GENERAL SURGERY RESIDENCY

CURRICULUM OUTLINE

Patient Care
and
Medical Knowledge

2011–2012

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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 six areas: patient care and procedural skills, medical knowledge, professionalism, communication, practice-based learning, and systems-based practice. 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 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 surgical 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 SCORE patient care curriculum outline was published in April 2008; it has subsequently been revised on an annual basis. An outline of topics for the medical knowledge competency was added as of the 2010-2011 edition.

This outline 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.

EXPLANATION OF THE CURRICULUM OUTLINE

This document contains a list of approximately 700 patient care topics to be included in a curriculum for a five-year general surgery residency.
training program. It also specifies in basic terms the depth and breadth of training that is expected for each (see “Classification System” on page 3).

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.

This outline has been approved as the basis for full curriculum development by the ABS and SCORE. SCORE, with the extensive involvement of the APDS, is developing learning objectives for each topic. Instructional materials are then identified or developed to support the teaching of that topic. Assessment tools are also being developed 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.

SCORE has created the SCORE General Surgery Resident Curriculum Portal (portal.surgicalcore.org) for the delivery of instructional content and assessment in support of the curriculum to general surgery residency programs. Learning “modules” are currently available on the portal for most of the topics listed in this booklet, with more to come. Each module features learning objectives, self-assessment questions and various study materials, including textbook chapters, videos and radiologic images. Faculty may assign modules to residents for review; multiple-choice questions are also available to assess resident knowledge. More information about the portal is available from www.surgicalcore.org.
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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PATIENT CARE

Category 1: Abdomen — General

Diseases/Conditions

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

FOCUSED
• Chronic abdominal pain
• Carcinomatosis
• Pseudomyxoma peritonei
• 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
Category 3: Abdomen – Biliary

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)

COMPLEX
- Laparoscopic common bile duct exploration
- Repair acute common bile duct injury

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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
Category 5: Abdomen – Pancreas

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

ESSENTIAL — UNCOMMON
• Distal pancreatectomy
• Open pancreatic debridement for necrosis
• Drainage pancreatic pseudocyst

COMPLEX
• Laparoscopic/endoscopic pancreatic debridement for necrosis
• Pancreaticoduodenectomy
• Total pancreatectomy
• Ampullary resection for tumor
• Longitudinal pancreaticojunostomy
• Frey procedure
• Beger procedure
• Intraoperative pancreatic ultrasound
Category 6: Abdomen – Spleen

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 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
Category 9: Alimentary Tract – Small Intestine

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
- Laparoscopic small bowel resection

**COMPLEX**
- Strictureplasty 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
Category 12: Endoscopy

Operations/Procedures

ESSENTIAL — COMMON

• Esophagogastroduodenoscopy
• Proctoscopy
• Colonoscopy with or without biopsy/ polypectomy
• Bronchoscopy
• Bronchoalveolar lavage for pneumonia
• 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
- Galactoceole
- Mondor disease
- Inflammatory breast cancer
- Paget's disease of the nipple
- Phylloides tumors
- 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
- Partial mastectomy
- Total mastectomy
- Axillary lymph node 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
• Incidental adrenal mass
• Pheochromocytoma
• Primary hyperaldosteronism
• Cushing’s syndrome
• Cushing’s disease
• Adrenocortical carcinoma

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

Operations/Procedures

ESSENTIAL — COMMON
• Partial or total thyroidectomy
• Parathyroidectomy

COMPLEX
• Open adrenalectomy
• Laparoscopic adrenalectomy
Category 15: Skin and Soft Tissue

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**
- Ilioinguinal - femoral lymphadenectomy
- Major resection for soft tissue sarcoma
Category 16: Surgical Critical Care

Diseases/Conditions

BROAD
- Hypovolemic shock
- Septic shock
- Cardiogenic shock
- Neurogenic shock
- Respiratory failure
- Cardiac failure
- Common cardiac arrhythmias
- 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
- Ultrasound use for intravascular access
- 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)
- Defibrillation and cardioversion

COMPLEX
- Cardiac pacing (external and transvenous)
Category 17: Trauma

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
- Aortic injuries
- 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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Category 17: Trauma

**BROAD (cont.)**
- Hypothermia
- Frostbite
- Flame burns
- Scald burns
- Electrical burns
- Chemical burns

**FOCUSED**
- Closed head injury
- Penetrating head injury
- Tracheobronchial 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
- 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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Category 17: Trauma

**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
- Repair of tendon or nerve
- Resection for hepatic injury
- Resection for pancreatic injury
- Closed reduction of fracture
- Open reduction of 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
• 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 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
Category 19: Vascular – Venous

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
Category 20: Vascular – Access

Diseases/Conditions

BROAD
• Percutaneous vascular access for dialysis
• Implantable venous access for long-term therapy

Operations/Procedures

ESSENTIAL — COMMON
• Percutaneous vascular access
• Arteriovenous graft/fistula
• Revision arteriovenous access
• Insertion of implantable venous access devices
Category 21: Transplantation

Diseases/Conditions

BROAD
- Indications for transplantation (kidney, liver, pancreas)
- Brain death

FOCUSED
- Opportunistic infections
- Post-transplant malignancies
- Donor selection criteria
- Immunosuppression
- Organ preservation

Operations/Procedures

COMPLEX
- Live donor nephrectomy
- Live donor hepatectomy
- Kidney transplant
- Kidney-pancreas transplant
- En bloc abdominal organ retrieval
- Liver transplant
- Pancreas transplant
Category 22: Thoracic Surgery

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
• Tumors of the mediastinum
• Cysts of the mediastinum
• Superior vena cava syndrome
• Tracheoinnominate fistula
• Tracheoesophageal fistula
• Valvular heart disease
• Congestive heart failure
• Endocarditis
• Coronary artery disease
• Ventricular aneurysms
• Cardiomyopathy
• Pericarditis
• Metastatic tumors of the lung

Operations/Procedures

**ESSENTIAL — COMMON**

• Chest tube placement and management

**ESSENTIAL — UNCOMMON**

• Exploratory thoracotomy
• Pericardial window for drainage

(continued next page)
Category 22: Thoracic Surgery

**COMPLEX**

- 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
- Partial pulmonary resection, open and thoracoscopic
Category 23: Pediatric Surgery

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 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
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
- Orchiectomy
- Cystostomy
- Repair iatrogenic ureteral injury

COMPLEX

- Ileal urinary conduit
- Cystectomy
Category 26: Gynecology

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**
- Cervical 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 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
### DISEASES/CONDITIONS BY LEVEL

#### BROAD

**Abdomen - General**
- Acute abdominal pain
- Intra-abdominal abscess
- Rectus sheath hematoma
- Mesenteric cyst

**Abdomen - Hernia**
- Inguinal hernia
- Femoral hernia
- Ventral hernia
- Miscellaneous hernias

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

**Abdomen - Liver**
- Liver mass - evaluation
- Hepatic abscess

**Abdomen - Pancreas**
- Pancreatic abscess and infected necrosis
- Pancreatic pseudocyst

**Abdomen - Spleen**
- Postsplenectomy sepsis
- Splenic abscess

**Alimentary Tract - Esophagus**
- Gastroesophageal reflux and Barrett's esophagus
- Hiatal hernia
- Dysphagia
- Spontaneous esophageal perforation
- Iatrogenic esophageal perforation
- Mallory-Weiss syndrome
- Stricture

**Alimentary Tract - Stomach**
- 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

**Alimentary Tract - Small Intestine**
- Small bowel obstruction and ileus
- Emergent management of Crohn 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
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
Phylloides tumors
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
Incidental adrenal mass
Pheochromocytoma
Primary hyperaldosteronism
Cushing's syndrome
Cushing's disease
Adrenocortical carcinoma
**BROAD**

**Skin and Soft Tissue**
- 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

**Surgical Critical Care**
- Hypovolemic shock
- Septic shock
- Cardiogenic shock
- Neurogenic shock
- Respiratory failure
- Cardiac failure
- Common cardiac arrhythmias
- 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
(continued next page)
Trauma (cont.)
Injuries of the bladder
Injuries of the ureter
Aortic injuries
Vascular injuries of the thorax
Vascular injuries of the abdomen
Vascular injuries of the extremities
Pediatric trauma
Geriatric trauma
Trauma in pregnancy
Hypothermia
Frostbite
Flame burns
Scald burns
Electrical burns
Chemical burns

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
Implantable venous access for long term therapy

Transplantation
Indications for transplantation (kidney, liver, pancreas)
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
Cervical adenopathy
Upper airway obstruction

Nervous System
Management of acute pain

Abdomen - General
Chronic abdominal pain
Carcinomatosis
Pseudomyxoma peritonei
Spontaneous bacterial peritonitis
Desmoid tumors
Chyloous 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
- 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 peripancreatic 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
FOCUSED

**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
Secondary hyperparathyroidism
Tertiary hyperparathyroidism
Recurrent or persistent hyperparathyroidism
Parathyroid carcinoma
Multiple endocrine neoplasia type I
Multiple endocrine neoplasia type IIA
Multiple endocrine neoplasia type IIIB

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

**Trauma**
Closed head injury
Penetrating head injury
Tracheobronchial 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
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
Infraopopliteal 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
Transplantation
Opportunistic infections
Post-transplant malignancies
Donor selection criteria
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
Tumors of the mediastinum
Cysts of the mediastinum
Superior vena cava syndrome
Tracheoinnominate fistula
Tracheoesophageal fistula
Valvular heart disease
Congestive heart failure
Endocarditis
Coronary artery disease
Ventricular aneurysms
Cardiomyopathy
Pericarditis
Metastatic tumors of the lung

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**

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<th>Insertion peritoneal dialysis catheter</th>
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<td>Diagnostic laparoscopy</td>
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<td>Open exploratory laparotomy</td>
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<td><strong>Abdomen - Hernia</strong></td>
<td>Open repair of inguinal and femoral hernia</td>
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<td>Laparoscopic repair of inguinal and femoral hernia</td>
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<td>Laparoscopic repair of ventral hernia</td>
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<td><strong>Abdomen - Biliary</strong></td>
<td>Open cholecystectomy with or without cholangiography</td>
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<td>Laparoscopic cholecystectomy with or without cholangiography</td>
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<tr>
<td><strong>Abdomen - Liver</strong></td>
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<td>Laparoscopic liver biopsy</td>
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<td><strong>Abdomen - Spleen</strong></td>
<td>Open splenectomy</td>
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<td>Laparoscopic splenectomy</td>
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<td><strong>Alimentary Tract - Esophagus</strong></td>
<td>Laparoscopic antireflux procedure</td>
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<td><strong>Alimentary Tract - Stomach</strong></td>
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<td><strong>Alimentary Tract - Small Intestine</strong></td>
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<td>Open adhesiolysis</td>
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<td>Laparoscopic adhesiolysis</td>
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<td>Ileostomy</td>
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<td>Ileostomy closure</td>
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<td>Open feeding jejunostomy</td>
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<td>Laparoscopic feeding jejunostomy</td>
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<td><strong>Alimentary Tract - Large Intestine</strong></td>
<td>Open appendectomy</td>
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<td>Laparoscopic appendectomy</td>
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<td>Open partial colectomy</td>
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<td>Laparoscopic partial colectomy</td>
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<td>Colostomy</td>
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<td>Colostomy closure</td>
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<td><strong>Alimentary Tract - Anorectal</strong></td>
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<td>Hemorrhoidectomy</td>
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<td>Subcutaneous lateral internal sphincterotomy</td>
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<td>Drainage anorectal abscess</td>
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<td>Anal fistulotomy/seton placement</td>
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<td><strong>Endoscopy</strong></td>
<td>Esophagogastroduodenoscopy</td>
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<td>Colonoscopy with or without biopsy/polypectomy</td>
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<td>Bronchoscopy</td>
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<td>Bronchoalveolar lavage for pneumonia</td>
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<td>Laryngoscopy</td>
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<td><strong>Breast</strong></td>
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<td>Duct excision</td>
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<td>Breast biopsy with or without needle localization</td>
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<td>Partial mastectomy</td>
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<td>Total mastectomy</td>
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<td>Axillary lymph node dissection</td>
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<td>Sentinel lymph node biopsy</td>
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<td>Modified radical mastectomy</td>
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<td><strong>Endocrine</strong></td>
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<td>Parathyroidectomy</td>
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<td>Ultrasound use for intravascular access</td>
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<td>Administration of oxygen and administrative devices</td>
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<td>Patient controlled analgesia and epidural analgesia</td>
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<td>Measurement of compartment pressures (abdomen, extremity)</td>
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<td>Defibrillation and cardioversion</td>
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<td><strong>Vascular - Venous</strong></td>
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<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>
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<td>Percutaneous vascular access</td>
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<td>Arteriovenous graft/fistula</td>
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<td>Revision arteriovenous access</td>
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<td>Chest tube placement and management</td>
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<td>Inguinal herniorrhaphy in children</td>
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<td>Umbilical hernia repair in children</td>
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<td><strong>Plastic Surgery</strong></td>
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<tr>
<td>Skin grafting</td>
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<td>Tracheostomy</td>
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<thead>
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<tr>
<td><strong>Abdomen - General</strong></td>
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<tr>
<td>Open drainage abdominal abscess</td>
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<td><strong>Abdomen - Hernia</strong></td>
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<td>Repair miscellaneous hernias</td>
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<td>Cholecystostomy</td>
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<td>Open common bile duct exploration</td>
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<td>Choledochoscopy</td>
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<tr>
<td>Choledochoenteric anastomosis</td>
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<tr>
<td>Operation for gallbladder cancer (when found incidentally)</td>
</tr>
<tr>
<td><strong>Abdomen - Liver</strong></td>
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<tr>
<td>Drainage liver abscess</td>
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<tr>
<td><strong>Abdomen - Pancreas</strong></td>
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<tr>
<td>Distal pancreatectomy</td>
</tr>
<tr>
<td>Open pancreatic debridement for necrosis</td>
</tr>
<tr>
<td>Drainage pancreatic pseudocyst</td>
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<tr>
<td><strong>Abdomen - Spleen</strong></td>
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<tr>
<td>Partial splenectomy/splenorrhaphy</td>
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<tr>
<td><strong>Alimentary Tract - Esophagus</strong></td>
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<tr>
<td>Open antireflux procedure</td>
</tr>
<tr>
<td>Open repair of paraesophageal hernia</td>
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<tr>
<td>Laparoscopic repair of paraesophageal hernia</td>
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<tr>
<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
- Laparoscopic small bowel resection

**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
- Repair acute common bile duct injury

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

**Abdomen - Pancreas**
- Laparoscopic/endoscopic pancreatic debridement for necrosis
- Pancreatodudodenectomy
- Total pancreatectomy
- Ampullary resection for tumor
- Longitudinal pancreaticojejunostomy
- Frey procedure
- Beger procedure
- Intraoperative pancreatic ultrasound

**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**
- Stricuroplasty for Crohn’s disease
- Laparoscopic small bowel resection

**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

**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)

Trauma
Burn debridement or grafting
Placement of intracranial pressure monitor
Repair of tendon or nerve
Resection for hepatic injury
Resection for pancreatic injury
Closed reduction of fracture
Open reduction of 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
Infra-popliteal 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
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
COMPLEX

**Vascular - Venous**
- Venous embolectomy/thrombectomy
- Venous reconstruction
- Non-reconstructive venous ulcer operation
- Repair arteriovenous malformation

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

**Thoracic Surgery**
- Thoracoscopic with or without biopsy
- Thoracoscopic pleurodesis
- Thoracoscopic Heller myotomy
- Excision mediastinal tumor
- Transthoracic repair diaphragmatic hernia
- Open drainage of empyema
- Pneumonectomy
- Cardiac procedures
- Pericardectomy
- Pacemaker insertion
- Partial pulmonary resection, open and thorascopic

**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 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

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

**Genitourinary**
- Ileal urinary conduit
- Cystectomy

**Gynecology**
- Caesarian section
- Repair cystocele
- Repair rectocele

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

**Nervous System**
- 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
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 and resuscitative 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 and histocompatibility
- 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
- Principles of antimicrobial resistance
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 and their treatment

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
Category 13: Wound Healing

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