

NHS Lothian University Hospitals Services

Surgical Blood Ordering Schedule (SBOS) (Adults)

This document contains the surgical blood ordering schedule for Lothian University Hospitals Services (LUHS). This schedule applies to the care of adults only.

(The separate Surgical Blood Ordering Schedule for the Royal Hospital for Sick Children (RHSC) can be found on NHS Lothian intranet at Healthcare > A-Z > RHSC > Policies and Guidance > Clinical Policies > Surgical Directorate).

An individual clinician can override the schedule if deemed appropriate.

The schedule for each department can be found on the appropriate page – please refer to the index on page 2. **Please note the schedules are arranged according to hospital site.**

Brief guidance notes on the use of this schedule can be found on:

- page 3 for RIE (Royal Infirmary of Edinburgh)
- page 13 for SJH (St John's Hospital)
- page 21 for WGH (Western General Hospital)

An explanation of 'electronic issue', 'immediate spin' and 'group and screen' is included in the guidance section for each hospital where appropriate.

Please note the following important change from 5 April 2016:

The Blood Banks in Lothian will require that a patient's blood group has been confirmed from two blood samples taken on separate occasions before issuing blood components (i.e. red cells, platelet concentrate, FFP, cryoprecipitate) for transfusion. An exception will be made where waiting to test a second sample would impede the delivery of urgent red cells or other components. For many patients, the Blood Bank will already have a record of the blood group from a previous sample. The laboratory staff will inform the requesting clinician if an additional sample is required prior to issuing blood components.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

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LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

Guidance Notes for RIE ONLY

Important change from 5 April 2016: the Blood Banks in Lothian will require that a patient's blood group has been confirmed from two blood samples taken on separate occasions before issuing blood components (i.e. red cells, platelet concentrate, FFP, cryoprecipitate) for transfusion. An exception will be made where waiting to test a second sample would impede the delivery of urgent red cells or other components. For many patients, the Blood Bank will already have a record of the blood group from a previous sample. The laboratory staff will inform the requesting clinician if an additional sample is required prior to issuing blood components.

In order to ensure safe and adequate blood cover for patients who may lose blood during surgery, please ensure the following steps are taken pre-operatively:

- Send a pre- transfusion testing sample to the transfusion laboratory, requesting one of the following on the accompanying request form **as indicated in this schedule:**
 - 'electronic issue' *or*
 - 'G&S' (Group and Screen) only *or*
 - the specific number of red cell units required
- Please state the name of the surgical procedure on the request form. This is important information as it enables the laboratory to plan appropriately for the potential blood component demand that might arise on any given day.
- Please state the date (and time, if known) of surgery on the request form. This is important information as it allows laboratory staff to prioritise urgent requests.

A pre-transfusion testing (Group & Screen) sample allows the transfusion laboratory to ascertain the patient's ABO and Rh 'group' and to 'screen' the patient's blood for irregular red cell antibodies. If this screen is positive, additional testing will be required.

If the patient requires a transfusion during surgery or post-operatively, blood will be issued using electronic issue or full serological crossmatching techniques – as described below and indicated in the ensuing schedules.

The transfusion laboratory require a current valid transfusion sample in order to issue blood for a patient* (regardless of whether blood is issued using electronic issue or full serological crossmatch technique). Blood samples remain in date for 7 days at RIE (exceptions are cardiothoracic, orthopaedics and gynaecology in RIE who have a specific pre-arrangement with the transfusion laboratory). However, if the patient has been transfused or has been pregnant within the last 3 months their sample will only be valid for 72 hours. **It is important that the requester completes the section on the transfusion request form that asks whether the patient has been transfused or pregnant in the last 3 months: if this is left blank the sample expiry will default to 72 hours.** Contact the transfusion laboratory for advice.

*Uncrossmatched O negative blood can be issued in an emergency without a sample having to be tested.

Transfusion sampling and request form completion must be undertaken in accordance with the NHS Lothian Blood Transfusion Policy and Procedures (on intranet: Healthcare > A-Z > Blood Transfusion > Policies and Procedures).

Electronic Issue

Currently, electronic issue is in use on the RIE and RHSC sites only (please note there is a separate Surgical Blood Ordering Schedule for RHSC).

Patients with irregular red cell antibodies or who have had a transplant in the past are excluded from having blood issued via electronic issue.

'Electronic issue' involves the transfusion laboratory using automated techniques and IT links to issue blood for a patient. Once a patient's blood group is **identified** and they are found to have no antibodies (i.e. a negative antibody screen), and this is confirmed on a second '**check**' sample, the transfusion laboratory can issue group-specific blood (i.e. ABO and Rh group that matches the patient's ABO and Rh group) without having to do any more tests, i.e. no need for serological crossmatch. This saves time and reduces the possibility of mistakes.

At present, a record exists in the RIE transfusion laboratory IT system for about half the patients attending many of the pre-admission clinics (PACs). This record counts as the 'identification' sample and so the group and screen sample taken in the PAC acts as the 'check' sample. For other patients, the PAC or initial ward sample is the 'identification' sample, and a second 'check' sample is needed. To ensure that your patient is going to be suitable for electronic issue of blood, please contact the transfusion laboratory prior to surgery to verify whether a second sample is required.

Please note that the second check sample needs to be current and valid in order to cover the required date of surgery and immediate post-operative period – please see note above.

For patients suitable for electronic issue, once the initial identification details have been checked, the laboratory staff are able to issue blood of the correct ABO and Rh group within 5 minutes. This does away with the need to have a fridge full of blood kept in reserve for individual patients, just in case that patient should need blood during their operation or in the post operative period.

Using this system:

- only blood that is definitely needed is requested, resulting in very efficient use of blood with a significant reduction in blood wastage
- the blood is issued promptly using techniques that have been found to be associated with a higher degree of patient safety than previous methods.

Indirect Antiglobulin Test (IAT) Full Crossmatch

IAT crossmatch must be performed on each occasion that red cell components are requested for a patient who is not suitable for electronic issue (e.g. patients with irregular red cell antibodies or history of same or who have had a transplant in the past).

The technique involves mixing the patient's plasma with a sample of red cells from the donor unit, incubating at 37°C, a centrifugation phase and observing for signs of agglutination and/or haemolysis.

When a request for blood is received, the patient's G&S sample is located and the transfusion laboratory confirms the patient requires an IAT crossmatch. The patient's plasma is tested against donor cells to ensure IAT compatibility. The requested number of units is then ready for issue when this test has been completed, usually within 60 minutes of the request being made (i.e. assuming that a current valid G&S sample is already available in the laboratory). The time required is dependent on the complexity of the patient's irregular red cell antibody/ies and the availability of antigen negative red cell components. When a patient is known to have irregular red cell antibodies it is **essential that the maximum amount of notice is given** to the laboratory prior to red cell components being requested.

Patients who are identified, at the time of receipt of their pre-operative sample, as not being suitable for electronic issue due to antibodies will have two units of blood crossmatched routinely by the laboratory. If you wish more than two units to be available please discuss with the laboratory, giving as much notice as possible.

Blood for patients when a pre-operative G&S sample has NOT been received by the transfusion laboratory

Appropriate pre-operative preparation for potential surgical blood cover is critically important in ensuring that suitable blood can be issued in a timely manner if required. This is why the laboratory require a current, valid transfusion sample to be sent prior to surgery – as detailed in this schedule.

If blood is required for a patient during surgery or post-operatively where a transfusion sample was not received by the transfusion laboratory pre-operatively, this will increase the time required for suitable blood to be issued.

In this event, a group and screen sample should be sent without delay to the transfusion laboratory:

- If the patient is suitable for electronic issue, blood will be available 60 minutes after receipt of this sample.
- If the patient is not suitable for electronic issue, blood will be issued using full serological (IAT) crossmatch. Blood will be issued 60 minutes after receipt of sample at the earliest (if a patient has complex or multiple red cell antibodies or any special requirements this process can take hours or longer).
- The laboratory staff will inform the requester if an additional transfusion sample is required (see note on page 3).

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

ELECTIVE CARDIO-THORACIC SURGERY (RIE BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
1 st time CABG	Electronic issue
1 st time valves	Electronic issue
Redo CABG, complex cases (valves +/-CABGs), others	Electronic issue
Aortic surgery	Electronic issue
All thoracic operations	Electronic issue

An individual clinician can over-ride this schedule if deemed appropriate.

Notes:

Electronic issue: send a pre-transfusion testing sample to the transfusion laboratory, and state 'For electronic issue' on the request form along with name of procedure. Please include the date of the planned operation, if known, or (approx) time interval before the procedure will occur (e.g. 2 weeks). To ensure that your patient is going to be suitable for electronic issue of blood, please contact the transfusion laboratory prior to surgery to verify whether a second sample is required.

Please note that patients with known antibodies or post transplant are excluded from electronic issue. For patients with antibodies, the transfusion laboratory will crossmatch and reserve a pre-agreed number of units ready for surgery in case required.

For an explanation of electronic issue please refer to page 4.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

EMERGENCY / TRAUMA CASES (RIE)

Blood ordering schedules are designed to provide guidance primarily for pre-planned surgical procedures. Blood requirements for emergency / trauma cases are naturally less predictable and therefore individual clinician judgement is required in these circumstances.

Please refer to the RIE emergency trauma bleeding guidance at:

<http://intranet.lothian.scot.nhs.uk/NHSLothian/Healthcare/A-Z/EmergencyDepartment-RIE/DepartmentalProtocols/Trauma%20and%20Orthopaedics/Trauma%20haemorrhage.pdf>

Generic guidance on the management of blood loss and transfusion in the emergency department is found at:

<http://intranet.lothian.scot.nhs.uk/NHSLothian/Healthcare/A-Z/EmergencyDepartment-RIE/DepartmentalProtocols/Medical%20Protocols/Blood%20Transfusion%20Protocol%20inc%20Major%20Haemorrhage.pdf>

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

GENERAL / GI / HEPATOBILIARY SURGERY (RIE BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Liver transplantation	5 units red cells
Oesophagectomy	Electronic issue
Oesophagectomy + gastrectomy	Electronic issue
Gastrectomy (any type)	Electronic issue
Pancreatectomy	Electronic issue
Liver resection	Electronic issue
Splenectomy	Electronic issue
Laparoscopic splenectomy	Electronic issue
Open hiatus hernia repair	Electronic issue
Thyroidectomy (total or subtotal)	Electronic issue
Emergency explorative laparotomy	Electronic issue
Diagnostic laparoscopy	G&S
Cholecystectomy	G&S
Appendicectomy	G&S
Oesophageal dilatation	Sample not routinely required
Elective sclerotherapy	Sample not routinely required
ERCP	Sample not routinely required
GI haemorrhage	As indicated by requesting clinician
Other emergency surgery	As indicated by requesting clinician

An individual clinician can over-ride this schedule if deemed appropriate, particularly in liver transplants for fulminant hepatic failure, when FFP and platelets may also be required pre-operatively.

Notes:

Electronic issue: Send a pre-transfusion testing sample to the transfusion laboratory, and state 'For electronic issue' on the request form and procedure to be performed. Please include the date of the planned procedure, if known, or (approx) time interval before the procedure will occur (e.g. 1 week). To ensure that your patient is going to be suitable for electronic issue of blood, please contact the transfusion laboratory prior to surgery to verify whether a second sample is required.

Please note that patients with known antibodies or post transplant are excluded from electronic issue. For patients with antibodies, the transfusion laboratory will crossmatch and reserve a pre-agreed number of units ready for surgery in case required.

For an explanation of electronic issue please refer to page 4.

G&S: In these cases only one pre-operative sample is needed (the laboratory will advise the requester if an additional sample is required – see page 3). If blood is required, it will be issued using full serological crossmatch technique. Blood issue will take longer than it would do using electronic issue.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

GYNAECOLOGY (RIE BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Myomectomy	Electronic Issue
Malignancy surgery with low Hb	Electronic Issue
Radical vulvectomy	Electronic Issue
Wertheim's hysterectomy	Electronic Issue
Total abdominal hysterectomy +/- bilateral salpingo-oophorectomy +/- omentectomy	Electronic Issue
All other procedures	G&S
Dilatation and curettage (D&C)	Sample not routinely required
Examination under anaesthetic (EUA)	Sample not routinely required
Ectopic pregnancy with intraperitoneal bleeding	As indicated by requesting clinician

An individual clinician can over-ride this schedule if deemed appropriate.

Notes:

Electronic issue: Send a pre-transfusion testing sample to the transfusion laboratory, and state 'For electronic issue' on the request form and procedure to be performed. Please include the date of the planned procedure, if known, or (approx) time interval before the procedure will occur (e.g. 1 week). To ensure that your patient is going to be suitable for electronic issue of blood, please contact the transfusion laboratory prior to surgery to verify whether a second sample is required.

Please note that patients with known antibodies or post transplant are excluded from electronic issue. For patients with antibodies, the transfusion laboratory will crossmatch and reserve a pre-agreed number of units ready for surgery in case required.

For an explanation of electronic issue please refer to page 4.

G&S: In these cases only one pre-operative sample is needed (the laboratory will advise the requester if an additional sample is required – see page 3). If blood is required, it will be issued using full serological crossmatch technique. Blood issue will take longer than it would do using electronic issue.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

OBSTETRICS (RIE BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Low risk Caesarean section	Electronic issue
Caesarean section at high risk of transfusion: <ul style="list-style-type: none">• placenta accreta• pre-op anaemia & placenta praevia• placental abruption• known coagulopathy	4 units red cells if not suitable for electronic issue (to be kept in the transfusion laboratory unless / until requested)
Obstetric haemorrhage (APH or PPH)	As indicated by requesting physician (activate major haemorrhage protocol if blood loss >2L)
MROP (manual removal of placenta)	Electronic issue

An individual clinician can over-ride this schedule if deemed appropriate.

Notes:

Electronic issue: Send a pre-transfusion testing sample to the transfusion laboratory, and state 'For electronic issue' on the request form and procedure to be performed. Please include the date of the planned procedure, if known, or (approx) time interval before the procedure will occur (e.g. 1 week). To ensure that your patient is going to be suitable for electronic issue of blood and to ensure the validity of the sample for operative cover, please contact the transfusion laboratory prior to surgery to verify whether a second sample is required. If the patient has been pregnant in the preceding 3 months the valid sample for transfusion must have been taken in the 72 hours prior to the transfusion (this is to ensure identification of any new antibodies that may have developed as a result of the pregnancy).

Please note that patients with known antibodies or post transplant are excluded from electronic issue. For patients with antibodies, the transfusion laboratory will crossmatch and reserve a pre-agreed number of units ready for surgery in case required.

For an explanation of electronic issue please refer to page 4.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

ELECTIVE ORTHOPAEDICS (RIE BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Primary and revision hips	Electronic Issue
Primary and revision knees	Electronic Issue
Primary and revision shoulders and elbows	Electronic Issue
Femoral or pelvic osteotomy	Electronic Issue
Back discectomy and laminectomy	Electronic Issue
Back decompression	Electronic Issue
Spinal fusions	Electronic Issue
Scoliosis surgery	Electronic Issue
Major orthopaedic tumours	Electronic Issue

An individual clinician can override this schedule if deemed appropriate.

Notes:

Electronic issue: Send a pre-transfusion testing sample to the transfusion laboratory, and state 'For electronic issue' on the request form and procedure to be performed. Please include the date of the planned procedure, if known, or (approx) time interval before the procedure will occur (e.g. 1 week). To ensure that your patient is going to be suitable for electronic issue of blood, please contact the transfusion laboratory prior to surgery to verify whether a second sample is required.

Please note that patients with known antibodies or post transplant are excluded from electronic issue. For patients with antibodies, the transfusion laboratory will crossmatch and reserve a pre-agreed number of units ready for surgery in case required.

For an explanation of electronic issue please refer to page 4.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

VASCULAR SURGERY (RIE BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Ruptured aortic aneurysm	10 units red cells, 4 units FFP, 2 pools platelets
TAAA surgery	Electronic issue
Elective aortic aneurysm (open or stent)	Electronic issue
Aorto-bifemoral bypass	Electronic issue
Ilio-femoral/popliteal/distal bypass	Electronic issue
Femoral endarterectomy	Electronic issue
Femoro-femoral X-over	Electronic issue
Carotid endarterectomy	Electronic issue
Carotid subclavian bypass	Electronic issue
Amputations	Electronic issue
Upper/lower limb embolectomy	Electronic issue
Angioplasty	G&S
Thoracoscopic sympathectomy	Sample not routinely required
Varicose veins	Sample not routinely required
Toe/finger amputation	Sample not routinely required
Angiography	Sample not routinely required

An individual clinician can override this schedule if deemed appropriate.

Notes:

In an emergency, activate the Major Haemorrhage Protocol via switchboard: switchboard will connect you straight through to the transfusion laboratory for you to confirm your requirements. Make sure you tell the transfusion laboratory how urgently you need the blood.

Electronic issue: Send a pre-transfusion testing sample to the transfusion laboratory, state 'For electronic issue' on the request form along with the procedure the patient is about to undergo, and tick the box for 'Group and Screen'. Please include the date of the planned operation, if known, or (approx) time interval before the procedure will occur (e.g. 1 week). To ensure that your patient is going to be suitable for electronic issue of blood, please contact the transfusion laboratory prior to surgery to verify whether a second sample is required.

Please note that patients with known antibodies or post transplant are excluded from electronic issue. For patients with antibodies, the transfusion laboratory will crossmatch and reserve a pre-agreed number of units ready for surgery in case required. For an explanation of electronic issue please refer to page 4.

G&S: In these cases only one pre-operative sample is needed (the laboratory will advise the requester if an additional sample is required – see page 3). If blood is required, it will be issued using full serological crossmatch technique. Blood issue will take longer than it would do using electronic issue.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

Guidance Notes for SJH ONLY

Important change from 5 April 2016: the Blood Banks in Lothian will require that a patient's blood group has been confirmed from two blood samples taken on separate occasions before issuing blood components (i.e. red cells, platelet concentrate, FFP, cryoprecipitate) for transfusion. An exception will be made where waiting to test a second sample would impede the delivery of urgent red cells or other components. For many patients, the Blood Bank will already have a record of the blood group from a previous sample. The laboratory staff will inform the requesting clinician if an additional sample is required prior to issuing blood components.

In order to ensure safe and adequate blood cover for patients who may lose blood during surgery, please ensure the following steps are taken pre-operatively:

- Send a pre- transfusion testing sample to the transfusion laboratory, requesting one of the following on the accompanying request form **as indicated in this schedule:**
 - 'G&S' (Group and Screen) *or*
 - the specific number of red cell units required
- Please state the name of the surgical procedure on the request form. This is important information as it enables the laboratory to plan appropriately for the potential blood component demand that might arise on any given day.
- Please state the date (and time, if known) of surgery on the request form. This is important information as it allows laboratory staff to prioritise urgent requests.

A pre-transfusion testing (Group & Screen) sample allows the transfusion laboratory to ascertain the patient's ABO and Rh 'group' and to 'screen' the patient's blood for irregular red cell antibodies. If this screen is positive, additional testing will be required.

If the patient requires a transfusion during surgery or post-operatively, blood will be issued using immediate spin ('rapid crossmatch') or full serological crossmatching techniques – as described below and indicated in the ensuing schedules.

The transfusion laboratory requires a current valid transfusion sample in order to issue blood for a patient* (regardless of whether blood is issued using full crossmatch or immediate spin technique). Blood samples remain in date for 7 days at SJH. However, if the patient has been transfused or has been pregnant within the last 3 months their sample will only be valid for 72 hours. Contact the transfusion laboratory for advice.

*Uncrossmatched O negative blood can be issued in an emergency without a sample having to be tested.

Transfusion sampling and request form completion must be undertaken in accordance with the NHS Lothian Blood Transfusion Policy and Procedures (on intranet: Healthcare > A-Z > Blood Transfusion > Policies and Procedures).

Immediate Spin ('Rapid Crossmatch')

If blood is required urgently it may be issued using conventional 'immediate spin' technique (patients with irregular antibodies or history of same are not eligible for immediate spin issue). The technique involves mixing the patient's plasma with a sample of red cells from the donor unit and observing for immediate signs of agglutination and/or haemolysis that would be caused by ABO antibodies.

When a request for blood is received, the patient's G&S sample is located and the transfusion laboratory confirms the patient is suitable for blood issue by immediate spin (i.e. no irregular antibodies, or history of same, and has not had a transplant). The patient's plasma is tested against donor cells to ensure ABO compatibility. The requested number of units is then ready for issue when this test has been completed, usually within 10 minutes of the request being made (i.e. assuming that a current valid G&S sample is already available in the laboratory). Electively requested blood is placed in the blood bank collection fridge for collection when required.

Blood for patients not eligible for immediate spin

Patients who are identified, at the time of receipt of their pre-operative sample, as not being suitable for immediate spin due to irregular antibodies will have two units of blood crossmatched routinely by the laboratory. These units will be made available for day of surgery and two days post-operatively (the laboratory will request a second sample if required). If you wish more than two units to be available please discuss with laboratory, giving as much notice as possible.

If blood is requested and the patient is not eligible for immediate spin (e.g. patient has irregular red cell antibodies), units for issue will be prepared using full serological crossmatch techniques which require the patient's plasma to be incubated with a sample of the donor cells before centrifugation and testing with antiglobulin. This takes about 30-60 minutes to complete from time of request (i.e. assuming that a current valid G&S sample is already available in the laboratory). The time required for issue is dependant on the complexity of the irregular red cell antibody/ies and the availability of antigen negative red cell components. When a patient is known to have irregular red cell antibodies it is **essential that the maximum amount of notice is given** to the laboratory prior to red cell components being requested.

Blood for patients when a pre-operative G&S sample has NOT been received by the transfusion laboratory

Appropriate pre-operative preparation for potential surgical blood cover is critically important in ensuring that suitable blood can be issued in a timely manner if required. This is why the laboratory require a current, valid transfusion sample to be sent prior to surgery – as detailed in this schedule.

If blood is required for a patient during surgery or post-operatively where a transfusion sample was not received by the transfusion laboratory pre-operatively, this will increase the time required for suitable blood to be issued.

In this event, a group and screen sample should be sent without delay to the transfusion laboratory:

- If the patient is eligible for immediate spin blood, this can usually be issued 40 minutes after receipt of this sample (at the earliest).
- If the patient is not suitable for immediate spin, blood will be issued using full serological crossmatch. Blood will be issued 60 minutes after receipt of sample at the earliest (if a patient has complex or multiple red cell antibodies or any special requirements this process can take longer).
- The laboratory staff will inform the requester if an additional transfusion sample is required (see note on page 13).

LUHS SURGICAL BLOOD ORDERING SCHEDULE

EAR, NOSE AND THROAT (SJH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Parotidectomy / thyroidectomy	Sample not routinely required
Laryngectomy	G&S
Simple neck dissection	G&S
Complex neck dissection	G&S
Neck dissection and laryngectomy	G&S

An individual clinician can over-ride this schedule if deemed appropriate.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

GYNAECOLOGY (SJH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Ectopic pregnancy with intraperitoneal bleeding	4 units red cells
Major procedures and TOPs	G&S

An individual clinician can over-ride this schedule if deemed appropriate.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

MAXILLO-FACIAL SURGERY (SJH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Major resections	2 units red cells
Major oncology with DCIA (deep circumflex iliac artery)	G&S
Major oncology with scapular flap free tissue transfer	G&S

An individual clinician can over-ride this schedule if deemed appropriate.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

OBSTETRICS (SJH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Elective caesarean section	G&S
Placenta praevia	4 units red cells
Suspected morbidly adherent placenta (including anterior praevia over section scar)	<ul style="list-style-type: none">• Refer to RIE for delivery• Individualised care plan for delivery• Refer to NHS Lothian Interventional Radiology Guidelines
Obstetric haemorrhage (APH or PPH)	4 units red cells (activate major obstetric haemorrhage protocol if blood loss >2L)
MROP (manual removal of placenta)	G&S

An individual clinician can over-ride this schedule if deemed appropriate.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

PLASTIC SURGERY (SJH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Block dissection neck, groin or axilla	G&S
Mastectomy +/- axillary node clearance +/- LD flap reconstruction	G&S
Major flap	G&S
Burns over 5% for excision and grafting	G&S
Burns over 10% for excision and grafting	2 – 4 units red cells
Breast reduction	Sample not routinely required
Abdominoplasty	Sample not routinely required

An individual clinician can over-ride this schedule if deemed appropriate.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

Guidance Notes for WGH ONLY

Important change from 5 April 2016: the Blood Banks in Lothian will require that a patient's blood group has been confirmed from two blood samples taken on separate occasions before issuing blood components (i.e. red cells, platelet concentrate, FFP, cryoprecipitate) for transfusion. An exception will be made where waiting to test a second sample would impede the delivery of urgent red cells or other components. For many patients, the Blood Bank will already have a record of the blood group from a previous sample. The laboratory staff will inform the requesting clinician if an additional sample is required prior to issuing blood components.

In order to ensure safe and adequate blood cover for patients who may lose blood during surgery, please ensure the following steps are taken pre-operatively:

- Send a pre- transfusion testing sample to the transfusion laboratory, requesting one of the following on the accompanying request form **as indicated in this schedule:**
 - 'G&S' (Group and Screen) *or*
 - the specific number of red cell units required
- Please state the name of the surgical procedure on the request form. This is important information as it enables the laboratory to plan appropriately for the potential blood component demand that might arise on any given day.
- Please state the date (and time, if known) of surgery on the request form. This is important information as it allows laboratory staff to prioritise urgent requests.

A pre-transfusion testing (Group & Screen) sample allows the transfusion laboratory to ascertain the patient's ABO and Rh 'group' and to 'screen' the patient's blood for irregular red cell antibodies. If this screen is positive, additional testing will be required.

If the patient requires a transfusion during surgery or post-operatively, blood will be issued using immediate spin ('rapid crossmatch') or serological crossmatching techniques – as described below and indicated in the ensuing schedules.

The transfusion laboratory requires a current valid transfusion sample in order to issue blood for a patient* (regardless of whether blood is issued using full crossmatch or immediate spin technique). Blood samples remain in date for 7 days at WGH. However, if the patient has been transfused or has been pregnant within the last 3 months their sample will only be valid for 72 hours. Contact the transfusion laboratory for advice.

*Uncrossmatched O negative blood can be issued in an emergency without a sample having to be tested.

Transfusion sampling and request form completion must be undertaken in accordance with NHS Lothian Blood Transfusion Policy and Procedures (on intranet: Healthcare > A-Z > Blood Transfusion > Policies and Procedures).

Immediate Spin ('Rapid Crossmatch')

This technique involves mixing the patient's plasma with a sample of red cells from the donor unit and observing for immediate signs of agglutination and/or haemolysis that would be caused by ABO antibodies. Patients with irregular antibodies or history of same are not eligible for immediate spin issue.

When a request for blood is received, the patient's G&S sample is located and the transfusion laboratory confirms the patient is suitable for blood issue by immediate spin (i.e. no irregular antibodies, or history of same, and has not had a transplant). The patient's plasma is tested against donor cells to ensure ABO compatibility. The requested number of units is then ready for issue when this test has been completed, usually within 10-15 minutes of the request being made (i.e. assuming that a current valid G&S sample is already available in the laboratory).

Blood is issued by immediate spin to all qualifying patients on the WGH site.

Blood for patients not eligible for immediate spin

Patients who are identified, at the time of receipt of their pre-operative sample, as not being suitable for immediate spin due to irregular antibodies will have two units of blood crossmatched routinely by the laboratory. If you wish more than two units to be available please discuss with laboratory, giving as much notice as possible.

If blood is requested and the patient is not eligible for immediate spin (e.g. patient has irregular red cell antibodies), units for issue will be prepared using full serological crossmatch techniques which require the patient's plasma to be incubated with a sample of the donor cells before centrifugation and testing with antiglobulin. This takes about 40 minutes to complete from the request being made (i.e. assuming that a current valid G&S sample is already available in the laboratory). The time required for issue is dependant on the complexity of the irregular red cell antibody/ies and the availability of antigen negative red cell components. When a patient is known to have irregular red cell antibodies it is **essential that the maximum amount of notice is given** to the laboratory prior to red cell components being requested.

Blood for patients when a pre-operative G&S sample has NOT been received by the transfusion laboratory

Appropriate pre-operative preparation for potential surgical blood cover is critically important in ensuring that suitable blood can be issued in a timely manner if required. This is why the laboratory require a current, valid transfusion sample to be sent prior to surgery – as detailed in this schedule.

If blood is required for a patient during surgery or post-operatively where a transfusion sample was not received by the transfusion laboratory pre-operatively, this will increase the time required for suitable blood to be issued.

In this event, a group and screen sample should be sent without delay to the transfusion laboratory:

- If the patient is eligible for immediate spin blood, this can usually be issued 40 minutes after receipt of this sample (at the earliest).
- If the patient is not eligible for immediate spin, blood will be issued using full serological crossmatch. Blood will be issued approximately 90 minutes after receipt of sample at the earliest (if a patient has complex or multiple red cell antibodies or any special requirements this process can take longer).
- The laboratory staff will inform the requester if an additional transfusion sample is required (see note on page 21).

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

BREAST / ENDOCRINE SURGERY (WGH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Mastectomy	G&S
LD flap/breast reconstruction	G&S
Bilateral breast reduction	G&S

An individual clinician can over-ride this schedule if deemed appropriate.

If a patient is not deemed suitable for immediate spin and you would like to make sure that there will be more than 2 units available for your patient if needed, this can be discussed individually with the laboratory (please do so with as much notice as possible).

If there are individual circumstances when you foresee that you might need blood sooner than can be provided via immediate spin please discuss this prior to surgery with the laboratory staff.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

COLORECTAL SURGERY (WGH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Small bowel resection	G&S
Colostomy	G&S
Rectal prolapse repair (rectopexy, Delormes, Altmiers)	G&S
Colectomy	G&S
Hemicolectomy	G&S
Laparoscopic colectomy	G&S
Anterior resection of rectum	G&S
Laparotomy	G&S
Diagnostic laparoscopy	G&S
Emergency appendicectomy	G&S
Coloanal pouch	G&S
Reversal of Hartmanns procedure	G&S
Low anterior resection	G&S
Proctocolectomy	G&S
Open abdominoperineal (AP) resection	G&S
Transanal endoscopic microsurgery (TEMS)	G&S
GI haemorrhage	As indicated by requesting clinician
Other emergency surgery	As indicated by requesting clinician

An individual clinician can over-ride this schedule if deemed appropriate.

If a patient is not deemed suitable for immediate spin and you would like to make sure that there will be more than 2 units available for your patient if needed, this can be discussed individually with the laboratory (please do so with as much notice as possible).

If there are individual circumstances when you foresee that you might need blood sooner than can be provided via immediate spin please discuss this prior to surgery with the laboratory staff.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

NEUROSURGERY (WGH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Craniotomy (AVM, aneurysm, meningioma, vascular tumour)	G&S
Craniotomy (haematoma: extradural; acute subdural; intracerebral)	G&S
Craniotomy (other)	G&S
Complex spinal surgery (rheumatoids, pedicle screw fixation, spinal tumours)	G&S
Posterior fossa exploration	G&S
CP angle tumour	G&S
Burr hole biopsy	G&S
Shunt insertion / revision	G&S
Trans sphenoidal	G&S
Laminectomy (cervical)	G&S
Laminectomy (lumbar)	G&S
Cervical discectomy eg ACDF	G&S
Discectomy (lumbar)	G&S
Interventional radiology	G&S
Chronic subdural	G&S
Other procedure	G&S

An individual clinician can over-ride this schedule if deemed appropriate.

If a patient is not deemed suitable for immediate spin and you would like to make sure that there will be more than 2 units available for your patient if needed, this can be discussed individually with the laboratory (please do so with as much notice as possible).

If there are individual circumstances when you foresee that you might need blood sooner than can be provided via immediate spin please discuss this prior to surgery with the laboratory staff.

LUHS SURGICAL BLOOD ORDERING SCHEDULE (ADULTS)

UROLOGY (WGH BLOOD BANK)

PROCEDURE	PRE-OPERATIVE REQUEST
Transurethral resection prostate (TURP)	G&S
Bladder neck incision	G&S
Laparoscopic radical prostatectomy	G&S
Transurethral resection of bladder tumour	G&S
Laparoscopic nephrectomy / laparoscopic nephro-ureterectomy	G&S
Percutaneous nephrolithotomy	G&S
Laparoscopic pyeloplasty	G&S
Open radical prostatectomy	G&S
Open (Millens) prostatectomy	G&S
Laparoscopic assisted cystectomy	G&S
Open cystectomy	G&S
Open nephrectomy	G&S
Nephrostomy / antegrade stenting	G&S
Pelvic exenteration	G&S

An individual clinician can over-ride this schedule if deemed appropriate.

If a patient is not deemed suitable for immediate spin and you would like to make sure that there will be more than 2 units available for your patient if needed, this can be discussed individually with the laboratory (please do so with as much notice as possible).

If there are individual circumstances when you foresee that you might need blood sooner than can be provided via immediate spin please discuss this prior to surgery with the laboratory staff.