



Jane Donald
Donna Davis
Sophie Scutt

Cell salvage and PBM in Gloucestershire



A SERVICE DEVELOPMENT PROJECT TO INCREASE THE USE OF INTRA-OPERATIVE CELL SALVAGE

Jane Donald, Donna Davis, Sophie Scutt.
Gloucestershire Hospitals NHS Foundation Trust, United Kingdom. Contact: jane.donald3@nhs.net

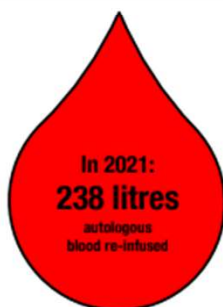
INTRODUCTION

The Association of Anaesthetists' recommends:

- Intra-operative cell salvage (IOCS) should be used for surgical procedures where more than 500mls blood loss is expected
- A nominated clinical lead and coordinator for cell salvage.

We did not have enough trained expertise and were unable to provide a 24/7 IOCS service in our hospitals.

In 2018 we were providing a minimal IOCS service and aimed to develop this service.



METHODS AND MATERIALS

Appointment of blood conservation coordinator (BCC)

Training of surgical scrub staff²

Increasing numbers of cell salvage machines

Advice and collaboration from South-West Patient Blood Management Group

Agreed indications for use of IOCS

RESULTS

Revitalized 24/7 service covering two obstetric theatres, four trauma theatres and nineteen elective theatres across GHNSFT

Chart 1. Number of cases where IOCS collected / autologous blood re-infused

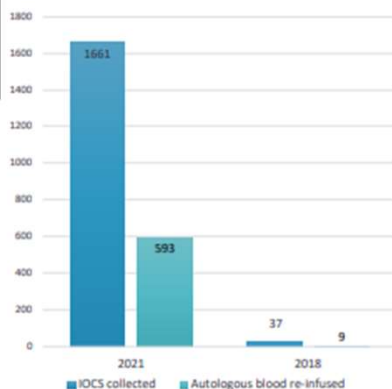
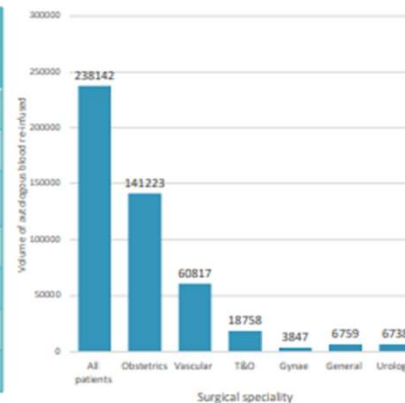


Table 1. Number of cases receiving IOCS by surgical speciality (2021)

Surgical speciality	Numbers of cases IOCS collected	Re-infusion/ collection ratio (%)
All specialities	1661	36
Obstetrics	1469	30
Trauma & Orthopaedics	72	72
Vascular	71	93
Urology	33	76
General Surgery	5	100
Gynaecology	9	88

Chart 2. Volume (mls) of autologous blood re-infused by surgical speciality. (2021)



CONCLUSIONS

- Significant 24/7 IOCS service established in just four years
- Most important interventions were appointment of BCC and increasing availability of machines
- Large amount of autologous blood being re-infused
- We believe this is helping to reduce post-operative anaemia
- Combined with other strategies, such as ROTEM, we think it is likely to be reducing allogenic blood transfusion and overall costs

FUTURE DIRECTIONS

1. Increasing the list of operative indications for use of IOCS, especially in specialties such as vascular
2. Recruitment of an Anaemia Nurse to improve patient blood management
3. Recruitment of a staff member to support BCC
4. Work with Transfusion Lab to calculate allogenic blood usage by surgical speciality
5. Development of SOP for vaginal cell salvage for use in patients who do not accept blood products

REFERENCES

1. Klein, A.A., Bailey, C.R., Charlton, A.J., Evans, E., Guckian-Fisher, M., McCrossan, R., Nivens, A.F., Payne, S., Shore, K., Smith, J. and Torok, F. (2018), Association of Anaesthetists guidelines: cell salvage for peri-operative blood conservation 2018. *Anaesthesia*, 73: 1141-1150. <https://doi.org/10.1111/anae.14331>
2. Intra-operative Cell Salvage Competency Workbook. <https://www.transfusionguidelines.org/transfusion-practice/uk-cell-salvage-action-group/cell-salvage-competency-workbook>

Acknowledgements

Our thanks to South-west Patient Blood Management Group

INTRODUCTION

The Association of Anaesthetists¹ recommends:

- **Intra-operative cell salvage (IOCS) should be used for surgical procedures where more than 500mls blood loss is expected**
- **A nominated clinical lead and coordinator for cell salvage.**

We did not have enough trained expertise and were unable to provide a 24/7 IOCS service in our hospitals.

In 2018 we were providing a minimal IOCS service and aimed to develop this this service.

METHODS AND MATERIALS

Appointment of blood conservation coordinator (BCC)

Training of surgical scrub staff²

Increasing numbers of cell salvage machines

Advice and collaboration from South-West Patient Blood Management Group

Agreed indications for use of IOCS

Chart 1. Number of cases where IOCS collected / autologous blood re-infused

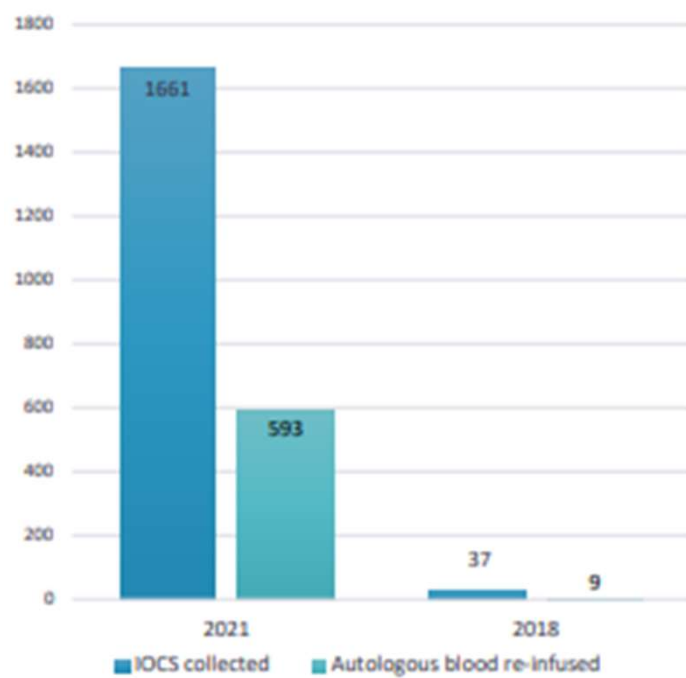
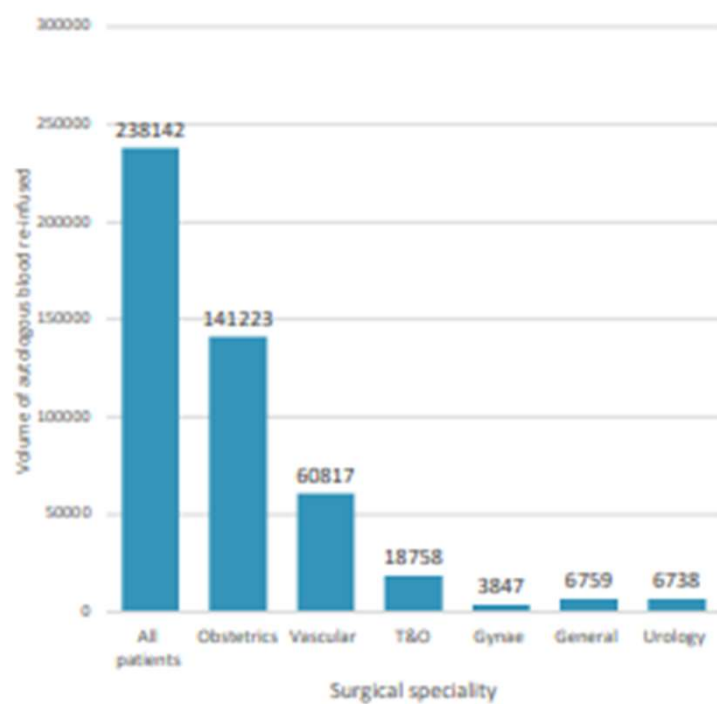
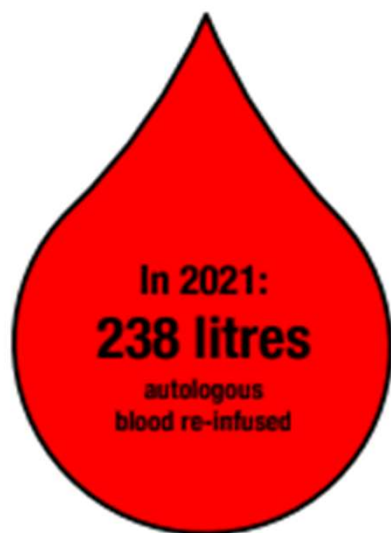


Table 1. Number of cases receiving IOCS by surgical specialty (2021)

Surgical speciality	Numbers of cases IOCS collected	Re-infusion/ collection ratio (%)
All specialties	1661	36
Obstetrics	1469	30
Trauma & Orthopaedics	72	72
Vascular	71	93
Urology	33	76
General Surgery	5	100
Gynaecology	9	88

Chart 2. Volume (mls) of autologous blood re-infused by surgical speciality. (2021)





CONCLUSIONS

- **Significant 24/7 IOCS service established in just four years**
- **Most important interventions were appointment of BCC and increasing availability of machines**
- **Large amount of autologous blood being re-infused**
- **We believe this is helping to reduce post-operative anaemia**
- **Combined with other strategies, such as ROTEM, we think it is likely to be reducing allogenic blood transfusion and overall costs**

FUTURE DIRECTIONS

- 1. Increasing the list of operative indications for use of IOCS, especially in specialties such as vascular**
- 2. Recruitment of an Anaemia Nurse to improve patient blood management**
- 3. Recruitment of a staff member to support BCC**
- 4. Work with Transfusion Lab to calculate allogenic blood usage by surgical specialty**
- 5. Development of SOP for vaginal cell salvage for use in patients who do not accept blood products**

	No of deliveries	No of red cell transfusions (per delivery %)	Chi- squared red cells	No of women receiving donor blood (%)	Chi- squared no of women
LSCS 2022	1800	64 (3.5)	9.72 p=0.002	43 (2.4)	1.3 p=0.25
LSCS 2018	1622	94 (5.8)		49 (3.0)	

- 2. Recruitment of an Anaemia Nurse to improve patient blood management**
- 3. Recruitment of a staff member to support BCC**
- 4. Work with Transfusion Lab to calculate allogenic blood usage by surgical specialty**
- 5. Development of SOP for vaginal cell salvage for use in patients who do not accept blood products**

	No of deliveries	No of red cell transfusions (per delivery %)	Chi- squared red cells	No of women receiving donor blood (%)	Chi- squared no of women
LSCS 2022	1800	64 (3.5)	9.72 p=0.002	43 (2.4)	1.3 p=0.25
LSCS 2018	1622	94 (5.8)		49 (3.0)	
All 2022	5877	210 (3.6)	21.2 p<0.001	130 (2.2)	3.2 p=0.07
All 2018	6142	326 (5.3)		167 (2.7)	
Forceps 2022	565	52 (9.2)	13.7 p<0.001	33 (5.8)	4.32 p=0.04
Forceps 2018	501	84 (16.7)		46 (9.2)	

5. Development of SOP for vaginal cell salvage for use in patients who do not accept blood products

Clinical Standard Operating Procedure (SOP)
SOP for the provision of vaginal cell salvage

SETTING	Obstetric Operating Theatres
FOR STAFF	All theatre Nurses, HCAs, Operating department Practitioners and Anaesthetists who perform vaginal cell salvage
PATIENTS	Obstetric patients

Standard Operating Procedure (SOP)

- Purpose

This standard operating procedure provides guidance on agreed standards for performing vaginal cell salvage (VCS), enabling staff to:

- Appropriately identify women who could benefit from vaginal cell salvage at delivery
- Safely utilise vaginal cell salvage in an effective manner.

FUTURE DIRECTIONS

- 1. Increasing the list of operative indications for use of IOCS, especially in specialties such as vascular**
- 2. Recruitment of an Anaemia Nurse to improve patient blood management**
- 3. Recruitment of a staff member to support BCC**
- 4. Work with Transfusion Lab to calculate allogenic blood usage by surgical specialty**
- 5. Development of SOP for vaginal cell salvage for use in patients who do not accept blood products**

A SERVICE DEVELOPMENT PROJECT TO INCREASE THE USE OF INTRA-OPERATIVE CELL SALVAGE

Jane Donald, Donna Davis, Sophie Scutt.
Gloucestershire Hospitals NHS Foundation Trust, United Kingdom. Contact: jane.donald3@nhs.net

INTRODUCTION

The Association of Anaesthetists¹ recommends:

- Intra-operative cell salvage (IOCS) should be used for surgical procedures where more than 500mls blood loss is expected
- A nominated clinical lead and coordinator for cell salvage.

We did not have enough trained expertise and were unable to provide a 24/7 IOCS service in our hospitals.

In 2018 we were providing a minimal IOCS service and aimed to develop this service.



METHODS AND MATERIALS

Appointment of blood conservation coordinator (BCC)

Training of surgical scrub staff²

Increasing numbers of cell salvage machines

Advice and collaboration from South-West Patient Blood Management Group

Agreed indications for use of IOCS

RESULTS

Revitalized 24/7 service covering two obstetric theatres, four trauma theatres and nineteen elective theatres across GHNHSFT

Chart 1. Number of cases where IOCS collected / autologous blood re-infused

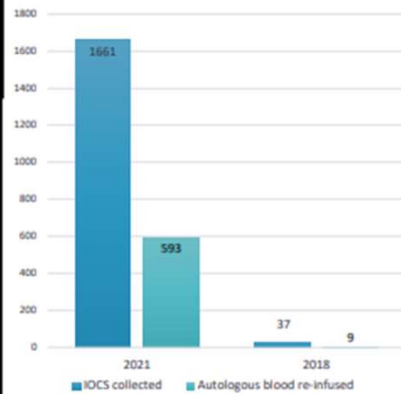
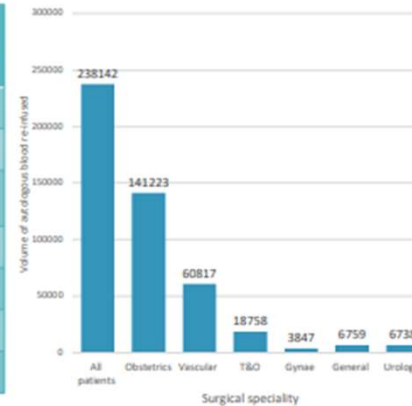


Table 1. Number of cases receiving IOCS by surgical specialty (2021)

Surgical speciality	Numbers of cases IOCS collected	Re-infusion/ collection ratio (%)
All specialities	1661	36
Obstetrics	1469	30
Trauma & Orthopaedics	72	72
Vascular	71	93
Urology	33	76
General Surgery	5	100
Gynaecology	9	88

Chart 2. Volume (mls) of autologous blood re-infused by surgical specialty. (2021)



CONCLUSIONS

- Significant 24/7 IOCS service established in just four years
- Most important interventions were appointment of BCC and increasing availability of machines
- Large amount of autologous blood being re-infused
- We believe this is helping to reduce post-operative anaemia
- Combined with other strategies, such as ROTEM, we think it is likely to be reducing allogenic blood transfusion and overall costs

FUTURE DIRECTIONS

1. Increasing the list of operative indications for use of IOCS, especially in specialties such as vascular
2. Recruitment of an Anaemia Nurse to improve patient blood management
3. Recruitment of a staff member to support BCC
4. Work with Transfusion Lab to calculate allogenic blood usage by surgical specialty
5. Development of SOP for vaginal cell salvage for use in patients who do not accept blood products

REFERENCES

1. Klein, A.A., Bailey, C.R., Charlton, A.J., Evans, E., Guckian-Fisher, M., McCrossan, R., Nanno, A.F., Payne, S., Shreeve, K., Smith, J. and Torzella, F. (2018). Association of Anaesthetists guidelines: cell salvage for peri-operative blood conservation 2018. *Anaesthesia*, 73: 1141-1150. <https://doi.org/10.1111/anae.14331>
2. Intra-operative Cell Salvage Competency Workbook. <https://www.transfusionguidelines.org/transfusion-practice/uk-cell-salvage-action-group/cell-salvage-competency-workbooks>

Acknowledgements

Our thanks to South-west Patient Blood Management Group

A SERVICE DEVELOPMENT PROJECT TO INCREASE THE USE OF INTRA-OPERATIVE CELL SALVAGE

Jane Donald, Donna Davis, Sophie Scutt.
Gloucestershire Hospitals NHS Foundation Trust, United Kingdom. Contact: jane.donald3@nhs.net

INTRODUCTION

The Association of Anaesthetists' recommends:

- Intra-operative cell salvage (IOCS) should be used for surgical procedures where more than 500mls blood loss is expected
- A nominated clinical lead and coordinator for cell salvage.

We did not have enough trained expertise and were unable to provide a 24/7 IOCS service in our hospitals.

In 2018 we were providing a minimal IOCS service and aimed to develop this service.



METHODS AND MATERIALS

Appointment of blood conservation coordinator (BCC)

Training of surgical scrub staff²

Increasing numbers of cell salvage machines

Advice and collaboration from South-West Patient Blood Management Group

Agreed indications for use of IOCS

RESULTS

Revitalized 24/7 service covering two obstetric theatres, four trauma theatres and nineteen elective theatres across GHNSFT

Chart 1. Number of cases where IOCS collected / autologous blood re-infused

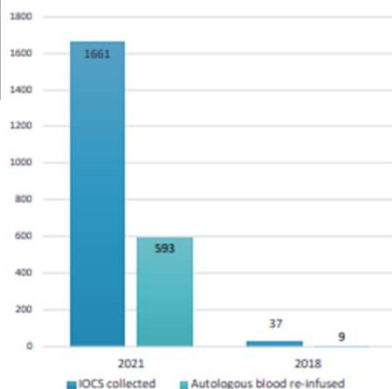
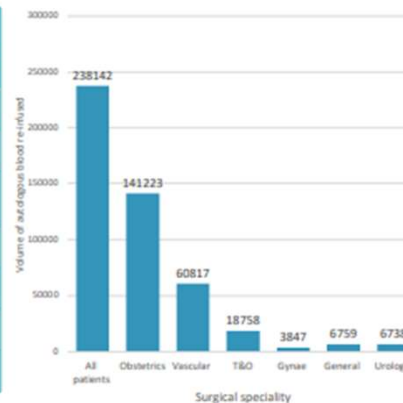


Table 1. Number of cases receiving IOCS by surgical speciality (2021)

Surgical speciality	Numbers of cases IOCS collected	Re-infusion/ collection ratio (%)
All specialities	1661	36
Obstetrics	1469	30
Trauma & Orthopaedics	72	72
Vascular	71	93
Urology	33	76
General Surgery	5	100
Gynaecology	9	88

Chart 2. Volume (mls) of autologous blood re-infused by surgical speciality. (2021)



CONCLUSIONS

- Significant 24/7 IOCS service established in just four years
- Most important interventions were appointment of BCC and increasing availability of machines
- Large amount of autologous blood being re-infused
- We believe this is helping to reduce post-operative anaemia
- Combined with other strategies, such as ROTEM, we think it is likely to be reducing allogenic blood transfusion and overall costs

FUTURE DIRECTIONS

1. Increasing the list of operative indications for use of IOCS, especially in specialties such as vascular
2. Recruitment of an Anaemia Nurse to improve patient blood management
3. Recruitment of a staff member to support BCC
4. Work with Transfusion Lab to calculate allogenic blood usage by surgical speciality
5. Development of SOP for vaginal cell salvage for use in patients who do not accept blood products

REFERENCES

1. Klein, A.A., Bailey, C.R., Charlton, A.J., Evans, E., Guckian-Fisher, M., McCrossan, R., Nivens, A.F., Payne, S., Shore, K., Smith, J. and Torok, F. (2018), Association of Anaesthetists guidelines: cell salvage for peri-operative blood conservation 2018. *Anaesthesia*, 73: 1141-1150. <https://doi.org/10.1111/anae.14331>
2. Intra-operative Cell Salvage Competency Workbook. <https://www.transfusionguidelines.org/transfusion-practice/uk-cell-salvage-action-group/cell-salvage-competency-workbooks>

Acknowledgements

Our thanks to South-west Patient Blood Management Group