



DEPARTMENT OF SURGERY

DIVISION OF ACUTE CARE SURGERY

ACUTE CARE SURGERY ROTATION (SA1 & SA2)

University Hospital
C.S. Mott Children's Hospital
Von Voigtlander Women's Hospital
Cardiovascular Center

House Officer I
House Officer II
House Officer III
House Officer IV
House Officer V

Curriculum/Rotation Goals and Objectives for
Surgery Residents

Acute Care Surgery

House Officer I (TBICU and ACS Intern Role)

Goal: The goal of the HO I ACS rotation (specifically the Trauma Burn ICU and ACS Intern roles) is to develop specialized knowledge and skills (focused on the physiology of injury and injury patterns) necessary to care for critically injured and burned patients. The resident will employ evidenced-based best practices, perform basic ICU procedures with supervision, and communicate accurately and effectively on rounds and with patients, staff, and consulting services.

Learning Objectives:

Patient Care:

By the end of the Acute Care Surgery rotation, the HO I resident will be able to:

1. Demonstrate accurate presentation of current and overnight events, vitals, labs, physical exam, radiographs, and consultant recommendations in a systematic fashion during ICU daily rounds.
2. Identify common post-injury complications, such as fever, infections, respiratory distress, and organ failure
3. Demonstrate safe and effective performance of basic ICU procedures under supervision such as:
 - a. Arterial Access
 - b. Central Venous Access
 - c. Access removal
 - d. Bronchoscopy
 - e. Dressing Changes

Medical Knowledge:

By the end of the Acute Care Surgery rotation, the HO I resident will be able to:

1. Describe the physiologic changes of severely burned patients
2. Describe the common physiologic changes in Trauma patients, including brain and spinal cord injury and hemorrhage
3. List common injuries and injury patterns in Trauma
4. Recognize and differentiate different types of shock
5. Interpret lab and blood gas abnormalities, fluid status, X-ray findings and mechanical ventilator settings

Systems-Based Practice:

By the end of the Acute Care Surgery rotation, the HO I resident will be able to:

1. Identify ancillary staff resources available to assist with care of the critically ill and injured trauma and burn patients
2. Describe how the trauma system works
3. Explain how protocolized care can reduce medical errors and complications in trauma and burn patients

Practice-Based Learning and Improvement:

By the end of the Acute Care Surgery rotation, the HO I resident will be able to:

1. Demonstrate excellent teaching of medical students and ancillary service students on service

2. Discuss assigned case-based learning objectives during rounds
3. Participate actively in Acute Care Surgery Conferences (e.g. Trauma Conference, Surgical Critical Care Conference, Critical Care Practical Series Conference, and others)

Professionalism:

By the end of the Acute Care Surgery rotation, the HO I resident will be able to:

1. Arrive on time and prepared for rounds, conferences
2. Document accurate history, physical and patient care plan in the medical record in a timely fashion
3. Communicate respectfully to colleagues, patients, and staff
4. Comply with duty hour regulations

Interpersonal and Communication Skills:

By the end of the Acute Care Surgery rotation, the HO I resident will be able to:

1. Communicate patient care plans accurately and respectfully to patients and families
2. Communicate patient care plans accurately and timely with primary surgical and consulting services
3. Discuss patient care plans with staff and nurses respectfully
4. Report changes in patient's condition accurately and timely to supervising residents/fellows/staff
5. Obtain informed consents for procedures

Acute Care Surgery

House Officer II (Emergency Consult Resident Role)

Goal: The goal of the HO II ACS rotation (ECR Role) is to learn how to evaluate and triage urgent and emergent trauma burn and surgical diseases, initiate appropriate diagnostic testing, and devise evidence-based treatment plans. Additionally, the goal is to develop interpersonal skills to collegially interact with multidisciplinary consultant teams to create optimal care plans for patients.

Learning Objectives:

Patient Care:

By the end of the Acute Care Surgery rotation, the HO II resident will be able to:

1. Recognize many broad trauma, burn, and surgical conditions and describe the appropriate management for them, including diagnostic, imaging in the emergency department
2. Recognize common post-traumatic, burn, and post-operative problems such as fever, hypotension, hypoxia, confusion, oliguria
3. Demonstrate basic procedural and surgical skills such as airway management, simple suturing, knot tying, use of Doppler ultrasound, administration of local anesthetic, use of aseptic technique and universal precautions, I and D of abscesses, wound vac application
4. Demonstrate a basic understanding and skill level of arterial line and central line placement, FAST exam, chest tube placement, wound care and closure, with proper supervision, Bronchoscopy, burn care, basic laparoscopic skills

Medical Knowledge:

By the end of the Acute Care Surgery rotation, the HO II resident will be able to:

1. Recognize and initiate management for many broad and some focused diseases/conditions in the SCORE curriculum in Trauma, Burn, and Emergency General Surgery:
 - a. Appendicitis
 - b. Cholecystitis
 - c. Abdominal compartment syndrome
 - d. Perforated viscus
 - e. Animal bites
 - f. Abdominal thorax
 - g. Extremity, spine, and brain trauma
 - h. Smoke inhalation injury
 - i. Estimating TBSA Burns
 - j. Hemoperitoneum
 - k. Hemopneumothorax
 - l. Compromised airway
 - m. All forms of shock
 - n. Pelvic fractures
 - o. Soft tissue infections
 - p. Necrotizing soft tissue infections
 - q. Renal injuries
 - r. Initial assessment of trauma
2. Describe the operative steps, peri-operative care and post-operative complications for many of the essential operations in the SCORE curriculum:
 - a. Chest tube placement
 - b. Appendectomy

- c. Cholecystectomy
- d. Trauma Laparotomy
- e. Splenectomy
- f. Cricothyroidotomy
- g. Gastrostomy
- h. Jejunostomy
- i. Bronchoscopy
- j. Burn debridement and grafting
- k. Fasciotomy for Injury
- l. Resuscitative Thoracotomy

3. Recognize and initiate management for acute decompensation of patients in the ED and ICU.
- a. Hypotension
 - b. Shock
 - c. Arrhythmias
 - d. Respiratory failure
 - e. Mental status changes
 - f. Seizures

Systems-Based Practice:

By the end of the Acute Care Surgery rotation, the HO II resident will be able to:

1. Demonstrate appropriate utilization of resources for proper coordination of patient care (consultation of social work for substance abuse, PM&R consultation for loss of consciousness and physical rehab, performances of accurate tertiary surveys and coordination of appropriate follow-up visits with consulting services)
2. Choose and apply appropriate hospital, trauma, burn and ICU protocols and recognize protocol limitations

Practice-Based Learning and Improvement:

By the end of the Acute Care Surgery rotation, the HO II resident will be able to:

1. Present accurately and succinctly in patient case conferences (e.g. Trauma Conference)
2. Apply appropriate evidence-based practices and demonstrate active reading of current literature
3. Incorporates QI concepts and initiatives into patients presentations

Professionalism:

By the end of the Acute Care Surgery rotation, the HO II resident will be able to:

1. Demonstrate composure in stressful situations. (e.g. trauma resuscitations, codes, and during patient decompensation)
2. Exhibit compassion and empathy towards patients and families
3. Acknowledge limitations and requests assistance when needed
4. Respond promptly to consult requests

Interpersonal and Communication Skills:

By the end of the Acute Care Surgery rotation, the HO II resident will be able to:

1. Demonstrate compassion and cultural sensitivity when relaying information to patients and families
2. Perform best-practices for hand offs (e.g. from ED to ICU or OR)
3. Demonstrate proficiency and accuracy in obtaining informed consent for basic surgical procedures

Acute Care Surgery

House Officer III (SA 1 Role)

Goal: The HO III rotation on ACS (SA 1 service) is meant to develop diagnostic and operative skills in trauma and emergency general surgery and begin to develop mature team leadership skills.

Learning Objectives:

Patient Care:

By the end of the Acute Care Surgery rotation, the HO III resident will be able to:

1. Diagnose most common and some uncommon trauma and surgical conditions and describe the appropriate management for them:
 - a. Abdominal aorta injury
 - b. Vena cava injury
 - c. Bladder injury
 - d. Esophageal injury
 - e. Extremity compartment syndrome
 - f. Fasciotomy
 - g. Hepatic injury
 - h. Intra-abdominal abscesses
 - i. Pancreatic injury
 - j. Rectal injuries
 - k. Renal injury
 - l. Splenic injury
 - m. Hemothorax
 - n. Truncal and peripheral vessel injury
 - o. Ureteral injury
 - p. Gastric and duodenal perforated ulcer
 - q. Perforated viscus
 - r. Hernias
 - s. Bowel obstructions
 - t. Abdominal compartment syndrome
 - u. Rhabdomyolysis
2. Recognize and provide initial stabilization for most complex post-traumatic and post-operative problems:
 - a. Deep venous thrombosis
 - b. Hemorrhage
 - c. Pulmonary Embolism
 - d. Stroke
 - e. Acute myocardial infarction
 - f. Arrhythmia
 - g. Infections
 - h. Sepsis
 - i. Systemic Inflammatory Response Syndrome
 - j. Hypo/hyperglycemia
 - k. Pneumothorax
 - l. Multisystem organ failure
3. Demonstrate proficiency in the handling of most commonly used surgical instruments during

procedures such as laparoscopy, laparotomy, suturing, knot-tying, anastomosis creation in common surgical procedures. (e.g. appendectomy, cholecystectomy, small and large bowel resection, perforated gastric and duodenal ulcers, lysis of adhesions, arterial and central line placements, bronchoscopy, endoscopy, gastrostomy, ostomy creation, tracheostomy, temporary closure of the abdomen soft tissue infection and major wound debridement)

Medical Knowledge:

By the end of the Acute Care Surgery rotation, the HO III resident will be able to:

1. Recognize, properly diagnose, and initiate management for many broad diseases in the SCORE curriculum in Trauma and Emergency General Surgery:
 - a. Acute and chronic abdominal pain
 - b. Aortic injury
 - c. Bacterial peritonitis
 - d. Bladder injury
 - e. Chylous ascites
 - f. Cardiac tamponade
 - g. Colitis
 - h. Colon and rectal injuries
 - i. Diaphragmatic injuries
 - j. Esophageal injuries
 - k. Extremity fractures and traumatic amputations
 - l. Gastric trauma
 - m. Head injury
 - n. Hemothorax
 - o. Hepatic injury
 - p. Laryngeal and tracheal injury
 - q. Myocardial contusion
 - r. Neck soft tissue injuries
 - s. Pancreatic injuries
 - t. Duodenal injuries
 - u. Pharyngeal and cervical esophageal injuries
 - v. Pulmonary injuries
 - w. Rectus sheath hematomas
 - x. Renal injuries
 - y. Intestinal injuries
 - z. Spine and spinal cord injuries
 - aa. Sprains
 - bb. Strains and dislocations
 - cc. Sternal fractures
 - dd. Tendon injuries
 - ee. Tracheal and bronchial injuries
 - ff. Trauma in pregnancy
 - gg. Upper airway obstruction
 - hh. Major vascular injuries
2. Describe the operative steps, peri-operative care and post-operative complications for most of the essential operations in the SCORE curriculum and possess a basic knowledge of some of the complex operations (e.g. Aortic, Bladder, Colon, Rectal, Diaphragmatic, Esophageal, Gastric Trauma, Hepatic, Laryngeal, Tracheal, Neck Soft Tissue, Pancreatic, Duodenal, Pharyngeal, Cervical Esophageal, Pulmonary, Renal, Intestinal, Tendon, Tracheal, Bronchial and Major Vascular Injuries and Traumatic Amputations)

Systems-Based Practice:

By the end of the Acute Care Surgery rotation, the HO III resident will be able to:

1. Arrange efficient disposition for patients and assure all materials are properly prepared
2. Investigate system issues and suggest and or assist with quality improvement projects

Practice-Based Learning and Improvement:

By the end of the Acute Care Surgery rotation, the HO III resident will be able to:

1. Apply evidence to support patient care treatment plans
2. Evaluate his or her own surgical results and medical care outcomes in a systematic way and identify areas for improvement
3. Identify probable cause for complications and suggest strategies for improvement

Professionalism:

By the end of the Acute Care Surgery rotation, the HO III resident will be able to:

1. Execute patient care responsibilities consistently and maintain continuity of care
2. Promote the health and wellbeing of the patient care team by setting an example of appropriate personal health issues, fatigue, and stress
3. Manage others under his or her supervision to respond appropriately to responsibilities in a timely fashion

Interpersonal and Communication Skills:

By the end of the Acute Care Surgery rotation, the HO III resident will be able to:

1. Demonstrate compassion and cultural sensitivity when relaying bad news to patients and families
2. Relay patient care plans to the team in a timely fashion
3. Discuss patient care plans with consultants in a timely, complete, and well-organized fashion

Acute Care Surgery

House Officer IV (SA 2 Chief Role)

Goal: The goal of the HO IV rotation on ACS (SA2 Chief) is to become a proficient leader of the team during rounds and in trauma resuscitations, and to obtain robust experience and skill in more complex patient care and procedures focusing on Trauma, Burns, and Emergency General Surgery cases.

Learning Objectives:

Patient Care:

By the end of the Acute Care Surgery rotation, the HO IV resident will be able to:

1. Diagnose all common and most uncommon trauma, burn and surgical conditions and initiate the appropriate management for them (including diagnostic imaging):
 - a. Adult and pediatric burns and inhalation injuries
 - b. Cyanide and carbon monoxide poisoning
 - c. Hypothermia
 - d. Frost bite
 - e. Severe shock
 - f. Abdominal aorta
 - g. Vena cava or other named vessel vascular injury
 - h. Kidney, bladder, ureter, and urethra injury
 - i. Blunt and penetrating cardiac and chest trauma
 - j. Carotid artery injury
 - k. Duodenal injury
 - l. Esophageal injury
 - m. Upper and lower extremity compartment syndromes
 - n. Hepatic injury
 - o. Zone 1,2, and 3 neck injuries
 - p. Pancreatic, colon, and rectal injuries
 - q. Splenic, lung, and diaphragmatic injuries,
 - r. Peripheral vessel injury
 - s. Crush injuries
 - t. Complex abdominal wall hernias and fistulas
 - u. Trauma in pregnancy
 - v. Patients with complex comorbidities such as cirrhosis
 - w. Systemic anticoagulation and immunosuppression
 - x. Obesity, malnutrition, developmental delay, and the extreme of age
2. Recognize and appropriately treat most complex post-traumatic, post burn, and post-operative problems with minimal supervision:
 - a. Deep venous thrombosis
 - b. Hemorrhage
 - c. Pulmonary Embolism
 - d. Stroke
 - e. Acute myocardial infarction
 - f. Arrhythmia
 - g. Infections
 - h. Sepsis
 - i. Systemic Inflammatory Response Syndrome

- j. Shock
- k. Hypo/hyperglycemia
- l. Pneumothorax
- m. Multisystem organ failure

3. Demonstrate proficiency in the handling of most surgical instruments during common and uncommon surgical procedures (e.g. burn debridement and grafting, laparoscopy, laparotomy, thoracotomy, amputation of limb)

4. Demonstrate substantial skill at leading junior residents through essential-common operations. (e.g. appendectomy, cholecystectomy, bowel resection, gastrostomy tube, tracheostomy)

Medical Knowledge:

By the end of the Acute Care Surgery rotation, the HO IV resident will be able to:

1. Exhibit comprehensive knowledge of most broad and some focused diseases in the SCORE curriculum in Trauma, Burn and Emergency General Surgery:

- a. Adult and pediatric burns and inhalation injuries
- b. Cyanide and carbon monoxide poisoning
- c. Hypothermia
- d. Frost bite
- e. Severe shock
- f. Abdominal aorta, vena cava or other named vessel vascular injury
- g. Kidney, bladder, ureter, and urethra injury
- h. Blunt and penetrating cardiac and chest trauma
- i. Carotid artery injury
- j. Duodenal injury
- k. Esophageal injury
- l. Upper and lower extremity compartment syndromes
- m. Hepatic injury
- n. Zone 1,2, and 3 neck injuries
- o. Pancreatic, colon, and rectal injuries
- p. Splenic, lung, and diaphragmatic injuries
- q. Peripheral vessel injury
- r. Crush injuries
- s. complex abdominal wall hernias and fistulas
- t. Pelvic fractures
- u. Retroperitoneal hematomas
- v. Trauma in pregnancy
- w. Patients with complex comorbidities such as cirrhosis
- x. Systemic anticoagulation and immunosuppression
- y. obesity, malnutrition, developmental delay, and the extremes of age

2. Describe the operative steps, peri-operative care and post-operative complications for all of the "essential" operations and demonstrate significant knowledge of some of the complex operations (e.g. Aortic, Bladder, Colon, Rectal, Diaphragmatic, Esophageal, Gastric Trauma, Hepatic, Laryngeal, Tracheal, Neck Soft Tissue, Pancreatic, Duodenal, Pharyngeal, Cervical Esophageal, Pulmonary, Renal, Intestinal, Tendon, Tracheal, Bronchial and Major Vascular Injuries, Traumatic Amputations, major burn debridement and grafting)

Systems-Based Practice:

By the end of the Acute Care Surgery rotation, the HO IV resident will be able to:

1. Demonstrate effective leadership of the team during trauma resuscitations, codes, and rounds
2. Participate in quality improvement projects

Practice-Based Learning and Improvement:

By the end of the Acute Care Surgery rotation, the HO IV resident will be able to:

1. Teach junior residents and students in and out of the OR
2. Select cases for and leads discussions in conferences and in D&C

Professionalism:

By the end of the Acute Care Surgery rotation, the HO IV resident will be able to:

1. Lead the team on rounds in trauma resuscitations and in sign-out to ensure patient care responsibilities are performed and continuity of care is maintained
2. Promote the health and wellbeing of the patient care team by setting an example of appropriate personal health issues, fatigue, and stress and recognizing the team member's needs
3. Assure that all cases, traumas, and clinic patients are covered by a resident or PA and that all patient care issues are addressed and modifies schedules as required
4. Set an example for promptness and attendance to conference

Interpersonal and Communication Skills:

By the end of the Acute Care Surgery rotation, the HO IV resident will be able to:

1. Demonstrate skill and customizes emotionally difficult information when relaying bad news to patients and families
2. Demonstrate effective conflict management among patients and their families
3. Relay patient care plans with the team in a timely fashion and delegate's tasks effectively
4. Anticipate patient care delays and logistical issues and engages team members in devising preventative solutions

Acute Care Surgery

House Officer V (SA 1 Chief Role)

Goal: The goal of the HO V ACS rotation (SA1 chief) is to become competent with most common and some complex surgical cases, become an effective teacher and leader to junior and midlevel residents on rounds, in the OR and during Trauma resuscitations, and develop the ability to effectively manage complex team dynamics and handle emotionally distraught families.

Learning Objectives:

Patient Care:

By the end of the Acute Care Surgery rotation, the HO V resident will be able to:

1. Diagnose complex surgical conditions recognizing atypical presentations of numerous conditions and formulate appropriate management plans independently
2. Demonstrate effective leadership of the team and delegate appropriate clinical tasks to other health care team members
3. Provide supervision for team members in complex peri-operative problems
4. Demonstrate proficiency in the handling of surgical instruments during complex procedures
5. Demonstrate substantial skill and efficiency in leading junior residents skillfully through essential-common operations (e.g. appendectomy, cholecystectomy, bowel resection, gastrostomy tube, tracheostomy)

Medical Knowledge:

By the end of the Acute Care Surgery rotation, the HO V resident will be able to:

1. Exhibit comprehensive breadth and depth of knowledge of most broad and focused diseases in the SCORE curriculum in Trauma and Emergency General Surgery
2. Exhibit an extensive understanding of the operative steps, perioperative care and post-operative complications for all of the "essential" operations and many of the "complex" operations in the SCORE curriculum

Systems-Based Practice:

By the end of the Acute Care Surgery rotation, the HO V resident will be able to:

1. Coordinate the activities of the residents, nurses, social workers, and other health care professionals to provide optimal care for the patient
2. Lead and participate in creation of standardized protocols

Practice-Based Learning and Improvement:

By the end of the Acute Care Surgery rotation, the HO V resident will be able to:

1. Teach residents, students, and staff with an interactive and engaging teaching style that fosters educational dialogue within the team
2. Facilitate conferences and case discussion based on assimilation of evidence from the literature
3. Participate in and help develop surgical skill building activities for the junior residents and students

Professionalism:

By the end of the Acute Care Surgery rotation, the HO V resident will be able to:

1. Promote ethical behavior and professionalism in the team by modeling proper behavior and setting expectations for the team
2. Modify work schedules as needed to assure continuity of care and a healthy work-life balance for the team members under his or her supervision

Interpersonal and Communication Skills:

By the end of the Acute Care Surgery rotation, the HO V resident will be able to:

1. Demonstrate effective conflict management among care providers
2. Execute clear and accurate handoffs at transitions of care
3. Establish clear leadership when faced with unexpected events in the operating room or rapid patient deterioration
4. Communicate adverse events or outcomes with patients and families effectively