

## Acute Care Surgery Fellowship

### Curriculum Overview

#### First Year – Surgical Critical Care

The first year of the Acute Care Surgery fellowship is dedicated to the training of Surgical Critical Care (SCC).

We provide a rich and diverse educational environment that includes ten trauma surgeons with added qualifications in SCC working in a large tertiary care Trauma and Surgery Intensive Care Unit (TICU/SICU) that produces a wealth of diverse and complex critical illness.

**Serving as additional learning resources, the multidisciplinary team includes:**

- nursing
- respiratory therapy
- physical therapy
- nutritional specialists
- dedicated ICU pharmacist

The SCC fellow receives one-on-one didactic and hands-on instruction from both on-call faculty and the SCC attending of the week during daily rounds and duties. From morning report through overnight call, the mainstay of organ system-based education is daily multidisciplinary rounds, where active, hands-on learning predominates. Each fellow is expected to augment this curriculum through autonomous learning with the wealth of resources provided.

To supplement the curriculum, attendance is required at multiple conferences, including:

- daily multidisciplinary TICU and SICU rounds
- weekly multidisciplinary critical care grand rounds
- monthly critical care journal club
- general surgery grand rounds
- SCC/ACS research meeting

In addition, a weekly critical care conference is held to discuss topics in the curriculum specific to critical care and to ensure that the curriculum outline is covered.

**SCC fellows are responsible for the management of populations including:**

- critically ill trauma
- burn
- general surgical
- neurosurgical
- orthopedic

The SCC program ensures excellent training in key physiologic areas of SCC. As a foundation, each fellow becomes Advanced Trauma Life Support (ATLS)-certified and an ATLS instructor.

**Each fellow becomes competent in managing all organ systems in critical illness including:**

- neurologic
- cardiovascular
- pulmonary
- gastrointestinal
- musculoskeletal
- metabolic
- nutritional
- endocrine
- hematologic

### **Neurologic**

Neurologic disease expertise is achieved through close interaction with faculty in SCC, neurology and neurosurgery.

### **Cardiovascular**

Cardiovascular physiology is mastered through didactic, bedside and autonomous learning, with a focus on bedside resuscitation. SCC fellows participate in shock resuscitation secondary to all etiologies, incorporating technology such as right heart ejection fraction pulmonary artery catheters and bedside echocardiography directed at endpoints of resuscitation.

### **Pulmonary**

Fellows become adept at managing complex pulmonary disease, including severe acute respiratory distress syndrome. Management of respiratory failure includes using varied ventilation strategies depending on patient and pathology, and fellows also are exposed to patients managed via extracorporeal membrane oxygenation.

**Fellows become facile with parenteral and enteral nutrition, including selection and placement of access:**

- formulations
- calorimetry
- bedside nutritional assessment

SCC fellows participate in the selection and application of all novel critical care technologies utilized within the SICU.

### **Administrative**

The SCC program prepares fellows to become leaders in critical care regionally and nationally. In addition to intellectual preparation, this goal is achieved through development of administrative and research expertise. SCC fellows work closely with the Director of SCC within the scope of all administrative duties.

**Critical skills in ICU directorship are acquired, including:**

- ICU design
- evidence-based protocol development
- database development and management
- ICU performance improvement

### **Research**

The program provides resources commensurate with the resident's level of need. All SCC faculty are involved in research, with fellows encouraged to associate with projects of interest. In addition, fellows are expected to design, carry out and publish a novel SCC-based research project, under the guidance of faculty, trauma data coordinators and statisticians. Fellows have the opportunity to submit their work to be presented at national conferences.

### **Second Year – Acute Care Surgery**

Second year fellows receive training in trauma surgery and emergency general surgery that allow them to become leaders at local and national levels. Training in advanced injury management is supported by a busy Level 1 trauma center which admits approximately 3,000 patients each year from throughout western North Carolina. Fellows oversee initial assessments and resuscitations as well as provide operative management.

### **Additional Learning**

While continuing to obtain the traditional advanced training in trauma, the ACS fellow also receives additional education in emergency general surgery as well as fields such as

- thoracic surgery
- vascular surgery
- orthopaedics
- neurosurgery
- hepatobiliary surgery
- interventional radiology

During this year, the ACS fellow assumes a leadership role on the busy trauma and emergency surgical services. Intensive Care Unit and Trauma Center administration is also taught and research endeavors are encouraged and highly supported.