

NHS GGC South Sector Maximum Surgical Blood Ordering Schedule (MSBOS)

The MSBOS is a guide to help you ensure that blood is available at elective surgery. The list is not exhaustive, nor does it supersede clinical judgement. If a patient has known antibodies, is anaemic or complications are envisaged then extra units of blood may be required. Clinical decisions that override the schedule must be discussed with blood transfusion staff at the time of request.

Important Information

- There must be a valid Group and Antibody Screen (G&S) specimen in the lab to supply any blood except emergency group O blood. If there is not a first sample on the database two samples are required to be sent to the lab.
- Emergency group O blood may not be suitable for patients with antibodies.
- A G&S specimen can be valid for a maximum of 14 days. See table below and refer to Transfusion Policy for more guidance.

Patient type	Sample type whole blood at room temp	Whole blood at 2-8°C	Plasma at -30°C
Patient transfused or pregnant in last three months	Up to 48 hours	Up to 3 days*	N/A
Patient NOT transfused and NOT pregnant in last three months	Up to 48 hours	Up to 7 days	Up to 14 days (Pre-Op Only)

* This is the time between the sample being taken and completion of the transfusion.

- G&S specimen identifies the presence of red cell antibodies and allows appropriate planning for blood to be available for surgery.
- If there is a historical sample only one sample is required for Electronic Issue (EI).

Electronic Issued Red Cells

Electronic Issue (EI) is the supply of blood, without the need for serological crossmatch on the basis of certain criteria (see Clinical Transfusion Policy for full list)

The most common criteria are as follows:

- Valid sample as per table above
- Two automated confirmed blood groups with negative antibody screens (which meet 2nd sample policy rules)

Patients **NOT** suitable for EI include:

- Patients with a positive Direct Antiglobulin Test (excluded for life, until DAT is negative)
- Patients with clinically significant allo or auto antibodies (past or present)
- Sickle Cell Disease (SCD) patients (excluded for life)
- Post allogeneic stem cell transplants (excluded for life)
- Post solid organ transplant (excluded for 3 months post-transplant)
- Pregnant/been pregnant in last 3 months
- Patients under 4 months of age.

If a patient has had major haemorrhage and been transfused group O blood (or blood of a different ABO/Rh group) before a crossmatch sample has been taken, EI will be not suitable. If a patient has antibodies and is scheduled for surgery at the VACH or GGH, then the procedure should be performed at the QEUH if there is a likelihood of blood loss. All patients with antibodies who are likely to bleed should be crossmatched for a minimum of two units.

Patients who are suitable for EI can have their blood issued directly from blood bank or from the theatre haemobank, dependant on where the patient is located.

GENERAL & COLORECTAL SURGERY	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Oesophagectomy or oesophagogastrectomy			X	2 units
Anti-reflux surgery/gastrojejunostomy		X		
Heller's myotomy		X		
Total gastrectomy			X	2 units
Subtotal/distal/partial gastrectomy		X		
Cholecystectomy		X		
Splenectomy (Elective)			X	2 units
Hepatico-jejunostomy		X		
Pancreatic necrosectomy			X	4 units
Frey's procedure		X		
Distal pancreatectomy			X	1 unit
Total pancreatectomy/Whipple's procedure			X	3 units
Hepatectomy			X	1 unit (4 units if synchronous bowel resection)
Small bowel resection	X			
Formation of ileostomy/colostomy (no laparotomy)	X			
Closure of loop ileostomy/colostomy (no laparotomy)	X			
Refashioning of stoma	X			
R hemicolectomy, L hemicolectomy, sigmoid colectomy		X		(2 units if anaemic or large cancer and unsuitable for EI)
Total colectomy			X	2 units
Hartmann's procedure			X	2 units

GENERAL & COLORECTAL SURGERY cont.	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Reversal of Hartmann's procedure			X	2 units
Rectopexy			X	2 units
Anterior resection			X	2 units
Panproctocolectomy			X	2 units
Proctectomy			X	2 units
Abdominoperineal excision of rectum			X	2 units
Ileoanal pouch(no previous colectomy)			X	2 units
Ileoanal pouch(previous colectomy)			X	2 units
Gastric band insertion/removal		X		
Laparoscopic sleeve gastrectomy		X		
Revisional Gastric Surgery			X	2 units
Fundoplication		X		
Thymectomy		X		
ERCP		X		
Small/Large Bowel Obstruction			X	2 units
Laparotomy for Trauma			X	4 units
Crohn's resection (small & large bowel)		X		
Large Incisional Hernia Repair			X	2 units
Mastectomy	X			
Lap appendix	X			

PLASTIC SURGERY				
BREAST SURGERY	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Mastectomy	X			
Pedicled tissue transfer		X		
Free tissue transfer (DIEP) delayed		X		
Free tissue transfer (DIEP) immediate		X		
Implants	X			
Reduction/mastopexy	X			
HEAD AND NECK				
Major H&N procedures including laryngectomy			X	2 units
Other major H&N procedures		X		
Major plastics reconstructions	Discuss with surgeon			
BURNS				
If >50% TBSA then guided by Hb			X	2 units
OTHER PROCEDURES				
Finger reimplantation	X			
Arm replant			X	2 units
Minor procedures including cosmetic	X			

TRAUMA & ORTHOPAEDIC SURGERY	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Pelvic ring fixation (minimally invasive)		X		
Pelvic ring fixation (open)			X	2 units
Acetabular fixation			X	4 units
Hip replacement	X			
Bilateral hip replacement		X		
Revision hip replacement			X	2 units
Osteotomy/bone biopsy		X		
Bone Graft from iliac crest		X		
Knee joint replacement	X			
Bilateral knee joint replacement		X		
Revision of knee		X		
Spinal surgery (posterior approach)		X		
Spinal surgery (anterior approach)			X	4 units
Fusion of vertebrae			X	2 units
Amputations (above knee)		X		
Amputation (below knee)		X		
Shoulder replacement	X			
Bilateral shoulder replacement		X		
Shoulder revision		X		
Elbow replacement	X			
Elbow revision		X		
Wrist replacement	X			

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TRAUMA & ORTHOPAEDIC SURGERY cont.	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Hip fracture surgery			X	2 units
Lower limb fracture fixation (with tourniquet)	X			
Upper limb fracture fixation (with tourniquet)	X			
Fixation of humerus	X			
Removal of pins/plates	X			

VASCULAR SURGERY	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Abdominal Aortic Aneurysm Repair (elective)			X	4 units
Abdominal Aortic Aneurysm Repair (emergency)			X	6 units
Femoro-popliteal bypass graft		X		
Femoro-femoral crossover graft		X		
Carotid Endarterectomy		X		

ENT	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Standard laryngectomy		X		
Laryngectomy and neck dissection			X	2 units
Skull base resections			X	2 units
Trans-oral robotic surgery (TORS)			X	2 units
Tonsillectomy	X			
Parathyroid			X	2 units
Tracheostomy		X		
Thyroidectomy			X	2 units

UROLOGY	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched unsuitable for Electronic Issue
Cystectomy			X	2 units
Nephrectomy			X	2 units
Pyelithotomy			X	2 units
Open prostatectomy			X	2 units
Colposuspension			X	2 units
Percutaneous Nephrolithotomy			X	4 units
Retroperitoneal Lymph Node Dissection			X	4 units
TURP	See separate TURP/TURBT guideline)			
Renal Biopsy		X		
Ureterolithotomy		X		
Robotic prostatectomy			X	2 units
Robotic nephrectomy			X	2 units
TURBT	See separate TURP/TURBT guideline)			

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GGC OBSTETRICS	G&S required only	Units crossmatched
Asymptomatic Placenta Praevia on ward	X	
Examination under anaesthetic	X	
Multiple pregnancy in labour	X	
Retained placenta	X	
Elective LUSCS	X	
Emergency LUSCS	X	
Haemophilia carrier – normal FVIII/FIX	X	
Von Willebrand Disease – normal FVIII/vWF	X	
Therapeutic heparin in labour	X	
Platelet count 50-80 x 10 ⁹ /L	X	
Platelet count < 50 x 10 ⁹ /L in labour	X	
Prolonged rupture of membranes in labour	X	
Pre-eclampsia without haemolysis or haemorrhage	X	
Preterm delivery	X	
Induction of labour	X	
Fibroids – < 4cm in body of uterus	X	
Asymptomatic Placenta Praevia on ward	X	
Examination under anaesthetic	X	
Multiple pregnancy in labour	X	
Retained placenta	X	
Elective LUSCS	X	
Emergency LUSCS	X	
Haemophilia carrier – normal FVIII/FIX	X	
Von Willebrand Disease – normal FVIII/vWF	X	
Therapeutic heparin in labour	X	
Platelet count 50-80 x 10 ⁹ /L	X	

GGC OBSTETRICS cont.	G&S required only	Units crossmatched
Platelet count < 50 x 10 ⁹ /L in labour	Discuss with Consultant Obstetrician and Haematologist and ensure Anaesthetic team are aware. Follow specific antenatal plan for patient.	
Prolonged rupture of membranes in labour	X	
Pre-eclampsia without haemolysis or haemorrhage	X	
Preterm delivery	X	
Induction of labour	X	
Fibroids – < 4cm in body of uterus	X	
APH with ongoing bleeding		2 units
Major APH		4 units
Emergency ERPOC		1-2 units if most senior Obstetrician or Anaesthetist requests this
LUSCS for placenta praevia		2 units NB–if no PPH at delivery, blood should be de-reserved after maximum 24 hours
LUSCS with abnormally invasive placental disease		Minimum of 4 units
PPH >1500ml with ongoing significant bleeding		Minimum of 2 units
Consider major haemorrhage protocol at 1500ml and activate if ongoing bleeding		
Haemophilia carrier – Low FVIII/FIX		2 units
Von Willibrand's Disease – reduced FVIII/vWF		2 units
CS with fibroids – ≥ 4cm in the lower segment or multiple fibroids		2 units

Please note:

Pregnant women are not suitable for electronic issue.

All women in labour should have a valid G&S.

If patients are found to have antibodies present they must be crossmatched for a minimum of 2 units.

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GGC GENERAL GYNAECOLOGY	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Hysterectomy		X		
Hysterectomy / BSO		X		
Oophorectomy		X		
Laparoscopic hysterectomy		X		
Myomectomy		X		
Endometrial ablation	X			
Pelvic floor repair (+/- vaginal hysterectomy)		X		
Mesh augmented pelvic floor repair		X		
Sacrospinous fixation		X		
Vaginal tape procedures		X		
Le Fort colpocleisis		X		
Diagnostic laparoscopy +/- hydrotubation		X		
Diagnostic laparoscopy + anticipated treatment		X		
Hysteroscopy +/- biopsy +/- polypectomy	X			
Hysteroscopic resection of fibroid		X		
Bartholin's abscess incision/drainage	X			
Fenton's procedure	X			
LLETZ (large loop excision of transformation zone)	X			
Cone biopsy of cervix		X		
Vulval biopsy / wide local excision vulval lesion	X			
Vulval warts treatment	X			
Evacuation of uterus		X		
Evacuation of complete molar pregnancy			N/A	2 units

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GGC GENERAL GYNAECOLOGY cont.	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Surgical TOP		X		
Ectopic pregnancy – stable – laparoscopic or open		X		
Ectopic pregnancy – unstable/collapsed			N/A	2 units
Other	Discuss with surgeon			

GGC GYNAE-ONCOLOGY	No blood predicted to be required	G&S required only	Electronic Issue	Units crossmatched if unsuitable for Electronic Issue
Pelvic exenteration			X	4 units
Radical hysterectomy		X		
Hysterectomy with lymph node dissection		X		
Vulvectomy		X		
Laparotomy for ovarian cancer		X		