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Blood Health National Oversight Group

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Intraoperative Cell Salvage (ICS)

Dr Louise Webster
Consultant Anaesthetist, Aneurin Bevan UHB & EMRTS
BHNOG ICS Workstream Lead & All Wales ICS Network chair

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ICS

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- Patient Blood Management (PBM) invention
- Surgery, trauma and obstetrics
- Recommended by NICE[1], alongside other PBM measures:

"Consider intraoperative cell salvage with tranexamic acid for patients who are expected to lose a very high volume of blood (for example in cardiac and complex vascular surgery, major obstetric procedures, and pelvic reconstruction and scoliosis surgery)"

"Offer oral iron before and after surgery to patients with iron-deficiency anaemia. Consider intravenous iron before or after surgery for [selected patients with iron deficiency/anaemia]"

[1] https://www.nice.org.uk/guidance/NG24

Intraoperative Cell Salvage

The Workstream

Intraoperative Cell Salvage (ICS) workstream encompasses two strategic aims of the NHS Wales Blood Health Plan:

- **Use evidence and data to inform planning, improve practice and reduce variability**
- **Place safety and quality at the core of care reducing inappropriate use and supporting innovation**

ICS is a key blood conservation strategy in surgical and obstetric practice, offering benefit to both the patient and the blood supply chain. There is great deal of work taking place across Wales in relation to ICS, but there is also opportunity to further standardise practice and care, to evidence effectiveness.

ICS was promoted to a Blood Health National Oversight Group (BHNOG) workstream in July 2022. The workstream is being led by Dr Louise Webster, Consultant Anaesthetist at the Aneurin Bevan University Health Board (AB UHB). The All-Wales ICS Network, a clinically focussed group with representation from every Health Board, is tasked with supporting and leading on the implementation and delivery of activity, which includes development of national guidance and Key Performance Indicators as part of this workstream.

If you are interested in finding out more about the workstream, or would like to get involved, please contact WBS.BloodHeathTeam@wales.nhs.uk

This workstream is collaboratively supported by the All Wales ICS Network.

https://bhnog.wales.nhs.uk/home-page/intraoperative-cell-salvage/

BH

Grŵp Goruchwyl
Blood Health Na

Gwasanaeth Gwaed Cymru
Welsh Blood Service

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Blood Health National Oversight Group

To: *ICS Clinical Leads, ICS Operational Leads, HTC Chairs*

RE: BHNOG ICS WORKSTREAM
3rd October 2022

Dear Colleagues

The Blood Health National Oversight Group (BHNOG) has the pan-Wales role of delivering safe transfusion practice through a collaborative system leadership approach and empowering health boards to promote appropriate use of blood through the use of Prudent Healthcare and Patient Blood Management (PBM) principles (for further information please visit https://bhnog.wales.nhs.uk/).

In June the BHNOG established Intraoperative Cell Salvage (ICS) as one of its key workstreams aligning it with other PBM interventions such as management of preoperative anaemia as an essential part of blood conservation strategy.

Critical to supporting the activity in this workstream is the All Wales ICS Network (AWICSN) which has already been an excellent step forwards for ICS over the past 2 years. We have a unique opportunity as a devolved nation to really drive forward the usage, safety and improved efficacy of ICS for the benefit of our patients, and the preservation of blood stocks.

Recent global events have led to a critical shortage of allogeneic blood units being available across the whole of the UK, in Wales we have managed to return to a reasonable level with regards to blood stocks, but the supply chain continues to remain fragile and there is still a significant risk that we will have acute shortages in the future. The use of allogeneic blood also confers on the patient an additional risk of immunological or infectious complication.

As chair of the AWICSN and workstream lead I wanted to update you with our goals for the coming months and years as we try and ensure that ICS forms an integral part of our blood health management across Wales.

Currently we recommend as a minimum that;

1. Each health board has a nominated clinical lead for ICS. This should be a clinician, is often an anaesthetist but could be any interested clinician, providing clinical oversight of ICS
2. Working alongside the clinical lead should be an operational lead for each site where ICS is provided. This is often an ODP but can be anyone who has the necessary working knowledge of ICS to provide supervision, education, training and ongoing troubleshooting for the machines
3. ICS should be a standing agenda point at all HTC meetings, with the clinical lead reporting to the HTC. All SHOT reportable events involving ICS should be reported via the HTC SHOT lead
4. Each health board should have a cell salvage policy which encourages best practice and ongoing patient safety. These are widely available for adaption
5. Health boards should include their ICS strategy as part of the Blood Shortage Plan
6. Each site providing ICS ensures that data for the usage of ICS is captured and returned to WBS, and this is also entered into the patient record.

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Page 2:

As an ideal we would like to see;

1. A team of clinicians and associates working together to maximise the opportunity for ICS use in their health board
2. Regular updates and involvement of the surgical directorates regarding the availability of ICS and gaining feedback/buy-in from these areas
3. Regular feedback to the AWICSN to help us share knowledge, learning and understand any barriers together as an integrated All-Wales group.

The AWICSN are looking to;

1. Develop a series of KPIs to standardise practice allowing HBs to benchmark activity and learn from key users
2. Revise the data collection/audit form to account for changes in working practices since the original design
3. Create a network and data collection system capable of undertaking the desperately needed research to provide evidence for our practice.

Blood Health National Oversight Group (BHNOG) ICS Workstream

Wales Intraoperative Cell Salvage (ICS) Standards and Key Performance Indicators

Standards

1. Intraoperative Cell Salvage (ICS) should be performed for surgical (non-obstetric) procedures in adults where there is an anticipated blood loss >500mL[1,2], unless contra-indicated.
2. There should be an ICS clinical lead for every Health Board/hospital carrying out surgical procedures where ICS is being used, or ICS use is indicated[1].
3. ICS salvaged red cells should have a patient ID label attached
of processing (or before)[1].
4. There should be a comprehensive record detailing specific o
5. Every ICS use should be audited[1], which should include volu
6. ICS operators should be trained and competency-assessed[1].
7. ICS use should be governed by an organisational policy.
8. Adverse events involving ICS should be reported to SHOT
haemovigilance scheme).

[1] AoA Guideline: Cell salvage for peri-operative blood conservation (2018)
[2] NICE Guideline: Blood Transfusion [NG24] (2015)

Key Performance Indicators (KPIs)

1. ICS use should be governed by an organisational policy;
KPI target: 100% compliance;
Measured by: annual audit

2. There should be an ICS clinical lead for every Health Board/h
procedures where ICS is being used, or ICS use is indicated;
KPI target: 100% compliance;
Measured by: annual audit

3. Every ICS use should be audited using the All Wales ICS Data
KPI target: 100% compliance;
Measured by: 6 monthly audit of completion

4. Adults undergoing surgical (non-obstetric) procedures with a
>500mL should be offered ICS, unless contra-indicated;
KPI target: 95% compliance;
Measured by: ICS data collection forms

KPI 4 will be measured by data collection form completion for locally
number of cases of that procedure completed by the Health Board/h

All Wales Intraoperative Cell Salvage (ICS) Data Collection Form

BHT Ref

This form should be completed for every ICS procedure commenced EVEN if the collection is not processed

1. Patient Details

Hospital/NHS number:
Last name: *Addressograph may be used*
First name: *(top copy only)*
D.O.B:
Address:

ICS consumables stickers he

Hospital: | Weight (Kg): | Pre-op. Hb (g/L): | Date taken:

2. Procedure Details

Procedure name: | Specia

OPCS code: | ☐ Cardiac ☐ Obstetrics ☐ Vascular ☐ General ☐ Orthopaedics ☐ Other:_____ ☐ Gynaecolog ☐ Urology

Date of procedure:

3. ICS Set-up and Running

Machine used: ☐ Haemonetics ☐ Sorin/LivaNova ☐ Fresenius ☐ Other:_____ | Disposabl used:

ICS operator(s): | Anticoagu used:

4. ICS Collection

Time collection started: | Volume of fluid collected (mL): | Was swab washing performed?: ☐ Yes ☐ No

If collected fluid not processed, reason(s): ☐ Inadequate volume collected ☐ Clinical decision not to ☐ Insufficient trained staff ☐ Patient died ☐ Other:

ALL ICS BLOOD FOR REINFUSION MUST BE LABELLED BEFORE THE PATIENT LEA

5. ICS Reinfusion

Volume of processed blood for reinfusion (mL): | Was the processed blood reinfused? ☐ Yes ☐ No | Time re started:

Reinfusion filter(s) used: ☐ Blood administration set ☐ Lipid ☐ 40µ filter ☐ Other:_____

If processed blood not reinfused, reason(s): ☐ Insufficient volume ☐ Clinical decision not to ☐ Insufficient trained staff ☐ Patient died ☐ Other:

6. Theatre and First Stage Recovery

Allogeneic Red Cells given (number of units or mL)[†]: | Discharge Hb (g/L)[‡]: | Time

[†] include last unit started prior to discharge from first stage recovery to the ward or critical care
[‡] discharged from first stage recovery; Hb can be a measure taken from hemocue or

ANY ADVERSE EVENT, OR TECHNICAL OR PROCEUDRAL ERRORS OR PROBLEMS DOCUMENTED IN THE PATIENT'S RECORDS, REPORTED TO SHOT AND YOUR LOCAL IC

Top Copy – Patient Records (file with transfusion record) | **Bottom Copy – Welsh Bl**

All Wales ICS Data Collection Form Version 8

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Blood Health National Oversight Group

Intraoperative Cell Savage (ICS) Database Report

April 2023 – March 2024

ICS

All Wales Intraoperative Cell Salvage Network

June 2024

Resources Supporting Intraoperative Cell Salvage

ICS Data Collection Form & Resources

All Wales ICS Report 2023-24

All Wales ICS Standards and Key Performance Indicators (June 2023)

https://bhnog.wales.nhs.uk/home-page/intraoperative-cell-salvage/

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Blood Health National Oversight Group (BHNOG) ICS Workstream

Wales Intraoperative Cell Salvage (ICS) Standards and Key Performance Indicators

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1. Intraoperative Cell Salvage (ICS) should be performed for surgical (non-obstetric) procedures in adults where there is an anticipated blood loss >500mL[1,2], unless contra-indicated.
2. There should be an ICS clinical lead for every Health Board/hospital carrying out surgical procedures where ICS is being used, or ICS use is indicated[1].
3. ICS salvaged red cells should have a patient ID label attached to the reinfusion bag at the point of processing (or before)[1].
4. There should be a comprehensive record detailing specific of ICS use in the patients notes.
5. Every ICS use should be audited[1], which should include volume of salvaged blood for reinfusion.
6. ICS operators should be trained and competency-assessed[1].
7. ICS use should be governed by an organisational policy.
8. Adverse events involving ICS should be reported to SHOT (Serious Hazards of Transfusion haemovigilance scheme).

[1] AoA Guideline: Cell salvage for peri-operative blood conservation (2018)
[2] NICE Guideline: Blood Transfusion [NG24] (2015)

Key Performance Indicators (KPIs)

1. ICS use should be governed by an organisational policy;
   KPI target: 100% compliance;
   Measured by: annual audit

2. There should be an ICS clinical lead for every Health Board/hospital carrying out surgical procedures where ICS is being used, or ICS use is indicated;
   KPI target: 100% compliance;
   Measured by: annual audit

3. Every ICS use should be audited using the All Wales ICS Data Collection Form
   KPI target: 100% compliance;
   Measured by: 6 monthly audit of completion

4. Adults undergoing surgical (non-obstetric) procedures with an anticipated blood loss >500mL should be offered ICS, unless contra-indicated;
   KPI target: 95% compliance;
   Measured by: ICS data collection forms

KPI 4 will be measured by data collection form completion for locally agreed procedures, against the number of cases of that procedure completed by the Health Board/hospital.

All Wales Guidance for the Management and Use of Intraoperative Cell Salvage (ICS)

Produced on behalf of the Blood Health National Oversight Group (BHNOG): ICS Work Stream

1. Governance and effectiveness

Hospitals providing ICS should:

1.1 have a clinical and operational lead for ICS
1.2 have a policy regarding use of ICS
1.3 have a schedule of procedures undertaken where ICS use is appropriate
- use of ICS should be incorporated into the Maximum Surgical Blood Ordering Schedule (MSBO
1.4 regularly review provision and usage of ICS
- which procedures use ICS and to what degree, and how to optimise both.
1.5 have a forum of key stakeholders for discussion of ICS provision and usage
- including audit of ICS activity
1.6 have a clinical lead for ICS attending the hospital transfusion committee

2. Patient selection

ICS should be available for use in:

2.1 procedures where this is identified in the schedule/MSBOS (re. 1.3)
2.2 all elective and urgent surgery where there is an anticipated blood loss of ≥500 mLs
- the predictive element of this can be augmented by accurate measurement and documentation of intraoperative blood loss
- determination of applicable procedures can also be guided by their requirement for allogeneic red cells
2.3 caesarean section where significant post-partum haemorrhage is predicted
2.4 all surgery where a pre-op. group and save is scheduled, but if required the provision or use of allogeneic red cells cannot be depended upon; for example where the patient
- has a rare blood group or multiple red cell alloantibodies making it difficult to secure compatible

3. ICS operation and reinfusion

ICS equipment (machine and set) should be:

3.1 set up by a healthcare worker trained to do so
- ICS policy should specify which groups of staff this applies to in which settings
3.2 set up immediately prior to planned use
- where not used as planned, it may be stored in a clean area for use on another patient: this should be labelled with the time and date and name of the person who set it up, and may be used within 8 hours of being set up or should be disposed of[12]
3.3 set up in readiness for immediate use in an emergency where this practice has been agreed:
- ICS equipment set up as this should be used within 24 hours when unprimed, or 8 hours once

4. Roles

Hospitals should identify who has responsibility for:

4.1 consenting the patient for use of ICS
4.2 making the decision to use ICS on the patient
4.3 raising ICS use in the team briefing, including any specific considerations (re. 2.9)
4.4 labelling the processed salvaged red cells
4.5 prescribing reinfusion of the processed red cells
4.6 documenting ICS use in the patient's records
4.7 informing the patient they have received ICS salvaged red cells
4.8 auditing ICS use

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Blood Health National Oversight Group

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All Wales Intraoperative Cell Salvage (ICS) Data Collection Form

BHT Ref

This form should be completed for every ICS procedure commenced EVEN if the collection is not processed

1. Patient Details

Hospital/NHS number:	ICS consumables stickers here
Last name: *Addressograph may be used*	
First name: *(top copy only)*	
D.O.B:	
Address:	

Hospital:	Weight (Kg):	Pre-op. Hb (g/L):	Date taken:	Jehovah's Witness ☐ *(tick if applicable)*

2. Procedure Details

Procedure name:		Specialty:	☐ Elective ☐ Emergency
OPCS code:	☐ Cardiac ☐ General ☐ Gynaecology ☐ Obstetrics ☐ Orthopaedics ☐ Urology ☐ Vascular ☐ Other:_____		☐ In hours ☐ Out of hours
Date of procedure:			

3. ICS Set-up and Running

Machine used: ☐ Haemonetics ☐ Sorin/LivaNova ☐ Fresenius ☐ Other:_____		Disposables used:	☐ Collection reservoir ☐ Processing set
ICS operator(s):		Anticoagulant used:	☐ ACD-A (citrate) ☐ Heparin

4. ICS Collection

Time collection started:	Volume of fluid collected (mL):	Was swab washing performed?: ☐ Yes ☐ No	Was the collected fluid processed? ☐ Yes ☐ No

If collected fluid not processed, reason(s): ☐ Inadequate volume collected ☐ Insufficient trained staff ☐ Technical/procedural issue ☐ Clinical decision not to ☐ Patient died ☐ Other:_____

ALL ICS BLOOD FOR REINFUSION MUST BE LABELLED BEFORE THE PATIENT LEAVES THEATRE

5. ICS Reinfusion

Volume of processed blood for reinfusion (mL):	Was the processed blood reinfused? ☐ Yes ☐ No	Time reinfusion started:

Reinfusion filter(s) used: ☐ Blood administration set ☐ 40µ filter ☐ Leucodepletion ☐ Lipid ☐ Other:_____ ☐ None

If processed blood not reinfused, reason(s): ☐ Insufficient volume ☐ Insufficient trained staff ☐ Technical/procedural issue ☐ Clinical decision not to ☐ Patient died ☐ Other:_____

6. Theatre and First Stage Recovery

Allogeneic Red Cells given (number of units or mL) †:	Discharge Hb (g/L)‡: Time:

† include last unit started prior to discharge from first stage recovery to the ward or critical care

‡ discharged from first stage recovery; Hb can be a measure taken from hemocue or blood gas analyser

ANY ADVERSE EVENT, OR TECHNICAL OR PROCEUDRAL ERRORS OR PROBLEMS SHOULD BE DOCUMENTED IN THE PATIENT'S RECORDS, REPORTED TO SHOT AND YOUR LOCAL ICS LEADS INFORMED

Top Copy – Patient Records (file with transfusion record) **Bottom Copy – Welsh Blood Service Blood Health Team**

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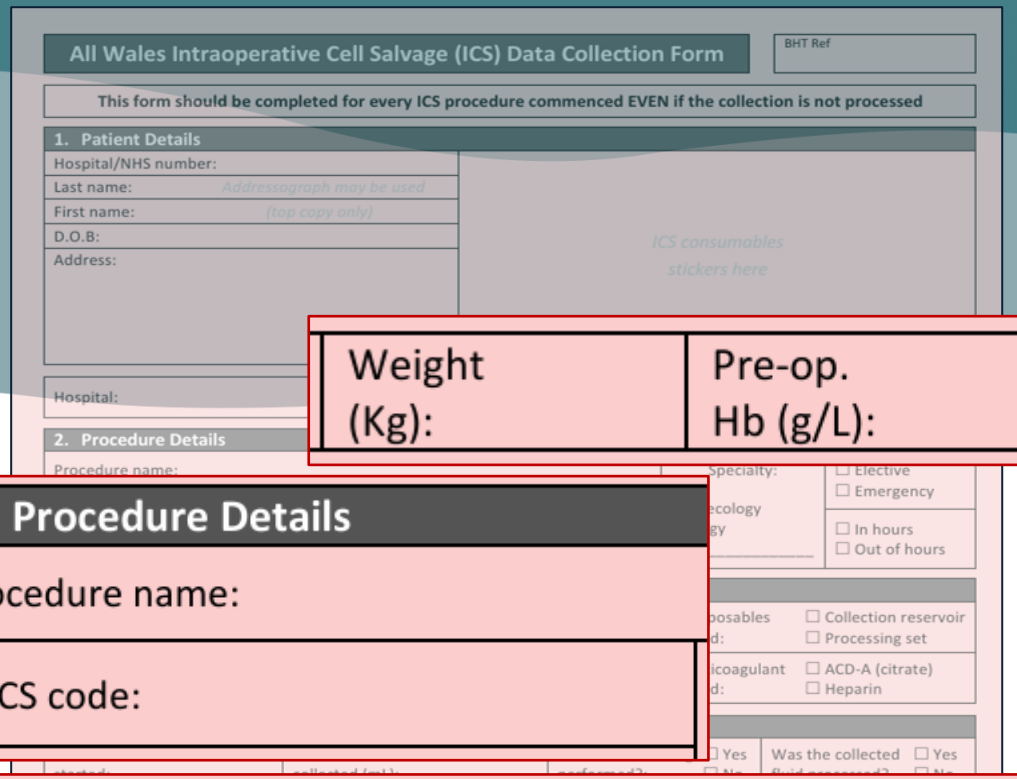
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Last name:

First name:

D.O.B:

Address:

ICS consumables stickers here

Hospital:

2. Procedure Details

Procedure name:

Specialty:

☐ Elective
☐ Emergency

☐ In hours
☐ Out of hours

☐ Collection reservoir
☐ Processing set

☐ ACD-A (citrate)
☐ Heparin

☐ Yes

Was the collected

☐ Yes

Weight (Kg):	Pre-op. Hb (g/L):	Date taken:

2. Procedure Details

Procedure name:

OPCS code:

5. ICS Reinfusion

Volume of processed blood for reinfusion (mL):	Was the processed blood reinfused? ☐ Yes ☐ No

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Allogeneic Red Cells given (number of units or mL) †:	Discharge Hb (g/L)‡: Time:

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All Wales Intraoperative Cell Salvage (ICS) Database Collection Form

OPCS code reference guide

The alphanumeric codes assigned to procedures in the *NHS National Clinical Coding Standards OPCS 4 Classification of Interventions and Procedures*[1] can be accessed from this document. Presented here broken down by chapter, in order of the specialty listings on the ICS database collection form. For the complete set see: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p1.html.

Please use this reference guide to support the inputting of the correct OPCS code for the procedure being undertaken onto the ICS database collection form.

Cardiac	QR code generated from a shortened version of the URL
Chapter K Heart: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-4.html#K01	
General	
Chapter J Other Abdominal Organs - Principally Digestive: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-4.html#J01	
Exploratory laparotomy Chapter T Soft Tissue: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-7.html#T01	
Gynaecology	
Chapter Q Upper Female Genital Tract: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-6.html#Q01	
Obstetrics	
Chapter R Female Genital Tract associated with Pregnancy, Childbirth and Puerperium: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-6.html#R01	
Orthopaedics	
Spinal Chapter V Bones and Joints of Skull and Spine: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-8.html#V01	
Hip & knee replacement, #NOF repair, reduction/fixation of #bone Chapter W Other Bones and Joints: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-8.html#W01	
Urology (including prostate) & renal	
Chapter M Urinary: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-5.html#M01	
Vascular	
Chapter L Arteries and Veins: https://classbrowser.nhs.uk/OPCS-4.9/volume1-p2-4.html#L01	

[1] https://digital.nhs.uk/data-and-information/information-standards/information-standards-and-data-collections-including-extractions/publications-and-notifications/standards-and-collections/dapb0084-opcs-classification-of-interventions-and-procedures

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Intraoperative Cell Savage (ICS) Database Report

April 2023 – March 2024

All Wales Intraoperative Cell Salvage Network

June 2024

Highlight Summary

2189 All Wales Intraoperative Cell Salvage Data Collection Forms

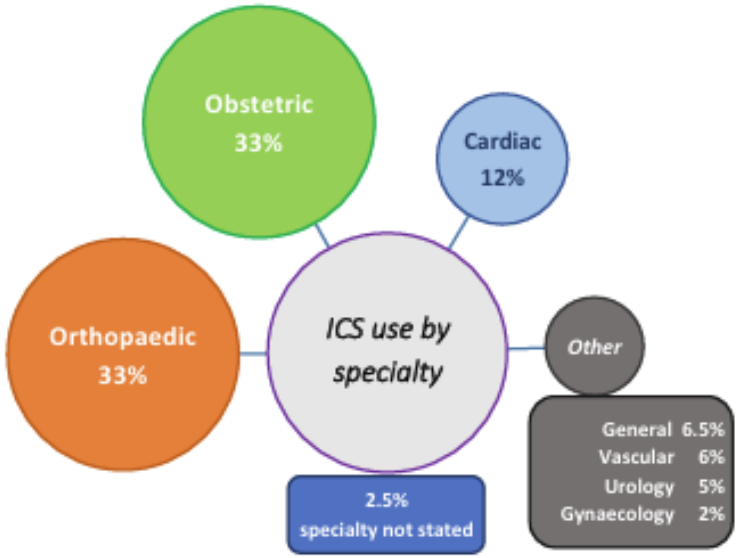
All **6** Wales HBs submitted

Elective use **66%**

Emergency use **30%**

Not stated **4%**

56% of Obstetric use..
31% of General use..
31% of Vascular use..
..was emergency use



Volume of red cells processed

39% of collections **not processed**:
-mostly due to inadequate volume collected,
➢ this included 69% of the Obstetric use.

61% of collections **processed**:
-median total volume processed for reinfusion was **236mL**

>100mL was processed in over 50% of ICS uses in 3 HBs, and in 49%, 45% and 35% in the others (all comparatively smaller users of ICS).

Greatest number of very large volumes (>1251mL) processed were in Cardiac and Vascular.

Over 70% of submissions were on the revised ICS data collection form introduced in April 2023:

- 19% provided data on post-procedure patient haemoglobin
- 12% gave data on allogeneic red cells transfused perioperatively
  - ➢ however, it appeared that a number of these were erroneously reported
- OPCS procedure code had a high level of non-completion

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10 year ICS database review

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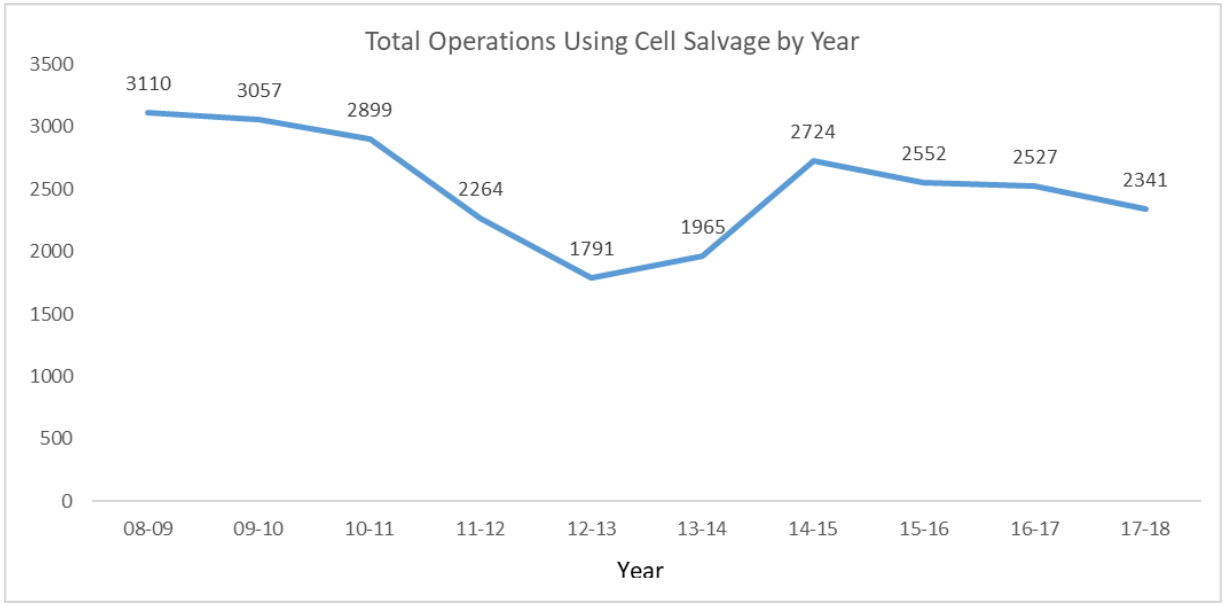

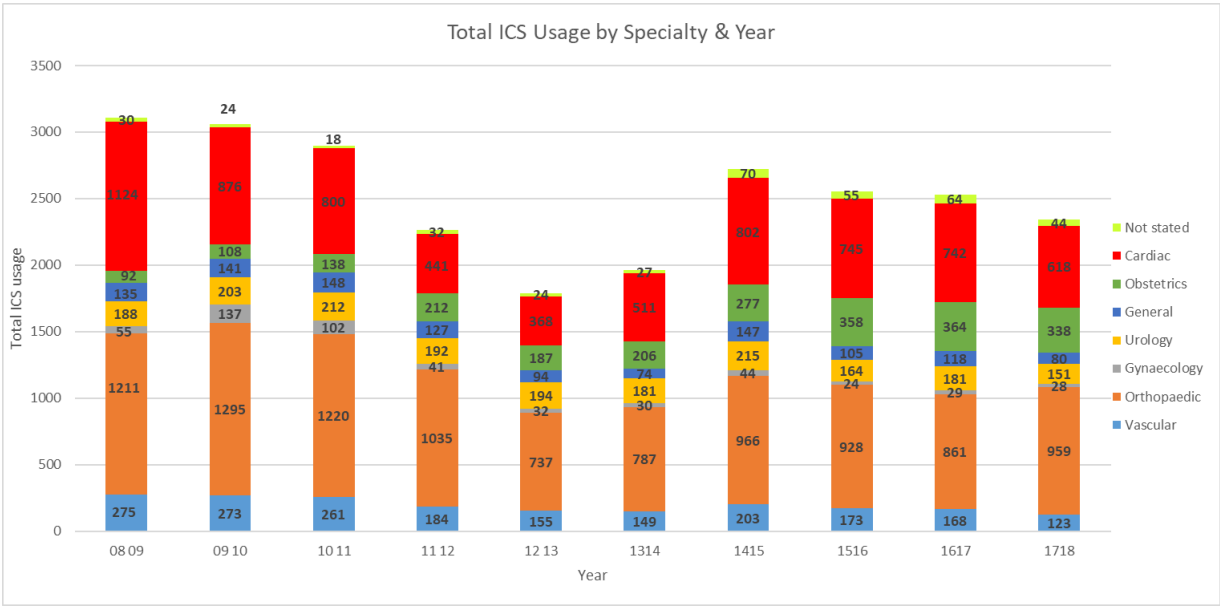

Intraoperative Cell Savage (ICS) Database Report April 2023 – March 2024

Review of compliance with recommendations

• The Hospital Transfusion Committee (HTC) is the principle forum for discussion; - there is scope to explore other arenas for this, such as governance.
• There is poor engagement with surgical teams; - this shortcoming is compounded by ICS use being at the surgeon's discretion.
• Multiple hospitals within HBs made comprehensive completion of these recommendations challenging.
• The absence of local data capture on ICS use precludes validation of the data in the ICS reports.
• Onboarding of relevant clinical staff with post-op. haemoglobin measurement needs closer attention (to identify an effective pathway to achieving this).
• Training for ICS users needs addressing.

There is a need to raise awareness and visibility of ICS leads and the national work progressing efficiencies.

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Survey of Intraoperative Cell Salvage (ICS) Use

- To identify the surgical procedures where ICS is used and the extent
- For each procedure the overall frequency of use across the hospital was approximated into: <50% (rarely/occasionally), 50-75% (commonly), 75-95% (often), >95% (almost always/always).
- Procedures where ICS would not usually be used but has been in exceptional circumstances related to the patient rather than the procedure were to be excluded.

Survey of Intraoperative Cell Salvage (ICS) Use

- Results mirrored findings in the ICS database report
- Cardiac had all procedures at >95%
- Orthopaedics had only ¼ of procedures at >95% , and with a wide range from <50% to >95% for use in primary and revision hip replacement
- Obstetrics similarly had a wide range from <50% to >95% for use in elective and emergency C section

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Where does blood go?

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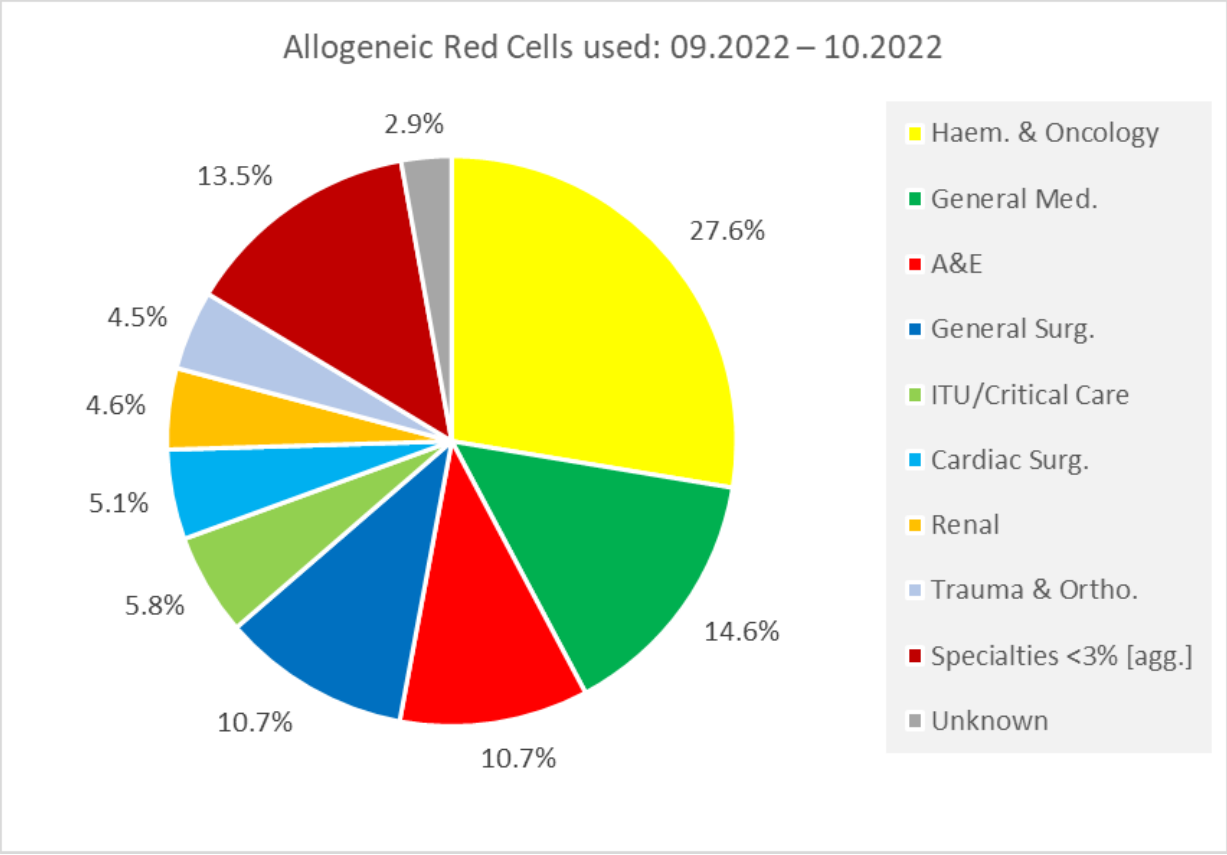
Audit of Red Cell use at Aneurin Bevan UHB, Cardiff and Vale UHB, Swansea Bay UHB and Ysbyty Glan Clwyd 19.09.2022 - 14.10.2022



		Units	%
A&E		356	10.7%
Haematology & Oncology		917	27.6%
Medical	Cardiology	47	1.4%
	Care of the elderly	53	1.6%
	Gastroenterology	40	1.2%
	General Medicine	485	14.6%
	ITU/Critical Care	192	5.8%
	Neurology	8	0.2%
	Renal	153	4.6%
	Thoracic medicine	6	0.2%
Surgical	Burns & Plastics	29	0.9%
	Cardiac surgery	169	5.1%
	General surgery	356	10.7%
	Gynaecology	14	0.4%
	Neurosurgery	13	0.4%
	Trauma & Orthopaedics	150	4.5%
	Urology	22	0.7%
	Vascular surgery	1	0.0%
	Other surgery (private)	6	0.2%
Obstetrics		72	2.2%
Paediatrics (med. & surg.)		89	2.7%
Other	Community	12	0.4%
	Palliative	13	0.4%
	Pre-hospital	11	0.3%
	Other	12	0.4%
Not known		95	2.9%
Total		***3321***	***100.0%***

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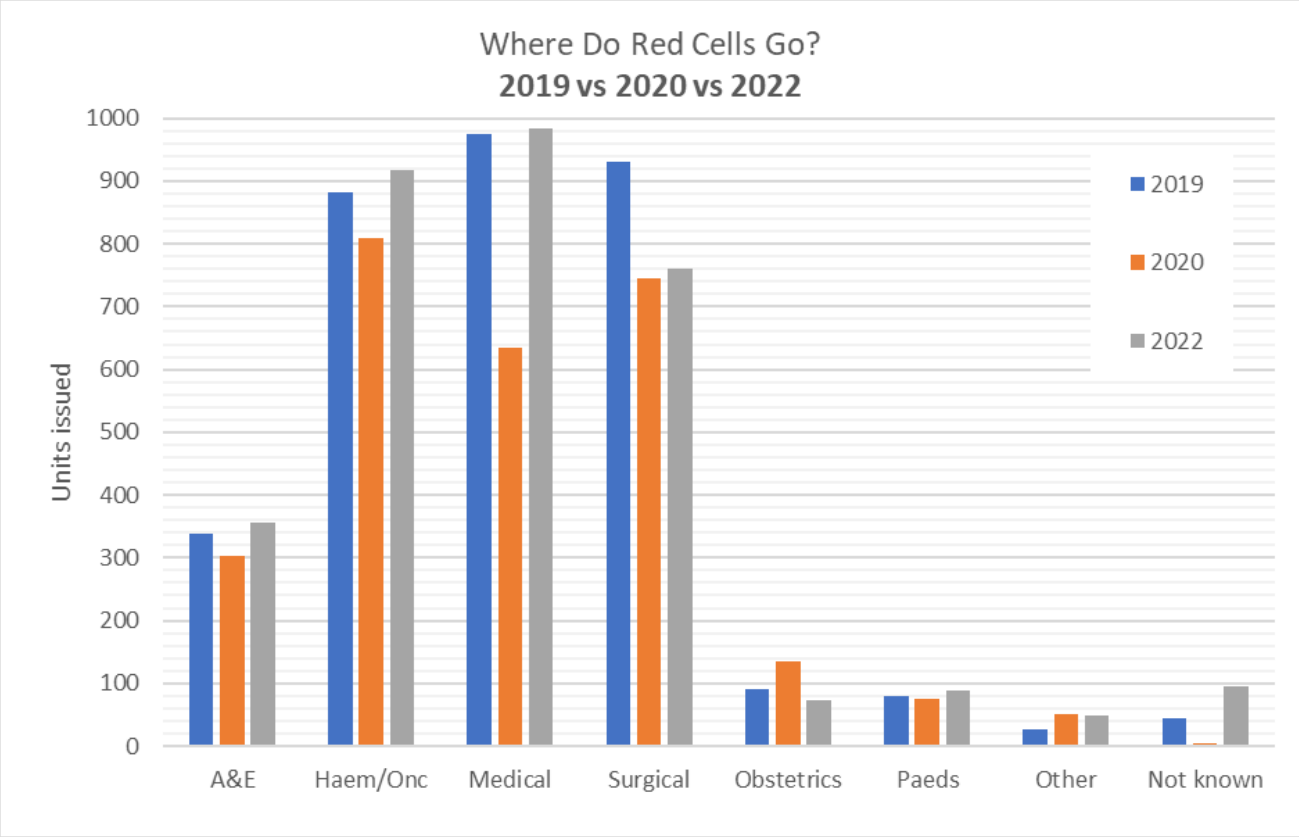
Where does blood go?

GIG CYMRU NHS WALES

Audit of Red Cell use at Aneurin Bevan UHB, Cardiff and Vale UHB, Swansea Bay UHB and Ysbyty Glan Clwyd 19.09.2022 - 14.10.2022



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Where does surgical blood go?

GIG CYMRU NHS WALES

Design

- Use of standard red cell units in supporting surgical procedures (inc. obs.) in October 2024
- LIMS + Theatre data
- Pre-op. (-24 hours) and intra-/post-op. (+48 hours)
- Elective and non-elective use

Results

- Data from 3 hospitals:
  - 67 patients were given 139 units
  - All were adults

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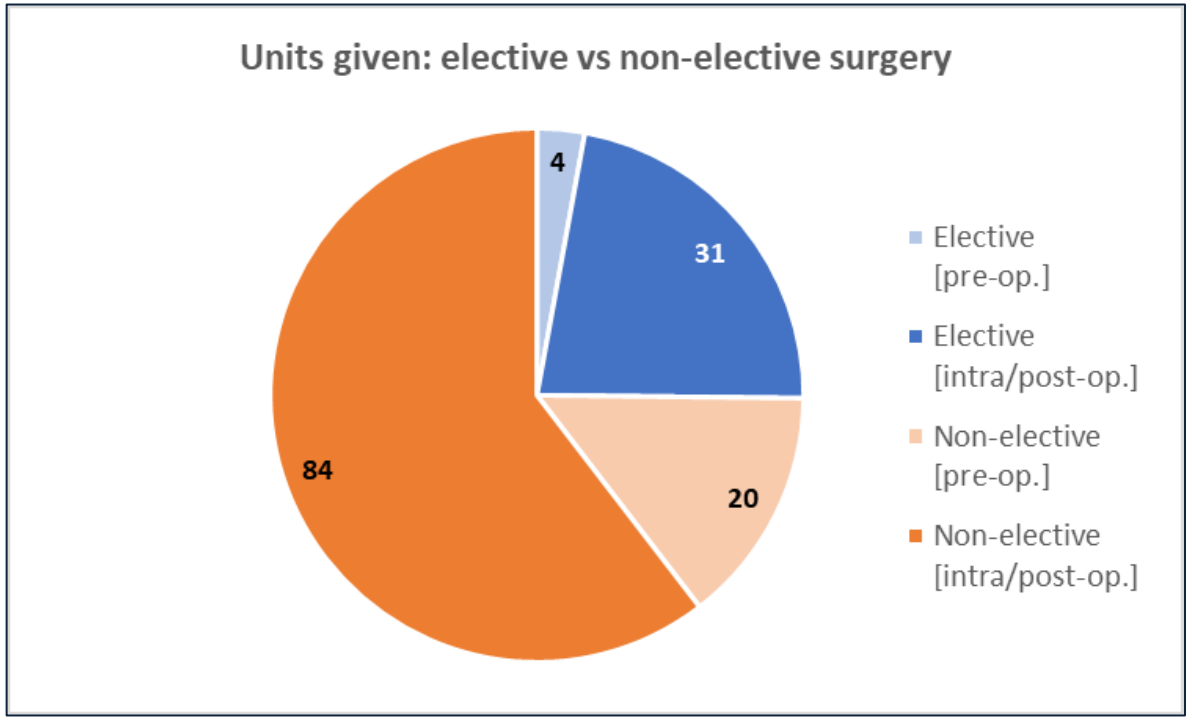
GIG CYMRU NHS WALES

Where does surgical blood go?



- 16 pts. had red cells pre-op.
  - mean tx. 1.5 u/pt. ; range 0-2 u
- 48 pts. had red cells intra-/post-op.
  - mean tx. 1.9 u/pt. ; range 0-6 u

➢ 7 pts. had pre-op. but no intra-/post-op. red cells

- 19 pts. were elective
  - mean tx. 1.3 u/pt. ; range 1-5 u
- 48 pts. were non-elective
  - mean tx. 2.4 u/pt. ; range 1-6 u

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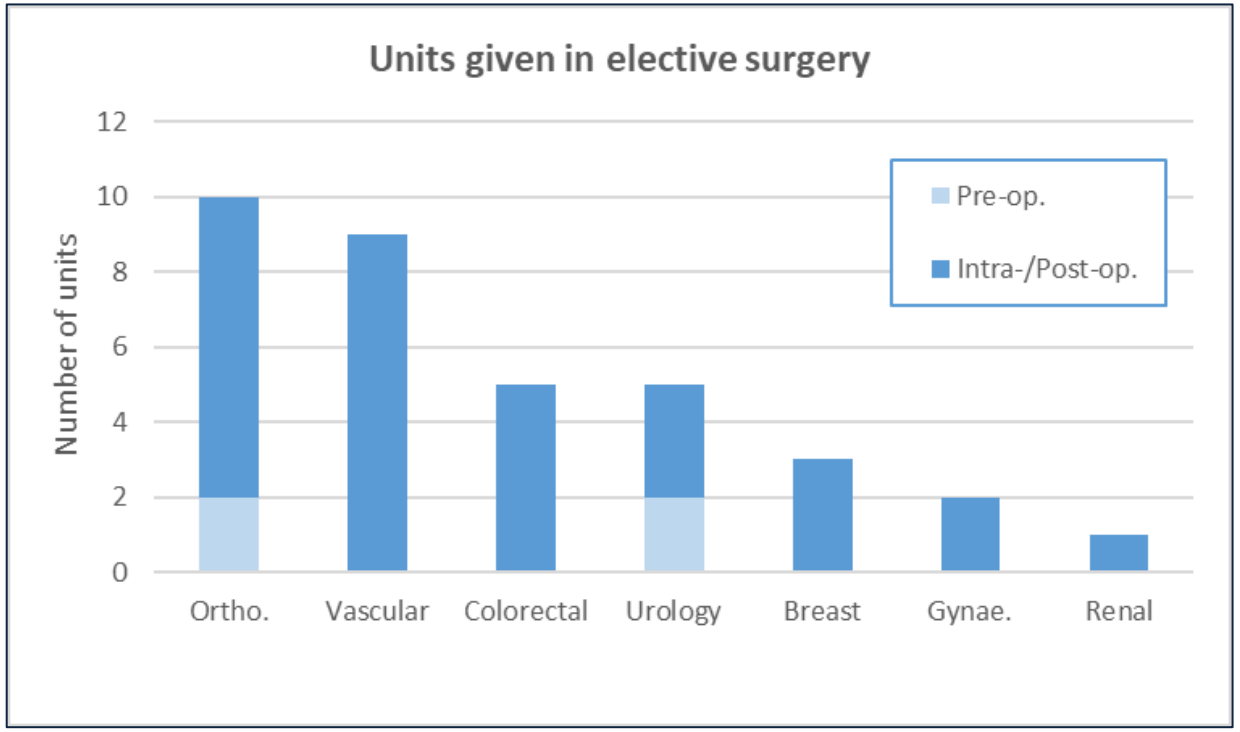
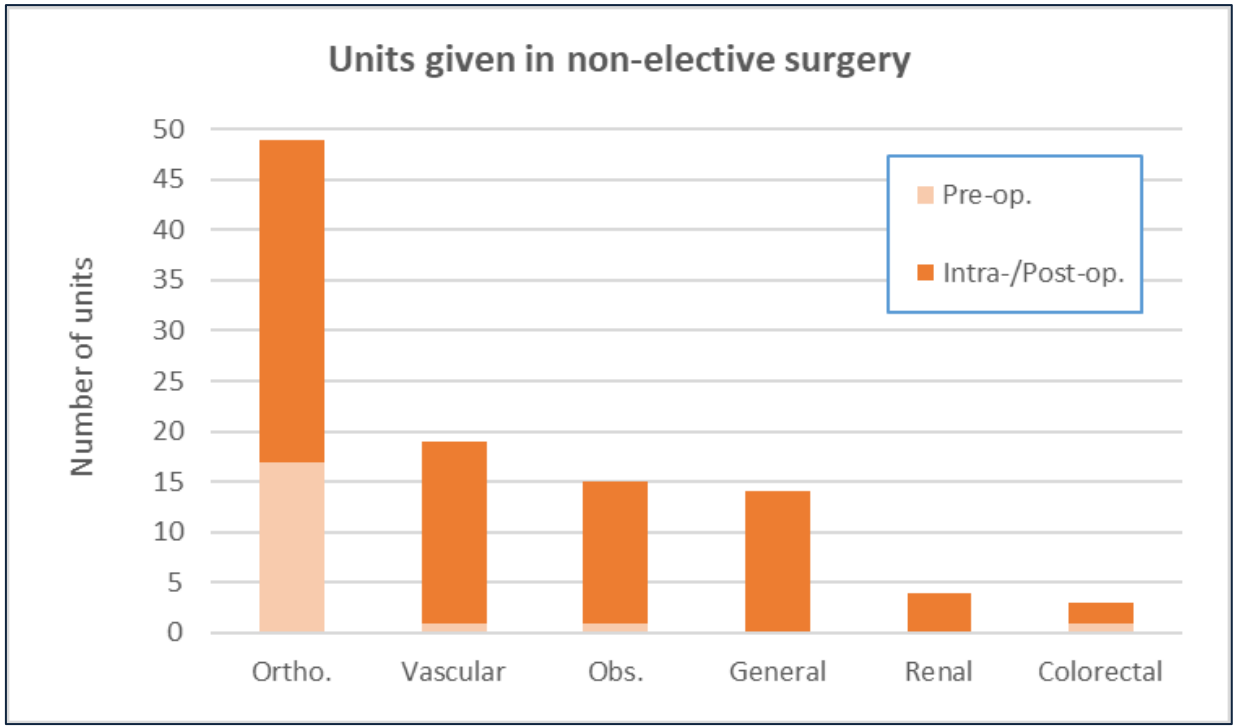
Where does surgical blood go?





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Where does surgical blood go?

Ortho.
Intramedullary nail (femur/hip) [x12]
Dynamic hip screw [x5]
Hemiarthroplasty [x5]
Total hip replacement [x4]
Primary OR # NOF
Hip washout
ORIF distal femur
Retrograde nailing for distal third fracture femur
Knee amputation [x2]
Foot incision and drainage and debridement

Vascular
Common femoral artery endarterectomy
Excision of infected FemPop Graft +/- re-do FemPop graft
Haematoma - leg
Re-exploration of groin
Re-exploration of groin + thrombectomy + axillofemoral bypass
Common femoral artery re-exploration & thrombectomy + iliac stenting
Re-exploration groin +/-stent
Groin exploration & removal of infected graft

Obs.
Caesarean section [x3]
Evacuation of retain products of conception [x2]
Manual removal of placenta

General
Laparotomy [x4]
Laparoscopy
Debridement of scrotal abscess
Haematoma debridement

Colorectal
Laparoscopic/open hemicolectomy [x2]
Anterior resection
Abdomino perineal excision of rectum
Wound washout and laparoscopic defunctioning colostomy

Renal
Radical nephrectomy
Ligation of AV fistula

Urology
Cystectomy
Laser enucleation of the prostate
Trans urethral resection of bladder tumour

Breast
Mastectomy
Bilateral mastectomy and removal of implants

Gynae.
Total laparoscopic hysterectomy & BSO

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Summary

GIG CYMRU NHS WALES

We need…

- Robust hospital/HB leadership re: ICS
- A good (valid & reliable) means of capturing ICS usage
- Ensure consideration / use of ICS is made a priority
    - key decision makers need to be identified/recognised
    - capability and intent to use ICS every time it is indicated
    - ensure understanding of the risks of donor blood
- Raise the profile/awareness of the AWICSN and BHNOG, and ICS as a PBM measure
- Produce evidence (through data) of the effectiveness of ICS

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Final Thoughts

GIG CYMRU NHS WALES

ICS is an essential element of PBM so we need to:

- Ensure engagement of staff involved in the decision of ICS use.
  - We need to understand who makes the decision around ICS use
  - Membership of the AWICS group
- Promote the local ICS leads as the central point of contact for ICS use
- Exploring current data to provide clinical insights in ICS use
- Use the above information for evidence based approach to prudent ICS use
- Education emphasising ICS as part of PBM and the importance of minimising avoidable transfusions education. This would include improving patient awareness around the option of ICS as transfusion risk reduction measure.