58			
Flight Helmet Alpha 200	1,920	2,304			
Ground Helmet MSA F2 TREM	126	151			
Safety Glasses	7	8			
FR undergarments (inc logo)	9	11			
Total	3,533	4,239	5	1.00	4,239
Omniceil Drug Cabinet + Blood and Pharmacy Infrastructure	80,367	96,440	5	1.00	96,440
Glim Lighting, Windsock and Survey Fees (see WAA sheet)	54,917	65,900	5	0.50	32,950
Contingency including expansion of Glimms for 29 Sites	94,167	113,000	5	0.50	40,000
Air Base Infrastructure	50,000	60,000	10	1.00	60,000
Blue Light kit conversion for Pricvate Cars inc Training	37,500	45,000	5	0.50	22,500
Training Equipment	22,347	26,816	5	0.50	13,408
Neonates Equipment					
<ol style="list-style-type: none"> 1. Airborne Aviator incubator; the incubator chassis includes storage for two E-cylinders which can be adapted to take CD cylinders. 2. Customer to supply Hamilton T1 ventilator 3. SLE to supply mount for fixing Hamilton T1 to Aviator chassis 4. Customer to supply Hamilton Tempus pro monitor with pole mount 5. SLE to supply pole mount for fixing Tempus pro monitor 6. Customer to supply CME T34 infusion pumps 7. SLE to investigate mounting solution with CME 8. Laerdal LCSU4 compact battery powered suction in air transfer mounting 9. Neo-pod lightweight neonatal humidifier 10. All of the above to be mounted on Airborne TS air-transport stretcher with fittings for Aerolite interior of EC135 helicopter 11. SLE to obtain Supplemental Type Certificate (STC) from Aerolite (Switzerland) for the above system for a defined aircraft from the Wales Air ambulance fleet. 					
Total Neonates Equipment	80,000	96,000	5	1.00	96,000
Total					752,280

Note:-
All cost as per information and quotes received
VAT added at 20%

752,280

13.5 Revenue Assumptions

The Revenue cost assumptions are set down in the table below. These assumptions have been identified in conjunction with the relevant Programme reference groups and Organisation Leads plus H.R. and Finance representatives:-

Cost Category and Information Source / advice	Included in the BJC detailed cost schedules under Set up, Hub and Base Costs
Consultants Workforce and Operational Reference Group & Medical HR Advice	Cost per session based on annual cost of £124k (top of scale plus 30% on costs, excluding Clinical Excellence and Commitment Awards) and 7 clinical session availability per week (to account for SPA costs), 42 weeks per year availability (i.e. £420 per session). 3.2 Sessions per 12 hour shift. 12 hr payment per 12 hr shift at base; 12 hr payment per 24hr shift top cover. Travel time excluded.
Paramedics Workforce Reference Group & WAST Advice	Existing establishment re banded from Band 5 to 6 (incremental cost from 5 to 6 included in the case for relevant posts), additional posts in at top of scale Band 6 with on costs and enhancements, appropriate relief included in establishment calculations and requirements at 35%. Allocator posts are excluded at this stage, assessment to be completed at the end of year one to assess the potential role and requirement if needed going forward.
Administration Workforce and Operational Reference Group	Mean of Scale Band 3 with on costs and enhancements.
Base Leads Workforce and Operational Reference Group	Base Lead payment and Deputy Lead based on Consultant cost for identified sessions.
Vehicle and Helicopter Consumables	£78k per base per 12 hr shift per annum

Costs Category and Information Source / advice	Included in the BJC detailed cost schedules under Set up, Hub and Base Costs
Vehicle Running Costs Operational Reference Group	£10k per vehicle to include fuel, servicing and insurance (30,000 miles per vehicle at 30mpg).
Training Costs Operational Reference Group	In at £7k per Paramedic post to cover 2 year CCP course (set up costs). £10k HEMS course (set up costs). £20k general training provision per base /hub (recurring cost). £1.6k per post for CC training (recurring cost).
Vehicle and Equipment Maintenance Operational Reference Group	Included per item based on 8% of purchase price based on quotes.
Depreciation Based on UEL	Included as an estimate based on useful economic life for each capital purchase.
Flight Suits and Equipment (PPE) Operational Reference Group	Included in set up costs based on quotes of £4k per person.
Accommodation Running Costs Operational Reference Group	To cover the revenue costs of the additional Portacabin required at £20k per annum.
Contingency Estimate	Included at £40k per base.

The following costs have been excluded from the BJC:-

- I.T. and Set Up – WAST and WAA confirmed no additional costs for the Hub and Air Bases other than those identified
- Building Infrastructure – WAST and WAA confirmed no additional costs for the Hub and Air Bases other than those identified
- The balance of any non EMRTS Consultant sessions relating to any new posts established. The BJC only includes EMRTS sessions including SPA and annual and study leave appropriate share of costs.

Other General Assumptions:-

- Additional costs relating to helipads from any increased activity to be included in tariff/cost mechanism agreed for changes to patient flow
- Potential improvements to Ambulance times (reduced demand) has been excluded
- Assume that all Organisation's continue to support the existing level of resource employed as part of the current WAACT service as provided.

13.6 Revenue Requirements

The table below details the revenue requirements for the next 10 years and includes general inflation at 2.5% and Salary at 1% until 2018/19.

The first period (2014/15) is a partial period and includes set up costs and implementation phase costs (including the initial training period) based on mobilisation in February 2014.

Depreciation is assumed to be applied on a straight line basis over the Useful Economic Life of the asset.

Revenue costs are shown in total less depreciation to be funded in the usual method as per NHS finance regime.

The detailed finance schedules and cost calculations are included in [Appendix I3](#).

Revenue Cost by Site	FY15	FY16	FY 17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000
General Inflation %	0%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Salary Inflation %	0%	1.0%	1.0%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Welshpool Base	287	1,127	1,144	1,173	1,202	1,232	1,263	1,294	1,327	1,361
Total	287	1,127	1,114	1,173	1,202	1,232	1,263	1,294	1,327	1,361
Funded by:										
Welsh Government Revenue Funding	287	1,127	1,114	1,173	1,202	1,232	1,263	1,294	1,327	1,361

Emergency Medical Retrieval and Transfer Service for All Wales – BJC Phase 2 Welshpool

Revenue by Category	FY15	FY16	FY 17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000
Staff costs	109	663	670	686	703	721	739	758	776	796
Vehicle running costs	3	21	21	22	22	23	23	24	24	25
Consumables	75	91	94	96	98	101	103	106	108	111
Maintenance and Depreciation	30	246	252	259	265	272	279	286	293	300
Training and Travel	53	64	66	67	69	71	72	74	76	78
Contingency	0	42	42	43	44	45	46	48	49	51
Total revenue costs including depreciation	269	1,127	1,144	1,173	1,202	1,232	1,263	1,295	1,327	1,361
Depreciation	21	131	134	138	141	144	148	152	156	159
Total revenue costs before depreciation	248	996	1,010	1,035	1,061	1,088	1,115	1,143	1,171	1,202

There is a total revenue requirement of £996,000 in 2015/16 rising to £1,202,000 in 2024.

For information, the Swansea phase revenue requirement is £1,872,000 in 2015/16 and £2,253,000 in 2024, this gives a total of £2,868,000 in 2015/16 and £3,455,000 in 2024 (as per original SOP).

13.7 Impact on the Balance Sheet and Income Statement

The assumption is that the host organisation (when identified) will include all EMRTS service assets and liabilities within their own balance sheet and all income and expenditure will be included in the overall income and expenditure position of the organisation.

The hosted EMRTS service will be disclosed as a separate operating segment within the notes to the accounts, this will mean that the service value and income and expenditure performance is identified.

Treasury management for the service will be included in the host overall management arrangements.

The modest capital investment required for this BJC means that balance sheet implications are considered to be inconsequential.

13.8 Patient Flow Changes

The EMRTS service will have an impact on Patient Flows and this impact has been forecast in collaboration with the South Wales Collaborative and North Wales Clinical Leads and all stakeholder Organisations. Extensive analysis in the SOP demonstrated a modest change in patient flow for two groups of patients: trauma and post cardiac arrest cases.

The Business Justification Case does not cover or include the cost or impact of changes to patient flow. Betsi Cadwalder University Health Board will be responsible for the impact of any changes in flow for their resident population.

13.9 Financial Summary

Both the revenue and capital implications of the proposed EMRTS have been considered and reflected in the Programme’s Financial Plan. The Financial Plan is based on the assumption that the scheme to be fully funded by Welsh Government and is therefore considered affordable from a capital and revenue perspective.

The funding requirement from Welsh Government is summarised below:

EMRTS Funding Requirement	FY15	FY16	FY 17	FY18	FY19	FY20	FY21	FY22	FY23	FY24
	£000	£000	£000	£000	£000	£000	£000	£000	£000	£000
Capital	752	0	0	0	0	594	0	289	0	0
Revenue	248	996	1,010	1,035	1,061	1,088	1,115	1,143	1,171	1,202

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The above costs exclude the Resourcing Programme Responsibilities and Delivery Costs as submitted to Welsh Government (by the Programme Board) for £398,750.

It has been assumed that depreciation will be funded in the usual way as per the NHS finance regime.

The above costs also exclude the ongoing recurring hosting costs including overheads, infrastructure, executive board, governance and corporate function support estimated to be 8% to 10% of the total revenue costs - £287,000 in 2015/16.

The proposed mechanism for accounting for changes in Patient flow is as detailed in Section 13.8.

The following table summarises and compares the total funding for approval as included in the BJC's against the original approved SOP:

BJC v SOP	Approved SOP £k	Swansea BJC £k	Welshpool BJC £k	Total BJC's £k	Movement £k
Capital	1,895	1,143	752	1,895	0
Recurrent Revenue	2,868	1,872	996	2,868	0
Yr 1 (14/15) Revenue	683	435	248	683	0
Recurrent Depreciation (non cash funding)	344	206	131	337	(7)
Yr 1 Depreciation (non cash funding)	56	25	21	46	(10)

14. TRANSITIONAL MANAGEMENT ARRANGEMENTS

14.1 Overview of Transition

The Programme Case details the management and governance arrangements set down, up to transition to host responsibility, for the successful delivery of the Programme to Cost, Time and Quality.

The Programme Case proposed specific arrangements for the interim management of the Programme, post Programme Case approval, in order to progress the development of the BJC's and the associated operational implementation planning. These proposals, and their funding, were accepted and supported by the Welsh Government.

It is proposed that the Programme will transfer responsibility to the lead 'host' organisation, dependent on that body having been identified by the Commissioning process, on 1st April 2015.

On the basis of a host organisation being identified by 31st January 2015, it is proposed that the period from 1st February to 30th June be viewed as a transitional phase. Responsibility will transfer from the SRO and the Programme Board on 1st April 2015, but the officers will remain available for transitional support up to 30th June 2015.

The lead 'host' organisation will be responsible for the full implementation and benefits realisation of the Programme and will discharge their responsibilities within their Governance and Management arrangements. Notwithstanding the above up to the transfer date, the Programme will continue to be managed in accordance with the arrangements for benefits realisation and stakeholder engagement set down in the Programme Case.

The investment process is being organised and managed in accordance with guidance contained in the Capital Investment Manual and is consistent with the Office of Government Commerce's Managing Successful Programme's standard.

The Programme is working within the Welsh Government External Assurance Review process, and this work will transition into the host organisation.

14.2 Programme Sponsorship and Leadership

The Programme will continue to be facilitated by ABMU until such time that responsibility transfers to the host organisation. At this point accountability will be transferred to that respective organisation on 1st April 2015. The transitional arrangements set down above are proposed to manage this transfer of responsibility.

The Senior Responsible Owner for the Programme is Dr Grant Robinson, Unscheduled Care Lead for Wales. The Programme Directors will be Dr Dindi Gill and Dr Rhys Thomas, who will have responsibility for managing the overall

delivery of this Programme of modernisation until the transfer to the lead 'host' organisation. The Programme Directors are supported by the following resources:

- Business Manager– this will require an interview
- Pete Hopgood, Financial Resource Manager, who will be responsible for the financial input into the BJCs
- Secretarial support
- Communications Officer.

In addition Huw Llewellyn, Assistant Director of Finance, ABMU, will act as Accounting Officer and advisor to the Programme until the hosting arrangements are in place on 1st April 2015 and will provide transitional support to 30th June 2015.

14.3 Programme Structure

To ensure delivery, the Programme Board will continue to meet monthly and will receive as appropriate monthly highlight reports, which document:

- Progress against key deliverables
- Achievements planned for the period but not completed
- Achievements planned for the next period
- Programme risks, by category and recording mitigating actions
- Programme issues and identifying actions
- Programme milestones and forecast completion date, recording confidence and status
- Programme Director comments.

A number of work streams are in place reporting to the Programme Board including:

- A Clinical Reference Group to carry out work quickly and effectively to develop the clinical governance framework
- An Operational Reference Group
- Workforce Reference Group
- Operational and Workforce Reference Groups have sub-groups for each of the phased developments.

It is important to highlight the role of the two implementation phase project groups in delivering the two phases at Swansea and Welshpool.

The Structure has been developed in order to have the most appropriate reporting lines while ensuring that there is a sufficient capacity and processes in place to control the delivery of the Programme.

15. IMPLEMENTATION

15.1 Overview

A significant amount of work has already been undertaken as part of the SOP and BJC submissions in relation to implementation. This includes careful consideration of the main risks which may delay timely implementation of the service and strategies have been adopted to mitigate these. It is anticipated that the service will start on Monday 27th April 2015. The formal implementation of the service will commence at the point of approval of the BJC submissions for Swansea and Welshpool bases, required to be by 24th December. Once this occurs, a number of parallel activities will occur as outlined in the timeline provided.

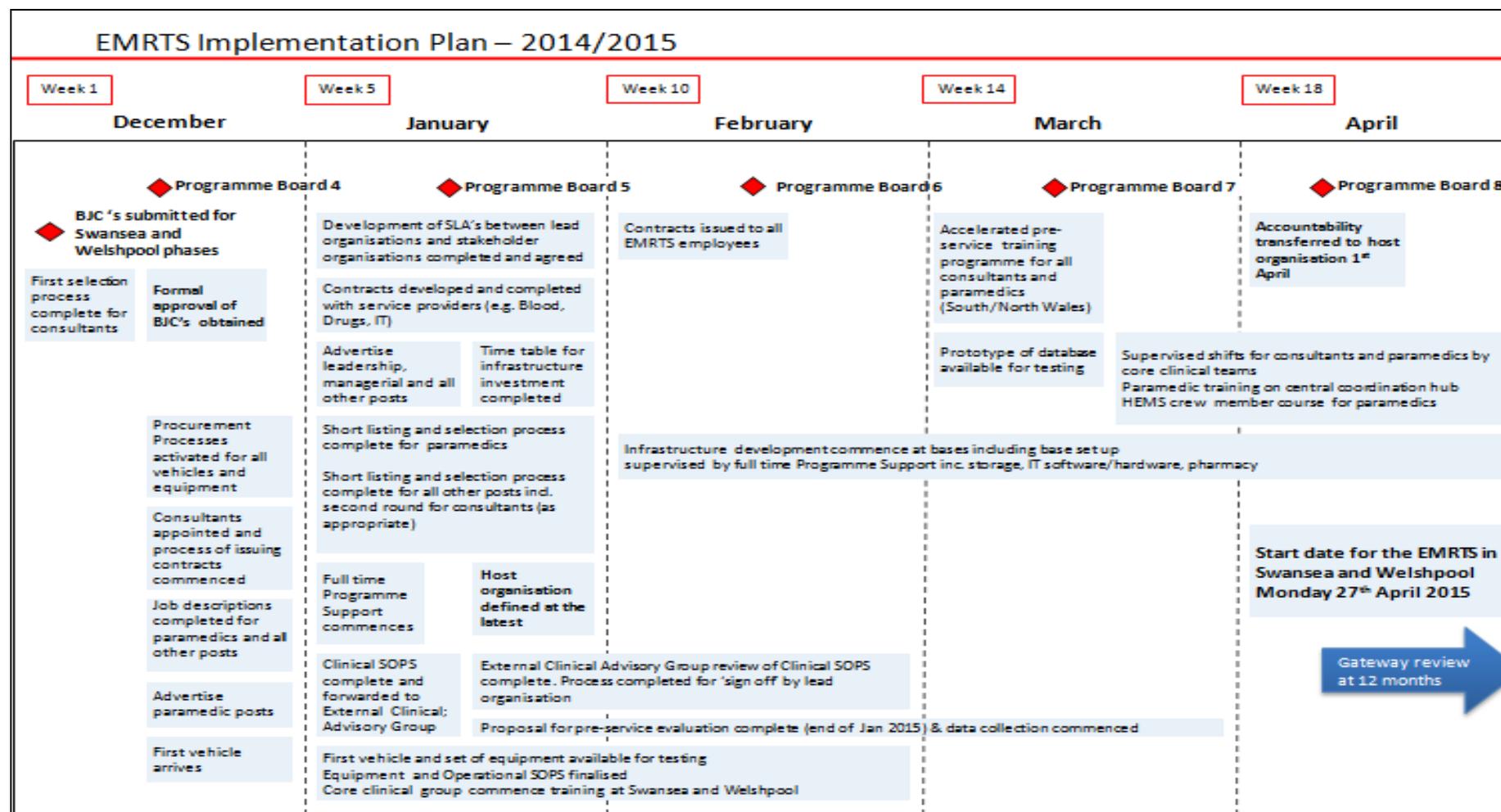
These activities will continue to be directed by the clinical, operational and workforce reference groups, who will report back to the Programme Board. The Programme Board will have overall responsibility for the implementation phase until the host organisation is defined. At this point, preparations for the transition of responsibility to the host organisation will begin.

A resource has been committed for the Programme to continue at pace to deliver timely implementation of the service. This includes two full time Programme Directors, one full time Clinical and Operational Project Lead, 3 project leads (1 day/week) and one full time Programme Manager.

The rest of this section will be divided into clinical, operational and workforce related areas of implementation. The implementation plan for both Swansea and Welshpool bases will proceed simultaneously.

15.2 Implementation Timeline

A diagram provided below summarises the key steps required from the time the BJC's are submitted to the commencement of the service.



15.3 Clinical

Ahead of approval of the BJC submissions the clinical reference group has been developing clinical and equipment standard operating procedures ([Appendix B1](#)). A first draft has now been completed and these are being refined by the Programme Directors. It is anticipated that these will be sent to the External Clinical Advisory Group for independent review early January 2015. These will then be tested and 'signed' off by the lead organisation by late February. The final 'sign off' process will be determined by the lead organisation once this is defined.

An accelerated pre-service training programme has been planned for the beginning of March for two weeks followed by a six period of supervised shifts for doctors and paramedics. Venues for the programme have been provisionally booked. The training of doctors and paramedics will be facilitated by a programme of activity for the core clinical group in January and February. This is in line with the arrival of first vehicle and set of high level equipment. In addition the HEMS crew member course, which is a mandatory requirement for all paramedics prior to flight operations, has been provisionally booked for the training period ahead of the start date of the service. There will also be an induction provided for paramedics to Central Coordination Hub operations. It has been agreed that the paramedics will enter an online Masters in Critical Care through Cardiff University commencing in September 2015 ([Appendix B3](#)).

The ability of the core clinical team to commit full time to the service will significantly support the delivery of supervised training. At this stage it is anticipated that the vast majority of shifts will be car based and tasked from the existing HEMS desk in North Wales, until it moves to the EMRTS Central Coordination Hub in Cwmbran at the start of the service.

As described in Chapter 9 a pre-service evaluation will be required during the implementation phase to collect baseline patient data. A Clinical Informatics Coordinator is already working closely with colleagues in Swansea University to develop a proposal by the end of January 2015, with data collection commencing after this time. Independent data analysis will then occur during the course of 2015.

15.4 Operational

The Operational Reference Group has been developing operational standard operating procedures which will need to be 'signed off' by the lead organisation ([Appendix D1](#)). These will be completed and tested by the core group in January and February. Some of these will need to be aligned with existing operational procedures within the lead organisation.

As previously described one vehicle and set of high level equipment have been purchased to be available from early January. Deposits have been placed to hold an additional four vehicles and full purchase will proceed as soon as the BJC's are approved. These vehicles will then be coach built ahead of the start of the service. As the procurement routes for all high level equipment have been defined, purchase of this equipment will also commence as soon as the BJC's are approved. It is anticipated that this equipment will be available by the end of

March at the latest. Any institution of base infrastructure will be completed during the implementation phase and prior to the launch of the service.

There are a number of other operational activities that will occur from January onwards. A physical space has already been identified at the Welsh Ambulance Service Clinical Contact Centre in Cwmbran to accommodate the EMRTS Central Coordination Hub. Installation and testing of communications infrastructure will be carried out prior in February and March.

Once the BJC's are approved the implementation of organising the delivery and storage of blood products and drugs will be discharged to service providers including Morriston Hospital, Swansea and the Royal Shrewsbury Hospital. The operational reference group will work closely with these service providers in order to develop contractual arrangements to fully resolve any logistical or governance issues pertaining to these. Sufficient lead times have been allowed for licensing of controlled drugs and acquisition of the Omnicell drug storage devices.

With regard to the Information Technology, Nugenesis, who are developing the EMRTS database, has already been awarded a contract subject to approval of the BJC's. A prototype will be available early March for testing and refinement. Once a host organisation is defined, a server and a lead time for installation will be defined. The options presented in Chapter 9 will allow flexibility such that the database will be installed prior to the start of the service. Training on the use of new system will occur as part of accelerated pre-service training programme and prior to the commencement of the service to be provided by the Clinical Informatics Coordinator supported by Nugenesis. Integration of the database with monitoring equipment will continue once the service is established as well throughput of anonymised datasets for evaluation of service.

15.5 Workforce

Prior to the approval of the BJC's significant work has been undertaken by the workforce reference group. With regard to EMRTS consultant and EMRTS top cover consultants an internal selection process is underway and will be completed by early December 2015. Appointments and honorary contracts will be issued as soon as the host organisation is defined. Health Boards have been asked to provide written confirmation of their commitment to release consultants ahead of the commencement of the service and for these to be presented at interview. This selection process will allow the reference group to determine whether additional appointments will be required through a second internal recruitment drive in early January 2015.

Concurrently a process of recruiting to unfilled, vacant consultants posts across Wales has been defined. However, it is anticipated that this later approach may not deliver new consultants at the start of the service.

Job descriptions have been finalised for critical care paramedics and are being approved by HR. These posts will need to be advertised by the end of December 2014 at the latest to allow for a sufficient lead time for short listing, selection and appointment. Advertising these posts is significantly dependent upon timely identification of the host organisation which needs to occur within an acceptable time frame in order to meet the deliverability of the service at the end of April 2015.

Furthermore job descriptions have been drawn up for all leadership, managerial, administrative posts and will be tested by HR in December. These will be advertised early January 2015. Again there a critical dependency on the lead organisation being defined as soon as possible for these recruitment processes to be activated.

15.6 Gateway Review

A Gateway Review will proceed after a 12 month period of service delivery which will review the benefits in relation to a pre- and 1 year post- service evaluation as well as identifying the need for expansion of the service to include the Caernarfon base and 24/7 provision in South Wales. An updated Strategic Outline Programme will be provided at this stage as well BJC submissions for planned expansions.

APPENDICES

Appendix A

- A1 EMRTS Programme Board Terms of Reference
- A2 Specialist Advisors to EMRTS

Appendix B

- B1 List of Standard Operating Procedures (SOPs) and Clinical Key Performance Indicators
- B2 Training
- B3 Critical Care Cardiff University Letter

Appendix C

- C1 Medical Workforce Information Request
- C2 Summary of Workforce Survey
- C3 Consultant Recruitment – Workforce Proposals for Medical Directors
- C4 Consultant Recruitment – Workforce Proposals for Medical Directors Supporting Reading
- C5 Internal Recruitment Process
- C6 Consultant and Top Cover Consultant Job Descriptions (Internal Posts)
- C7 FAQs Job Planning for Consultants and Clinical Directors
- C8 Approach to vacant and unfilled posts
- C9 Critical Care Paramedic Job Description

Appendix D

- D1 006 Key Performance Indicators
- D2 007 Central Hub
- D3 008 Pre Hospital

Appendix E

Information Technology

Appendix F

- F1 EMRTS Benefits Workshop
- F2 EMRTS Benefits Register

Appendix G

- G1 EMRTS Risk Workshop
- G2 EMRTS Risk Register

Appendix H

Procurement Schedule and Lead times

Appendix I

- I1 EMRTS Approval Letter from WG
- I2 Detailed Capital Requirements
- I3 Detailed Revenue Requirements

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