In 2007, SHOT published its first Annual Report with a chapter dedicated solely to Autologous Transfusion. Prior to this there had been occasional, unsolicited reports to SHOT, however, the aim from this point forward was to ensure active reporting of autologous incidents.

**Incidents to Date**

The level of reporting has remained low, with a peak in 2011 of 42 reports. In 2012 only 24 incidents were submitted to SHOT. Without denominator data regarding the level of use of cell salvage in the UK it is difficult to determine whether or not under-reporting may be occurring. SHOT recommend that all adverse events involving ICS or PCS are reported.

Reports of hypotension have been included year on year in the SHOT reports since the Autologous Transfusion chapter was first published in 2007. The majority of these incidents involved reinfusion of washed intraoperative cell salvage blood via a Leucodepletion filter (LDF), where ACD-A was the anticoagulant used*.

Other incidents include transfusion of PCS blood above the manufacturer’s maximum recommended volume and a possible air embolus resulting from the pressurisation of the reinfusion bag during reinfusion. In addition, an incident in the 2010 report related to two patients receiving reinfusions of PCS blood at the same time. Both patients had reactions soon after the reinfusions commenced. On investigation, a lack of patient identifiers on PCS units meant that it could not be ruled out that the units were transposed resulting in the patients receiving the wrong blood back.

*Exceptions to this are one case reported in 2007 where the type of filter is not recorded, one case in 2010 using an unwashed ICS system, one case in 2011 where the anticoagulant was heparin and one case in 2012 where there was no LDF, however the patient was on ACE inhibitors.
**SHOT Recommendations and Learning Points**

The yearly SHOT reports include recommendations and learning points aimed at reducing future occurrences of similar incidents. Recommendations for autologous transfusion include:

**Training**
- Adequate knowledge and training is required for all involved in the use of both ICS and PCS systems.
- Training and competency assessment for cell salvage operators should be in place in all organisations where cell salvage is undertaken.
- All cell salvage operators must undertake initial and regular update training and be assessed as competent. There should be documented evidence of competence in the form of a training record. Competency assessment workbooks are available for both ICS and PCS at [www.transfusionguidelines.org.uk](http://www.transfusionguidelines.org.uk)

**Incident Reporting**
- All ICS and PCS related adverse events and reactions should be reported to SHOT. Hospital transfusion teams should develop a process to ensure all these events are reported to SHOT.
- Cell salvage machines are classified as Medical Devices, so all adverse events attributable to machine errors and failures should be reported to the MHRA (medical devices section) as well as SHOT.

**Clinical Practice**
- Monitoring of patients is as important for the reinfusion of red cells collected by ICS or PCS as it is for allogeneic red cells.
- Regardless of the component being transfused staff need to be vigilant to avoid air in the giving set.
- All cell salvage units should be labelled with the patient core identifiers to reduce the risk of error on reinfusion. The autologous transfusion label has been designed by the UK Cell Salvage Action Group and supplied by the manufacturers to allow these criteria to be met.

**Investigating and Reporting**

Hospital transfusion teams (HTT) should develop a process to ensure all incidents related to cell salvage are thoroughly investigated and reported to SHOT. All staff involved in cell salvage should be made aware of the procedure for reporting incidents. Actions to be undertaken will depend on the type of incident, but may include:
- Documentation of incident by relevant personnel e.g. surgeon, anaesthetist, scrub nurse, cell salvage operator, recovery/ward nurse
- Quarantining the cell salvage blood and removing the equipment/batch of disposables from use
- Informing the relevant staff/departments e.g. theatre and clinical cell salvage leads, HTT, clinical engineering
- Analysis of cell salvage blood by a Consultant Haematologist and analysis of cell salvage disposables by a Surgical Materials Testing Laboratory
- Reporting the incident to the relevant bodies such as the SHOT and MHRA
- Implementing Corrective and Preventative Action (CAPA) such as staff retraining

**Message from SHOT - Dr. Paula Bolton-Maggs, Medical Director**

The core objective of reporting to SHOT is to improve patient safety by learning from any incidents where there was an adverse clinical outcome, or an error, and also from ‘near miss’ events. Sharing such data from across the UK has resulted in changes in transfusion practice, and recognition of associations that would otherwise not emerge. Reporting is anonymous and is mandated now by professional organisations. Learning from your mishaps may prevent them occurring in other centres, so SHOT encourages you to share these, in particular the local root cause analysis, for the benefit of all. See the annual reports at [www.shotuk.org](http://www.shotuk.org)

The UK Cell Salvage Action Group are continuously developing resources to help support cell salvage in the UK. If you feel there is an area of cell salvage in need of support, please contact the UK Cell Salvage Action Group with your suggestions.

The work from the UK Cell Salvage Action Group and contact details for group members are available on the Better Blood Transfusion Toolkit website - [www.transfusionguidelines.org.uk](http://www.transfusionguidelines.org.uk)