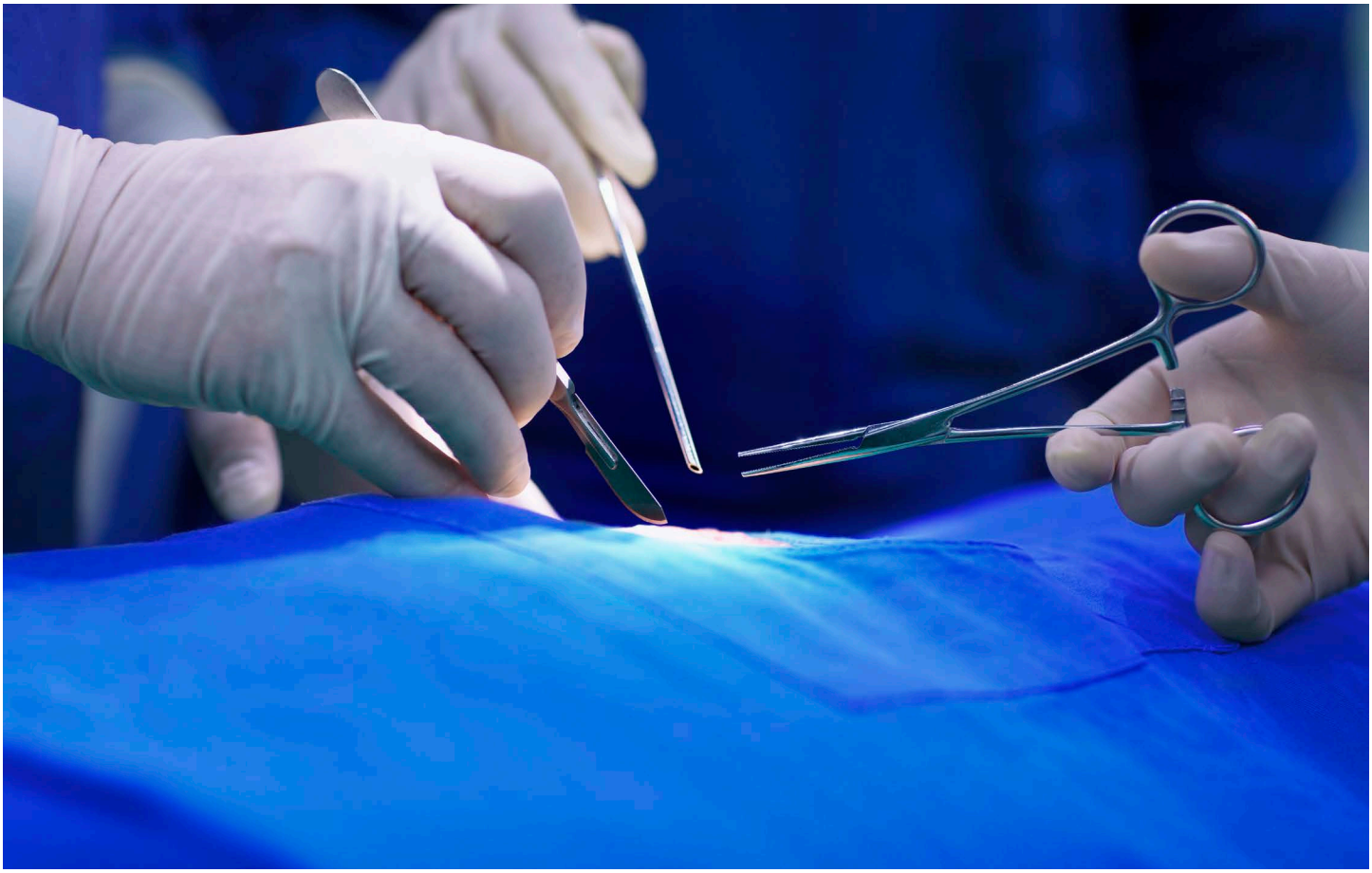

CORE CURRICULUM
FOR SURGICAL ASSISTING

FOURTH EDITION

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CORE CURRICULUM FOR SURGICAL ASSISTING, FOURTH EDITION

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INTRODUCTION

In 1990, the Association of Surgical Technologists (AST) began the process of examining the role of surgical assisting that many individuals within the profession were entering. In response to the growth of the profession, AST contributed to the formalization and standardization of the education of the surgical assistant by forming a committee that eventually forwarded recommendations for an advanced-level curriculum. Consequently, the first edition of the *Core Curriculum for Surgical Assisting* (CCSA) was published in 1993, and the second edition was published in 2006. In 2013, the Association of Surgical Assistants (ASA) undertook the lead role in revising the CCSA to publish the third edition. In 2018-2019, ASA leadership, in partnership with the Accreditation Review Council on Education in Surgical Technology and Surgical Assisting (ARC/STSA) requested and incorporated input from all program directors of Commission on Accreditation of Allied Health Education Programs (CAAHEP)-accredited programs and the ASA Education Committee for the review and revision of the fourth edition.

A review of some of the primary assumptions that underlie the organization of the fourth edition are as follows:

- The foundational concepts for entry-level surgical assisting must be focused on surgical anatomy, physiology and relevant pathophysiology.
- The surgical assistant must understand the relevant medical conditions of the patient that can affect the course of surgery and patient outcomes.
- The surgical assistant must have an in-depth knowledge of the surgical procedure and the potential hazards.

Therefore, the surgical assistant should be knowledgeable about the:

- patient's medical chart and associated documentation including operative consent, history and physical, advance directives, results of diagnostic tests, radiographic imaging for intraoperative reference and laboratory tests
- basic pharmacology and medication administration
- anesthetic principles including local anesthetics and postoperative pain management
- positioning and surgical prep of the patient to provide optimum wound exposure while providing for patient safety
- aseptic technique to reduce microbial exposure and reduce patient susceptibility
- draping of the operative site
- surgical anatomy, physiology, pathophysiology, microbiology, and basic chemistry concepts
- operative procedure objective
- manipulation of tissue to minimize tissue injury thereby promoting wound healing
- methods for closure of the planes of the body
- safe utilization of instrumentation, equipment and supplies necessary for the procedure
- emergency conditions that may arise and how best to respond

Above all, the surgical assistant is fulfilling a role that requires the individual to be able to "speak the language" of the surgeon and see the surgical procedure through the eyes of the surgeon in order to provide advanced surgical skills to consistently deliver quality surgical patient care.

As with any educational endeavor, the success of a core curriculum relies upon the ability to realize

one of the constants of education is that it is ever-changing. A core curriculum relies on the fact it is a "living-breathing" document and requires updating in order to recognize the changes that occur in the dynamic profession of surgical assisting.

Therefore, it is important to recognize that surgical assistant education offers a quality program based upon the current edition of the CCSA. Each sponsoring institution determines how the program content should be organized into individual courses, the sequencing of the courses, credit hours to be assigned to courses, and the optimal way to offer the courses according to the needs of its students and community.

Surgical assisting education is flexible regarding the ability of institutions to adopt educational models that meet the needs of the community and the school, as well as the needs of the student. Currently, there are three models of education that meet the CAAHEP *Standards and Guidelines for the Accreditation of Educational Programs in Surgical Assisting* (all of which can be delivered through a campus setting and/or methods of distance education):

1. Surgical assistant program in which individuals accepted into the program have previously completed an entry-level surgical technology program.
2. 1 + 1 model in which the individual completes an accredited surgical technology program and immediately moves into an accredited surgical assistant program.
3. Surgical assistant program in which individuals accepted into the program **have no previous introductory surgical technology training**. Students of this program **are not** expected to complete the scrub role, which includes case setup or scrub role perioperatively. The program awards a certificate/degree for surgical assistant only. Relevant introductory operating room components must be introduced as outlined in the most current AST *Core Curriculum for Surgical Technology.*
    - ***See Section V.*** *for a sample of the required core introductory operating room components content.*

I. SURGICAL SCIENCES

SURGICAL ANATOMY, PHYSIOLOGY, PATHOPHYSIOLOGY, COMMON COMORBIDITIES (DISEASES AND DISORDERS)

Objectives:

The learner will

1. Correlate surgical anatomy to surgery of the various body systems.
2. Compare and contrast normal anatomy to the pathophysiology as it relates to surgical procedures.
3. Describe specific diseases and disorders (comorbidities) that can affect patient outcomes, lead to surgical emergencies or add increased risk.
4. Demonstrate an understanding of evaluating diagnostic images as related to surgical anatomy.

Content:

I. Thoracic cavity

A. Thorax
   1. Surface anatomy of thoracic wall
   2. Thoracic wall
      a) Skeleton
      b) Joints
      c) Muscles
      d) Nerves
      e) Vasculature
         1) Arterial
         2) Venous
         3) Lymphatic
   3. Relevant pathophysiology

B. Thoracic cavity
   1. Mediastinum
   2. Pleurae lungs
      a) Surface anatomy
      b) Vasculature
         1) Arterial
         2) Venous
         3) Lymphatic
      c) Nerves
   3. Diaphragm
      a) Vessels
      b) Nerves
      c) Apertures
      d) Physiology of breathing
   4. Pulmonary circulation
   5. Heart
      a) Surface anatomy
         1) Pericardium
      b) Vasculature

Concept of Advanced Surgical Anatomy

When studying anatomy, the emphasis must be based on regional anatomy with surgical anatomy as the critical component, as opposed to the entry-level approach of systemic anatomy. Surgical anatomy is the critical factor with an emphasis on advanced anatomical knowledge that is applied towards the surgical diagnosis and procedure.

Note: Be sure to include content identified in the current edition of the AST *Core Curriculum for Surgical Technology* for review and/or introduction.

1) Arterial
2) Venous
3) Great vessels

c) Nerves
1) Innervation of the heart
2) Conduction system of the heart

6. Relevant pathophysiology
7. Diagnostic images

II. Mammary

A. Mammary glands
1. Alveoli
2. Lobule
3. Lactiferous ducts
4. Nipple

B. Vasculature
5. Arterial
6. Venous
7. Lymphatic

C. Nerves
D. Relevant pathophysiology
E. Diagnostic images

III. Abdominal cavity

A. Esophagus
1. Thoracic
2. Abdominal

B. Stomach
1. Surface anatomy
2. Vasculature
a) Arterial
b) Venous
c) Lymphatic
3. Nerves

C. Small intestine
1. Vasculature
a) Arterial
b) Venous
c) Lymphatic
2. Nerves

D. Colon
1. Vasculature
a) Arterial
b) Venous
c) Lymphatic
2. Nerves

E. Pancreas
1. Surface anatomy
2. Vasculature
a) Arterial

b) Venous
c) Lymphatic
3. Nerves

F. Liver
1. Surface anatomy
2. Vasculature
a) Arterial
b) Venous
c) Lymphatic

G. Gallbladder
1. Surface anatomy
2. Vasculature
a) Arterial
b) Venous
c) Lymphatic

H. Spleen
1. Surface anatomy
2. Vasculature
a) Arterial
b) Venous
c) Lymphatic

I. Genitourinary
1. Kidneys
a) Surface anatomy
b) Vasculature
1) Arterial
2) Venous
3) Lymphatic
2. Ureters
a) Surface anatomy
3. Bladder
a) Surface anatomy
4. Urethra
a) Male
1) Surface anatomy
b) Female
1) Surface anatomy

J. Adrenal glands (suprarenal glands)
1. Surface anatomy
2. Vasculature
a) Arterial
b) Venous
c) Lymphatic

K. Anterolateral abdominal wall
1. Surface anatomy
2. Internal surface anatomy
3. Fascia
4. Muscles

5. Vasculature
    a) Arterial
    b) Venous
    c) Lymphatic
6. Nerves

L. Posterior abdominal wall
1. Surface anatomy
2. Fascia
3. Muscles
4. Vasculature
    a) Arterial
    b) Venous
    c) Lymphatic
5. Nerves

M. Inguinal region
1. Fascia
2. Muscles
3. Vasculature
    a) Arterial
    b) Venous
    c) Lymphatic
4. Nerves

N. Abdominal aorta
1. Surface anatomy
2. Arterial branches

O. Portal system
1. Surface anatomy

P. Relevant pathophysiology

Q. Diagnostic images

IV. Pelvis and perineum

A. Bony pelvis
1. Walls and floors
2. Joints
3. Ligaments
4. Vasculature
    a) Arterial
    b) Venous
5. Nerves

B. Male reproductive organs and external genitalia
1. Ductus deferens
2. Seminal vesicles
3. Ejaculatory ducts
4. Prostate gland
5. Bulbourethral glands
6. Penis

C. Female reproductive organs and external genitalia
1. External genitalia
2. Vagina

3. Bartholin's glands
4. Cervix
5. Uterus
    a) Uterine ligaments
6. Fallopian tubes (uterine tubes)
7. Ovaries
8. Vasculature
    a) Arteries
    b) Veins
    c) Lymphatic
9. Nerves

D. Pelvic fascia
1. Parietal
2. Visceral

E. Perineum
1. General anatomy
    a) Fascia
    b) Muscles
    c) Perineal pouch
        1) Superficial
        2) Deep
2. Male perineum
    a) Vasculature
        1) Arterial
        2) Venous
        3) Lymphatic
    b) Nerves
3. Female perineum
    a) Vasculature
        1) Arterial
        2) Venous
        3) Lymphatic
    b) Nerves

F. Rectum
1. Vasculature
    a) Arterial
    b) Venous
    c) Lymphatic
2. Nerves
3. Anal canal

G. Relevant pathophysiology

H. Diagnostic images

V. Head

A. Facial anatomy
1. Muscles
2. Vasculature
    a) Arterial
    b) Venous

3. Nerves

B. Scalp
   1. Layers
   2. Vasculature
      a) Arterial
      b) Venous
   3. Nerves

C. Cranium
   1. Meninges
   2. Cranial nerves
      a) Olfactory (I)
      b) Optic (II)
   3. Oculomotor (III)
   4. Trochlear (IV)
   5. Trigeminal (V)
   6. Abducens (VI)
   7. Facial (VII)
   8. Vestibulocochlear (VIII)
   9. Glossopharyngeal (IX)
   10. Vagus (X)
   11. Accessory (XI)
   12. Hypoglossal (XII)

D. Brain
   1. Divisions
   2. Ventricles
   3. Vasculature
      a) Arterial
      b) Venous

E. Orbits
   1. Eyelids
   2. Lacrimal apparatus
   3. Orbital contents
   4. Muscles
   5. Vasculature
      a) Arterial
      b) Venous
   6. Nerves

F. Temporal region
   1. Fossa
   2. Temporomandibular joint (TMJ)

G. Oral cavity
   1. Contents of the oral cavity
   2. Contents of the pterygopalatine fossa

H. Salivary glands
   1. Surface anatomy
   2. Vasculature
      a) Arterial
      b) Venous

I. Ear
   1. External
   2. Middle
   3. Internal
J. Relevant pathophysiology
K. Diagnostic images

VI. Neck

A. Bones
B. Fascia
   1. Superficial cervical
   2. Deep cervical
C. Muscles
D. Anatomical triangles
   1. Cervical
   2. Anterior cervical
E. Lymphatic
F. Relevant pathophysiology
G. Diagnostic images

VII. Vertebral column

A. Vertebrae
   1. Curvatures
   2. Structure
   3. Function
   4. Vasculature
      a) Arterial
      b) Venous
B. Spinal cord
   1. Anatomy of spinal nerves
   2. Meninges
      a) Layers
      b) Cerebrospinal fluid
   3. Vasculature
      a) Arterial
      b) Venous
C. Muscles of the back
   1. Suboccipital neck muscles
   2. Deep neck muscles
   3. Extrinsic (superficial)
   4. Intrinsic (deep)
D. Relevant pathophysiology
E. Diagnostic images

VIII. Upper appendicular

A. Brachial plexus
B. Axilla
   1. Artery
   2. Vein
   3. Lymphatic
C. Upper arm

1. Bone
2. Joints
    a) Sternoclavicular
    b) Acromioclavicular
    c) Glenohumeral
    d) Elbow
    e) Proximal radioulnar
3. Fascia
4. Muscles
5. Vasculature
    a) Arterial
    b) Vein
    c) Lymphatic
6. Nerves

D. Forearm
1. Compartments
2. Muscles
3. Vasculature
    a) Arterial
    b) Venous
    c) Lymphatic
4. Nerves
5. Joints
    a) Wrist
    b) Intercarpal
    c) Carpometacarpal

E. Hand
1. Fascia
2. Flexor tendons
3. Muscles
4. Vasculature
    a) Arterial
    b) Venous
5. Nerves
6. Joints
    a) Metacarpophalangeal
    b) Interphalangeal

F. Relevant pathophysiology
G. Diagnostic images

IX. Lower appendicular

A. Gluteal region
1. Ligaments
2. Muscles
3. Vasculature
    a) Arterial
    b) Venous
4. Nerves

B. Lower limb

1. Bones
    a) Femur
    b) Tibia
    c) Fibula
2. Joints
    a) Hip
    b) Knee
    c) Tibiofibular
    d) Ankle
3. Fascia
4. Muscles
    a) Anterior thigh
    b) Medial thigh
    c) Posterior thigh
    d) Gastrocnemius
5. Compartments
    a) Anterior
    b) Lateral
    c) Posterior
6. Achilles tendon
7. Vasculature
    a) Arterial
    b) Venous
    c) Lymphatic
8. Nerves

C. Popliteal fossa
1. Fascia
2. Vasculature
    a) Arterial
    b) Venous
3. Nerves

D. Foot
1. Bones
2. Fascia
3. Muscles
4. Vasculature
    a) Arterial
    b) Venous
    c) Lymphatic
5. Nerves
6. Arches
7. Joints

E. Posture and gait
F. Relevant pathophysiology
G. Diagnostic images

TECHNOLOGICAL SCIENCES

Objectives:

The learner will

1. Review the basic terms, principles and rules of each core technological science including electricity, robotics, minimally invasive surgical equipment and other technologies.
2. Analyze the usage and safety features of each to ensure safe operation and optimal patient outcomes.
3. Describe the role of the surgical assistant with regards to ensuring the safe manipulation of tissue.

Content:

I. Electricity
- A. Terms
- B. Principles
- C. ESU systems and safe operation
- D. Role of the surgical assistant

II. Minimally invasive surgical equipment
- A. Principles of tissue manipulation
- B. Role of the surgical assistant
  1. Placement of secondary trocar
  2. Manipulation of tissue
  3. Assisting the surgeon

III. Robotics
- A. Terms
- B. Principles
- C. Robotic system
- D. Role of the surgical assistant in tissue manipulation

IV. Other technologies
- A. Navigation systems

V. Troubleshooting

PHYSIOLOGICAL CHEMISTRY:
ELECTROLYTES, FLUID AND SHOCK

Objectives:

The learner will

1. Summarize the physiological composition of body water and solutes.
2. Interpret the physiological acid-base balance of the body.
3. Analyze the principles of extracellular fluid distribution between plasma and interstitial lymphatic volumes.
4. Assess the clinical signs of hypovolemic, septic, hemorrhagic, neurogenic and cardiogenic shock.

Content:

I. Body water and solute composition

- A. Body water
  1. Total body water composition
  2. Compartments
  3. Intake and output
  4. Disorders of fluid balance
     a) Dehydration
     b) Fluid Overload
- B. Solute composition
  1. Sodium
  2. Potassium
  3. Calcium
  4. Magnesium
- C. Intracellular levels
  1. Measurement of intracellular fluids with potassium
  2. Osmolarity
- D. Extracellular levels
  1. Distribution between plasma and interstitial lymphatic volumes
  2. Control of fluid across the capillary

II. Acid-base balance

- A. Acidosis
- B. Alkalosis
- C. Metabolic or respiratory
- D. Clinical interpretation of arterial blood gas

III. Physiology and treatment of shock

- A. Septic
- B. Cardiogenic
- C. Hemorrhagic
- D. Hypovolemic
- E. Neurogenic

IV. Fluid and electrolyte replacement

- A. Crystalloids
  1. Salts
  2. Sugars

3. Tonicities
    a) Hypertonic
    b) Isotonic
    c) Hypotonic

B. Colloid Solutions

PHARMACOLOGY AND ANESTHESIA

Objectives:
The learner will

1. Analyze perioperative principles of patient assessment and how they relate to anesthesia.
2. Consider the goals of anesthesia as it relates to the perioperative patient in the surgical setting.
3. Assess the risks and adverse effects of anesthesia, conscious sedation, local anesthetic agents, and pain management in the surgical setting.
4. Demonstrate an understanding of anesthesia, conscious sedation, local anesthetic agents, and pain management as it relates to the perioperative patient.
5. Understand the principles of local injection techniques and topical anesthetic agents.

Content:

I. Pharmacology
- A. Concepts of medication administration
- B. Medications commonly used in surgery
- C. Emergency medications

II. Routes of administration
- A. Topical
- B. Transdermal
- C. Rectal
- D. Parenteral injection
- E. Intravenous

III. Role of the surgical assistant
- A. General anesthesia
  1. Ventilation assistance/airway management
  2. Noninvasive and/or invasive monitoring
     a) Blood pressure
     b) Oxygenation
     c) Temperature
     d) Electrocardiography
     e) Neuromuscular block
     f) Central nervous system
- B. Regional anesthesia
  1. Topical
  2. Spinal
  3. Epidural
  4. Peripheral nerve blocks
- C. Post-procedural pain management

IV. Local anesthetic drugs
- A. Classification
  1. Amino ester
  2. Amino amide

B. Allergic reactions
   1. Local
   2. Systemic
C. Local anesthetic systemic toxicity
   1. Symptoms
      a) Peripheral effects
      b) CNS toxicity (seizures, coma)
      c) CVS toxicity (bradycardia/arrhythmia)
   2. Treatment
      a) Oxygen/benzodiazepine
      b) Intralipid emulsion
D. Common local anesthetics
   1. Lidocaine
      a) Strengths
      b) Additives
         1) Epinephrine
         2) Sodium bicarbonate
         3) Hyaluronidase
      c) Dosages
         1) Kern's rule
      d) Onset and duration
      e) Physiologic effects
   2. Bupivacaine
      a) Strengths
      b) Additives
         1) Exparel – Liposomal suspension
         2) Epinephrine – slows absorption
      c) Dosages
      d) Onset and duration
      e) Physiologic effects
         1) Potential liver toxicity (with infusions)
   3. Ropivacaine
      a) Strengths
      b) Dosages
      c) Onset and duration
      d) Physiologic effects

INFECTION CONTROL IN THE PERIOPERATIVE SETTING

Objectives:
The learner will
1. Analyze the causes of surgical site infections (SSI).
2. Assess the clinical signs of specific SSIs.
3. Evaluate the methods for the prevention of SSIs.
4. Summarize the specific uses of antibiotics.

Content:

I. Types of SSI
- A. Superficial
- B. Deep
- C. Cavity
- D. Organ
- E. Superinfection

II. Causes and risk factors of SSI
- A. Host susceptibility
  1. Age
  2. Weight
  3. Co-morbid conditions
  4. Tobacco products
  5. Drug use
  6. Alcohol use
  7. Chemotherapy/radiation treatment
- B. Endogenous sources
  1. Existing infection
  2. Normal flora
  3. Break in skin/mucous membrane
- C. Exogenous sources

III. Prevention techniques
- A. Preoperative measures and patient education
  1. Preoperative shower or bath before surgery
  2. Maintain normothermia
  3. Glycemic control (less than 200mg/dl)
  4. Increased fraction of inspired oxygen
  5. Prophylactic antimicrobial agents
- B. Antibiotic resistance
  1. Acquired
  2. Intrinsic (carrier)
  3. Patient antibiotic resistance
- C. Operative techniques
  1. Alcohol-based skin preparation
  2. Sterile technique
  3. Tissue handling techniques
- D. Antimicrobial prevention of SSIs
  1. Topical antibiotics

2. Antimicrobial agents
    a) Aminoglycosides
    b) Cephalosporins
    c) Penicillins
    d) Tetracyclines
    e) Sulfonamides
    f) Combination agents
        1) Coly-Mycin S Otic
        2) Cortisporin ophthalmic suspension
        3) Neosporin G.U. irrigant
    g) Individual agents
        1) Clindamycin
        2) Metronidazole
        3) Polymixin B sulfate
        4) Vancomycin

IV. Surgical wound classifications

A. 1: Clean
B. 2: Clean-contaminated
C. 3: Contaminated
D. 4: Dirty/infected

V. Common pathogens causing SSIs

A. Bacteria
1. *Acinetobacter* species
2. *Bacteroides fragilis*
3. *Clostridium* species
4. *Enterococcus* species
5. *Escherichia coli*
6. *Klebsiella* species
7. *Proteus* species
8. *Pseudomonas* species
9. *Serratia* species
10. *Staphylococcus aureus*
    a) Methicillin-resistant *S. aureus* (MRSA)
11. Coagulase-negative Staphylococcus
12. Multidrug resistant

B. Fungi
1. *Candida* species
    a) C. albicans
    b) C. glabrata
    c) C. krusei

C. Viruses
1. Cytomegalovirus (CMV)
2. Hepatitis
    a) HBV
    b) HCV

VI. Specific surgical site infections (SSI)

A. Necrotizing soft tissue infections
1. Necrotizing fasciitis

B. Soft tissue infections
    1. Subcutaneous abscess
    2. Cellulitis
C. Intra-abdominal infections
    1. Intra-abdominal abscess
    2. Retroperitoneal abscess
D. Prosthetic infections
    1. Vascular grafts
    2. Cardiac valves
    3. Pacemakers
    4. Total joint prostheses

VII. Common pathogens causing non-surgical infections

A. Bacteria
    1. C-Diff
    2. *Clostridium* species
    3. *Enterococcus* species
    4. *Mycobacterium tuberculosis*
    5. *Pseudomonas* species
    6. *Staphylococcus* species
    7. *Streptococcus* species
B. Viruses
    1. Epstein-Barr
    2. Enteroviruses

HEMATOLOGICAL PRINCIPLES OF SURGERY

Objectives:
The learner will

1. Describe the principles of hemostasis and coagulation.
2. Analyze disorders of hemostasis and coagulation.
3. Demonstrate an understanding of disseminated intravascular coagulation.
4. Describe the categories of topical hemostatic products and their uses.
5. Review clinical indications and uses of blood components.
6. Demonstrates ability to choose the appropriate method of hemostasis and apply as appropriate.

Content:

I. Hemostasis
- A. Mechanical
- B. Chemical
- C. Thermal

II. Coagulation
- A. Blood clotting cascade

III. Disorders of hemostasis and coagulation
- A. Blood disorder tests
- B. Pathophysiology
  1. Acquired hemostasis disorders
     a) Vitamin K deficiency
     b) Anticoagulant drugs
     c) Hepatic failure
     d) Renal failure
     e) Thrombocytopenia
     f) Hypothermia
     g) Thrombocytopathy
  2. Congenital hemostasis disorders
     a) Hemophilia
     b) von Willebrand's disease
     c) Disseminated intravascular coagulation

IV. Blood replacement interventions
- A. Preoperative planning
- B. Patient education
- C. Indications
  1. Diseases processes
  2. Effects of certain medications
  3. Surgical intervention
  4. Trauma
- D. Autologous blood
  1. Indications
  2. Contraindications
     a) Fever
     b) Infection

c) Concurrent use of medications
d) Hemostatic agents
e) Antibiotics
f) Presence of cancer
g) Exposure of blood to amniotic fluid
h) Exposure of blood to gastrointestinal contents

V. Techniques

A. Preoperative
1. Collection
2. Processing
3. Storage
4. Transfusion

B. Intraoperative
1. Collection
2. Processing
3. Storage
4. Transfusion

C. Postoperative
1. Collection
2. Processing
3. Storage
4. Transfusion

VI. Donated blood products

A. Indications
B. Contraindications
C. American Association of Blood Banks (AABB) standards
1. Screening
2. Type and cross-matching

D. Reactions
1. Allergic
2. Hemolytic transfusion reaction
3. Infection

E. Homologous blood
1. Whole blood
2. Component therapy
a) Red cells
b) Platelets
c) Plasma
d) Fractionated plasma
e) Cryoprecipitate

F. Colloids – plasma expanders
1. Dextran

WOUND MANAGEMENT

Objectives:
The learner will
1. Evaluate the anatomy involved in wound healing and suturing.
2. Analyze the phases and techniques involved in wound closure, healing and complications.
3. Demonstrate the techniques involved in surgical knot tying and suturing.
4. Demonstrate knowledge of wound drains and dressing applications.

Content:

I. Anatomy of the skin

A. Epidermis
1. Anatomy
   a) Epithelial cells
   b) Avascular
   c) Layers (outer to inner)
      1) Stratum corneum
      2) Stratum lucidum
         (a) Palms of hands
         (b) Soles of feet
      3) Stratum granulosum
      4) Stratum spinosum
      5) Stratum basale (germinativum)

B. Dermis (corium)
1. Anatomy
   a) Elastic connective tissue
   b) Blood supply
   c) Nerves
   d) Layers (outer to inner)
      1) Stratum papillare
      2) Stratum reticulare
2. Accessory structures
   a) Hair
   b) Nails
   c) Oil producing glands
      1) Sebaceous
      2) Meibomian
   d) Sudoriferous glands
      1) Eccrine
      2) Apocrine
      3) Ceruminous
      4) Ciliary
      5) Mammary

C. Hypodermis (subcutaneous)
   a) Loose connective tissue
      1) Camper's Fascia
      2) Scarpa's Fascia

b) Blood supply
c) Nerves/nerve endings
d) Layer
1) Adipose

II. Tissue injury and response

A. Types of wounds
1. Surgical
a) Incisional
b) Excisional
2. Traumatic
a) Closed
b) Open
1) Simple
2) Complicated
3) Clean
4) Contaminated
3. Chronic

B. Inflammatory process
1. Acute inflammation
a) Characteristics
b) Vascular response
c) Cellular response
d) Chemical mediators
e) Exudates
f) Systemic response
g) Resolution
2. Chronic inflammation
a) Characteristics
b) Resolution
3. Granulomatous inflammation
a) Characteristics
b) Resolution

C. Blood clotting process
1. Vasoconstriction
2. Platelet activation/aggregation
3. Thrombus formation
4. Dissolution of the clot

III. Wound healing

A. First intention
1. Phases
a) Lag (inflammatory response)
b) Proliferation
c) Maturation (differentiation)

B. Second intention (granulation)
C. Third intention (delayed primary closure)
D. Scars
1. Normal scar – cicatrix
2. Abnormal scars

a) Keloid
b) Hypertrophic tissue (proud flesh)

E. Factors affecting wound healing
1. Age
2. Co-morbid conditions
a) Endocrine
b) Metabolic
c) Hematologic
d) Ischemic
e) Hemorrhagic
f) Malignancy
g) Radiation exposure
h) Immunocompromised
3. Current medications
4. Hydration status
5. Hypothermia
6. Nutritional status
7. Presence of foreign body
8. Infection
9. Surgical technique
a) Tissue handling
b) Hemostasis
c) Suture choice
d) Suturing technique
10. Complications
a) Dehiscence
b) Evisceration
c) Fistula development
d) Hemorrhage
e) Herniation
f) Infection
g) Sinus tract development
11. Wound drain
a) Types of wound drains
b) Type of drain needed according to surgical wound
c) Negative pressure wound therapy (wound vac)

IV. Surgical knot tying

A. Knot security
B. Types of ties
1. Free tie
2. Reel
3. Suture ligature/stick tie
C. Knot selection
1. One-handed
a) Right-handed
b) Left-handed
2. Two-handed
a) Basic knot

b) Square knot
c) Surgeon's knot

3. Instrument tie

V. Wound closure

A. Determination of method

B. Choice of suture

C. Suturing techniques

1. Continuous
2. Interrupted
3. Buried
4. Purse string
5. Subcuticular
6. Retention
7. Traction
8. Stick tie/ligature

D. Stapling techniques

1. Skin
2. Lumens

VI. Wound dressings

A. Types of dressings

B. Choice of dressing according to surgical procedure

VII. Rigid/Immobilization

A. Splinting techniques

B. Casting techniques

ALL-HAZARDS PREPARATION

Objectives:
The learner will
1. Demonstrate an understanding of disaster planning.
2. Demonstrate an understanding of putting the plan into action in preparation for a disaster.
3. Assess the federal, state and local agencies that are involved in disaster planning and preparation.
4. Analyze the legal issues involved in disasters as it relates to surgical assistants.
5. Assess the physical and mental stresses that can occur as a caregiver both during disaster and post-disaster.
6. Describe the role(s) of the surgical assistant during a disaster.

Content:

I. Hazards
- A. Bioterrorism
- B. Chemical
- C. Natural
- D. Radiation

II. Personal disaster plan
- A. Family
  1. Contacts
  2. Go bags
  3. Designated meeting places
  4. Protocol from local emergency organizations

III. Federal, state and local agencies
- A. Federal Emergency Management Agency (FEMA)
- B. Hospital Incident Command System (HICS)
- C. Local Emergency Management Agency (LEMA)
- D. National Incident Management System (NIMS)
- E. National Response Framework (NRF)
- F. National Disaster Medical System (NDMS)

IV. Emergency Operations Plan (EOP)
- A. Comprehensive Emergency Management (CEM) plan
- B. Comprehensive Emergency Management (CEM) components
  1. Mitigation
  2. Preparedness
  3. Response

V. Role of the surgical assistant
- A. First responder in the field
  1. Triage
  2. Mass casualty – patient care
  3. Transportation of patients
- B. Healthcare facility

Teaching All-Hazards Preparation

This is meant to be a review of all-hazards preparation with a focus on the various roles the surgical assistant can perform during different types of disaster situations. For a comprehensive outline of all-hazards preparation refer to the *Core Curriculum for Surgical Technology*.

II. THE SURGICAL ASSISTANT

OBJECTIVES

Objectives:
The learner will

1. Explain the role of the surgical assistant.
2. Describe the scope of practice for the surgical assistant.
3. Analyze the professional organizations that impact the surgical assistant and the goals of each.
4. Demonstrate appropriate interpersonal skills including listening and communication.
5. Analyze teamwork and how to build effective teams.
6. Describe cultural, religious or ethnical differences that could influence perceptions of an event or situation.
7. Describe effective conflict resolution skills and the importance of compromise.
9. Identify methods of stress management.
10. Analyze legal responsibilities relevant to the surgical assistant.
11. Evaluate risk management practices.
12. Define current strategies such as Six Sigma and Lean management that promote patient safety and continuous improvement.
13. Analyze the significance of HCAHPS (Hospital Consumer Assessment of Healthcare Providers and System) and patient/physician satisfaction to the success of the team and healthcare organization
14. Describe effective business practices.

SURGICAL ASSISTANT ROLE

Content:

I. Role

A. History of the profession
B. Field of surgical assisting
C. Professionalism
D. Professional organizations
E. Job description
   1. American College of Surgeons description of role
   2. ASA job description
F. Career development
G. Employability

II. Scope of practice

A. Standards and guidelines
B. Federal and state laws
C. Institutional policy and procedure

PROFESSIONAL SKILLS

Content:

I. Interpersonal Skills

A. Listening

B. Communication

C. Teamwork

1. Relationship
    a) Surgeon
        1) Aggressiveness vs. assertiveness
    b) Anesthesia personnel
    c) Circulator
    d) Surgical technologist
    e) Sterile processing department
    f) External vendor
2. Cultural and religious differences
3. Impaired co-worker

II. Professional Management

A. Problem solving – proactive

B. Change management

C. Conflict management

D. Self-development

1. Emotional intelligence
2. Self-reflection

E. Stress management

F. Time management

G. Organizational skills

H. Credentialing

I. Continuing education

LEGAL AND ETHICAL RESPONSIBILITIES

Content:

I. Patient safety – OR hazards – common incidents
- A. Patient misidentification
- B. Wrong site or incorrect procedure
- C. Incorrect positioning of the patient
- D. Patient injury: burns, nerve damage, muscle strain
- E. Abandonment
- F. Improper handling of surgical specimen
- G. Improper drug administration
- H. Defective equipment and supplies
- I. Major break in aseptic technique
- J. Documentation error
- K. Exceeding authority
- L. Breach of confidentiality

II. Risk management
- A. Legal terms
  1. Types of liability
     a) Statutory law
     b) Common law – legal precedent
     c) Liability insurance
  2. Legal doctrines
  3. Informed consent
  4. HIPAA
- B. Types of torts
  1. Intentional breach
     a) Assault and/or battery
     b) Libel or slander – defamation
     c) Invasion of privacy
  2. Establishing negligence
     a) Duty – standard of care
     b) Deviation from standard
        1) Dereliction/failure to meet standard
        2) Omission or commission of an act
        3) Foreseeability of harm existed
     c) Damage – iatrogenic injury occurred
     d) Direct cause – damage occurred due to deviation

III. Patient rights
- A. AHA's The Patient Care Partnership
- B. Caregiver's rights

IV. Risk Practices
- A. Dealing with incidents
  1. The incident report
  2. Sentinel event

3. Quality control
    a) Lean management
    b) Six Sigma
    c) Continuous quality improvement
    d) HCAHPS
    e) Patient safety
        1) Assertive communication (Example: SCIP, Team STEPPS, etc.)
        2) Commitment to “do the right thing”
            (a) Surgical conscience
            (b) Qualities necessary to develop

BUSINESS PRACTICES

Content:

I. Business ethics
II. Types of business models
III. Marketing
IV. Liability
V. Case documentation
- A. HIPAA/record retention
- B. Codes
- C. Case information needed
- D. Case file

VI. Introduction to billing practices
- A. Case selection – not all cases require an SA
- B. Inform patient
- C. CPT and ICD-10 codes
- D. Claim submission
- E. Accurate documentation
- F. Timely documentation
- G. Use of software/billing companies
    1. Claim denials

VII. Importance of cash-flow – the reality

III. PERIOPERATIVE MANAGEMENT OF THE SURGICAL PATIENT

Section A: Preoperative Surgical Management

PREOPERATIVE SURGICAL MANAGEMENT

Objectives:

The learner will

1. Review preoperative information.
2. Demonstrate an understanding of the role of the surgical assistant for preoperative assessment phase.
3. Assess potential perioperative complications.
4. Interpret surgical listing information into predicted tasks of the surgical assistant role in operating room.
5. Summarize the indications, considerations and complications of urinary catheterization.
6. Discuss skills in positioning the patient for various surgical specialties, utilizing positioning devices and maintaining patient stability. Must be aware of the fundamental principles of patient positioning and how to interpret the physiological effects of surgical positioning on the patient.
7. Describe the application of various types of tourniquets.
8. Identify circumstances and complications associated with tourniquet use.
9. Discuss the types of surgical skin preparations. Explain the rationales for determining the surgical prep solution and patient skin preparation for the various surgical procedures.
10. Discuss the proper draping technique for each surgical specialty.

PREOPERATIVE PATIENT ASSESSMENT

Content:

I. Preoperative assessment of the patient

A. Chart review

1. History and physical analysis
   a) Patient and family history
      1) Allergies and types of reactions
      2) Current medications, supplements, herbal and over-the-counter medications
      3) Current symptoms
      4) Previous surgery and anesthesia experiences (MH, anaphylaxis, difficult intubation)
      5) Implant(s)
      6) Previous injury or trauma
      7) Medical conditions(s) and comorbidities
         (a) Ask about anything that limits activities of daily living
            - Congenital conditions
            - Physical disabilities
            - Cognitive ability
   b) Physical Analysis
      1) Vital statistics
      2) Diagnostic testing
         (a) Lab results
         (b) Imaging
         (c) Other required diagnostics test(s)

B. Preoperative checklist

1. Review and complete institutional preoperative checklist
   a) Antibiotic prophylaxis and other preoperative medications
   b) Preoperative orders completed
   c) Preoperative fasting
   d) Site marking

C. Perioperative complications

1. Blood loss
2. Malignant hyperthermia and other anesthesia-related complications
3. DVT prevention protocol

PREOPERATIVE SKILLS

Content:

I. Urinary catheterization

A. Indications

B. Patient considerations

C. Resolve complications

1. Obstruction
2. No urine return
3. Catheter defects
4. Contraindications
5. Blood fluid return
6. Inserted into wrong orifice
7. Fluid leakage around catheter

II. Positioning the surgical patient

A. Advanced principles

1. Body alignment
2. Surgical access
3. Anesthesia access
4. Invasive line access
5. Adequate padding/protective devices
6. General considerations
   a) Surgeon's orders
   b) Team communications
   c) Application of safety straps
   d) Protect catheters and IV lines
   e) Prevent pooling of prep solutions
   f) Evaluate surgical position prior to draping
   g) Prevent body parts touching metal parts on OR table

B. Effects of positioning on body systems

1. Respiratory
2. Circulatory
3. Neurologic
4. Integumentary

C. Review patient considerations

1. Morbidly obese
2. Malnourished patient
3. Pregnancy
4. Pediatric
5. Geriatric

D. Role of surgical assistant in patient positioning

1. Patient assessment to determine OR table
   a) Electrical
   b) Wilson frame
   c) Jackson
   d) Fracture

2. Patient assessment to determine stabilization devices
    a) Donut
    b) Pinion (Mayfield)
    c) Padded
    d) Gel pads
    e) Armboards/footboards
    f) Hip holders
    g) Kidney elevator
    h) Shoulder braces
    i) Bean bag/vacpac/pegboard
    j) Foam wedges/bolsters
3. Communicate equipment and positioning needs to surgical team
    a) Surgeon's preferences
    b) External vendors
4. Coordinate positioning procedure
    a) Supine
        1) Trendelenburg
        2) Reverse Trendelenburg
        3) Lithotomy
        4) Fowler's
        5) Semi-Fowler's
    b) Prone
        1) Kraske
    c) Lateral
        1) Kidney

III. Application of pneumatic tourniquet

A. Tourniquet use
1. Indications
2. Contraindications

B. Patient evaluation
1. Preoperatively
2. Postoperatively

C. Role of surgical assistant
1. Connections
2. Skin protection
3. Test equipment
4. Pressure setting
5. Selection of cuff
6. Exsanguination of limb

D. Complications
1. Skin
2. Vascular
3. Muscular
4. Neurological

IV. Patient skin preparation

A. Skin preparation procedural considerations
1. Communication with team
    a) Surgeon's preference

b) Patient factors
1) Allergies
2) Cancer
3) Preoperative skin assessment
c) Special population considerations
2. Selection of preparation solutions based on patient evaluation
3. Skin preparation principles
a) Timing
b) Extent/boundaries
c) Procedural sequence
1) Scrub and paint
2) Paint only
3) Alcohol combined prep
d) Role of surgical assistant
1) Coordinate actions of team
4. Postoperative skin assessment

V. Drapes and draping procedures

A. Factors that affect choice of drapes
1. Patient
2. Use of laser
3. Use of robot
4. Type of procedure

B. Draping techniques
1. Hip
2. Shoulder
3. Head/neck
4. Laparotomy
5. Chest/breast
6. Upper extremity
7. Lower extremity
8. Equipment draping

C. Role of the surgical assistant
1. Communication with team
a) Surgeon’s preferences
b) Draping needs
2. Coordinate draping procedure
3. Coordinate identifying breaks in sterile technique

III. PERIOPERATIVE MANAGEMENT OF THE SURGICAL PATIENT

Section B1. Intraoperative Management

INTRAOPERATIVE SKILLS

Objectives:
The learner will:

1. Apply knowledge of patient skin assessment as it relates to the various surgical populations.
2. Apply knowledge in the selection and use of surgical instruments, and demonstrate proficiency in tissue dissection and handling.
3. Identify potential patient safety issues of instrument usage.
4. Demonstrate selection and use of specialized equipment.
5. Determine and demonstrate method(s) for achieving optimal operative site exposure according to the surgical procedure.

Content:

I. Regional anatomy and pathophysiology
II. Diagnostic interventions
III. Preoperative patient preparation
- A. Anesthesia
- B. Positioning the patient
- C. Prepping the patient
- D. Draping the patient

IV. Surgical procedure
- A. Communication with team
  1. Surgeon's preference
- B. Verify equipment availability
  1. Notify surgeon of issues
  2. Maintain knowledge of technology
- C. Communicate solution(s) to surgeon
- D. Time out

V. Application of intraoperative skills
- A. Assisting with wound entry and dissection
  1. Incision
  2. Trocar placement
- B. Utilization of suction
  1. Factors effecting choice of suction tip
- C. Maximum absorption
  1. Use of wet sponge
     a) Protection
     b) Absorption
     c) Other uses
        1) Packing
        2) Dissection
        3) Sponge stick
        4) Padding of retractors
- D. Retraction
  1. Digital retraction
     a) Indications

b) Manipulation of tissue
2. Instrument retraction
a) Factors affecting choice of retractor(s)
1) Consistency of tissue
2) Structures to be retracted
3) Depth and size of surgical wound
4) Type of procedure
5) Scheduled
6) Emergency

E. Tissue dissection
1. Blunt
2. Sharp
3. Thermal

F. Special equipment
1. Other methods of visualization
a) Loops/tapes
1) Application
2) Complications
2. Traction sutures
a) Application
b) Complications
3. Irrigation
4. Headlights
5. Lighted retractors
6. Lighted suction tips

VI. Usage of surgical instrumentation

A. Communication with team
1. Surgeon's preferences
2. Confirm needed instrumentation

B. Usage of instruments
1. Handling
2. Application
a) Match instrument to type of tissue/vessel
3. Body mechanics

C. Errors in usage
1. Improper handling
2. Improper selection
3. Improper application
4. Inadequate visualization

VII. Endoscopic and robotic equipment (MIS)

VIII. Postoperative wound management

III. PERIOPERATIVE MANAGEMENT OF THE SURGICAL PATIENT

Section B2. Surgical Procedures

SURGICAL PROCEDURES – DIDACTIC

Objectives:
The learner will:

1. Correlate the relevant advanced surgical anatomy to the surgical procedure.
2. Correlate the relevant pathophysiology to the surgical procedure.
3. Analyze the specific patient care factors the surgical assistant should coordinate with the surgical team.
4. Discuss the intraoperative role and duties of the surgical assistant according to the procedure being performed.
5. Discuss newly implemented surgical procedures.
6. Discuss modifications of surgical procedures as related to approach including Open, MIS, Robotic and any other technological advancements currently in use.
7. Discuss the postoperative care of the surgical wound.

Co-Related Procedures Concept

There are surgical procedures that are similar as far as procedural steps and role of the surgical assistant. This is referred to as the "Co-related Procedures Concept." For example, colon resection is required to be taught; however, small bowel resection is not listed since it is the same co-related procedure. The instructor has the academic freedom to either inform the student that small bowel resection is performed like the colon resection or go above and beyond CCSA requirements and teach small bowel resection. The purpose of the Co-Related Procedures Concept is to avoid repetition in the classroom.

Content:

I. Regional anatomy
II. Pathophysiology
III. Diagnostic interventions
IV. Preoperative patient preparation
- A. Anesthesia
- B. Positioning the patient
- C. Draping the patient

V. Surgical procedure
- A. Role of surgical assistant during steps of procedure

VI. Postoperative wound management
- A. Role of surgical assistant

SURGICAL PROCEDURES – GENERAL

Content:

I. Appendectomy

II. Breast procedures

A. Breast biopsy with needle localization and/or radioactive seeds
B. Lumpectomy
C. Sentinel lymph node localization
D. Simple mastectomy
E. Modified radical mastectomy
F. Axillary node dissection

III. Esophageal procedures

A. Nissen fundoplication
B. Transoral incisionless fundoplication (TIF)
C. Esophageal gastrectomy
D. Esophagectomy

IV. Cholecystectomy with cholangiogram

V. Gastric and bowel resection procedures

A. Gastrostomy
B. Gastrectomy
C. Bariatric surgery
    1. Sleeve gastrectomy
    2. Roux-en-Y gastric bypass
D. Colon resection
    1. With colostomy
    2. Without colostomy
E. Abdominoperineal resection

VI. Herniorrhaphy

A. Incisional
B. Umbilical
C. Inguinal
D. Femoral

VII. Liver procedures

A. Liver resection
B. Liver transplant

VIII. Splenectomy

IX. Pancreaticoduodenectomy (Whipple procedure)

X. Anal

A. Hemorrhoidectomy
B. Anal fissure

SURGICAL PROCEDURES – OBSTETRIC AND GYNECOLOGIC

Content:

- **I. Cervical**
  - A. Cervical cerclage (Shirodkar's procedure)
- **II. Uterine, ovarian and fallopian tubes**
  - A. Diagnostic
  - B. Uterine
    1. C-section
    2. Endometrial ablation
    3. Hysterectomy
       a) Total abdominal with/out BSO
       b) Vaginal: open vs LAVH
       c) Supracervical hysterectomy
       d) Wertheim procedure (radical hysterectomy)
       e) Total pelvic exenteration
    4. Myomectomy
  - C. Fallopian tubes
    1. Ectopic pregnancy
    2. Tubal ligation
- **III. External genitalia**
  - A. Perineal laceration
  - B. Vulvectomy
- **IV. Pelvic**
  - A. Anterior and posterior repair (colporrhaphy)
  - B. Retropubic urethropexy or suspension (Marshall-Marchetti-Kranz [MMK] or Burch colposuspension)
  - C. Vesicourethral suspension
  - D. Transvaginal bladder suspension
  - E. Uterosacral colpopexy (uterosacral ligament suspension)
- **V. Fetal surgery**
  - A. Intrauterine procedures

SURGICAL PROCEDURES – GENITOURINARY

Content:

I. Kidney, adrenal gland, ureter and bladder

A. Adrenal gland
   1. Adrenalectomy
   2. Wilms' tumor excision

B. Kidney
   1. Nephrolithotomy
   2. Nephrectomy
   3. Pyelolithotomy
   4. Kidney transplant

C. Ureter
   1. Ureteroscopy
   2. Ureterostomy

D. Bladder
   1. Cystoscopy
   2. Radical cystectomy with ileal conduit
   3. Suspension (TVT/sling)

II. Prostate

A. TURP

B. Prostatectomy

III. Penile

A. Epispadias repair

B. Hypospadias repair

C. Penile implant

IV. Testicular

A. Hydrocelectomy

B. Orchiopexy

C. Orchiectomy

D. Vasovasostomy

SURGICAL PROCEDURES – OPHTHALMIC

Content:

I. Dacryocystorhinostomy
II. Enucleation
III. Repair of orbital fractures
IV. Scleral buckle
V. Strabismus recession and resection

SURGICAL PROCEDURES – OTORHINOLARYNGOLOGY

Content:

I. Ear
- A. Mastoidectomy
- B. Tympanoplasty

II. Nose
- A. Caldwell-Luc
- B. Septorhinoplasty
- C. Sphenoidectomy

III. Oral cavity and throat
- A. Laryngectomy
- B. Parotidectomy
- C. Radical neck dissection
  1. Glossectomy
  2. Mandibulectomy
- D. Tracheotomy and tracheostomy
  1. Scheduled
  2. Emergency

SURGICAL PROCEDURES – ORTHOPEDIC

Content:

I. Upper extremity

A. Shoulder
1. Repair of rotator cuff
2. Bankart procedure
3. SLAP repair
4. Arthroscopy
5. Total shoulder arthroplasty

B. Humerus
1. ORIF
2. Fasciotomy
3. External fixation

C. Forearm
1. Ulnar ORIF/external fixator
2. Transposition of nerve
3. Radius ORIF/external fixator
4. Colle's fracture
5. Smith fracture
6. Fasciotomy

II. Lower Extremity

A. Pelvic
1. ORIF
2. Spica casting
3. External fixator

B. Hip
1. ORIF
2. Hip pinning
3. Congenital dislocation
4. Hemiarthroplasty
5. Total hip arthroplasty

C. Femur
1. ORIF
2. IM nail
3. Fasciotomy

D. Knee
1. Diagnostic arthroscopy
2. Ligament repair (ACL, PCL, etc.)
3. Meniscal repair
4. Above-the-knee amputation
5. Knee arthroplasty (total, hemi-, uni-)

III. Tibia and fibula

A. ORIF/external fixator/IM rod

B. Fasciotomy

IV. Ankle and foot

A. ORIF

B. Triple arthrodesis
C. Repair Achilles tendon rupture

SURGICAL PROCEDURES – PLASTIC AND RECONSTRUCTIVE

Content:

I. Congenital reconstruction
- A. Craniosynostosis
- B. Cheiloplasty/palatoplasty

II. Facial
- A. Blepharoplasty
- B. Rhytidectomy

III. Breast
- A. Mammoplasty
  1. Augmentation
  2. Post mastectomy reconstruction
- B. Mastopexy
- C. Breast reduction

IV. Abdomen
- A. Abdominoplasty

V. Skin grafts
- A. Split thickness graft
- B. Full thickness graft
- C. Pedicle grafts

VI. Trauma
- A. Reattachments of hand/foot/digit
- B. Maxillary fractures
  1. LeFort I
  2. LeFort II
  3. LeFort III
- C. Zygomatic (orbital blowout) fractures

VII. Gender reassignment

SURGICAL PROCEDURES – NEUROSURGERY

Content:

I. Laminectomy

A. Entry:
   1. Cervical
   2. Thoracic
   3. Lumbar

B. Procedure
   1. Discectomy
   2. Spinal fusion with or without instrumentation

II. Craniotomy

A. Ventriculoperitoneal shunt placement
B. Tumor removal
C. Aneurysm repair
D. AV malformation
E. Craniectomy
F. Stereotactic procedure
G. Transsphenoidal hypophysectomy
H. Cranioplasty

III. Peripheral nerve

A. Nerve transposition
B. Carpal tunnel release

SURGICAL PROCEDURES – CARDIOTHORACIC

Content:

I. Thoracic
- A. Mediastinoscopy
- B. Thoracotomy
  1. Wedge resection
  2. Lobectomy
  3. Pneumonectomy
  4. Lung decortication
  5. Pectus excavatum/carinatum
  6. Video-assisted thoracic surgery (VATS)

II. Adult cardiac procedures
- A. Aortic aneurysm repair
- B. Valve repair
- C. Coronary artery bypass with graft (CABG)
- D. Heart-lung transplant
- E. Pacemaker insertion
- F. Ventricular assist device (VAD) insertion

III. Pediatric cardiac procedures
- A. Closure of patent ductus arteriosus
- B. Repair of coarctation of the aorta
- C. Tetralogy of Fallot repair

SURGICAL PROCEDURES – PERIPHERAL VASCULAR

Content:

I. Abdominal aortic aneurysm repair

II. Angioplasty

A. Percutaneous transluminal angioplasty (PTA)

1. Endograft placement
2. Endostent insertion

B. Pulmonary embolus devices (Greenfield filter)

III. Bypass surgery

A. Arteriovenous fistula and shunt

B. Femoropopliteal bypass

IV. Endarterectomy

A. Carotid stenting

B. Carotid TCAR

V. Vein ligation and stripping

SURGICAL PROCEDURES – PROCUREMENT

Content:

I. **Saphenous vein graft**
II. **Arterial graft (internal thoracic, etc.)**
III. **Heart/heart lung**
IV. **Sternal bone marrow**
V. **Ligaments**

II. PERIOPERATIVE MANAGEMENT OF THE SURGICAL PATIENT

C. Postoperative Management

POSTOPERATIVE MANAGEMENT

Objectives:

The learner will

1. Identify the key components of the transfer of care.
2. Identify key components of discharge planning and common community resources available in collaboration with other health care providers.
3. Identify the principles of postoperative pain and wound management.
4. Describe common complications, emergencies and treatment.

Content:

I. Transfer of care
- A. Immediate recovery period
- B. Discharge planning
- C. Perioperative patient education
- D. Importance of reasonable patient expectations and patient prognosis

II. Pain Management
- A. Local or regional methods
- B. Non-steroidal anti-inflammatory drugs versus opioids
- C. Alternate therapies

III. Wound management
- A. Drains
- B. Dressings and immobilization devices
- C. Staging

IV. Common complications, emergencies
- A. Planning and prevention
  1. Procedure related
     a) Hemorrhage
     b) Infection
     c) Common complications (adhesions, fistula, etc.)
  2. Anesthesia related
     a) Malignant hyperthermia
     b) Laryngospasm
     c) Paralytic ileus
     d) Aspiration, hypoxia, and pneumonia
  3. Positioning or pressure related
- B. Emergencies
  1. Common emergencies
  2. Immediate emergency treatment

IV. CLINICAL REQUIREMENTS

SURGICAL ASSISTANT CLINICAL REQUIREMENTS

The student must complete 140 documented surgical procedures in the role of the surgical assistant. A minimum of 20 cases must be performed in general surgery with the remaining cases assigned as appropriate to the student and level of experience. Those students with extensive experience in a specific surgical area may document the remaining cases as approved by the program. For those students who enter the program with no previous surgical experience, the program must arrange 20 or more cases in a minimum of two other surgical areas. Cases counted must be those that require a surgical assistant and are approved by the program.

Surgical Specialty

1. Cardiovascular
2. Peripheral vascular
3. Thoracic
4. Orthopedic
5. Neurosurgery
6. Ob-Gyn
7. Urology
8. Plastic
9. General
10. MIS
11. Ophthalmology
12. Otorhinolaryngology
13. Oral/maxillofacial
14. Pediatrics
15. Oncology
16. Podiatry
17. Robotic surgical procedures
18. Living tissue transplant

SURGICAL ASSISTANT CASE COUNTS

To count a case in the first assistant role, the student must satisfactorily perform 8 out of 12 of the following responsibilities:

PREOPERATIVE

1. Reviews surgical record including patient information history, preoperative tests (EKG, EEG, EMG, lab values, diagnostic imaging), safety measures, biopsy results.
2. Confirm placement and functionality of equipment and supplies with surgical team.
3. Communicate surgeon's preferences to surgical team, i.e., suture needs, specialty supplies, positioning of patient, etc.
4. Monitor and aid in the catherization, skin prep, and/or positioning of the patient according to surgeon's preference.

INTRAOPERATIVE

1. Confirm X-rays, MRIs, CTs, results of diagnostic tests, patient chart, etc., are in the operating room and available for review.
2. Monitor and aid in the draping of the patient; communicate surgeon's preference to the surgical team.
3. Injects local anesthesia, and/or performs incision dissection and/or secondary or subsequent trocar placement for procedure entry.
4. Uses appropriate knowledge of normal pathological anatomy and physiology, recognizes and responds appropriately to surgical events.
5. Provides visualization or assistance such as retraction, knot tying, suctioning/irrigation, application of hemostatic agents, ESU hemostasis, as appropriate to the operative site.
6. Injects postoperative local, and/or performs insertion of drains, and/or closure of wound/body planes.

POSTOPERATVE

1. Participates in splinting and immobilization, and/or placement of dressings.
2. Transfers patient.

Note: For programs that enroll students without surgical experience, the following applies: All surgical case experiences, including observation and second assisting, in addition to the required 140 first assistant cases must be included in case log documentation.

V. REQUIRED CORE SURGICAL TECHNOLOGY CURRICULUM

*REQUIRED INTRODUCTORY OPERATING ROOM CORE COMPONENTS REGARDING SURGICAL TECHNOLOGY**

***Sample of required introductory operating room core components for programs that accept students without previous operating room experience or education. See the most recent edition of the AST *Core Curriculum for Surgical Technology* for Required Core Content.**

- **I. Healthcare sciences**
  - A. Anatomy and physiology
  - B. Pharmacology and anesthesia
  - C. Medical terminology
  - D. Microbiology
  - E. Pathophysiology
- **II. Technological science concepts**
  - A. Electricity
  - B. Information technology
  - C. Robotics
- **III. Patient care concepts**
  - A. Biopsychosocial needs of the patient
  - B. Death and dying
- **IV. Surgical technology**
  - A. Preoperative
    1. Nonsterile
       a) Attire
       b) Preoperative physical preparation of the patient
       c) Patient identification
       d) Transportation
       e) Review of the chart
       f) Surgical consent
       g) Transfer
       h) Positioning
       i) Urinary catheterization
       j) Skin preparation
       k) Equipment
       l) Instrumentation
    2. Sterile
       a) Asepsis and sterile technique
       b) Hand hygiene and surgical scrub
       c) Gowning and gloving
       d) Surgical counts
       e) Draping
  - B. Intraoperative: Sterile
    1. Specimen care
    2. Abdominal incisions
    3. Hemostasis
    4. Exposure
    5. Catheters and drains

6. Wound closure
7. Surgical dressings
8. Wound healing
9. Tissue replacement materials
10. Emergency patient situations

C. Postoperative
1. Postanesthesia care unit
2. Methods of disinfection and sterilization
3. Sterile storage and distribution
4. Environmental disinfection of the OR

D. Perioperative case management

E. Assistant circulator role

F. Surgical procedures - didactic
1. Surgical specialties
a) General
b) Obstetric and gynecology
c) Genitourinary
d) Otorhinolaryngology
e) Orthopedic
f) Oral and maxillofacial
g) Plastic and reconstructive
h) Ophthalmic
i) Cardiothoracic
j) Peripheral vascular
k) Neurosurgery

G. Surgical rotation
1. Surgical rotation case requirements
2. First and second scrub role and observation

V. Professional practice

A. Professionalism
1. Professional management
2. Employability skills
3. Communication skills and teamwork
4. Ethical and moral issues
5. Legal issues, documentation and risk management

B. Healthcare facility information
1. Healthcare facility organization and management
2. Physical environment
3. All-hazards preparation

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APPENDICES

APPENDIX A

JOB DESCRIPTION: SURGICAL ASSISTANT

The *Standards and Guidelines for the Accreditation of Educational Programs in Surgical Assisting* have been approved by the Association of Surgical Technologists (AST), American College of Surgeons (ACS), Accreditation Review Committee on Education in Surgical Technology and Surgical Assisting (ARC/STSA), Subcommittee on Accreditation for Surgical Assisting (SASA), and the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and include this description of the profession of surgical assisting:

As defined by the American College of Surgeons (ACS), surgical assistants provide aid in exposure, hemostasis, closure, and other intraoperative technical functions that help the surgeon carry out a safe operation with optimal results for the patient. In addition to intraoperative duties, the surgical assistant also performs preoperative and postoperative duties to better facilitate proper patient care. The surgical assistant performs these functions during the operation under the direction and supervision of the surgeon and in accordance with hospital policy and appropriate laws and regulations.

Education

Surgical assistants graduate from surgical assisting programs accredited through ARC/STSA, a collaborative effort of AST, ACS, and SASA, by CAAHEP. CAAHEP is a recognized accreditation agency of the Council for Higher Education Accreditation (CHEA). In addition, surgical assisting programs are located in educational institutions that are institutionally accredited by agencies recognized by the United States Department of Education (USDE), the Joint Commission, or a state agency acceptable to CAAHEP and the ARC/STSA. The ARC/STSA is also a member of the Association of Specialized and Professional Accreditors (ASPA).

Credentials

Certification is conferred by the National Board of Surgical Technology and Surgical Assisting (NBSTSA). Initial certification as a Certified Surgical First Assistant (CSFA) is based upon satisfactory performance on the national certifying examination following completion of an accredited program in surgical assisting or another pathway acceptable to the NBSTSA. CSFAs maintain their certification by earning 38 hours of approved continuing education in a two-year period or by successfully retaking the certifying examination at the conclusion of the two-year period (Effective date 1/1/2020).

The NBSTSA's certification program is accredited by the National Commission for Certifying Agencies (NCCA), the accreditation division of the Institute for Credentialing Excellence (ICE) and is in compliance with NCCA's *Standards for the Accreditation of Certification Programs*. NCCA standards and accreditation services are referenced requirements in state and federal legislation pertaining to personnel certification.

The American College of Surgeons strongly supports adequate education and training of all surgical assistants, supports the accreditation of all surgical assisting educational programs, and supports examination for certification of all graduates of accredited surgical assistant educational programs.

Professional Organizations

The professional organization for surgical assistants is the Association of Surgical Assistants (ASA) in partnership with the Association of Surgical Technologists (AST). AST was formed in 1969 with the support of the American College of Surgeons (ACS), American Medical Association (AMA), American Hospital Association (AHA), and Association of periOperative Registered Nurses (AORN). ASA represents the interests of over 5,000 surgical assistants.

ASAs primary purpose is to ensure that surgical assistants have the knowledge and skills to administer patient care of the highest quality. The ASA is the principal provider, in conjunction with more than 40 state organizations, of continuing education for surgical assistants. ASA also works with AST, ARC/STSA and NBSTSA to set standards for education and certification and represents the profession at state and national levels to ensure that all surgical assistants attain the Certified Surgical First Assistant credential as a condition of employment.

Role of the Surgical Assistant

The following description of the surgical assistant has been approved by the American College of Surgeons and Association of Surgical Technologists:

1. **Positioning the patient**
   A. The surgeon shall convey the exact position that will give the best exposure for the surgical procedure. The surgical assistant will carry out this order. Consideration will be given to the patient's comfort and safety.
   B. Points of pressure shall be padded: elbows, heels, knees, eyes, face, and axillary region.
   C. Circulation shall not be impaired. (A tourniquet may be required for some procedures.)
   D. Nerve damage shall be guarded against.
   E. The temperature of the patient should be discussed with the anesthesia personnel and methods employed to maintain the desired temperature range.
   F. The surgical assistant shall be familiar with common positions related to the surgical procedure and will be able to use the equipment necessary to provide the position. Competencies will include the following:
      1) Fracture tables
      2) Head stabilizers
      3) Body stabilizers
      4) C-arm extensions
      5) Any other equipment needed

G. Upon completion of the procedure, the patient shall be evaluated for any possible damage from positioning which will include assessment of the skin. The abnormal condition shall be reported to the surgeon and treatment and documentation shall be carried out.

2. Providing visualization of the operative site by the following:

A. Appropriate placement and securing of retractors with or without padding
B. Packing with sponges
C. Digital manipulation of tissue
D. Suctioning, irrigating, or sponging
E. Manipulation of suture materials (e.g., loops, tags, running sutures)
F. Proper use of body mechanics to prevent obstruction of the surgeon's view

3. Utilizing appropriate techniques to assist with hemostasis

A. Permanent
   1) Clamping and/or cauterizing vessels or tissue
   2) Tying and/or ligating clamped vessels or tissue
   3) Applying hemostatic clips
   4) Placing local hemostatic agents
B. Temporary
   1) Applying tourniquets and demonstrating awareness of the indications/contraindications for use with knowledge of side effects of extended use
   2) Applying vessel loops
   3) Applying non-crushing clamps
   4) Applying direct digital pressure

4. Participating in volume replacement or autotransfusion techniques as appropriate

5. Utilizing appropriate techniques to assist with closure of body planes

A. Utilizing running or interrupted sutures with absorbable or nonabsorbable material of wound layers, including muscle and fascia
B. Utilizing subcuticular closure technique with or without adhesive skin closure strips
C. Closing skin with method per surgeon's directive (suture, staples, etc.)
D. Postoperative subcutaneous injection of local anesthetic per surgeon's directive

6. Selecting and applying appropriate wound dressings, including the following:

A. Liquid or spray occlusive materials
B. Absorbent material affixed with tape or circumferential wrapping
C. Immobilizing dressing (soft or rigid)

7. Providing assistance in securing drainage systems to tissue

APPENDIX B

REQUIRED LAB SKILLS

I. REQUIRED SURGICAL SKILLS PART 1 for the student who enters the program with no previous surgical experience.

A. PPE, OR attire
B. Gathers equipment and supplies
C. Chart review
D. Sterile technique, scrubbing, gowning and gloving
E. Transfer techniques
F. Vital sign assessment including pulse assessment
G. Monitoring
H. Assists with intubation (stand by assignment)
I. Open glove technique, catherization
J. DVT prevention (SCD compression device, etc.)
K. Skin prep
L. Positioning (includes positioning tools/table operation)
M. Draping
N. Patient identification, timeout and count procedures
O. Instrumentation knowledge, use and manipulation
P. Mock surgery includes sterile technique application
Q. Room turnover
R. Equipment operation
    1. ESU (bipolar and monopolar)
    2. Sterilization equipment
    3. Microscope
    4. Laser
    5. Laparoscopic equipment
    6. Stapling devices
S. Additional skills intraoperatively
    1. Suture/ligature applications and cutting of suture
    2. Irrigation

II. Lab skills required and demonstrated by all students enrolled in an accredited surgical assistant program.

A. Wound management skills
   1. Knot tying
   2. Stick tie/ligature
   3. Interrupted
   4. Buried
   5. Continuous
   6. Skin closure
   7. Subcuticular
   8. Mattress
   9. Staple closure

B. Drain insertion and security (Figure of 8)
C. Local injection
D. Secondary or subsequent trocar placement
E. Tourniquet placement
F. Laparoscopic skills – manipulation – target training (skills experience)
G. Suction technique (demonstrate ability to enter without visual obstruction)

APPENDIX C

PROGRAM RESOURCES

I. **Mentors – program directors:** The following individuals have agreed to provide assistance. Please feel free to contact them for any guidance or to answer any questions.
   A. Clinton Crews, MPH, Surgical Assisting Program Director, Eastern Virginia Medical School, Norfolk, VA, Contact: crewsrc@evms.edu
   B. Rebecca Hall, CST, CSA, CRCST, MS, FAST, Surgical Assisting Program Director, Delta College University Center, MI, Contact: rebeccahall@delta.edu
   C. Mary (Libby) McNaron, CST, CSFA, RN, MSN, FAST, Chair Surgical Assisting Program Director, Gulf Coast State College, Panama City, FL, Contact: Lmcnaron@gulfcoast.edu
   D. Sarah Penkava, RN, MS, Surgical Assisting Program Director, Mayo Clinic College of Medicine and Science, Rochester, MN, Contact: penkava.sarah@mayo.edu

II. **Examples of entry requirements of programs**
   A. No medical related experience
   B. Certified Surgical Technologist with no working experience
   C. Bachelor's degree with no experience
   D. Associate degree with medical field experience
   E. Bachelor's degree with related medical experience
   F. Certified Surgical Technologist with two years' surgical experience
   G. Physician assistant
   H. Registered nurse

III. **Professional organization websites**
   A. ASA – Association of Surgical Assistants; www.surgicalassistant.org
   B. ACS – American College of Surgeons; www.facs.org
   C. ARC/STSA – Accreditation Review Council on Education in Surgical Technology and Surgical Assisting; www.arcstsa.org
   D. CAAHEP – Commission on Accreditation of Allied Health Education Programs; www.caahep.org
   E. AST – Association of Surgical Technologists; www.ast.org
   F. NBSTSA – National Board of Surgical Technology and Surgical Assisting; www.nbstsa.org
   G. AAMI – Association for the Advancement of Medical Instrumentation; www.aami.org
   H. NSAA – National Surgical Assistant Association; www.nsaa.net

IV. **CAAHEP and ARC/STSA Standards and Guidelines for Surgical Assisting**

V. **Educator Resources found on the ARC/STSA website**
   A. Standards for Surgical Assisting
   B. Standards Interpretive Guide for Surgical Assisting

VI. **Educator resources found on the Association of Surgical Assistants (ASA) website**
   A. Position statements
   B. Guidelines

APPENDIX D

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www.arcstsa.org

www.surgicalassistant.org