

Blood Ordering Guidelines for Elective Surgery

(Maximum Surgical Blood Order Schedule-MSBOS)

Cardiothoracic/Cardiopulmonary

Wedge resection.....	0
Thoracotomy for decortication.....	TS
Lobectomy.....	TS
Pneumonectomy.....	TS
AICD implantation.....	0
CABG (redo).....	4
CABG.....	2
Carotid endarterectomy.....	0
Pediatric heart.....	1
Congenital heart.....	2
Mitral or aortic valve (redo).....	4
Mitral or aortic valve replacement.....	2
Pacemaker implantation.....	0
Aortobifemoral recon (open).....	2
Axillofemoral recon.....	TS
Femoral-popliteal bypass.....	TS
Aortic endograft.....	2
Carotid stent.....	0
Vein ligation.....	0
Thoracic aortic aneurysm resection.....	4
Mediastinoscopy.....	TS
Thoracoscopy.....	0
Esophagectomy.....	TS

General Surgery

Breast lumpectomy.....	0
Mastectomy.....	0
Hernia repair, initial.....	0
Laparoscopic fundoplication.....	0
Colectomy, open.....	1
Colectomy, laparoscopic.....	TS
Colostomy.....	0
Proctectomy.....	TS
Appendectomy (open or lap).....	0
Adhesiolysis.....	TS
Small bowel resection.....	1
Laparotomy, exploratory.....	TS
Laparotomy, re-opening.....	1
Gastric repair.....	TS
Cholecystectomy, open.....	TS
Cholecystectomy, laparoscopic.....	0
Pancreatectomy.....	1
Hematoma drainage.....	0
Adrenalectomy, laparoscopic.....	0
Hepatectomy, partial.....	2
Diagnostic laparoscopy.....	0
Thyroidectomy.....	0
Parathyroidectomy.....	0

Gynecology

Cervical conization.....	0
Cesarean section.....	TS
Cystectomy-ovarian.....	0
D&C.....	0
Exploration for ovarian cancer.....	TS
Exploratory laparotomy (emerg).....	TS
Diagnostic laparoscopy.....	0
Laparoscopy-operative.....	TS
Local perineal procedures.....	0
Pelvic exenteration.....	2
Radical hysterectomy.....	TS
Stress urinary incontinence repair.....	0
TAH with/without BSO.....	TS
Tubal ligation.....	0
Uterine myomectomy.....	TS
Vaginal hysterectomy.....	0
Vulvectomy.....	0

Vascular Surgery

Angioplasty (arterial).....	0
Carotid endarterectomy.....	0
AV fistula.....	0
Thrombectomy (arterial).....	TS
Amputation (below knee).....	TS
Amputation (above knee).....	TS
Arterial bypass.....	TS
Femoral exposure and endovascular graft....	2
Repair of arterial injury.....	2
EndovascularAAA.....	2
Open AAA.....	2
Ruptured AAA.....	Massive Transf Protocol

Neurosurgery

Lumbar spine fusion.....	0
Laminotomy (single).....	0
Laminectomy (cervical or lumbar).....	TS
Lumbar diskectomy.....	0
Anterior cervical fusion.....	0
Removal of metastasis.....	TS
Remove brain lining lesion.....	TS
Removal meningioma.....	TS
Craniotomy for drainage.....	1
Craniotomy for subdural hematoma.....	1
Craniotomy for aneurysm or AVM.....	2
Craniotomy or laminectomy (age under 5)...	1
Burr hole (for subdural).....	0
Cranial plastic or cranial synostosis repair...	1
Excision of brain or spinal cord tumor.....	TS
Peripheral nerve repair.....	0
Trans-sphenoidal hypophysectomy.....	TS
Temporal bone resection.....	TS
VP shunt (child).....	0

Orthopedics

Foot surgery.....	0
ORIF ankle fracture.....	0
Arthroscopy (knee, shoulder, wrist).....	0
Tibia/fibula fracture repair.....	TS
Ankle or tibia reduction, open.....	0
Amputation (lower extremity).....	0
Partial knee arthroplasty.....	TS
Total knee arthroplasty.....	TS
Revision of knee joint.....	0
Knee ligament reconstruction.....	0
Femur fracture repair (open).....	1
Femoral nail.....	TS
Femur reduction, open.....	TS
Drainage of pelvis fracture.....	TS
Partial hip arthroplasty.....	TS
Total hip arthroplasty.....	1
Revision total hip arthroplasty.....	1
Hindquarter amputation.....	4
Hand surgery.....	0
Forearm surgery.....	0
Amputation UE (above or below elbow).....	0
Forequarter amputation.....	2
Humerus fracture repair/ excision of lesion.....	TS
Rotator cuff repair.....	0
Shoulder reconstruction.....	TS
Vertebral diskectomy.....	TS
Spinal arthrodesis and instrumentation (scoliosis).....	4
Spinal fusion.....	0

Otorhinolaryngology/ Head and Neck Surgery

Arytenoidectomy.....	0
Cleft lip or palate.....	0
Excision branchial cleft.....	0
Excision thyroglossal duct cyst.....	0
Excision nasopharyngeal fibroma.....	2
Hemi-/total laryngectomy.....	TS
Lateral rhinotomy.....	0
Major temporomandibular arthrotomy.....	2
Mandibulectomy.....	2
Maxillary or mandibular osteotomy, fracture repair or reconstruction.....	TS
Neck dissection (all types).....	0
Osteoplastic frontal sinusotomy.....	0
Partial glossectomy.....	TS
Partial maxillectomy.....	TS
Partial parotidectomy.....	0
Radical maxillectomy.....	2
Submaxillary gland excision.....	0
Submucous resection, septoplasty.....	0
Supraglottic laryngectomy and radical neck.....	TS
Temporomandibular arthroscopy/ arthrotomy.....	0
Thyroidectomy.....	0
Thyrotomy/laryngofissure.....	0
Total laryngectomy and radical neck.....	TS
Total parotidectomy.....	0
Tracheostomy.....	0
Tonsillectomy/adenoidectomy.....	0

Plastic Surgery

Mammoplasty.....	0
Cleft lip or palate.....	0
Myocutaneous flap.....	0
Free flap.....	TS
Debridement and closure of pressure ulcer.....	TS
Major craniofacial reconstruction.....	2
Rhinoplasty.....	0
Hand surgery.....	0
Skin graft (other than major burn).....	0

Urology

Cystectomy.....	TS
Excision scrotum (complete/partial).....	0
Nephrectomy.....	0
Orchiectomy.....	0
Prostatectomy (open).....	TS
Transurethral resection (prostate or bladder).....	TS
Urethrectomy.....	0
Urinary diversion.....	TS
Lap prostatectomy.....	TS
Nephrectomy (hand-assisted lap).....	TS
Staging RPLND.....	TS
Percutaneous nephrolithotomy.....	TS
Partial nephrectomy.....	TS
Abdominal sacrocolpexy (open or robot).....	TS
Vaginal prolapse repair.....	TS
Radical prostatectomy (lap).....	0
Adrenalectomy (lap).....	0

MSBOS is intended to provide a general guideline for preop blood ordering. Blood ordering should be individualized to the patient and case type and this guideline may not apply to all patients, for example, a person with hemophilia. If no blood ordering has occurred, MSBOS should serve as the default.

Key

0 = no blood specimen required

TS = Type and Screen (~ 1 hour; no crossmatch will be performed unless antibodies are detected or crossmatch order is received; time required to obtain units ~ 10 minutes once the TS is available if no red cell antibody is found on the TS. If an antibody is discovered on the TS, it can take over 2 hours to obtain crossmatched blood.

1-4 = # of units for crossmatch