GENERAL SURGERY RESIDENCY

Curriculum Outline

Patient Care and Medical Knowledge

2010–2011

Surgical Council on Resident Education

www.surgicalcore.org
AN INTRODUCTION TO THIS DOCUMENT

In recent years, there has been a call for a better defined curriculum in general surgery residency training. An important starting point for curriculum development is to answer the question “What do we expect our residents to know and be able to do at the end of their training?” As described by the Accreditation Council on Graduate Medical Education, we expect our graduating residents to be competent in medical knowledge, patient care and professionalism, among others. In 2004 the General Surgery Residency Committee of the American Board of Surgery (ABS) began to develop a curriculum in general surgery patient care by delineating the specific patient care competencies that they expected of graduating general surgery residents. An expert consensus process was used to develop this document, with significant input from the Association of Program Directors in Surgery (APDS) as well as specialty societies.

The patient care competency was chosen as the subject for initial curriculum development because many groups involved in surgical education felt this area was the most in need of definition and attention. The first version of the patient care curriculum outline was published in the 2008-2009 academic year and a revised version was printed for 2009-2010. For 2010-2011, we have added an outline of topics for the medical knowledge competency. The topics in the medical knowledge domain are clinically oriented, but they differ from the patient care topics in that they apply to the body as a whole rather than specific organ systems or diseases. SCORE recommends that all residents develop proficiency in these areas of medical knowledge.

The enclosed outline of the patient care and medical knowledge portions of the SCORE curriculum is the first step in curriculum development, not a full curriculum. A full curriculum includes educational content, teaching materials and assessment. SCORE and its member organizations are continuing to develop the SCORE General Surgery Resident Curriculum Portal (portal.surgicalcore.org) for the delivery of
instructional content and assessment in support of the patient care curriculum. The website also contains specific performance objectives and educational materials for the medical knowledge topics.

This patient care and medical knowledge curriculum outline has been approved as the basis for full curriculum development by the ABS and SCORE.

**EXPLANATION OF THE CURRICULUM OUTLINE**

This document contains a listing of the patient care topics to be included in a curriculum for a five-year general surgical residency training program. It also specifies in general terms the depth and breadth of training that is expected for each.

To care for the surgical patient, it is necessary to master knowledge related to specific diseases and operations, but also knowledge of systems and conditions that affect the body as a whole, such as septicemia or coagulopathy. The topics in the medical knowledge portion of the SCORE curriculum are generally of this variety, as well as topics of a general nature such as biostatistics and technical aspects of minimally invasive surgery. The 78 medical knowledge topics are organized into 13 subject matter categories. Each topic will have a module devoted to it on the portal with objectives, reading material and questions.

This document will serve as the basis for the SCORE curriculum. SCORE, with the extensive involvement of the APDS Curriculum Committee, is developing specific learning objectives for each topic. Instructional materials are then identified or developed to support the teaching of that topic. It will also be necessary to develop assessment tools to determine if residents have actually acquired the desired knowledge and skills, and finally the effectiveness of the entire program will have to be regularly evaluated. When all of these have been accomplished, there will be a complete curriculum.

This document should not be viewed as static. It will be reviewed annually to introduce new topics as needed, delete obsolete topics, or change the depth and breadth of existing topics.
CLASSIFICATION SYSTEM

The patient care curriculum topics are organized into 28 organ system-based categories. Within each category are diseases/conditions as well as operations/procedures.

The topics are stratified as follows:

Diseases/Conditions

Two levels:

• **BROAD** — A graduate should be able to care for all aspects of disease and provide comprehensive management.

• **FOCUSED** — A graduate should be able to make the diagnosis, provide initial management/stabilization, but will not be expected to be able to provide comprehensive management.

Operations/Procedures

Three levels:

• **ESSENTIAL – COMMON** — Frequently performed operations in general surgery; specific procedure competency is required by end of training (and should be attainable primarily by case volume).

• **ESSENTIAL – UNCOMMON** — Rare, often urgent, operations seen in general surgery practice but not typically done in significant numbers by trainees; specific procedure competency required by end of training (but cannot be attained by case volume alone).

• **COMPLEX** — Not consistently performed by general surgeons in training and not typically performed in general surgery practice. Generic experience in complex procedures is required but not competence in individual procedures. Some residency programs may provide sufficient experience for competence in specific procedures.
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C A T E G O R Y  1 :  A B D O M E N — G E N E R A L

Diseases/Conditions

BROAD
• Acute abdominal pain
• Intra-abdominal abscess
• Rectus sheath hematoma
• Mesenteric cyst

FOCUSED
• Chronic abdominal pain
• Carcinomatosis
• Pseudomyxoma peritoneii
• Spontaneous bacterial peritonitis
• Desmoid tumors
• Chylous ascites
• Retroperitoneal fibrosis

Operations/Procedures

ESSENTIAL — COMMON
• Insertion peritoneal dialysis catheter
• Diagnostic laparoscopy
• Open exploratory laparotomy

ESSENTIAL — UNCOMMON
• Open drainage abdominal abscess

COMPLEX
• Open retroperitoneal lymph node dissection
• Laparoscopic retroperitoneal lymph node dissection
• Operation for pseudomyxoma
CATEGORY 2: ABDOMEN – HERNIA

Diseases/Conditions

BROAD
• Inguinal hernia
• Femoral hernia
• Ventral hernia
• Miscellaneous hernias

Operations/Procedures

ESSENTIAL – COMMON
• Open repair of inguinal and femoral hernia
• Laparoscopic repair of inguinal and femoral hernia
• Open repair of ventral hernia
• Laparoscopic repair of ventral hernia

ESSENTIAL – UNCOMMON
• Repair miscellaneous hernias

COMPLEX
• Component separation abdominal wall reconstruction
Diseases/Conditions

**BROAD**
- Jaundice
- Cholangitis
- Acute cholecystitis
- Chronic cholecystitis
- Choledocholithiasis
- Biliary pancreatitis
- Acalculous cholecystitis and biliary dyskinesia
- Iatrogenic bile duct injury
- Gallstone ileus
- Gallbladder polyps
- Gallbladder cancer (incidental)

**FOCUSED**
- Gallbladder cancer
- Cancer of the bile ducts
- Choledochal cyst
- Sclerosing cholangitis
- Ampullary stenosis/sphincter of Oddi dysfunction

Operations/Procedures

**ESSENTIAL — COMMON**
- Open cholecystectomy with or without cholangiography
- Laparoscopic cholecystectomy with or without cholangiography

**ESSENTIAL — UNCOMMON**
- Cholecystostomy
- Open common bile duct exploration
- Choledochoscopy
- Choledochoenteric anastomosis
- Operation for gallbladder cancer (when found incidentally)
- Repair acute common bile duct injury

**COMPLEX**
- Laparoscopic common bile duct exploration

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Category 3: Abdomen — Biliary

Complex (cont.)

- Operation for gallbladder cancer (planned)
- Operation for bile duct cancer
- Excision choledochal cyst
- Transduodenal sphincteroplasty
CATEGORY 4: ABDOMEN – LIVER

Diseases/Conditions

BROAD
• Liver mass - evaluation
• Hepatic abscess

FOCUSED
• Hepatic adenoma
• Focal nodular hyperplasia
• Hemangioma
• Hepatocellular carcinoma
• Cholangiocarcinoma
• Metastatic tumors
• Miscellaneous hepatic neoplasms
• Ascites
• Bleeding esophageal varices
• Hepatic failure and encephalopathy
• Hepatorenal syndrome
• Viral hepatitis (occupational risk)
• Budd-Chiari syndrome

Operations/Procedures

ESSENTIAL – COMMON
• Open liver biopsy
• Laparoscopic liver biopsy

ESSENTIAL – UNCOMMON
• Drainage liver abscess

COMPLEX
• Open segmentectomy/lobectomy
• Laparoscopic segmentectomy/lobectomy
• Intraoperative ultrasound of liver
• Portal-systemic shunt
Diseases/Conditions

**BROAD**
- Pancreatic abscess and infected necrosis
- Pancreatic pseudocyst

**FOCUSED**
- Autoimmune pancreatitis
- Chronic pancreatitis, including hereditary pancreatitis
- Pancreatic insufficiency
- Ductal adenocarcinoma
- Acinar cell carcinoma
- Cystic neoplasms
- Intraductal papillary mucinous neoplasms
- Other periampullary neoplasms
- Gastrinoma and Z-E syndrome
- Insulinoma
- VIPoma
- Glucagonoma
- Somatostatinoma
- Nonfunctional endocrine tumors
- Lymphoma of pancreas

Operations/Procedures

**COMPLEX**
- Laparoscopic/endoscopic pancreatic debridement for necrosis
- Pancreaticoduodenectomy
- Total pancreatectomy
- Ampullary resection for tumor
- Distal pancreatectomy
- Longitudinal pancreaticojejunostomy
- Frey procedure
- Beger procedure
- Intraoperative pancreatic ultrasound
- Open pancreatic debridement for necrosis
- Drainage pancreatic pseudocyst
Diseases/Conditions

BROAD
- Postsplenectomy sepsis
- Splenic abscess

FOCUSED
- Hemolytic anemias
- Idiopathic thrombocytopenic purpura
- Secondary hypersplenism and splenomegaly
- Neoplasms of spleen
- Splenic cysts

Operations/Procedures

ESSENTIAL — COMMON
- Open splenectomy
- Laparoscopic splenectomy

ESSENTIAL — UNCOMMON
- Partial splenectomy/splenorrhaphy
CATEGORY 7: ALIMENTARY TRACT — ESOPHAGUS

Diseases/Conditions

BROAD
- Gastroesophageal reflux and Barrett’s esophagus
- Hiatal hernia
- Dysphagia
- Spontaneous esophageal perforation
- Iatrogenic esophageal perforation
- Mallory-Weiss syndrome
- Stricture

FOCUSED
- Achalasia
- Zenker’s diverticulum
- Epiphrenic diverticulum
- Foreign bodies
- Schatzki’s ring
- Chemical burns
- Benign neoplasms
- Adenocarcinoma
- Squamous cell carcinoma
- Diffuse esophageal spasm
- Nutcracker esophagus
- Presbyesophagus
- Scleroderma connective tissue disorders

Operations/Procedures

ESSENTIAL — COMMON
- Laparoscopic antireflux procedure

ESSENTIAL — UNCOMMON
- Open antireflux procedure
- Open repair of paraesophageal hernia
- Laparoscopic repair of paraesophageal hernia
- Repair/resection of perforated esophagus

COMPLEX
- Total esophagectomy
- Esophagogastrectomy
- Cricopharyngeal myotomy with excision of Zenker’s diverticulum
- Open Heller myotomy
- Laparoscopic Heller myotomy
- Collis gastroplasty
CATEGORY 8: ALIMENTARY TRACT – STOMACH

Diseases/Conditions

BROAD
• Upper gastrointestinal bleeding
• Gastric carcinoma
• Duodenal ulcer
• Gastric ulcer
• Peptic ulcer disease with bleeding
• Peptic ulcer disease with perforation
• Peptic ulcer disease with obstruction
• Gastric polyps
• Gastric lymphoma
• Gastric carcinoid tumor
• Stress gastritis

FOCUSED
• Morbid obesity
• Bezoars and foreign bodies
• Gastroparesis
• Postgastrectomy syndromes

Operations/Procedures

ESSENTIAL – COMMON
• Percutaneous endoscopic gastrostomy
• Open gastrostomy

ESSENTIAL – UNCOMMON
• Partial/total gastrectomy
• Repair duodenal perforation
• Truncal vagotomy and drainage

COMPLEX
• Open operation for morbid obesity
• Laparoscopic operation for morbid obesity
• Laparoscopic gastric resection
• Proximal gastric vagotomy
• Revisional procedures for postgastrectomy syndromes
Diseases/Conditions

**BROAD**
- Small bowel obstruction and ileus
- Emergent management of Crohn’s disease of small intestine
- Acute mesenteric ischemia: arterial, venous, and nonocclusive
- Meckel’s diverticulum
- Radiation enteritis
- Small intestinal polyps
- Small intestinal adenocarcinoma
- Small intestinal lymphoma
- Small intestinal carcinoid tumor
- Small intestinal GISTs
- Intussusception
- Pneumatosis cystoides intestinalis
- Enterocutaneous fistula

**FOCUSED**
- Short bowel syndrome
- Enteric infections and blind loop syndrome

Operations/Procedures

**ESSENTIAL — COMMON**
- Open small bowel resection
- Open adhesiolysis
- Laparoscopic adhesiolysis
- Ileostomy
- Ileostomy closure
- Open feeding jejunostomy
- Laparoscopic feeding jejunostomy

**ESSENTIAL — UNCOMMON**
- Superior mesenteric artery embolectomy/thrombectomy

**COMPLEX**
- Stricturoplasty for Crohn’s disease
Category 10: Alimentary Tract — Large Intestine

Diseases/Conditions

BROAD
- Lower gastrointestinal bleeding
- Large bowel obstruction
- Acute appendicitis
- Diverticulitis
- Diverticular bleeding
- Diverticular fistulae
- Colonic polyps
- Colonic cancer
- Emergent management of ulcerative colitis
- Emergent management of Crohn’s disease of colon
- Volvulus
- Miscellaneous colonic neoplasms
- Appendiceal neoplasms
- Emergent management of indeterminate colitis
- Ischemic colitis
- Antibiotic-induced colitis

FOCUSED
- Endometriosis
- Irritable bowel syndrome
- Functional constipation
- Infectious colitis

Operations/Procedures

ESSENTIAL — COMMON
- Open appendectomy
- Laparoscopic appendectomy
- Open partial colectomy
- Laparoscopic partial colectomy
- Colostomy
- Colostomy closure

ESSENTIAL — UNCOMMON
- Subtotal colectomy with ileorectal anastomosis/ileostomy

COMPLEX
- Total proctocolectomy and ileoanal pull-through
CATEGORY 11: ALIMENTARY TRACT — ANORECTAL

Diseases/Conditions

BROAD
- Hemorrhoids
- Anal fissure
- Anorectal abscess and fistulae
- Rectal cancer
- Anal cancer

FOCUSED
- Pelvic floor dysfunction
- Incontinence
- Anal dysplasia/sexually-transmitted disease
- Rectal prolapse

Operations/Procedures

ESSENTIAL — COMMON
- Banding for internal hemorrhoids
- Hemorrhoidectomy
- Subcutaneous lateral internal sphincterotomy
- Drainage anorectal abscess
- Anal fistulotomy/seton placement

ESSENTIAL — UNCOMMON
- Excision of anal cancer

COMPLEX
- Stapled hemorrhoidectomy
- Repair complex anorectal fistulae
- Operation for incontinence/constipation
- Open transabdominal operation for rectal prolapse
- Laparoscopic transabdominal operation for rectal prolapse
- Perineal operation for rectal prolapse
- Transanal resection for tumor
- Abdominoperineal resection
- Pelvic exenteration for rectal cancer
- Operation for anal cancer
Operations/Procedures

**ESSENTIAL — COMMON**
- Esophagogastroduodenoscopy
- Proctoscopy
- Colonoscopy with or without biopsy/polypectomy
- Bronchoscopy
- Laryngoscopy

**COMPLEX**
- Mediastinoscopy
- Cystoscopy
- ERCP
**Category 13: Breast**

**Diseases/Conditions**

**BROAD**
- Breast mass
- Nipple discharge
- Fibroadenoma
- Fibrocystic disease
- Intraductal papilloma
- Gynecomastia
- Invasive ductal carcinoma
- Ductal carcinoma in situ
- Invasive lobular carcinoma
- Lobular carcinoma in situ
- Fat necrosis
- Mastitis and abscess
- Galactocele
- Mondor disease
- Inflammatory breast cancer
- Paget’s disease of the nipple
- Cystosarcoma phyllodes
- Breast cancer during pregnancy and lactation
- Occult breast cancer with axillary metastasis
- Male breast cancer
- Atypical ductal hyperplasia
- Hereditary breast cancer
- Radial scar

**Operations/Procedures**

**ESSENTIAL — COMMON**
- Aspiration of breast cyst
- Duct excision
- Breast biopsy with or without needle localization
- Lumpectomy
- Simple mastectomy
- Axillary dissection
- Sentinel lymph node biopsy
- Modified radical mastectomy

**ESSENTIAL — UNCOMMON**
- Radical mastectomy

**COMPLEX**
- Stereotactic breast biopsy
CATEGORY 14: ENDOCRINE

Diseases/Conditions

BROAD
• Thyroid nodule(s)
• Papillary carcinoma
• Follicular carcinoma
• Primary hyperparathyroidism
• Hypothyroidism (postoperative)
• Hypercalcemia
• Hypocalcemia
• Addisonian crisis
• Hyperthyroidism

FOCUSED
• Thyroiditis
• Medullary carcinoma
• Hurthle cell tumors
• Anaplastic carcinoma
• Secondary hyperparathyroidism
• Tertiary hyperparathyroidism
• Recurrent or persistent hyperparathyroidism
• Parathyroid carcinoma
• Multiple endocrine neoplasia type I
• Multiple endocrine neoplasia type IIA
• Multiple endocrine neoplasia type IIB
• Incidental adrenal mass
• Pheochromocytoma
• Primary hyperaldosteronism
• Cushing’s syndrome
• Cushing’s disease
• Adrenocortical carcinoma

Operations/Procedures

ESSENTIAL – COMMON
• Partial or total thyroidectomy
• Parathyroidectomy

COMPLEX
• Open adrenalectomy
• Laparoscopic adrenalectomy
Diseases/Conditions

**BROAD**
- Pilonidal cyst and sinus
- Nevi
- Melanoma
- Squamous cell carcinoma
- Basal cell carcinoma
- Evaluation of soft tissue masses
- Epidermal cyst
- Apocrine tumor
- Eccrine tumor
- Sebaceous tumor
- Merkel cell tumor
- Dermatofibrosarcoma
- Hidradenitis
- Cellulitis
- Necrotizing fasciitis
- Paronychia
- Felon
- Wound infection

**FOCUSED**
- Decubitus ulcer
- Extremity soft tissue sarcomas
- Retroperitoneal soft tissue sarcomas
- Lymphedema and lymphangitis

Operations/Procedures

**ESSENTIAL — COMMON**
- Excisional and incisional biopsy of skin/soft tissue lesions
- Incision, drainage, debridement for soft tissue infections
- Pilonidal cystectomy

**ESSENTIAL — UNCOMMON**
- Wide local excision melanoma
- Sentinel lymph node biopsy for melanoma

**COMPLEX**
- Iliinguinal - femoral lymphadenectomy
- Major resection for soft tissue sarcoma
Diseases/Conditions

**BROAD (NOT AS BROAD AS SPECIALIST)**
- Hypovolemic shock
- Septic shock
- Cardiogenic shock
- Neurogenic shock
- Respiratory failure
- Cardiac failure
- Gastrointestinal failure
- Hepatic failure
- Renal failure
- Coagulopathy
- Neurologic dysfunction
- Endocrine dysfunction
- Derangements of electrolytes and acid-base
- Anaphylaxis
- Pneumonia - hospital acquired

Operations/Procedures

**ESSENTIAL — COMMON**
- Arterial line placement
- Central venous line placement
- Pulmonary artery catheter placement
- Endotracheal intubation
- Real-time ultrasound technique for vascular localization
- Administration of oxygen and administrative devices
- Airway management
- Thoracentesis
- Paracentesis
- Nasogastric tube placement
- Urinary catheterization
- Patient controlled analgesia and epidural analgesia
- Measurement of compartment pressures (abdomen, extremity)

**COMPLEX**
- Cardiac pacing (external and transvenous)
- Defibrillation and cardioversion
Diseases/Conditions

BROAD

• Injuries of the spleen
• Injuries of the liver
• Injuries of the small intestine
• Injuries of the colon and rectum
• Blunt trauma
• Penetrating trauma
• Vascular injuries of the neck
• Injuries of the trachea and larynx
• Injuries of the pharynx and cervical esophagus
• Nerve injuries of the neck
• Rib fractures
• Sternal fractures
• Flail chest
• Pneumothorax
• Hemothorax
• Pulmonary contusion
• Pulmonary laceration
• Myocardial contusion
• Cardiac tamponade
• Esophageal injury
• Injuries of the diaphragm
• Injuries of the stomach
• Injuries of the duodenum
• Injuries of the pancreas
• Retroperitoneal hematoma
• Pelvic fractures
• Injuries of the kidney
• Injuries of the bladder
• Injuries of the ureter
• Vascular injuries of the thorax
• Vascular injuries of the abdomen
• Vascular injuries of the extremities
• Pediatric trauma
• Geriatric trauma
• Trauma in pregnancy

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FOCUSED

• Closed head injury
• Penetrating head injury
• Tracheobronchial injuries
• Aortic Injuries
• Urethral injuries
• Spine fracture
• Pelvic fracture
• Extremity fractures
• Dislocations
• Sprains and strains
• Mangle and traumatic amputation
• Snake bites
• Spider bites
• Bee and wasp stings
• Scorpion bites
• Animal and human bites
• Hypothermia
• Frostbite
• Flame burns
• Scald burns
• Electrical burns
• Chemical burns
• Smoke inhalation injury
• Carbon monoxide poisoning

Operations/Procedures

ESSENTIAL — UNCOMMON

• Management of esophageal trauma
• Management of gastric trauma
• Management of duodenal trauma
• Management of small bowel trauma
• Management of colon trauma
• Neck exploration for trauma
• Open exploratory thoracotomy
• Open exploratory laparotomy
• Laparoscopic exploratory laparotomy
• Splenectomy/splenorrhaphy

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ESSENTIAL — UNCOMMON (CONT.)

- Repair hepatic lacerations
- Drainage pancreatic injury
- Debride/suture major wounds
- Repair/resection for kidney trauma
- Repair ureteral injury
- Repair bladder injury
- Repair of carotid artery injury
- Repair of abdominal aorta or vena cava injury
- Repair peripheral vessels
- Fasciotomy for injury
- Repair cardiac injury
- Focused assessment with sonography (FAST scan)

COMPLEX

- Burn debridement or grafting
- Placement of intracranial pressure monitor
- Reduction and stabilization of maxillofacial fracture
- Repair of tendon or nerve
- Hepatic resection for injury
- Resection for pancreatic injury
- Closed reduction of fracture
- Open reduction of open/closed fracture
- Debridement and reduction of open fracture
- Repair of thoracic aorta, innominate, subclavian injury
CATEGORY 18: VASCULAR – ARTERIAL DISEASE

Diseases/Conditions

BROAD
• Acute limb ischemia
• Peripheral arterial emboli
• Acute arterial thrombosis
• Compartment syndromes
• Diabetic foot infections

FOCUSED
• Cerebrovascular occlusive disease
• Aortoiliac occlusive disease
• Chronic visceral occlusive disease
• Renal artery occlusive disease
• Femoropopliteal occlusive disease
• Infraopopliteal occlusive disease
• Upper extremity occlusive disease
• Buerger disease
• Fibromuscular dysplasia
• Cystic medial necrosis
• Behcet disease
• Aortic aneurysms
• Visceral arterial aneurysms
• Peripheral arterial aneurysms
• Aortic dissection
• Claudication
• Hypercoagulable syndromes
• Carotid body tumors
• Vascular graft infections
• Aortic thrombosis
• Thoracic outlet syndrome

Operations/Procedures

ESSENTIAL – UNCOMMON
• Embolectomy/thrombectomy artery
• Above knee amputation
• Below knee amputation
• Toe amputation

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CATEGORY 18: VASCULAR — ARTERIAL DISEASE

COMPLEX

- Aorto-iliac/femoral bypass
- Ilio-iliac/femoral bypass
- Femoral-popliteal bypass
- Profunda endarterectomy
- Infrapopliteal bypass
- Other endarterectomy
- Composite leg bypass graft
- Revise/re-do lower extremity bypass
- Arm bypass, endarterectomy, repair
- Celiac/SMA endarterectomy/bypass
- Renal endarterectomy/bypass
- Femoral-femoral bypass
- Axillo-femoral bypass
- Axillo-popliteal-tibial bypass
- Transmetatarsal amputation
- Upper extremity amputation
- Disarticulation
- Elective repair infrarenal aortoiliac aneurysm
- Repair femoral aneurysm
- Repair popliteal aneurysm
- Repair suprarenal abdominal aortic aneurysm
- Repair thoracoabdominal aortic aneurysm
- Repair thoracic aortic aneurysm
- Carotid endarterectomy
- Reoperative carotid surgery
- Excise carotid body tumor
- Direct repair aortic arch branches for CNS symptoms
- Vertebral artery operation
- Vascular ultrasound
- Angioscopy
- Balloon angioplasty
- Transcatheter stent
- Other endovascular graft
- Endovascular repair aortic aneurysm

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Category 18: Vascular — Arterial Disease

Complex (cont.)

- Endovascular repair other aneurysm
- Endovascular thrombolyis
- Pseudoaneurysm repair/injection
- Explore post-op bleed, thrombosis, infection
- Graft thrombectomy/revision
- Excise infected vascular graft
- Repair graft-enteric fistula
- Sympathectomy
- Harvest arm vein
- Thoracic outlet decompression
- Repair ruptured aortic aneurysm
Diseases/Conditions

**BROAD**
- Venous thrombosis/embolism
- Thrombophlebitis, including suppurative
- Venous stasis and chronic venous insufficiency
- Varicose veins

Operations/Procedures

**ESSENTIAL — COMMON**
- Venous insufficiency and operation for varicose veins
- Sclerotherapy, peripheral vein
- Insertion vena caval filter

**COMPLEX**
- Venous embolectomy/thrombectomy
- Venous reconstruction
- Non-reconstructive venous ulcer operation
- Repair arteriovenous malformation
CATEGOR Y 20: VASCULAR – ACCESS

Diseases/Conditions

BROAD
• Percutaneous vascular access for dialysis

Operations/Procedures

ESSENTIAL – COMMON
• Percutaneous vascular access
• Arteriovenous graft/fistula
• Revision arteriovenous access
Diseases/Conditions

_BROAD_
- Brain death

_FOCUSED_
- Immunosuppression
- Organ preservation

Operations/Procedures

_COMPLEX_
- Donor nephrectomy
- Donor hepatectomy
- Kidney transplant
- Kidney-pancreas transplant
- En bloc abdominal organ retrieval
- Liver transplant
- Pancreas transplant
Diseases/Conditions

**BROAD**
- Pneumothorax
- Hemothorax
- Pleural effusion/empyema

**FOCUSED**
- Mediastinitis
- Chylothorax
- Adenocarcinoma of the lung
- Undifferentiated lung carcinoma
- Small-cell carcinoma of the lung
- Large-cell carcinoma of the lung
- Soft tissue sarcomas of chest wall
- Thymoma
- Teratoma of the mediastinum
- Neurogenic tumor of the mediastinum
- Enteric cyst of the mediastinum
- Pericardial cyst
- Bronchogenic cyst
- Superior vena cava syndrome
- Tracheoinnominate fistula
- Tracheoesophageal fistula
- Valvular heart disease
- Congestive heart failure
- Endocarditis
- Coronary artery disease
- Ventricular aneurysms
- Cardiomyopathy
- Pericarditis

Operations/Procedures

**ESSENTIAL — COMMON**
- Chest tube placement

**ESSENTIAL — UNCOMMON**
- Exploratory thoracotomy
- Pericardial window for drainage

(continued next page)
CATEGORY 22: THORACIC SURGERY

COMPLEX

- Thoracorscopy with or without biopsy
- Thoracoscopic pleurodesis
- Thoracoscopic Heller myotomy
- Excision mediastinal tumor
- Transthoracic repair diaphragmatic hernia
- Open drainage of empyema
- Pneumonectomy
- Cardiac procedures
- Pericardiectomy
- Pacemaker insertion
Diseases/Conditions

**BROAD**
- Hypertrophic pyloric stenosis
- Umbilical hernia
- Inguinal hernia
- Malrotation
- Intussusception
- Meckel’s diverticulum

**FOCUSED**
- Gastroschisis
- Omphalocele
- Esophageal atresia
- Tracheoesophageal fistula
- Foreign bodies of the trachea/esophagus
- Congenital diaphragmatic hernia
- Duodenal atresia/stenosis
- Pancreas divisum
- Intestinal atresia and meconium ileus
- Imperforate anus
- Necrotizing enterocolitis
- Hirschsprung’s disease
- Biliary atresia
- Choledochal cysts
- Cryptorchidism
- Wilms tumor
- Neuroblastoma

Operations/Procedures

**ESSENTIAL — COMMON**
- Inguinal herniorrhaphy in children
- Umbilical hernia repair in children

**ESSENTIAL — UNCOMMON**
- Pyloromyotomy
- Emergency operation for malrotation
- Emergency operation for intussusception

(continued next page)
CATEGORY 23: PEDIATRIC SURGERY

COMPLEX

- Excise branchial cleft anomaly
- Excise thyroglossal duct cyst
- Orchiopexy
- Open antireflux procedure
- Laparoscopic antireflux procedure
- Repair intestinal atresia/stenosis
- Repair diaphragmatic hernia
- Repair omphalocoele/gastroschisis
- Procedure for meconium ileus/necrotizing enterocolitis
- Excision Wilms tumor/neuroblastoma
- Operation for Hirschsprung’s/imperforate anus
- Repair esophageal atresia/tracheoesophageal fistula
- Repair deformity chest wall
**Category 24: Plastic Surgery**

**Diseases/Conditions**

**FOCUSED**
- Abdominoplasty
- Breast reduction and enlargement
- Postmastectomy reconstruction
- Abdominal wall reconstruction

**Operations/Procedures**

**ESSENTIAL — COMMON**
- Skin grafting

**COMPLEX**
- Revision of scars and resultant deformities
- Composite tissue transfer
- Major reconstructive procedures
CATEGORY 25: GENITOURINARY

Diseases/Conditions

FOCUSED
- Iatrogenic ureteral injury
- Neurogenic bladder
- Urinary incontinence
- Obstructive uropathy
- Impotence
- Neoplasms of the bladder
- Neoplasms of the ureter
- Neoplasms of the kidney
- Neoplasms of the prostate
- Neoplasms of the testicle
- Stone disease

Operations/Procedures

ESSENTIAL — UNCOMMON
- Hydrocelectomy
- Nephrectomy
- Orchietectomy
- Cystostomy
- Repair iatrogenic ureteral injury

COMPLEX
- Prostatectomy
- Ileal urinary conduit
- Cystectomy
Diseases/Conditions

**BROAD**
- Ectopic pregnancy
- Pelvic inflammatory disease
- Incidental ovarian mass/cyst

**FOCUSED**
- Endometriosis
- Benign ovarian neoplasms
- Malignant ovarian neoplasms
- Benign uterine neoplasms
- Malignant uterine neoplasms
- Cystocele
- Rectocele

Operations/Procedures

**ESSENTIAL — UNCOMMON**
- Hysterectomy
- Salpingo-oophorectomy

**COMPLEX**
- Caesarian section
- Repair cystocele
- Repair rectocele
Category 27: Head and Neck

Diseases/Conditions

BROAD
• Adenopathy
• Upper airway obstruction

FOCUSED
• Epistaxis
• Mucosal cancers of the oral cavity
• Mucosal cancers of the pharynx
• Mucosal cancers of the larynx
• Parotid gland tumors
• Submandibular gland tumors

Operations/Procedures

ESSENTIAL — COMMON
• Tracheostomy

ESSENTIAL — UNCOMMON
• Cricothyroidotomy

COMPLEX
• Resection of lip/tongue lesions
• Parotidectomy
• Modified radical neck dissection
CATEGORY 28: NERVOUS SYSTEM

Diseases/Conditions

BROAD
• Management of acute pain

FOCUSED
• Management of chronic pain

Operations/Procedures

ESSENTIAL – UNCOMMON
• Digital nerve block

COMPLEX
• Placement of indwelling epidural catheter
• Placement of nerve stimulator for chronic pain
• Celiac plexus blockade – percutaneous or endoscopic
• Thoracic splanchnicectomy
• Peripheral nerve block(s) other than digital
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<td>Acute abdominal pain</td>
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<td>Intra-abdominal abscess</td>
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<td>Rectus sheath hematoma</td>
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<td><strong>Abdomen - Hernia</strong></td>
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<td>Inguinal hernia</td>
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<td>Femoral hernia</td>
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<td>Ventral hernia</td>
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<td>Miscellaneous hernias</td>
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<tr>
<td><strong>Abdomen - Biliary</strong></td>
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<td>Jaundice</td>
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<td>Acute cholecystitis</td>
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<td>Chronic cholecystitis</td>
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<td>Choleodocholithiasis</td>
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<td>Biliary pancreatitis</td>
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<td>Acalculous cholecystitis and biliary dyskinesia</td>
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<td>Iatrogenic bile duct injury</td>
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<td>Gallstone ileus</td>
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<td>Gallbladder polyps</td>
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<td>Gallbladder cancer (incidental)</td>
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<td><strong>Abdomen - Liver</strong></td>
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<tr>
<td>Liver mass - evaluation</td>
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<td>Hepatic abscess</td>
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<td><strong>Abdomen - Pancreas</strong></td>
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<td>Pancreatic abscess and infected necrosis</td>
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<td>Pancreatic pseudocyst</td>
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<tr>
<td><strong>Abdomen - Spleen</strong></td>
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<tr>
<td>Postsplenectomy sepsis</td>
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<td>Splenic abscess</td>
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<tr>
<td><strong>Alimentary Tract - Esophagus</strong></td>
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<tr>
<td>Gastroesophageal reflux and Barrett's esophagus</td>
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<td>Hiatal hernia</td>
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<td>Dysphagia</td>
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<td>Spontaneous esophageal perforation</td>
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<td>Iatrogenic esophageal perforation</td>
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<td>Mallory-Weiss syndrome</td>
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<td>Stricture</td>
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<tr>
<td><strong>Alimentary Tract - Stomach</strong></td>
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<tr>
<td>Upper gastrointestinal bleeding</td>
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<tr>
<td>Gastric carcinoma</td>
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<td>Duodenal ulcer</td>
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<td>Gastric ulcer</td>
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<tr>
<td>Peptic ulcer disease with bleeding</td>
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<td>Peptic ulcer disease with perforation</td>
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<td>Peptic ulcer disease with obstruction</td>
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<td>Gastric polyps</td>
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<td>Gastric lymphoma</td>
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<td>Gastric carcinoid tumor</td>
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<tr>
<td>Stress gastritis</td>
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<td><strong>Alimentary Tract - Small Intestine</strong></td>
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<tr>
<td>Small bowel obstruction and ileus</td>
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<tr>
<td>Emergent management of Crohn disease of small intestine</td>
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<td>Acute mesenteric ischemia: arterial, venous, and nonocclusive</td>
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<tr>
<td>Meckel's diverticulum</td>
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<tr>
<td>Radiation enteritis</td>
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<td>Small intestinal polyps</td>
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<td>Small intestinal adenocarcinoma</td>
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<td>Small intestinal lymphoma</td>
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<td>Small intestinal carcinoid tumor</td>
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<td>Small intestinal GISTs</td>
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<tr>
<td>Intussusception</td>
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<tr>
<td>Pneumatosis cystoides intestinalis</td>
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<td>Enterocutaneous fistula</td>
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</tbody>
</table>
Alimentary Tract - Large Intestine
Lower gastrointestinal bleeding
Large bowel obstruction
Acute appendicitis
Diverticulitis
Diverticular bleeding
Diverticular fistulae
Colonic polyps
Colonic cancer
Emergent management of ulcerative colitis
Emergent management of Crohn’s disease of colon
Volvulus
Miscellaneous colonic neoplasms
Appendiceal neoplasms
Emergent management of indeterminate colitis
Ischemic colitis
Antibiotic-induced colitis

Alimentary Tract - Anorectal
Hemorrhoids
Anal fissure
Anorectal abscess and fistulae
Rectal cancer
Anal cancer

Breast
Breast mass
Nipple discharge
Fibroadenoma
Fibrocystic disease
Intraductal papilloma
Gynecomastia
Invasive ductal carcinoma
Ductal carcinoma in situ
Invasive lobular carcinoma
Lobular carcinoma in situ
Fat necrosis
Mastitis and abscess
Galactocele
Mondor disease
Inflammatory breast cancer
Paget's disease of the nipple
Cystosarcoma phylloides
Breast cancer during pregnancy and lactation
Occult breast cancer with axillary metastasis
Male breast cancer
Atypical ductal hyperplasia
Hereditary breast cancer
Radial scar

Endocrine
Thyroid nodule(s)
Papillary carcinoma
Follicular carcinoma
Primary hyperparathyroidism
Hypothyroidism (postoperative)
Hypercalcemia
Hypocalcemia
Addisonian crisis
Hyperthyroidism

Skin and Soft Tissue
Pilonidal cyst and sinus
Nevi
Melanoma
Squamous cell carcinoma
Basal cell carcinoma
(continued next page)
**Skin and Soft Tissue (cont.)**
Evaluation of soft tissue masses
Epidermal cyst
Apocrine tumor
Eccrine tumor
Sebaceous tumor
Merkel cell tumor
Dermatofibrosarcoma
Hidradenitis
Cellulitis
Necrotizing fasciitis
Paronychia
Felon
Wound infection

**Surgical Critical Care**
Hypovolemic shock
Septic shock
Cardiogenic shock
Neurogenic shock
Respiratory failure
Cardiac failure
Gastrointestinal failure
Hepatic failure
Renal failure
Coagulopathy
Neurologic dysfunction
Endocrine dysfunction
Derangements of electrolytes and acid-base
Anaphylaxis
Pneumonia - hospital acquired

**Trauma**
Injuries of the spleen
Injuries of the liver
Injuries of the small intestine
Injuries of the colon and rectum
Blunt trauma
Penetrating trauma
Vascular injuries of the neck
Injuries of the trachea and larynx
Injuries of the pharynx and cervical esophagus
Nerve injuries of the neck
Rib fractures
Sternal fractures
Flail chest
Pneumothorax
Hemothorax
Pulmonary contusion
Pulmonary laceration
Myocardial contusion
Cardiac tamponade
Esophageal Injury
Injuries of the diaphragm
Injuries of the stomach
Injuries of the duodenum
Injuries of the pancreas
Retroperitoneal hematoma
Pelvic fractures
Injuries of the kidney
Injuries of the bladder
Injuries of the ureter
Vascular injuries of the thorax
Vascular injuries of the abdomen
Vascular injuries of the extremities
Pediatric trauma
Geriatric trauma
Trauma in pregnancy
BROAD

Vascular - Arterial Disease
Acute limb ischemia
Peripheral arterial emboli
Acute arterial thrombosis
Compartment syndromes
Diabetic foot infections

Vascular - Venous
Venous thrombosis/embolism
Thrombophlebitis, including suppurative
Venous stasis and chronic venous insufficiency
Varicose veins

Vascular - Access
Percutaneous vascular access for dialysis

Transplantation
Brain death

Thoracic Surgery
Pneumothorax
Hemothorax
Pleural effusion/empyema

Pediatric Surgery
Hypertrophic pyloric stenosis
Inguinal hernia
Umbilical hernia
Malrotation
Intussusception
Meckel's diverticulum

Gynecology
Ectopic pregnancy
Pelvic inflammatory disease
Incidental ovarian mass/cyst

Head and Neck
Adenopathy
Upper airway obstruction

Nervous System
Management of acute pain

FOCUSED

Abdomen - General
Chronic abdominal pain
Carcinomatosis
Pseudomyxoma peritonei
Spontaneous bacterial peritonitis
Desmoid tumors
Chylous ascites
Retroperitoneal fibrosis

Abdomen - Biliary
Gallbladder cancer
Cancer of the bile ducts
Choledochal cyst
Sclerosing cholangitis
Ampullary stenosis/sphincter of Oddi dysfunction

Abdomen - Liver
Hepatic adenoma
Focal nodular hyperplasia
Hemangioma
Hepatocellular carcinoma
Cholangiocarcinoma
Metastatic tumors
Miscellaneous hepatic neoplasms
Ascites
Bleeding esophageal varices
Hepatic failure and encephalopathy
(continued next page)
Abdomen - Liver (cont.)
Hepatorenal syndrome
Viral hepatitis (occupational risk)
Budd-Chiari syndrome

Abdomen - Pancreas
Autoimmune pancreatitis
Chronic pancreatitis, including hereditary pancreatitis
Pancreatic insufficiency
Ductal adenocarcinoma
Acinar cell carcinoma
Cystic neoplasms
Intraductal papillary mucinous neoplasms
Other periampullary neoplasms
Gastrinoma and Z-E syndrome
Insulinoma
VIPoma
Glucagonoma
Somatostatinoma
Nonfunctional endocrine tumors
Lymphoma of pancreas

Abdomen - Spleen
Hemolytic anemias
Idiopathic thrombocytopenic purpura
Secondary hypersplenism and splenomegaly
Neoplasms of spleen
Splenic cysts

Alimentary Tract - Esophagus
Achalasia
Zenker’s diverticulum
Epiphrenic diverticulum
Foreign bodies
Schatzki’s ring
Chemical burns
Benign neoplasms
Adenocarcinoma
Squamous cell carcinoma
Diffuse esophageal spasm
Nutcracker esophagus
Presbyesophagus
Scleroderma connective tissue disorders

Alimentary Tract - Stomach
Morbid obesity
Bezoars and foreign bodies
Gastroparesis
Postgastrectomy syndromes

Alimentary Tract - Small Intestine
Short bowel syndrome
Enteric infections and blind loop syndrome

Alimentary Tract - Large Intestine
Endometriosis
Irritable bowel syndrome
Functional constipation
Infectious colitis

Alimentary Tract - Anorectal
Pelvic floor dysfunction
Incontinence
Anal dysplasia/sexually-transmitted disease
Rectal prolapse

Endocrine
Thyroiditis
Medullary carcinoma
Hurthle cell tumors
Anaplastic carcinoma
(continued next page)
FOCUSED

Endocrine (cont.)
Secondary hyperparathyroidism
Tertiary hyperparathyroidism
Recurrent or persistent hyperparathyroidism
Parathyroid carcinoma
Multiple endocrine neoplasia type I
Multiple endocrine neoplasia type IIA
Multiple endocrine neoplasia type IIB
Incidental adrenal mass
Pheochromocytoma
Primary hyperaldosteronism
Cushing’s syndrome
Cushing’s disease
Adrenocortical carcinoma

Skin and Soft Tissue
Decubitus ulcer
Extremity soft tissue sarcomas
Retroperitoneal soft tissue sarcomas
Lymphedema and lymphangitis

Trauma
Closed head injury
Penetrating head injury
Tracheobronchial injuries
Aortic injuries
Urethral injuries
Spine fracture
Pelvic fracture
Extremity fractures
Dislocations
Sprains and strains
Mangle and traumatic amputation
Snake bites
Spider bites
Bee and wasp stings
Scorpion bites
Animal and human bites
Hypothermia
Frostbite
Flame burns
Scald burns
Electrical burns
Chemical burns
Smoke inhalation injury
Carbon monoxide poisoning

Vascular - Arterial Disease
Cerebrovascular occlusive disease
Aortoiliac occlusive disease
Chronic visceral occlusive disease
Renal artery occlusive disease
Femoropopliteal occlusive disease
Infrapopliteal occlusive disease
Upper extremity occlusive disease
Buerger disease
Fibromuscular dysplasia
Cystic medial necrosis
Behcet disease
Aortic aneurysms
Visceral arterial aneurysms
Peripheral arterial
Aortic dissection
Claudication
Hypercoagulable syndromes
Carotid body tumors
Vascular graft infections
Aortic thrombosis
Thoracic outlet syndrome
FOCUSED

Transplantation
Immunosuppression
Organ preservation

Thoracic Surgery
Mediastinitis
Chylothorax
Adenocarcinoma of the lung
Undifferentiated lung carcinoma
Small-cell carcinoma of the lung
Large-cell carcinoma of the lung
Soft tissue sarcomas of chest wall
Thymoma
Teratoma of the mediastinum
Neurogenic tumor of the mediastinum
Enteric cyst of the mediastinum
Pericardial cyst
Bronchogenic cyst
Superior vena cava syndrome
Tracheoinnominate fistula
Tracheoesophageal fistula
Valvular heart disease
Congestive heart failure
Endocarditis
Coronary artery disease
Ventricular aneurysms
Cardiomyopathy
Pericarditis

Pediatric Surgery
Gastroschisis
Omphalocele
Esophageal atresia
Tracheoesophageal fistula
Foreign bodies of the trachea/esophagus
Congenital diaphragmatic hernia
Duodenal atresia/stenosis
Pancreas divisum
Intestinal atresia and meconium ileus
Imperforate anus
Necrotizing enterocolitis
Hirschsprung's disease
Biliary atresia
Choledochal cysts
Cryptorchidism
Wilms tumor
Neuroblastoma

Plastic Surgery
Abdominoplasty
Breast reduction and enlargement
Postmastectomy reconstruction
Abdominal wall reconstruction

Genitourinary
Iatrogenic ureteral injury
Neurogenic bladder
Urinary incontinence
Obstructive uropathy
Impotence
Neoplasms of the bladder
Neoplasms of the ureter
Neoplasms of the kidney
Neoplasms of the prostate
Neoplasms of the testicle
Stone disease
FOCUSED

Gynecology
Endometriosis
Benign ovarian neoplasms
Malignant ovarian neoplasms
Benign uterine neoplasms
Malignant uterine neoplasms
Cystocele
Rectocele

Head and Neck
Epistaxis
Mucosal cancers of the oral cavity
Mucosal cancers of the pharynx
Mucosal cancers of the larynx
Parotid gland tumors
Submandibular gland tumors

Nervous System
Management of chronic pain
# OPERATIONS/PROCEDURES BY LEVEL

## ESSENTIAL — COMMON

### Abdomen - General
- Insertion peritoneal dialysis catheter
- Diagnostic laparoscopy
- Open exploratory laparotomy

### Abdomen - Hernia
- Open repair of inguinal and femoral hernia
- Laparoscopic repair of inguinal and femoral hernia
- Open repair of ventral hernia
- Laparoscopic repair of ventral hernia

### Abdomen - Biliary
- Open cholecystectomy with or without cholangiography
- Laparoscopic cholecystectomy with or without cholangiography

### Abdomen - Liver
- Open liver biopsy
- Laparoscopic liver biopsy

### Abdomen - Spleen
- Open splenectomy
- Laparoscopic splenectomy

### Alimentary Tract - Esophagus
- Laparoscopic antireflux procedure

### Alimentary Tract - Stomach
- Percutaneous endoscopic gastrostomy
- Open gastrostomy

### Alimentary Tract - Small Intestine
- Open small bowel resection
- Open adhesiolysis
- Laparoscopic adhesiolysis
- Ileostomy
- Ileostomy closure
- Open feeding jejunostomy
- Laparoscopic feeding jejunostomy

### Alimentary Tract - Large Intestine
- Open appendectomy
- Laparoscopic appendectomy
- Open partial colectomy
- Laparoscopic partial colectomy
- Colostomy
- Colostomy closure

### Alimentary Tract - Anorectal
- Banding for internal hemorrhoids
- Hemorrhoidectomy
- Subcutaneous lateral internal sphincterotomy
- Drainage anorectal abscess
- Anal fistulotomy/seton placement

### Endoscopy
- Esophagogastroduodenoscopy
- Proctoscopy
- Colonoscopy with or without biopsy/polypectomy
- Bronchoscopy
- Laryngoscopy

### Breast
- Aspiration of breast cyst
- Duct excision
- Breast biopsy with or without needle localization
- Lumpectomy
- Simple mastectomy
- Axillary dissection
- Sentinel lymph node biopsy
- Modified radical mastectomy
**ESSENTIAL — COMMON**

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<tr>
<th>Category</th>
<th>Procedures</th>
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<td><strong>Skin and Soft Tissue</strong></td>
<td>Excisional and incisional biopsy of skin/soft tissue lesions</td>
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<td>Incision, drainage, debridement for soft tissue infections</td>
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<td>Pilonidal cystectomy</td>
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<td><strong>Surgical Critical Care</strong></td>
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<td>Real-time ultrasound technique for vascular localization</td>
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<td>Thoracentesis</td>
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<td>Measurement of compartment pressures (abdomen, extremity)</td>
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<td><strong>Vascular - Venous</strong></td>
<td>Venous insufficiency and operation for varicose veins</td>
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<td>Sclerotherapy, peripheral vein</td>
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<td>Insertion of vena caval filter</td>
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<td><strong>Vascular - Access</strong></td>
<td>Percutaneous vascular access</td>
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<td>Arterovenous graft/fistula</td>
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<td>Revision arteriovenous access</td>
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<td>Umbilical hernia repair in children</td>
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<td><strong>Plastic Surgery</strong></td>
<td>Skin grafting</td>
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<td><strong>Head and Neck</strong></td>
<td>Tracheostomy</td>
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**ESSENTIAL — UNCOMMON**

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<td><strong>Abdomen - General</strong></td>
<td>Open drainage abdominal abscess</td>
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<tr>
<td><strong>Abdomen - Hernia</strong></td>
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<tr>
<td><strong>Abdomen - Biliary</strong></td>
<td>Cholecystostomy</td>
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<td>Open common bile duct exploration</td>
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<td>Choleodochoscopy</td>
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<td>Choledochoenteric anastomosis</td>
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<td>Operation for gallbladder cancer (when found incidentally)</td>
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<td><strong>Abdomen - Liver</strong></td>
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<tr>
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<td>Partial splenectomy/splenorrhaphy</td>
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<tr>
<td><strong>Alimentary Tract - Esophagus</strong></td>
<td>Open antireflux procedure</td>
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<td>Open repair of paraesophageal hernia</td>
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<td>Laparoscopic repair of paraesophageal hernia</td>
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<tr>
<td></td>
<td>Repair/resection of perforated esophagus</td>
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ESSENTIAL — UNCOMMON

Alimentary Tract - Stomach
Partial/total gastrectomy
Repair duodenal perforation
Truncal vagotomy and drainage

Alimentary Tract - Small Intestine
Superior mesenteric artery embolectomy/thrombectomy

Alimentary Tract - Large Intestine
Subtotal colectomy with ileorectal anastomosis/ileostomy

Alimentary Tract - Anorectal
Excision of anal cancer

Breast
Radical mastectomy

Skin and Soft Tissue
Wide local excision melanoma
Sentinel lymph node biopsy for melanoma

Trauma
Management of esophageal trauma
Management of gastric trauma
Management of duodenal trauma
Management of small bowel trauma
Management of colon trauma
Neck exploration for trauma
Open exploratory thoracotomy
Open exploratory laparotomy
Laparoscopic exploratory laparotomy
Splenectomy/splenorrhaphy
Repair hepatic lacerations
Drainage pancreatic injury
Debride/suture major wounds
Repair/resection for kidney trauma
Repair ureteral injury
Repair bladder injury
Repair of carotid artery injury
Repair of abdominal aorta or vena cava injury
Repair peripheral vessels
Fasciotomy for injury
Repair cardiac injury
Focused assessment with sonography (FAST scan)

Vascular - Arterial Disease
Embolectomy/thrombectomy artery
Above knee amputations
Below knee amputations
Toe amputations

Thoracic Surgery
Exploratory thoracotomy
Pericardial window for drainage

Pediatric Surgery
Pyloromyotomy
Emergency operation for malrotation
Emergency operation for intussusception

Genitourinary
Hydrocelectomy
Nephrectomy
Orchiectomy
Cystostomy
Repair iatrogenic ureteral injury

Gynecology
Hysterectomy
Salpingo-oophorectomy

Head and Neck
Cricothyroidotomy

Nervous System
Digital nerve block
**Abdomen - General**
Open retroperitoneal lymph node dissection
Laparoscopic retroperitoneal lymph node dissection
Operation for pseudomyxoma

**Abdomen - Hernia**
Component separation abdominal wall reconstruction

**Abdomen - Biliary**
Laparoscopic common bile duct exploration
Operation for gallbladder cancer (planned)
Operation for bile duct cancer
Excision choledochal cyst
Transduodenal sphincteroplasty

**Abdomen - Liver**
Open segmentectomy/lobectomy
Laparoscopic segmentectomy/lobectomy
Intraoperative ultrasound of liver
Portal-systemic shunt

**Abdomen - Pancreas**
Laparoscopic/endoscopic pancreatic debridement for necrosis
Pancreaticoduodenectomy
Total pancreatectomy
Ampullary resection for tumor
Distal pancreatectomy
Longitudinal pancreaticojejunostomy
Frey procedure
Beger procedure
Intraoperative pancreatic ultrasound
Open pancreatic debridement for necrosis
Drainage pancreatic pseudocyst

**Alimentary Tract - Esophagus**
Total esophagectomy
Esophagogastrectomy
Cricopharyngeal myotomy with excision Zenker's diverticulum
Open Heller myotomy
Laparoscopic Heller myotomy
Collis gastroplasty

**Alimentary Tract - Stomach**
Open operation for morbid obesity
Laparoscopic operation for morbid obesity
Laparoscopic gastric resection
Proximal gastric vagotomy
Revisional procedures for postgastrectomy syndromes

**Alimentary Tract - Small Intestine**
Stricturoplasty for Crohn’s disease

**Alimentary Tract - Large Intestine**
Total proctocolectomy and ileoanal pull-through

**Alimentary Tract - Anorectal**
Stapled hemorrhoidectomy
Repair complex anorectal fistulae
Operation for incontinence/constipation
Open transabdominal operation for rectal prolapse
Laparoscopic transabdominal operation for rectal prolapse
Perineal operation for rectal prolapse
Transanal resection for tumor
Abdominoperineal resection
Pelvic exenteration for rectal cancer
Operation for anal cancer

**Endoscopy**
Mediastinoscopy
Cystoscopy
ERCP

**Breast**
Stereotactic breast biopsy
COMPLEX

Endocrine
Open adrenalectomy
Laparoscopic adrenalectomy

Skin and Soft Tissue
Ilioinguinal - femoral lymphadenectomy
Major resection for soft tissue sarcoma

Surgical Critical Care
Cardiac pacing (external and transvenous)
Defibrillation and cardioversion

Trauma
Burn debridement or grafting
Placement of intracranial pressure monitor
Reduction and stabilization of maxillofacial fracture
Repair of tendon or nerve
Hepatic resection for injury
Resection for pancreatic injury
Closed reduction of fracture
Open reduction of open/closed fracture
Debridement and reduction of open fracture
Repair of thoracic aorta, innominate, subclavian injury

Vascular - Arterial Disease
Aorto-iliac/femoral bypass
Ilio-iliac/femoral bypass
Femoral-popliteal bypass
Profunda endarterectomy
Infrapopliteal bypass
Other endarterectomy
Composite leg bypass graft
Revise/re-do lower extremity bypass
Arm bypass, endarterectomy, repair
Celiac/SMA endarterectomy/bypass
Renal endarterectomy/bypass
Femoral-femoral bypass
Axillo-femoral bypass
Axillo-popliteal-tibial bypass
Transmetatarsal amputation
Upper extremity amputation
Disarticulation
Elective repair infrarenal aortoiliac aneurysm
Repair femoral aneurysm
Repair popliteal aneurysm
Repair suprarenal abdominal aortic aneurysm
Repair thoracoabdominal aortic aneurysm
Repair thoracic aortoaneurysm
Carotid endarterectomy
Reoperative carotid surgery
Excise carotid body tumor
Direct repair aortic arch branches for CNS symptoms
Vertebral artery operation
Vascular ultrasound
Angioscopy
Balloon angioplasty
Transcatheter stent
Other endovascular graft
Endovascular repair aortic aneurysm
Endovascular repair other aneurysm
Endovascular thrombolysis
Pseudoaneurysm repair/injection
Explore post-op bleed, thrombosis, infection
Graft thrombectomy/revision
Excise infected vascular graft
Repair graft-enteric fistula
Sympathectomy
Harvest arm vein
Thoracic outlet decompression
Repair ruptured aortic aneurysm
**Vascular - Venous**
Venous embolectomy/thrombectomy
Venous reconstruction
Non-reconstructive venous ulcer operation
Repair arteriovenous malformation

**Transplantation**
Donor nephrectomy
Donor hepatectomy
Kidney transplant
Kidney-pancreas transplant
En bloc abdominal organ retrieval
Liver transplant
Pancreas transplant

**Thoracic Surgery**
Thoracoscopy with or without biopsy
Thoracoscopic pleurodesis
Thoracoscopic Heller myotomy
Excision mediastinal tumor
Transthoracic repair diaphragmatic hernia
Open drainage of empyema
Pneumonectomy
Cardiac procedures
Pericardiectomy
Pacemaker insertion

**Pediatric Surgery**
Excise branchial cleft anomaly
Excise thyroglossal duct cyst
Orchiopexy
Open antireflux procedure
Laparoscopic antireflux procedure
Repair intestinal atresia/stenosis
Repair diaphragmatic hernia
Repair omphalocele/gastrochisis
Procedure for meconium ileus/necrotizing enterocolitis
Excision Wilms tumor/neuroblastoma
Operation for Hirschsprung’s/imperforate anus
Repair esophageal atresia/tracheoesophageal fistula
Repair deformity chest wall

**Plastic Surgery**
Revision of scars and resultant deformities
Composite tissue transfer
Major reconstructive procedures

**Genitourinary**
Prostatectomy
Ileal urinary conduit
Cystectomy

**Gynecology**
Caesarean section
Repair cystocele
Repair rectocele

**Head and Neck**
Resection of lip/tongue lesions
Parotidectomy
Modified radical neck dissection

**Nervous System**
Placement of indwelling epidural catheter
Placement of nerve stimulator for chronic pain
Celiac plexus blockade – percutaneous or endoscopic
Thoracic splanchicectomy
Peripheral nerve block(s) other than digital
MEDICAL KNOWLEDGE

CATEGORY 1: ANESTHESIA

• Choice of anesthesia
• Conscious sedation – agents and technique
• General anesthesia – agents and technique
• Regional anesthesia – agents and technique
• Intraoperative monitoring and common intraoperative problems
• Postoperative pain

CATEGORY 2: BIOSTATISTICS AND EVALUATION OF EVIDENCE

• Research design
• How data is expressed and summarized
• Tests of significance
• Evaluating the quality and applicability of a study
• Levels of evidence
• Surveys and qualitative research
CATEGORY 3: FLUIDS, ELECTROLYTES AND ACID-BASE BALANCE

• Normal body fluid compartments and fluid homeostasis, maintenance fluid and electrolyte therapy
• Hyponatremia and hypernatremia
• Hypokalemia and hyperkalemia
• Hypocalcemia and hypercalcemia
• Magnesium and phosphorus disorders
• Normal acid-base regulation and acid-base disorders

CATEGORY 4: GERIATRIC SURGERY AND END-OF-LIFE CARE

• Nature and clinical impact of physiologic changes associated with aging
• Preoperative evaluation of geriatric patients
• Medication and dosing issues in the elderly
• Goal setting with elderly patients and families
• Advanced directives, DNR orders and power of attorney
• Palliative and hospice care
• Postoperative delirium
• Functional decline
Category 5: Immunology

- Components of the immune system
- The immune response to injury and infection
- Transplant immunology
- Surgery and surgical conditions in immunocompromised hosts

Category 6: Infection and Antimicrobial Therapy

- Host defense and infection
- Diagnostic approach to infection
- Bacterial infections in surgical patients and their treatment
- Viral infections in surgical patients and their treatment
- Fungal infections in surgical patients and their treatment
- Surgical site infections and prophylaxis
- Pathophysiology of sepsis
- Infection control
**CATEGORY 7: MINIMALLY INVASIVE SURGERY – PRINCIPLES**

- MIS equipment and troubleshooting
- Principles and techniques of abdominal access
- Physiology of the patient with pneumoperitoneum
- Technical aspects of laparoscopic surgery
- Robotic surgery

**CATEGORY 8: NUTRITION AND METABOLISM**

- Normal nutritional requirements
- Effect of surgery and injury on nutritional requirements
- Nutritional assessment, indications and choice of route for nutritional support
- Technique of enteral nutrition
- Technique of parenteral nutrition
- Nutritional pharmacology and immunonutrition
- Long-term nutritional support
CATEGORY 9: ONCOLOGY AND TUMOR BIOLOGY

- Epidemiology of cancer
- Etiology of cancer
- Genetic susceptibility to cancer
- Cancer screening and biomarkers
- Molecular biology of cancer
- Cancer immunology
- Chemotherapy of cancer
- Radiation therapy for cancer
- Clinical trials in cancer

CATEGORY 10: PHARMACOLOGY

- Principles of pharmacokinetics and pharmacodynamics; serum monitoring of drug levels
- Adverse effects of drugs commonly used in surgical patients
**Category 11: Preoperative Evaluation and Perioperative Care**

- Systems for the evaluation of surgical risk
- Preoperative assessment and management of cardiac risk
- Preoperative assessment and management of pulmonary risk
- Preoperative assessment and management of coexisting infection
- Perioperative management of the therapeutically anticoagulated patient requiring surgery
- Perioperative prophylaxis of venous thromboembolism
- Perioperative management of the patient on steroids requiring surgery
- Common postoperative problems in general surgical patients

**Category 12: Transfusion and Disorders of Coagulation**

- Normal mechanisms of hemostasis and coagulation
- Inherited and acquired disorders of coagulation
- Approach to the patient with ongoing bleeding and laboratory assessment of coagulation
- Transfusion – indications, risks, type and cross-match, component therapy, ethical issues
C A T E G O R Y  1 3 :  W O U N D  H E A L I N G

- Physiology of normal wound healing
- Disturbances of wound healing and chronic wounds
- Wound closure
- Postoperative wound care
- Adjunctive wound care
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