Extracts from relevant guidelines from professional bodies in response to questions 34-36

OAA - Guidelines for obstetric anaesthesia services 2013
(https://www.oaa-anaes.ac.uk/assets/_managed/cms/files/Clinical%20Guidelines/obstetric_anaesthetic_services_2013.pdf)

Relevant extracts:

All women should be asked if they would be prepared to receive blood in the case of haemorrhage and this should be documented in the notes.

A supply of O rhesus-negative blood should be immediately (within five minutes) available to the delivery suite at all times for emergency use. Grouping can be performed in about 10 minutes and group-specific blood should be delivered within 20 minutes of request. Standard issue of crossmatched blood may take approximately 45 minutes although some patients without antibodies may be eligible for electronic issue which can be much quicker: if the laboratory is in receipt of two 'group & save' samples taken on separate occasions they may be able to issue cross-matched blood as rapidly as group-specific. In order to ensure that blood can be made available within the time frames stipulated, the transfusion laboratory should ideally be situated on the same site as the maternity unit. Due to changes in transfusion practice, apart from packed red cells, blood products such as fresh frozen plasma (FFP), cryoprecipitate and platelets are now required earlier in the management of haemorrhage. As part of the response to a major obstetric haemorrhage call, the laboratory should make FFP available as rapidly as possible, enabling an approximate 1:1 ratio of red cells:FFP if deemed appropriate. Platelets are not stored by all laboratories. If a significant delay is anticipated, the delivery suite should be notified in advance. The use of fibrinogen and prothrombin complex concentrates should be considered early. Haematology and biochemistry services must be able to provide rapid analysis of blood and other body fluids. However, near-patient testing will guide blood and product replacement far more quickly than standard laboratory tests and should be utilised whenever possible.

A blood warmer allowing the transfusion of blood and fluids as well as warm air blankets must be available. A Level 1 or equivalent rapid infusion device should be available for the management of major haemorrhage.

Cell salvage equipment (and personnel trained it its use) should be available at all times for emergency and elective caesarean sections in units that deliver women who decline to have blood transfusion.

There must be equipment such as HemoCue® or blood gas analyser to enable bedside estimation of haemoglobin concentration. It is strongly recommended that there should be equipment to enable bedside estimation of coagulation such as thromboelastography (TEG) or thromboelastometry (ROTEM).

AAGBI - The use of blood components and their alternatives 2016
(https://anaesthetists.org/Portals/0/PDFs/Guidelines%20PDFs/Guideline_blood_components_alternatives_2016_final.pdf?ver=2018-07-11-163753-007&ver=2018-07-11-163753-007)

List of recommendations:

1 All patients should have their haemoglobin concentration (Hb) measured before listing for major elective surgery.

2 Patients who are anaemic by the World Health Organization definition (Hb men < 130 g/l , women < 120 g/l) should be investigated before elective surgery and treated appropriately, and elective non-urgent surgery other than caesarean section should be delayed.

3 Where blood transfusion is anticipated, this and alternatives to transfusion should be discussed with the patient before surgery, and this should be documented.

4 Red blood cells should be transfused one unit at a time, and the patient's Hb should be checked before each unit transfused, unless there is ongoing bleeding or a large deficit that needs correcting.

5 The use of intra-operative cell salvage and tranexamic acid administration should be considered in all non-obstetric patients where blood loss > 500 ml is possible and in traumatic and obstetric major haemorrhage.

6 Blood components should be prescribed for small children by volume rather than number of units.

7 Every institution should have a massive transfusion protocol which is regularly audited and reviewed.

8 Group O red cells for transfusion should be readily available in the clinical area, in case haemorrhage is life-threatening. Group-specific red cells should be available within a very short time (15–20 min) of the laboratory receiving correctly-labelled samples and being informed of the emergency requirement for blood.

9 During major haemorrhage due to trauma and obstetrics, consideration should be given to transfusing red cells and FFP in preference to other intravenous fluid.

10 Patients who continue to actively bleed should be monitored by point-of-care and/or regular laboratory tests for coagulation, fibrinogen and platelet counts or function, and a guide for transfusion should be FFP if INR > 1.5, cryoprecipitate if fibrinogen < 1.5 g/l and platelets if platelet count < $75x10^9$/l.

AAGBI – Cell salvage for peri-operative blood conservation 2018
(https://anaesthetists.org/Portals/0/PDFs/Guidelines%20PDFs/Guideline_Cell_salvage_for_peri-operative_blood_conservation_2018.pdf?ver=2019-01-08-171406-510&timestamp=1546967666882&ver=2019-01-08-171406-510&timestamp=1546967666882)

List of recommendations:

1 The use of cell salvage is recommended when it can be expected to reduce the likelihood of allogeneic (donor) red cell transfusion and/or severe postoperative anaemia.

2 We recommend that cell salvage equipment and staff trained to operate it be immediately available 24 h a day in hospitals undertaking surgery where blood loss is a recognised complication.

3 Collection of blood for potential cell salvage ('collect only' mode) should be considered for surgical procedures where blood loss may exceed 500 ml (or > 10% of calculated total blood volume) in adult patients, or > 8 ml/kg (> 10% of calculated total blood volume) in children weighing > 10 kg.

4 Each hospital should have both a nominated clinical lead and a coordinator for cell salvage, who oversee a competence-based training programme for all involved staff, along with ongoing data collection and audit.

5 When the use of cell salvage is proposed in surgery for malignancy or infection, an explanation should be given to the patient of the potential risks and benefits and specific consent should be obtained.

6 The use of leucodepletion filters should be considered during re-infusion of salvaged blood in cancer surgery and when blood is salvaged from an infected surgical field. There is mixed evidence of the benefit of leucocyte depletion filters in obstetrics.

7 Current evidence does not support the routine use of cell salvage during caesarean section. Cell salvage should be considered in the 'collect only' mode in women undergoing caesarean section who are anaemic before surgery, in women anticipated to be at high risk of haemorrhage or if unanticipated bleeding develops during surgery.

AAGBI – Peri-operative management of patients with sickle cell disease 2021
(https://anaesthetists.org/Portals/0/PDFs/Guidelines%20PDFs/anae.15349.pdf?ver=2021-02-09-111510-837)

List of recommendations:

1 Clinical teams should work in partnership with patients and their families, and endeavour to make sure they are kept informed of clinical decisions relating to their care at all times.

2 The lead clinician in the Department of Anaesthesia is responsible for making sure that there is local departmental guidance for the peri-operative

management of patients with sickle cell disease, developed in partnership with the haematology team. The Department may wish to identify a specific lead for this role.

3 All patients at risk of haemoglobinopathy should be screened for haemoglobinopathy before surgery but unnecessary repeat screening should be avoided.

4 There should be a nominated lead haematologist (or for children, a lead paediatrician or paediatric haematologist) when a patient with sickle cell disease undergoes surgery. The nominated leads are responsible for deciding the peri-operative transfusion plan, with support of the specialist centre where relevant. 5 Local governance arrangements should be in place so that the surgical team booking the patient for surgery communicates the sickle cell disease diagnosis at all stages of the patient pathway, and documents this clearly in the patient record so that the relevant teams are aware: haematology; anaesthesia; transfusion laboratory; waiting list co-ordinators; pre-assessment; and ward nursing staff.

6 Patients with sickle cell disease presenting for elective surgery should be reviewed in a pre-assessment clinic, with input from the nominated lead haematologist (or for children a paediatrician/paediatric haematologist). The haematology team must be informed if a patient with sickle cell disease is admitted for emergency surgery.

7 The acute pain team should be notified in advance if a patient with sickle cell disease is undergoing major surgery, particularly if the patient has a history of chronic pain.

8 Patients with sickle cell disease should be scheduled early on the operating list to avoid prolonged starvation. Last minute cancellations for administrative reasons should be avoided, particularly if the patient has received a blood transfusion in preparation for surgery.

9 Patients are at increased risk of sickle complications (acute chest syndrome, pain, acute renal insufficiency or stroke), sepsis and venous thromboembolism in the peri-operative period. The majority of complications occur postoperatively, and there should be a low threshold to admit patients to high dependency or intensive care.

10 Patients require meticulous peri-operative care to avoid factors that may precipitate sickling: dehydration; hypoxia; acidosis; hypothermia; and pain. Routine surgery should be avoided if the patient is febrile or having a painful crisis.

11 Pregnancy confers an increased risk for patients with sickle cell disease. Patients should be managed by a multidisciplinary team and be encouraged to give birth in hospitals able to manage high-risk pregnancies and complications of sickle cell disease.

12 Patients should be managed according to standard COVID-19 care pathways, striking a careful balance between limiting hospital contact to minimise the risks of viral exposure and avoiding delays to essential treatments.

RCOA - GPAS Requirements
(https://www.rcoa.ac.uk/safety-standards-quality/guidance-resources/guidelines-provision-anaesthetic-services)

Relevant standards in specialty areas

Obstetrics

A local policy should be established with the haematology department to ensure blood and blood products once available are able to be transferred to the delivery suite rapidly for the management of major haemorrhage.

O-negative blood should be immediately available, and ideally stored on the delivery suite.

Trauma and orthopaedics

A cell salvage service should be available for cases where massive blood loss is anticipated. Staff who operate this equipment should receive training in how to operate it, and use it with sufficient frequency to maintain their skills.

A rapid infuser allowing the infusion of warmed intravenous fluids and blood products should be available.

Transport and distribution of blood and blood components at all stages of the transfusion chain must be maintained under appropriate conditions to ensure the integrity of the product.

Appropriate blood storage facilities should be clearly identified and provided in close proximity to the emergency operating theatre.

Emergency anaesthesia

Transport and distribution of blood and blood components at all stages of the transfusion chain must be under conditions that maintain the integrity of the product.

Appropriate blood storage facilities should be in close proximity to the emergency operating theatre and clearly identifiable. Satellite storage facilities or a clear process for preservation of the cold chain should be in place to enable resuscitation to be effectively performed in e.g. interventional radiology suites.

Near patient testing for haemoglobin, blood gases, lactate, blood sugar and ketones should be readily available for theatres.

Near patient testing for coagulopathy should be considered, particularly in areas where major blood loss is likely. If near patient testing is not available laboratory testing should be readily and promptly available.

A rapid infuser allowing the infusion of warmed intravenous fluids and blood products should be available.97,98,99

A cell salvage service should be available for cases where massive blood loss is anticipated. Staff who operate this equipment should receive training in how to operate it, and use it with sufficient frequency to maintain their skills