

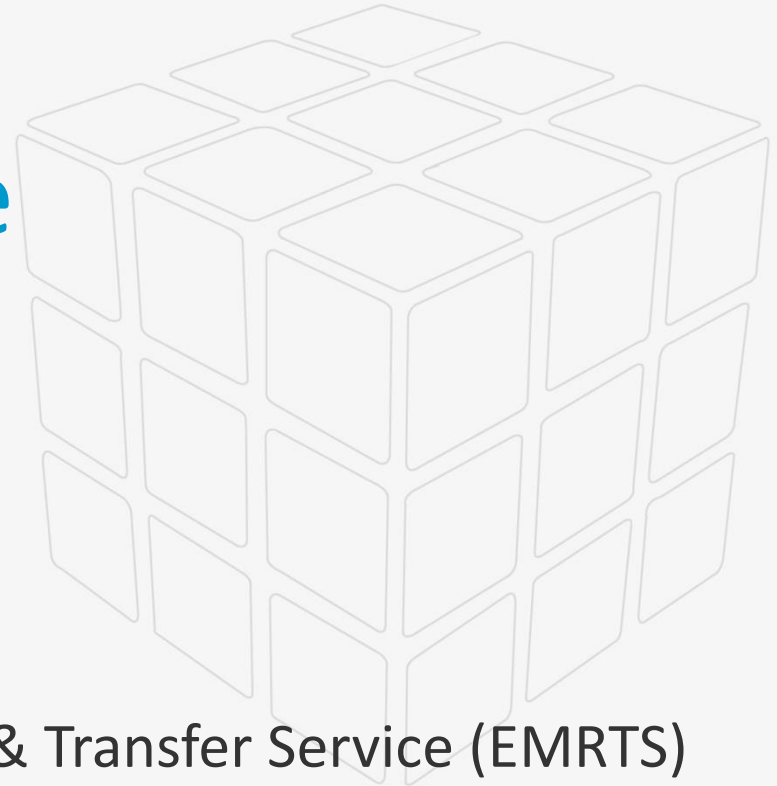


BBTS Annual
Conference 2016

Operation Vampire One Year on

Dr David Rawlinson

The Emergency Medical Retrieval & Transfer Service (EMRTS)
Wales



Disclaimer & Acknowledgements

- Informed patient consent has been obtained for the purposes of the case study included.
- Speaking on behalf of Dr Dinendra Gill, National Director

EMRTS Cymru

Emergency Medical Retrieval &
Transfer Service

www.emrts.wales.nhs.uk

emrts@wales.nhs.uk



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Background



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Mission Statement

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

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Service Benefits

Equity of Access to Emergency Care Across Wales



Improved Patient Outcomes



Enhanced Clinical Skills Across NHS Wales



Downstream Benefits for Other NHS Services

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Timeframes

2014

- Strategic Outline Programme
- Approved September

2014

- Business Justification Cases
- Approved December

2015

- Go Live
- 27th April

£1.895 Million Capital
£2.868 Million Revenue

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The Service

08:00 – 20:00 Daily x2 Teams

Clinical service model:

- Pre-hospital critical care (all age groups)
- Time critical adult/paediatric retrieval
- Maternal/neonatal care
- Major incident response

Supported by:

- Air Support Desk
- Top Cover Consultant



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Year 1

27th April 2015 - 27th April 2016

- Takings via ASD= 1917
- Attendances (patients) = 1285
- 3.8 patients per day
- 72% Helicopter response
- 13:00 peak time
- Male 69%
- Female 31%
- Age range 0-97
- Median age 47
- 16% paediatric (under 17)

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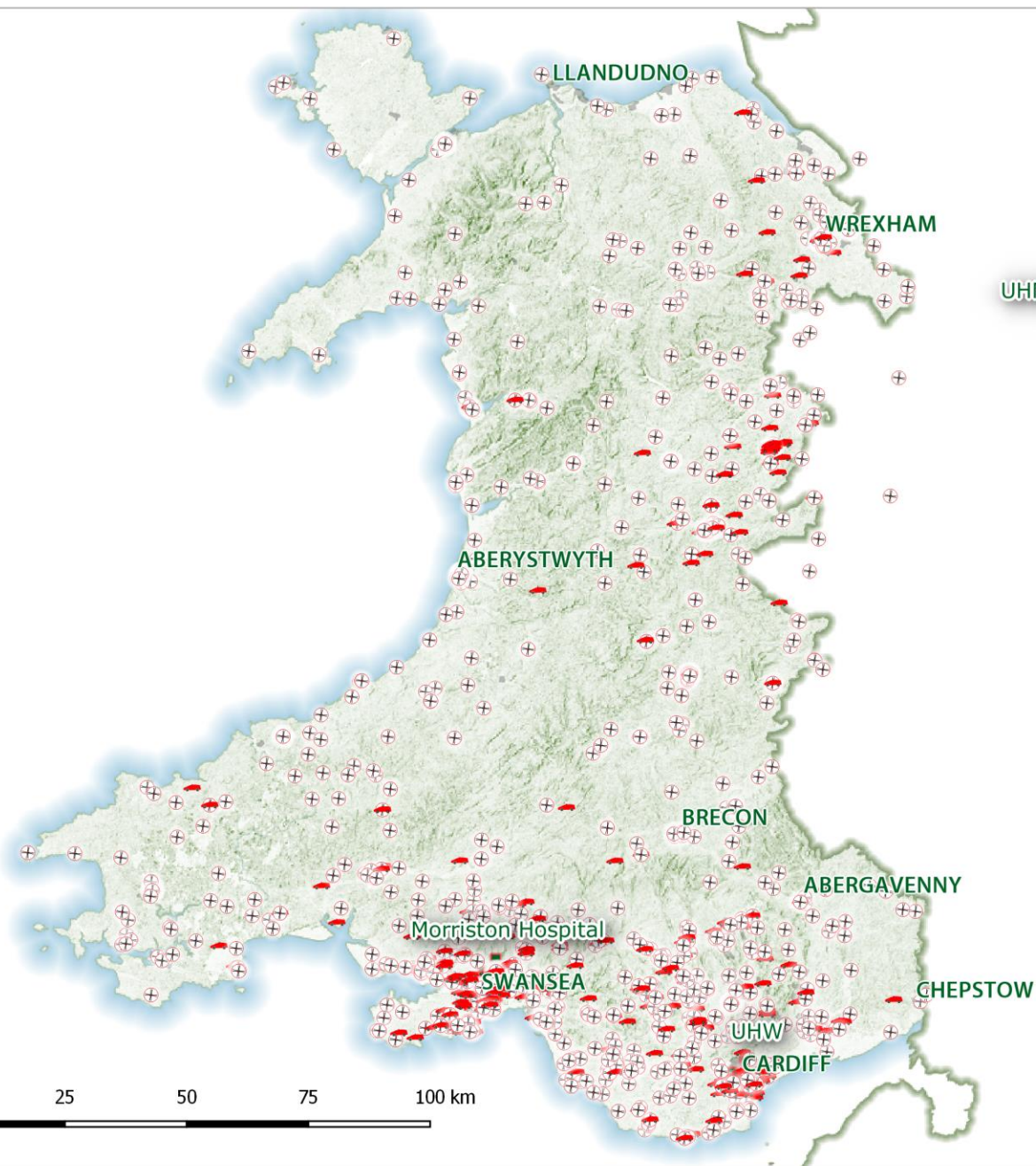
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**All Incidents Attended -
15/16**

⊕ AIR

☂ Rapid Response Vehicle

UHNM

25 0 25 50 75 100 km

NCPHWR
National Centre for Population Health & Wellbeing Research

Farr
The Farr Institute
of Health Informatics
Research

Critical care interventions

- Emergency anaesthesia
- Intraosseous (IO) access
- Advanced drugs (outside paramedic practice)
- Use of epistats and bite blocks
- Surgical airway
- Central venous access
- Use of vasopressors/inotropes
- Pelvic splintage
- Procedural sedation
- Sedation and paralysis
- Limb splintage
- Finger thoracostomy
- Administration of blood products
- Dedicated pressure dressings
- LUCAS 2 external compression device
- Resuscitative thoracotomy
- Acute reversal of anticoagulation
- Tourniquets and haemostatics
- IV antibiotics in neonates
- Advanced warming techniques (neonates)
- Advanced Decision making

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OPERATION VAMPIRE

What the service carries:



4U's of PRBC's
in Credo
'Golden Hour
Boxes'



4 Bottles of
Lyophilised Plasma
'LyoPlas'



4g Fibrinogen Concentrate and 3000IU's Prothrombin
Complex Concentrate ('Beriplex') – POC INR testing

Swansea Airport – Morriston Hospital
Welshpool Airport – Wrexham Maelor Hospital

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OPERATION VAMPIRE

Governance & Training:

Underwritten by WBS and Blood Banks (Morriston/Wrexham Maelor Hospital)

Standard Operating Procedures

Clinical

Handling and use of blood & blood products

Blood bank guidelines

Training

Testing of all EMRTS personnel (sampling and checking products)

Process and checklists

Rigorous process for patient identification, pre-transfusion sampling, administration & documentation (against checklist) inc. completion of audit form

EMRTS BLOOD AND BLOOD PRODUCT CHECKLIST	
TICK	BEFORE BLOOD ROUTING
	Ensure 2 documentation packs placed with Golden Hour Boxes
	Both Golden Hour Boxes to be stored in aircraft (OR car if aircraft offline)
	Lyophilis, Fibrinogen and PCC removed from fridge into retrieval bag – store in aircraft (OR car if aircraft offline) – check seals on bags
TICK	ADMINISTRATION (if clinically indicated)
	Apply 2 wristbands to patient (1 to wrist, 1 to ankle)
	Obtain pre-transfusion blood sample where possible
	Label G&S bottle by hand against info on wristband (Apply hand-written sticker to paediatric G&S bottle – no pre-labelling)
	Place G&S bottle in transfusion request form and complete details – mark form
	Prescribe blood on All Wales Transfusion Chart (Doctors only)
	Open Golden Hour Box when blood is required
	At least one person visually check unit (colour, clot, leaks), check blood feels cold, confirm O+ve and check expiry date
	Administer blood as clinically indicated through warmer and blood giving set, repeat as required, 1:1 Blood to Lyophilis, target – presence of a radial pulse
	Don't forget TXA 1g and calcium (as indicated)
TICK	AFTER THE ACTION
	Complete both portions of blood labels – tear off blue portion and place in Golden Hour box to return to blood bank, white portion stays on unit
	Remove sticker from blood label and place on All Wales Transfusion Chart
	Pre-alert patient activate receiving unit massive haemorrhage policy (only if Early contact with blood bank (60) to activate Operation Vampire
	Morriston Hospital 88-02792 703074
	Wrexham Maelor Hospital 88-02792 703074, GOW contact 07762 474807
TICK	AT RECEIVING HOSPITAL
	State pre-hospital transfusion has taken place and ensure wristbands still on
	Handover G&S, request form and All Wales Transfusion Chart to team leader – NOT all
	Hospitals will accept patient identifiers and process sample, if they use their own identifiers ensure details are taken on EMRTS PCR. Copy EMRTS PCR, inform receiving hospital whether patient is aware of transfusion, Request further grouping sample taken. Do not leave any unused blood/blue traceability labels at the receiving hospital.
	Copy of the All Wales Transfusion Chart
TICK	AT BASE
	Fully complete batch product sheet with as much information as possible for all
	Place batch record sheet and blue portion of blood labels with used Golden Hour Box for return, complete database and audit form (same day)
	Attach copy of All Wales Transfusion Chart to PCR and file in locked cabinet
	Same process for Lyophilis, Fibrinogen and PCC – 1 sticker on all Wales Transfusion Chart

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OPERATION VAMPIRE

Audit Targets (presented bimonthly at Governance Day):

100% completion of patient identifiers

No wastage

100% completion of documentation
(inc. All Wales Transfusion Chart and Batch Sheets)

100% of PRBC's & 'LyoPlas' given warm

100% traceability of patients



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OPERATION VAMPIRE – RESULTS SO FAR

27th April 2015 – 27th April 2016 (12 months):

47 uses of blood & blood products

PRODUCT USED	TOTAL QUANTITY
Packed Red Blood Cells	96 units
‘LyoPlas’	82 units
Fibrinogen Concentrate	7g
Prothrombin Complex Concentrate	10,500IU (5 uses)

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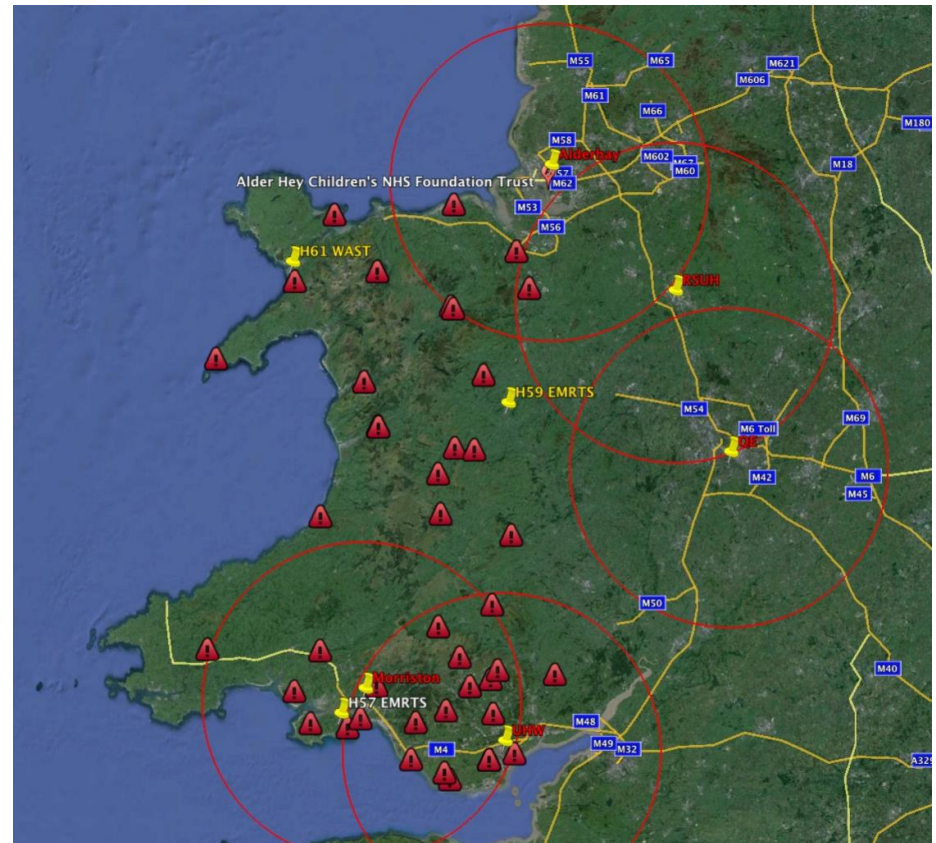
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OPERATION VAMPIRE – RESULTS SO FAR

INDICATION FOR USE	TOTAL
Traumatic cardiac arrest (Penetrating)	1
Traumatic cardiac arrest (Blunt)	15
Critical hypovolaemia (Penetrating)	3
Critical hypovolaemia (Blunt)	22
GI bleed	1
Anticoagulation reversal	5



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OPERATION VAMPIRE – AUDIT CRITERIA

Completion of patient identifiers - 100%

Wastage

PRODUCT	Wastage
Packed red blood cells	7U's (0.6%)
'LyoPlas'	2.5 bottles
Fibrinogen Concentrate	1 bottle
Prothrombin Complex Concentrate	500IU

Completion of documentation – 96% (45/47) Traceability – 100%

96% of PRBC's & Lyoplas given warm – median temp – 35.9 (32.9-36.9) degrees

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OPERATION VAMPIRE – OTHER STANDARDS

Appropriate use of blood or blood products - 98% (46/47)

No adverse events reported to transfusion

Pre-transfusion blood samples – 33% (14/42)

Area of improvement (remove from cannula, femoral stab, IO sample)

Tranexamic acid administered – 100% (where applicable)

Calcium chloride administered – 62% (where applicable)

Hospital Massive haemorrhage Policy activated – 100%

Operation Vampire successful – 100%

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OUTCOMES

Survived to arrival in hospital	70% (33/47)
Died on scene	30% (14/47)

Swansea university service evaluation will determine:

28 day survival

long term functional outcome (EQ5D/ E-GOS)

Impact of blood and blood products needs to be considered in conjunction with other critical care interventions

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OPERATION VAMPIRE — RECENT & FUTURE DEVELOPMENTS

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Lyophilised Plasma 'LyoPlas'

Please ensure patient receives this leaflet as soon as they regain capacity

As part of your pre-hospital treatment you have been given a blood product known as Lyophilised Plasma. This medication is produced using blood donations, and consists of components that assist the blood to form a clot. Lyophilised Plasma is a recent development and as such is not commonly used in UK practice. It is however commonly used in Germany where it has been recognised to be potentially lifesaving and has a safety profile similar to that of Fresh Frozen Plasma, which is used within hospitals in the UK but is unsuitable for out-of-hospital use as it needs to be kept frozen and carefully thawed prior to use.

The Emergency Medical Retrieval and Transfer Service (EMRTS) Cymru is one of the few services that provides this life-saving treatment as we believe the potential benefits of receiving Lyophilised Plasma outweigh the small risks. Our Consultants do this 'off licence' which means they use their years of experience to decide who would benefit from this treatment, rather than being guided by set national guidelines. This is common practice with many types of medication commonly prescribed within the UK.

Potential Risks of Lyophilised Plasma

The safety profile of Lyophilised Plasma is very good and comparable to Fresh Frozen Plasma used by the NHS Blood and Transplant service. Below are potential side effects of receiving Lyophilised Plasma that your doctor and critical care paramedic will be vigilant for, all of which are short term risks:

- Urticaria – an itchy rash
- Fever
- Low blood pressure
- Bronchospasm – narrowing of the airways
- Anaphylaxis – a severe allergic reaction

If you wish to discuss any information contained within this leaflet you can call the Emergency Medical Retrieval and Transfer Service (EMRTS) on 0300 300 0057.

I have made a risk / benefit decision to give LyoPlas due to the suspicion of catastrophic haemorrhage. I am aware of potential side effects and literature to support my decision.

Name (Signed):

Name (Printed):

Date:

TAKE COPY FOR EMRTS RECORD AND ENSURE ORIGINAL GIVEN TO TREATING CLINICIAN

CYMRWCH GOPI AR GYFER COFNOD EMRTS A SICRHEWCH FOD Y GWREIDDOL YN CAEL EI ROI I'R CLINIGWR SY'N TRIN

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WELSH BLOOD SERVICE



llyfiedig 'LyoPlas'

n gynted ag y maent wedi adennill eu gallu meddyllol

I cynnyrch gwaelod o'r enw Plasma Llyfiedig. Cynhyrchir y
io maen cynnwys cyfansoddiad sy'n helpu'r gwaelod i ffurfio
ac feily nid yw'n cael ei ddefnyddio'n aml lawr mewn ymarfer
taen ble maent wedi ei gydnabod i allu achub bywyd ac mae
i Ffres, a ddefnyddir o fewn ysbytal yn y DU ond sydd yn
i ei gadw wedi'i rewrt a'i ddadmer yn ofalus cyn ei ddefnyddio.

(EMRTS) Cymru yw un o'r gwasanaethau prif sy'n darparu'r
ddion potensial deryn Plasma Llyfiedig yn ddech nair risgiau
wydded' sy'n golygu eu bod yn defnyddio eu bymryddiaeth o
riaeth hon, yn lle dilyn canllawiau oenediaethol. Mae hyn yn
ignodir yn y DU.

getir ei gynharu dr' Plasma wedi'i Rewrt Ffres a ddefnyddir
r y sgl effeithiau potensial o dderbyn Plasma Llyfiedig bydd
mynt isod, maent i gyd yn risgiau tymor byr:

afien hon gallwch ffonio'r Gwasanaeth Casglu a Throsgwyddo

is i oherwydd fy mod yn
effeithiau potensial a'r llenyddiaeth i ghegry fy mhenderfyniad.

OPERATION LYCAN (Major Incidents)

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**ACKNOWLEDGMENTS TO THE HARD WORK AND
DEDICATION OF STAFF AT MORRISTON HOSPITAL &
WREXHAM MAELOR HOSPITAL BLOOD BANKS**

STRONG SUPPORT OF THE WELSH BLOOD SERVICE

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SARAH'S STORY

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