



# Post-operative Cell Salvage

## Competency Assessment Workbook

**Hospital:**

**Trainee:**

**Trainer/Supervisor:**

**Date commenced:**

**Date completed:**

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## Introduction

This training framework for the safe use of unwashed post-operative autologous reinfusion devices has been developed by the UK Cell Salvage Action Group. This group reports to the NHS Blood and Transplant Appropriate Use of Blood Group and the respective clinical groups in the devolved countries.

To help address training concerns and the lack of competency assessments for operators in this specialist field, this workbook has been developed in consultation with cell salvage “champions” and other national groups with blood safety and conservation as an essential part of their remit. The UK Cell Salvage Action Group is linking with Skills for Health to develop competencies for use of post-operative cell salvage systems.

The learner should undertake the competency assessments within the level of their responsibilities.

The workbook contains three sections: 1) Knowledge and understanding; 2) Preparation and operation of consumables for collection of blood (Theatres); 3) Preparation and operation of consumables for collection and reinfusion of blood (Recovery and Ward).

Sections of the competency assessment inappropriate to the level of responsibility of an individual learner should be marked as “Not Applicable” and signed by the trainer.

It is essential that all staff involved in operating post-operative cell salvage systems are trained to the level at which they are expected to operate. Training should include both theory and practice. All staff involved in using post-operative autologous reinfusion devices need to complete the knowledge and understanding section and develop a broad understanding of the appropriate use of cell salvage including the contra-indications and implications of administration and reinfusion of salvaged blood. It is recommended that learners complete the UK cell salvage e-learning [www.learncellsalvage.org.uk](http://www.learncellsalvage.org.uk) prior to commencing this workbook.

Hospitals involved in training staff in the use of post-operative cell salvage should adopt the following principles: -

- Identify a key trainer/s (it is suggested that these people should have a recognised teaching and assessing qualification)
- Staff should be allowed dedicated time for manufacturer’ and/or “in-house” training. (“In-house” training should be carried out by key trainers)
- Assessment of knowledge should be completed prior to undertaking practical elements
- “In-house” trainers should assess competency (it is suggested that “in-house” trainers have completed this workbook and that they hold a teaching and assessing qualification)
- Certificates of competence should be issued by the Organisation
- Documented training records should be kept by the Organisation and the learner
- Manufacturers/“in-house” trainers should sign and date the learner’s logbook when they have provided the theory and/or technical training

Procedural documents should be available to staff giving clear guidance on: -

- Indications and contraindications
- Who can operate the systems and levels of independent operation
- How to operate the equipment

- Warnings regarding contamination of the surgical site
- Rules on labelling, expiry date and time of salvaged blood
- Reinfusion of autologous blood (or salvaged blood)
- Recognising and reporting serious adverse events

### **Maintaining competency**

The Organisation should have a policy that clearly states the number of procedures a person should undertake in a designated period of time to maintain their competency. This policy should also include how often competency assessments should be performed. Where more than one type of post-operative autologous reinfusion device is in use, the knowledge and understanding section needs only be completed once. Where a hospital uses a range of products the practical sections i.e. sections 2&3 should be completed for each type of device.

### **Links to KSF**

It is envisaged that this workbook could be used to provide evidence of the knowledge and skills acquired by the learner with regards to post-operative cell salvage. It can also be used to identify any gaps between the skills and knowledge needed to do the job, and the current skills and knowledge of the individual member of staff as part of their KSF review.

### **Audit**

It is recommended that Organisations should undertake periodic audit to verify the principles outlined above are being adopted. It is suggested that a designated person is made responsible for this activity.

Pages from this workbook can be reproduced as required by the learner/trainer/supervisor and are available on the Department of Health Better Blood Transfusion Toolkit at [www.transfusionguidelines.org.uk](http://www.transfusionguidelines.org.uk)

We would welcome feedback on the content of this workbook.

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## Guidance for completing the Competency Assessment Forms

Before the learner's competence is assessed, where relevant, they should have completed the theory training.

Boxes shaded in grey on the competency assessment form do not need to be completed. Unshaded boxes need to be completed to the satisfaction of the trainer when the box should be signed and dated.

### Theory

This can be delivered in a number of different ways: -

1. Face to face teaching
2. As part of the manufacturer's training
3. Workbooks / self directed learning packs
4. E-learning

Assessment of whether the candidate has understood and retained this knowledge can be confirmed by the use of multiple choice question papers, short answer questions and by discussion with the candidate. Reflective writing in the learners' personal portfolio should support this.

### Technical training

Technical training can be delivered by manufacturers who will usually issue a certificate of knowledge. If undertaken by "in-house" trainers, the manufacturer's workbook could be used and the evidence of completion retained in the learner's portfolio.

### Practical Assessments

During training, the learners' clinical practice should be carried out under the supervision of a competent practitioner. Observing the learner's ability to complete a task correctly should be undertaken as many times as the trainer feels appropriate. On completion of the training period, it is suggested that a minimum of **three** correctly completed observation assessments are undertaken before completing the "final observation and sign off". The learner should complete the cell salvage case log and the cumulative log contained in this workbook for each completed procedure. The cumulative log number should be entered in the observation column. The observation should include the date and would normally be performed by an "in house" trainer.

### Additional evidence

Additional evidence should be collated for the learner's personal portfolio. This might include: -

1. Post-operative cell salvage case logs – During training, these should be completed for each case undertaken. It is highly recommended that once the learner has satisfactorily completed the competency assessment, a similar, ongoing case log should be kept by each individual operator as part of their Continuous Professional Development (CPD).
2. Reflective learning record - It is suggested that the learner uses the models of reflection recommended for use within their Organisation
3. Notes from meetings, clinical case conference reviews

### Certificates

Contained within the workbook are certificates of competency that should be issued by the trainer on successful completion of each competency assessment.

**Section 1. Knowledge & Understanding of Post-operative Cell Salvage (PCS)  
(To be completed by all learners)**

COMPETENCY	ASSESSMENT METHOD (boxes shaded grey do not need to be completed)			
	CLASSROOM			Additional Evidence (Specify) (e.g. case logs, reflective practice, certificates etc.)
	Theory Training (date delivered & by whom)	Technical Training (date delivered & by whom)	Assessment (signature of assessor and date completed)	
Describe the benefits of autologous whole blood transfusion				
Outline the various methods of Post-operative Cell Salvage (PCS)				
Describe the patients and procedures where PCS would be suitable				
Explain the cautions and contraindications related to PCS				
Demonstrate an understanding of the local protocol for using the PCS system				
State the handling and storage restrictions, time limits for collection and collection volume limits				
Understand the need for prescription and patient consent for autologous blood transfusion				
State the components of whole blood, red cells in the delivery of oxygen and the differences between salvaged blood and whole blood				
Identify the parts of the PCS system and their functions including the importance of the various filters and their maximum effective capacity				
Describes why anticoagulation is not required when using post-operative systems				

**Section 2. Preparation and operation of consumables for collection of blood (Theatres)**

COMPETENCY	ASSESSMENT METHOD (boxes shaded grey do not need to be completed)					Additional Evidence (Specify) (e.g. case logs, reflective practice, certificates etc.)
	CLASSROOM			CLINICAL		
	Theory Training (date delivered & by whom)	Technical Training (date delivered & by whom)	Assessment (signature of assessor and date completed)	Observation (enter number from PCS log)	Final observation (sign and date)	
Has completed the Knowledge & Understanding of PCS competency assessment						
Successful completion of the manufacturer's training						
Correctly set up the PCS system for normal use in accordance with the manufacturers instructions						
Identify and complete the relevant documentation and labelling for the PCS system in accordance with local protocol						
State the correct time for activating the PCS system						
Demonstrate the correct method for activating the PCS system						
Describe the accepted variances from the normal set up including the use of accessories designed to allow for religious beliefs						
Demonstrate the hand over procedure for the system from Theatres to Recovery						





**Section 3 . Preparation and operation of consumables for collection and reinfusion of blood (Recovery and Ward)**

COMPETENCY	ASSESSMENT METHOD (boxes shaded grey do not need to be completed)					Additional Evidence (Specify) (e.g. case logs, reflective practice, certificates etc.)
	CLASSROOM			CLINICAL		
	Theory Training (date delivered & by whom)	Technical Training (date delivered & by whom)	Assessment (signature of assessor and date completed)	Observation (enter number from PCS log)	Final observation (sign and date)	
Has completed the Knowledge & Understanding of PCS competency assessment						
Demonstrate the initiation of blood collection						
Demonstrate the routine observations and documentation during blood collection including labelling of the collected blood						
Demonstrate the normal operation of the PCS system in accordance with the local protocol and manufacturers' instructions						
Describe the indications for reinfusion of collected blood in accordance with the local protocol and manufacturers' instructions						
Demonstrate the correct procedure for reinfusion including retrograde priming where appropriate						
Describe the indications for the cessation of blood collection in accordance with the local protocol and manufacturers' instructions						
Demonstrate any modifications to the PCS system required for continued drainage not for the purposes of reinfusion						
Describe the accepted variances from the normal operation including the use of accessories designed to allow for religious beliefs						

COMPETENCY	ASSESSMENT METHOD (boxes shaded grey do not need to be completed)					
	CLASSROOM			CLINICAL		Additional Evidence (Specify) (e.g. case logs, reflective practice, certificates etc.)
	Theory Training (date delivered & by whom)	Technical Training (date delivered & by whom)	Assessment (signature of assessor and date completed)	Observation (enter number from PCS log)	Final observation (sign and date)	
Demonstrate the correct removal and disposal of the systems consumables in accordance with local protocol						
Complete all associated documentation including labelling as appropriate						



## Post-operative Cell Salvage Case Log

<b>Log No:</b> <b>Date / Time:</b>	<b>Operation:</b>
<b>Device type:</b>	

**Procedural details (include volumes collected and reinfused):**

**Special requirements (e.g. accessories designed to allow for religious beliefs, avoid contaminants):**

**Problems / difficulties encountered:**

  
  
  
  
  
  
  

**How were these resolved?**

**Evaluation:**

**Signature of learner:**

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**Signature of supervisor :**

## Cumulative Post-operative Cell Salvage Log

Log No.	Date	Operation	Device type	Your role		Volume Reinfused (if applicable)	Comments
				Set –up /activation	Collection /reinfusion		
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							

Log No.	Date	Operation	Device type	Your role		Volume Reinfused (if applicable)	Comments
				Set –up /activation	Collection /reinfusion		
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							

# Post-Operative Cell Salvage Reflective Learning Record

<b>Procedure:</b>	<b>Date:</b>
<b>Additional Information:</b>	

**What have I learnt from this procedure?**

**How can I apply this to my future work?**

**What went well?**

**What would I have done differently?**

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**Is there anything I didn't understand or need to explore further to consolidate my learning?**

**Signature of learner:** .....

## Recommended Reading

Thomas D, Thompson J and Ridler B (Eds.) (2004) A Manual for Blood Conservation, tfm publishing ISBN 1 903378 24 9

Contreras M (Ed.) (2002) ABC of Transfusion, 3<sup>rd</sup> Edition, BMJ Publishing Group ISBN 0-7279-1209-7

## Useful Websites

Skills for Health National Occupational Standards  
<http://www.skillsforhealth.org.uk/>

Department of Health Better Blood Transfusion Toolkit  
<http://www.transfusionguidelines.org/index.asp?Publication=BBT>

Learn Cell Salvage e-learning package  
<http://www.transfusionguidelines.org.uk/lcs/index.htm>