2018-2019 FELLOW MANUAL
SURGICAL CRITICAL CARE
AND
ACUTE CARE SURGERY FELLOWSHIP

Written by:
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MISSION STATEMENT
The primary mission of the Vanderbilt University Medical Center Surgical Critical Care and Acute Care Surgery Fellowship is to provide general surgeons intensive clinical and educational training to become leaders in academic surgical critical care, trauma, emergency general surgery (EGS), and burns. Through an integrated program, fellows will attain knowledge and expertise to achieve the following:
1) satisfy the six core competencies outlined by the ACGME
2) obtain a Certificate of Added Qualifications in Surgical Critical Care
3) obtain a Certificate of Added Qualifications in Acute Care Surgery
4) manage the most complex trauma and emergency general surgery cases
5) become administratively and academically successful in their careers

PROGRAM PHILOSOPHY
The philosophy of the Vanderbilt University Medical Center Surgical Critical Care and Acute Care Surgery Fellowship program is to provide a setting in which advanced, highly skilled, adult education can take place. The faculty provides the opportunity for the fellow not only to acquire an in-depth knowledge of critical care, trauma and emergency surgery, and advanced skills in critical care and operative techniques, but also to develop both academically and professionally. This is achieved through an integrated two year program that includes an ACGME approved Surgical Critical Care Residency, AAST approved specialty training in the management of EGS and trauma patients, and the training to enhance administrative, research, and educational skills. We are committed to providing excellent clinical exposure, as well as directed, expert instruction, promoting self-directed education, and fostering the refinement of the fellow’ scientific and academic pursuits. The educational program consists of a combination of mentorship with a graded increase in clinical, administrative and educational responsibilities; didactic and Socratic instruction, hands-on experience, and self-directed learning.
To ensure that our program attains those goals and objectives outlined in our “Program Philosophy” section, the VUMC Surgical Critical Care and Acute Care Surgery Fellowship defines several components in the program including:

A. Clinical  
B. Educational  
C. Administrative  
D. Research/Academic Development

For acquisition of clinical expertise, the fellowship is structurally divided into two separate years:

1) ACMGE approved Surgical Critical Care experience - 1st year  
2) AAST - approved Acute Care Surgery experience - 2nd year.

For acquisition and enhancement of administrative, research, and educational skills, the two year fellowship is an integrated program with the second year building on the first year. Additionally, the second year provides opportunities to obtain specific expertise and skills in areas of interest defined by the fellow.

BURN FELLOWSHIP OPTION  
For fellows interested in a career that incorporates a significant burn component, Vanderbilt offers the opportunity to complete either a formal Burn Fellowship or expanded experience in burn surgery. The goal of the Burn fellowship experience is to train surgeons and leaders in the care of patients with severe thermal and other etiologies of burn injuries. This includes an understanding of the operative management and critical care specific to the burn patient population, particularly focusing on operative techniques and decision making, outpatient care, long term sequelae and reconstructive management of the burn patient. The fellowship maintains a strong focus on professional development, research interests and leadership skills developed over the 2 years. Depending upon career goals, the fellow will emerge with a high level of proficiency to satisfy his/her career goals within the realm of the Burn Surgeon.
Eligibility for residency in accredited programs at Vanderbilt will adhere to the general guidelines outlined in the Vanderbilt House Staff Manual (Section I.I.). Applicants for the Surgical Critical Care and Acute Care Surgery Fellowship must also meet the following requirements:

- Completion of ACGME approved general surgery residency
- Must be board-eligible for or certified by the American Board of Surgery
- Must show established ability as a teacher of medical students and residents

Submitted applications will be thoroughly reviewed and acknowledged. The Program Director may also contact the applicant by phone initially. Invitation to interview in person will be based on program needs and the individual's qualifications and references. In addition to the requisite eligibility criteria, selection for the program will be based on favorable interviews with existing faculty and fellows, favorable completion of his/her current program, as well as the applicant's expressed interest in the Surgical Critical Care program.

Candidates will interview with the Program Director, faculty and fellows within the Division. The rank order list submitted to the National Residency Match Program (NRMP) is based on faculty consensus of the standardized evaluation results.

Fellowship in Surgical Critical Care and Acute Care Surgery at Vanderbilt is generally a two year commitment. Upon satisfactory completion of the first year accredited Surgical Critical Care program (as determined by the Clinical Competency Committee), the fellow will matriculate into the Acute Care Surgery portion of the fellowship and is eligible for appointment to the faculty at the level of Instructor in Surgery, which begins the second year of the fellowship. Appointment to the faculty and medical staff is subject to established institutional processes and guidelines. All members of the Vanderbilt faculty are expected to adhere to the standards of conduct and rules and procedures set forth in the Vanderbilt Faculty Manual as well as the Medical Staff By-laws: https://vanderbilt.edu/faculty-manual/

To adequately complete the fellowship, fellows must

- Be judged by the Clinical Competency Committee through observation of direct clinical involvement and our in-depth evaluation and mentoring program outlined in detail under the section "Policies for the Supervision of Surgical Critical Care and Acute Care Surgery Fellows" to be able to function safely and independently
- Complete all case log requirements
- Satisfactorily complete the AAST Acute Care Surgery Exam. Letters and certificates of completion are provided to those who have satisfactorily completed the Surgical Critical Care and Acute Care Surgery components of the programs.
The general educational goals and objectives are divided into those that relate primarily to Surgical Critical Care and those that relate to Acute Care Surgery, exclusive of Critical Care and provided below:

General Goals and Objectives:
The primary mission of the Vanderbilt University Medical Center Surgical Critical Care and Acute Care Surgery Fellowship is to provide residents with the training to become leaders in academic surgical critical care, trauma, EGS, and burns through an intensive mentored clinical experience, didactic and Socratic educational programs, and an iterative, mentored growth in academic, administrative, and educational skill sets. Through an integrated program, fellows will attain knowledge and expertise to do the following:

1) satisfy the six core competencies outlined by the ACGME
2) obtain a Certificate of Added Qualifications in Surgical Critical Care
3) manage the most complex trauma, emergency general surgery, and burn cases
4) become academically and administratively successful in their careers.

To ensure that fellows within the program attain the mission outlined above, the VUMC Surgical Critical Care and Acute Care Surgery Fellowship defines several components in the program including:

A. Clinical
B. Educational
C. Administrative
D. Research/Academic Development

For acquisition of clinical expertise and to achieve a graded increase in independent decision making, the fellowship is structurally divided into two separate years:

1) ACGME approved surgical critical care experience - 1st year
   Fellows help direct the management of a broad array of critically ill patients through monthly rotations in Surgical, Trauma, Cardiovascular, and Burn ICUs plus the Veterans Administration SICU. Fellows are an integral part of multidisciplinary critical care teams in each unit with oversight by dedicated critical care boarded faculty. 24/7 in-house Surgical Critical Care and Acute Care Surgery faculty and Surgical Critical Care fellows provide continuous direction and oversight of all critically injured and ill surgical patients.

2) AAST-approved Acute Care Surgery experience - 2nd year
   After successful completion of the first year and review by the faculty, the second year fellows receive an appointment as Instructors of Surgery and direct the care of critically ill and injured patients on the EGS, Trauma, and Burn services. In depth, structured oversight of fellow’s decision making and operative skills is provided through multiple mechanisms that allow a graded increase in independence: a) fellows’ rotations are paired with full time faculty to enable oversight and daily discussion of patients care, b) daily morning conference with review, check out, and discussion of critically ill patients with Surgical Critical Care and Acute Care Surgery faculty, c) structured review of fellows’ operative cases, complications, and patient care management as outlined in appendices I and II, d) monthly review of care and patient management by trauma, burn, and emergency general surgery service directorship and e) monthly, service-specific case review conferences. These processes are
described in detail within the section “Policies for the Supervision of Surgical Critical Care and Acute Care Surgery Fellows”.

Fellows’ education during both years of the fellowship is supported by numerous weekly conferences designed to enhance the knowledge and skills in acute resuscitation, critical care, and acute care surgery.

For acquisition and enhancement of administrative, research, and educational skills, the two year fellowship is an integrated program with the second year building on the first year. Individualized development is achieved through an iterative process of scheduled meetings throughout each fellow’s tenure. Additionally, the second year provides opportunities to develop specific expertise and skills in areas of interest defined by the fellow.
Provided below is an outline of the program’s expectations of the fellows. This is not fully inclusive. For detailed information regarding the program, please see section titled “Program in Detail.” In-depth mentorship occurs from numerous faculty members. Fellows are evaluated through daily contact and oversight.

**IMPORTANT**

Dr. Nunez is the Program Director for both years of the fellowship and is responsible for all aspects of the program. Please communicate any concerns or difficulties to him directly.

The first year is designed to provide education in Surgical Critical Care and to expand skills in research, administration, and education. During this year, the framework for the development of specialized skill sets for each fellow is to be accomplished (see section following Summary of Expectations).

### SUMMARY: FIRST YEAR EXPECTATIONS OF FELLOWS

**A) Clinical:**

- **Primary “daytime” responsibilities** – direct the care of patients within the unit to which you are assigned for the month.

- **Primary “nighttime” responsibilities** - 1st to the surgical ICU’s (Surgical, Trauma, and Burn ICUs) and the care of critically ill patients within the surgical units and 2nd to the resuscitation and operative management of acutely injured patients.
  - If fellow is not available for management of unstable patient due to patient care conflicts, notify attending.

**Fellows are expected to:**

- Supervise/direct the patient care delivery for those patients within the ICU to which you are assigned for the month to the attending of the week’s satisfaction.

- Remain in compliance with ACGME duty hour guidelines and record them in the Vanderbilt “New Innovations” system.

- Be present/available within the unit to which you are assigned beginning at the time specified by the Medical Director of that service and remain in the unit to the degree required to enable your direction of the resuscitation and management of critically ill or injured patients

- Participate in the daily ICU rounding process and, in collaboration with the faculty, direct ICU rounds.

- Direct the management of critically ill patients within each of the ICU’s while on-call at night.

- Maintain a current and accurate case log via the American Association for the Surgery of Trauma case log system as instructed as well as ACGME critical care case log documentation, required for surgical critical care board eligibility. The American College of Surgeons case log system is another useful case log system but is optional at this point.
Attain the skills and judgment to supervise invasive procedures according to institutional and service specific performance standards and guidelines including:

1. central lines, arterial lines, PA catheters
2. bronchoscopy and broncho-alveolar lavage
3. percutaneous tracheostomies
4. chest tube placement
5. airway management
6. IVC filter placement
7. bedside laparotomy

B) Educational:

- attend conferences specific to the unit/service to which you assigned for the month
- attend fellows conference (excused from clinical duties unless life threatening emergency)
- attend Division Faculty and Research meetings
- attend simulation labs
- demonstrate knowledge and application of critical care topics/principles outlined in fellows manual to the satisfaction of clinical critical care faculty
- take the Critical Care “in-service” exam
- self-directed learning via an aggressive reading program

Suggested Surgical Critical Care texts:

- Surgical Critical Care- Joseph A. Moylan
- Pulmonary Physiology and Pathophysiology: An Integrated, Case-Based Approach-John West

C) Administrative:

- satisfactorily administer the conferences/schedules to which you have been assigned as judged by the Director and faculty when appropriate (see Program in Detail Section)

  - Lisa Kodadek, M.D.
    - SICU resident and student call schedule
      - Ensure compliance with ACGME work hour regulations
    - SICU resident and student evaluation process
      - Ensures monthly completion by SICU fellow for that month
    - Instructor: Christopher Guidry/ Faculty: Adams/Eastham

  - SICU M & M participation/reporting
    - Instructor: Christopher Guidry/ Faculty: Peetz

  - Sarah Lombardo, M.D.
    - Multidisciplinary Critical Care Fellows Conference
      - Responsible for lecture series and scheduling faculty
    - Transitions for incoming and advancing Fellows 2018
      - Instructor: Robel Beyene / Faculty: Nunez
Keelin Roche, M.D.
- Fellows call schedule
  - Ensuring continuous coverage in-house
  - Ensure compliance with ACGME work hour regulations
- Vacation and meeting scheduling and reporting
  - Bi-annual deadlines of 9/1 and 3/1
- Instructor: Michael C. Smith / Faculty: Adams

Ronnie Mubang, M.D.
- SICU/TICU Resident Lecture Series
  - Organize monthly lecture schedule and coordinate faculty participation
  - Ensure resident attendance and timely completion of online modules
  - Responsible for distribution of schedule to all interested parties
- Transitions for incoming and advancing Fellows 2018
- Instructor: Luis Cesar Suarez-Rodriguez / Faculty: Eastham

ALL 1st Year Fellows
- SICU PI attendance while on service (and as possible)
- Administration of trauma morning report during their TICU rotations

- All 1st year fellows are expected to complete procedural and productivity information in the AAST Case Log System and CC volume in the ACGME Log

D) Research/Academic – 1st Year:

- Attend one national conference/meeting

  *must communicate choice by September of 1st year and ensure entry on the fellow’s call and coverage schedule with the 1st year fellow assigned to maintain the fellows’ call schedule, the Associate Program Directors, and Program Director*

- By February 1, give one fellows conference to meet the following requirements:
  - Topic provided to and discussed with Program Directors ~ 1 month prior to presentation
  - Identify faculty mentor
  - Evidence based with literature review (best if limited to human, randomized studies)
  - Sufficient quality to present at Grand rounds level forum

  *(May wish to link this with research project interests)*

- By February 1st, identify at least 1 research project of interest and discuss with Program Director and faculty mentors. This process includes the following:
  - Identification of at least one faculty mentor
  - Submission of a draft research concept (one page maximum) to the program director ~ one month prior to proposed discussion at research conference. Include in this
    - Project title
    - Mentor(s)
    - Study design
    - Study population
    - Data source(s)
  - Presentation of finalized concept at research conference (January – May)
  - IRB approval (Judy Jenkins)
By April 1st, clearly identify clinical administration, academic areas of interest for 2nd year and communicate this to Program Director.

- Schedule meeting with Program Director to develop action plan for implementation.

By July 20th, give a second fellows conference to meet the following requirements:

- Topic provided to and discussed with Program Director ~ 1 month prior to presentation
- Identify faculty mentor
- Evidence based with literature review (best if limited to human, randomized studies)
- Sufficient quality to present at Grand rounds level forum

By June 1st, meet with Program Director to discuss academic and training interests for the second year of fellowship with written statement (as discussed) by May 15th

Before matriculation into second year, meet with Program Director to discuss and develop job search strategies and timeline as appropriate

MENTORSHIP AND SUPERVISION DURING THE FIRST YEAR

Professional Development Mentor – 1st Year (Dr Raeanna C. Adams)

- Fellow should meet at least quarterly with Mentor to discuss progress, problems, conflicts, and career direction.
  - Written letters of progress by the mentor to the Program Director copied to the fellow should be done bi-annually.
  - Mentors are to be evaluated by the fellows with a report to the Program Director.

- Fellow will meet at least quarterly with the Program Director to discuss academic development and career development.

Clinical Development Mentor

The instructor fellow will also participate in the “Clinical Evaluation and Mentoring Program” which is headed by Dr. Raeanna Adams. To demonstrate their continued progress at attaining mastery of the care of the critically ill surgical patient, the program will include monthly meetings with senior faculty to discuss all operative cases and complex resuscitations. This may include review of patient charts, radiographs, and review of videotaped resuscitations. For full details, including an example of the evaluation form, please see appendix I and II.
The second year of the Fellowship clinically provides exposure to a variety of complex cases in trauma and emergency general surgery with attending level clinical responsibilities (admitting and operative privileges) and in depth mentoring. Additionally, full development of specialized skill sets in areas of interest for each fellow is to be completed (see section following Summary of Expectations).

A) Clinical:

Clinical Service coverage during 2nd year: The second year Trauma/Acute Care Surgery Fellow (Instructor) will participate in the call schedule with the other Trauma faculty.

- Typical Clinical Service coverage during the 2nd year:
  - 12-14 weeks of daytime coverage of the Trauma service (T2 – new alerts, stepdown and floor patients)
  - 12-14 weeks of EGS service (paired with Division faculty)
  - ~ 4 weeks of thoracic, similar rotation or other electives as desired.
  - 2 weeks of Interventional Radiology rotation
  - 3 weeks of vacation during non-clinical weeks.
  - Remaining weeks academic/administrative/meetings
  - Overnight call averaging ~ 1/9
  - May have additional requirements for home back up call during weeknights

The Fellow (Instructor) is expected to work over either Christmas or New Years and have the other off.

Call responsibilities during 2nd year: Instructors take call as a credentialed member of the Division of Trauma and Surgical Critical Care faculty (Instructor of Surgery).

Appropriate faculty level participation on-services as judged by the Division faculty

**IMPORTANT**

- Utilizing Back-up
  - Fellows must notify backup attending
    - When adverse outcome or death is likely and/or experience is limited
    - Multiple Operative Cases or multiple alerts + OR
    - Should discuss all critically ill or highly complex patients with senior faculty (SICU, Trauma, EGS, or T3/RGS services)

- For Instructors on Trauma night weekend service
  - Faculty back up responsibility is posted on the call schedule

- For Instructors on the “Trauma Day” service
  - May utilize senior Divisional faculty rotating on the other trauma service, T3/RGS, or EGS services as backup
B) Educational:
- Faculty level participation in service specific conferences, seminars, etc.
- Attend Trauma Service or EGS Morning Report when on service, optionally when non-clinical
- Attendance of fellows conferences
- Self-directed education and completion of appropriate reading program

Suggested Acute Care Surgery texts:
*Trauma 4th Edition* - Kenneth Mattox, David Feliciano, Earnest Moore
*Management of Trauma 2nd Edition* - Robert Wilson, Alexander Walt

C) Administrative:
*(See Program in Detail Section)*
Successful completion of administrative duties as assigned by the Program Director and outlined in body of the manual. These include:

- **Robel Beyene, M.D.**:
  - Burn curriculum development, outreach, and research
    - Faculty: Gondek, Thompson
  - Support Robel Beyene with Multidisciplinary Critical Care Fellows Conference
    - Faculty: Nunez

- **Michael C. Smith, MD**:
  - Direct the ACS Fellow’s conference
    - Faculty: Gunter
  - Administration for the Trauma Bi-monthly Newsletter
    - Faculty: Guillamondegui, Melissa Smith
  - Trauma Performance Improvement – August – January
    - Faculty: Dennis/Guillamondegui
  - Trauma Education Support (ATLS/ATOM/ASSET) – February – July
    - Faculty: Guillamondegui, Cathy Wilson

- **Christopher Guidry, M.D.**:
  - Supports the Trauma Research Conference
    - Faculty: Patel/Nunez
  - Support Luis Suarez-Rodriguez with SICU Resident/Student Lecture series
    - Faculty: Eastham
  - Trauma Performance Improvement – February – July
    - Faculty: Dennis/Guillamondegui
  - Trauma Education Support (ATLS/ATOM/ASSET) – August – January
    - Faculty: Guillamondegui, Cathy Wilson

- **Luis Cesar Suarez-Rodriguez, M.D.**:
  - SICU M&M/Process Improvement and Resident Orientation
    - Faculty: Peetz
  - MDSCC ACNP – Liaison: August – January
  - Supports Chris Guidry with SICU Resident and student call schedule, evaluation process, and SICU M and M.
    - Faculty: Adams / Eastham
  - Supports Michael Smith with call and vacation schedule
All second year fellows will participate in the Trauma Outreach Program.

All 2nd year fellows are expected to complete procedural and productivity information in the AAST Case Log System on a weekly basis.

D) Research/Academic:

- Follow-up meeting with Program Director to update job search strategies and progress

- Attend one national meeting
  - Must notify Program Director of choice no later than one month into second year. Preferably prior to setting call schedule for the year in June of 1st year to assist with job searching activities.

- One fellows conference **July – December**
  - Topic provided to and discussed with Program Director ~ 1 month prior to presentation
  - Evidence based with literature review (best if limited to human, randomized studies)
  - Sufficient quality to present at Grand rounds level forum

- Completion of at least one research project with national presentation and publication

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**MENTORSHIP AND SUPERVISION DURING THE SECOND YEAR**

**Professional Development Mentor – 2nd Year (Dr Oliver Gunter)**

- Fellow should meet at least quarterly with Mentor to discuss progress, problems, conflicts, and career direction.
  - Written letters of progress by the mentor to the program director (Dr. Nunez) copied to the fellow should be done bi-annually.
  - Mentors are to be evaluated by the fellows with a report to Dr. Nunez.

- Fellow will meet at least quarterly with the Program Director to discuss academic development and career development.

**Clinical Development Mentor**

The instructor fellow will also participate in the “Clinical Evaluation and Mentoring Program” and will be assigned a mentor for each quarter. To demonstrate their continued progress at attaining mastery of the care of the acute care surgery patient, the program will include monthly meetings with senior faculty to discuss all operative cases and complex resuscitations. This may include review of patient charts, radiographs, and review of videotaped resuscitations. For full details, including an example of the evaluation form, please see appendix I and II.
The VUMC Surgical Critical Care and Acute Care Surgery Fellowship defines several components in the program including:

A. Clinical  
B. Educational  
C. Administrative  
D. Research/Academic Development

Each of these program components are directed from within the Division of Trauma and Surgical Critical Care. This Division runs the Surgical Intensive Care Unit and Multidisciplinary Surgical Critical Care Service (approximately 1300 – 1400 admits/yr), a busy Trauma service (~3800 adult trauma admissions/yr and ~1700 operative procedures/yr), Burn service (~600 admissions/yr, ~ 400 > 20% TBSA), and an Emergency General Surgery Service (~1200 admissions/yr, ~2300 consultations/yr, ~1500 operative cases/yr). Under the purview of this Division are a 14 bed trauma ICU, a 34 bed multidisciplinary surgical ICU, and a 10 bed burn ICU. The Division maintains very active clinical and basic sciences research programs including industry and NIH-sponsored multi-center clinical trials. Surgical Critical Care residents and Acute Care Surgery fellows are to actively participate in all aspects of the Division of Trauma and Surgical Critical Care including the patient care, administrative and research components. The degree with which each fellow functions independently and subsequently in supervisory roles will increase over his/her tenure, subject to periodic evaluations of their abilities.

**IMPORTANT**

Dr. Nunez is the Program Director for both years of the fellowship and is responsible for all aspects of the program. Please communicate any concerns or difficulties to him directly.

**A. CLINICAL:**

For acquisition of clinical expertise, the fellowship is structurally divided into two separate years:

- **1st year:** ACGME approved surgical critical care experience
- **2nd year:** AAST approved Acute Care Surgery experience

The clinical component of the VUMC Surgical Critical Care and Acute Care Surgery Program is generally a two year fellowship of which the first year is designed to provide requirements for a Certificate of Added Qualifications in Critical Care and the second year is designed to prepare the surgeon for a leadership role in academic Acute Care Surgery with directed supplemental training in Trauma and Emergency General Surgery.
During the first year of the Critical Care Fellowship, fellows will assume responsibility for overseeing the care of critically ill patients in various ICU’s in one month block rotations. Fellows will undergo 12 rotations with 10 of these rotations in intensive care units and 2 months of elective non-ICU rotations. Fellows may be scheduled for an additional month of elective, but this is required to be in an intensive care setting to fulfill ACGME requirements. Core intensive care units include the burn, trauma, cardiovascular and surgical ICUs plus a VA SICU rotation. Additional rotations in the pediatric, neuro, and Medical ICUs are optional at the Fellow’s discretion. Fellow’s will take call in-house on night shift and provide senior level supervision for the trauma, burn, and surgical ICUs and act in concert with the in-house surgical critical care faculty. The VUMC Critical Care Fellowship complies with all ACGME regulations regarding work hours.

Also, fellows will gain the skills and judgment to supervise invasive procedures according to institutional and service specific performance standards and guidelines. These procedures include the following:

1. central lines, arterial lines, PA catheters
2. bronchoscopy and broncho-alveolar lavage
3. percutaneous tracheostomies
4. chest tube placement
5. airway management
6. IVC filter placement
7. bedside laparotomy
8. critical care ultrasound and echocardiography

**Rotations:**

The Fellow’s rotations include monthly rotations primarily in the Surgical, Trauma, CV, and Burn ICUs with a rotation specifically designed to provide nighttime exposure and coverage of each of these units, interface with in-house faculty, and resuscitation of new acutely ill or injured patients. Elective rotations are also included. The Surgical Critical Care Fellows interface significantly with the Anesthesia Critical Care Fellowship in educational activities but are typically not assigned to the same rotations. The primary “daytime” responsibilities include participation in daily ICU rounds and direction of the care of patients within the unit to which you are assigned for the month. Fellows are expected to review and be knowledgeable of the management guidelines, policies, and operating procedures of each core ICU prior to beginning each rotation.

**The rotation schedule and coverage/hand-over processes are outlined below:**

- Each of the 4 Surgical Critical Care Fellows will have the following rotations during the first year
  - SICU – 1- 2 months
  - TICU – 2 months
  - BICU – 1 month
  - VA SICU – 1 month
  - CV ICU – 1 month
  - Night ICU – 3 months
  - 2-3 Electives months
  - residual months in each ICU covered by Anesthesia Critical Care Fellows

**IMPORTANT**

SICU days, SICU nights, and CVICU require continuous fellow coverage. Thus, fellows are discouraged from taking vacation during these rotations or must ensure the ability to arrange coverage.
A block diagram for patient coverage and handover processes with duty hours is included below:

**Surgical Critical Care (with anesthesia) Fellows Block Rotation Schedule – 2015-2016**

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<th>SICU Day</th>
<th>SICU Night</th>
<th>TICU Night</th>
<th>TICU</th>
<th>BICU</th>
<th>VA SICU</th>
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*Above may vary by rotation and fellow complement.*

Fellows are exempt from midday ACS and Critical Care fellow conferences if they are on night shift rotations, but are still required to attend departmental grand rounds and M&M. Fellows will not attend Grand Rounds if they are on call on Friday, in order to be in compliance with ACGME duty hours. Additionally, it is the responsibility of the fellow to log duty
hours in New Innovations and to notify the program director if there are systemic violations in duty hours or if they will not be in compliance with ACGME requirements

ICU Critical Care Rounds for each unit:
Fellows attend and direct rounds specific to your unit for the month. Times and locations are provided.

<table>
<thead>
<tr>
<th>UNIT</th>
<th>ROUNDS/REPORT TIME</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td>SICU</td>
<td>Rounds: 8A M-Thurs, Sa, Su 9A Fri</td>
<td>9T3 Critical Care Tower</td>
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<tr>
<td>BICU</td>
<td>Rounds by weekly attending</td>
<td>11S BICU</td>
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<tr>
<td>CV-ICU</td>
<td>Rounds: 8A</td>
<td>5N CV-ICU</td>
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A2. CLINICAL: 2nd year fellows – Acute Care Surgery

The second year of the Fellowship clinically provides exposure to a variety of complex cases in trauma and emergency general surgery with attending level clinical responsibilities (admitting and operative privileges) and in depth mentoring.

During the second year, the fellows undergo a graded increase in responsibility to that of a junior level faculty in trauma and emergency general surgery. During this period they will continue to receive direct mentorship from faculty and continuous evaluation. Each fellow will be credentialed and appointed as active members of the medical staff with full operating room and admitting privileges (Instructors of Surgery). The fellows will manage both trauma and emergency general surgery clinical services including ICU, step-down, general care, and clinic settings. This integrated experience in trauma, emergency general surgery, and critical care over 2 years enables an in-depth understanding of the pathophysiology of acutely injured or critically ill surgical patients, principles of resuscitation, timing of operative intervention, critical care management, and the systems and resources required for high level care.

Clinical Service Requirements During 2nd Year:
It is expected the 2nd year fellow be knowledgeable of the management guidelines, policies, and operating procedures of each service prior to beginning a rotation on-service. They direct the service as an Instructor of Surgery in accordance with the Medical Directorship’s policies. They participate in the call schedule with the faculty, and are involved in the following:

- 12-14 weeks of daytime coverage of the Trauma service (T2 – new alerts, stepdown and floor patients)
- 12-14 weeks of EGS service (paired with Division faculty)
- ~ 4 weeks of thoracic, similar rotation or other electives as desired.
- 2 weeks of Interventional Radiology rotation
- 3 weeks of vacation during non-clinical weeks.
- Remaining weeks academic/administrative/meetings
- Overnight call averaging ~ 1/9
- May have additional requirements for home back up call during weeknights
The Fellow (Instructor) is expected to work over either Christmas or New Years and have the other off.

**Supervision of second year fellows:**
Fellows matriculating into the second year of the fellowship undergo a graded increase in responsibility and independence as outlined in detail in the section titled “Policies for the Supervision of Surgical Critical Care and Acute Care Surgery Fellow”. Oversight and review of patient management and decision making occurs daily throughout the year via review of all patients’ progress, their plans of care, operative plans, and operative oversight needs are adjudicated for each patient during morning conference for both trauma and emergency general surgery patients. Scheduled interventions are discussed and faculty involvement adjudicated at that time. While on the trauma service, Instructors are paired with a faculty member while on the Trauma ICU (T1) or Trauma Stepdown/Resuscitation (T2) services. Follows on the EGS service are paired with a faculty member on the service. The paired faculty member on Trauma and EGS services supervises all highly complex operative cases done by the Instructors and provides supporting supervision if the faculty express concerns regarding operative skill and/or decision making. This will be documented by the instructor in the operative note with verbiage along the lines of, “Senior faculty Dr. ______ was present during this case and agreed with the plan”, etc…(All fellows must document). Instructor will forward the operative note via StarPanel to the senior faculty.

Additionally, Instructors receive in-depth exposure to and oversight of the operative and clinical management of complex abdominal wall reconstruction cases, ostomy takedowns, skin grafting, etc on the Reconstructive General Surgery (RGS) service. Instructors first assist the Division of Trauma and Surgical Critical Care faculty on these complex cases and thus have DIRECT supervision for all cases, throughout the year.

### IMPORTANT

**Back-up Attending Notification:**
Fellows participate in the resuscitation and operative management of acutely ill and injured patients during their first year of the fellowship and are given a graded increase in independence during their second year. However, the severity and complexity of care of some patients mandate direct involvement of senior faculty. In these instances, fellows are mandated to involve back up faculty. These situations include:

- when adverse outcome or death is likely and/or experience is limited
- when multiple operative cases are anticipated or when multiple alerts and an operative procedure are occurring simultaneously
- all critically ill or highly complex trauma, RGS, or EGS patients

Faculty back up responsibility is posted on the call schedule.
**Outpatient and follow up clinic experience:**
During the 2nd year of fellowship, instructors are provided with clinic time and space to provide continuity of care and follow up for trauma, reconstructive, and emergency general surgery patients requiring operative intervention. In general, patients scheduled for the instructor clinic will have had an instructor as their primary surgeon while on the trauma or EGS services. Uncomplicated laparoscopic cholecystectomies and appendectomies are typically seen in the EGS resident clinic.

Dr. Oliver Gunter, Associate Program Director and Associate Professor of Surgery, Division of Trauma and Surgical Critical Care is the responsible party for all issues related to clinic. Please communicate with him directly for concerns or assignment issues.

**Clinic schedule:** The instructor clinic is typically a half-day/week and takes place at TVC (The Vanderbilt Clinic), 3rd floor on Monday/Tuesday afternoons. The primary instructor clinic will be held Thursday 1-3 pm.

**Scheduling Operative Cases from Clinic:** Policies for scheduling operative cases will be reviewed in the rising instructor orientation prior commencement of the second year.
Self-motivated and self-directed education is a hallmark of quality adult education. Without individual motivation and direction, no program can ensure a quality experience. To ensure appropriate care for one's patients, physicians are mandated to lifelong, self-directed continuous education and the VUMC Surgical Critical Care and Acute Care Surgery Fellowship mandates these characteristics in its fellows. Thus, fellows must assume the responsibility of attaining appropriate knowledge and skills for their throughout their career in practice. Our fellowship provides an organized, integrated and intensive program through which all fellows should master the clinical fields of critical care, trauma, and emergency surgery. The educational process for the fellows (throughout both years) has several components including daily attending rounds, didactic and Socratic lectures (see table below), a critical care and trauma reading program, and directed instruction of various techniques such as the use of ultrasound, hemodynamic monitoring devices, and continuous hemo-filtration.

**Suggested text for Reading Program:**

- *Critical Care, 3rd Edition*- Joseph M Civetta, Robert W. Taylor, Robert R. Kirby
- *Surgical Critical Care*- Joseph A. Moylan
- *Pulmonary Physiology and Pathophysiology: An Integrated, Case-Based Approach*- John West

The Division of Trauma and Surgical Critical Care, the fellowship program, and the Department of Surgery have numerous didactic conferences, quality and process improvement-related meetings, and administrative meetings in which the fellows are expected to participate and contribute during appropriate times during both 1st and 2nd year. Provided below is a description of these in a tabular format followed by more detailed description of Divisional conferences.

Handover of patient care issues and Socratic educational processes occur daily at the Trauma service and Emergency General Surgery service morning reports.

<table>
<thead>
<tr>
<th>Trauma</th>
<th>Morning Report</th>
<th>Morning Report</th>
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<tbody>
<tr>
<td></td>
<td>7A-8A M, Tu, Th, Sa, Su</td>
<td>10N Family Conference Room</td>
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<tr>
<td>Rounds</td>
<td>7:30A Wed; 6:15A-7A F</td>
<td>Rounds</td>
</tr>
<tr>
<td></td>
<td>8A M-Th, Sa, Su</td>
<td>10N TICU</td>
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<td>9A F</td>
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<tr>
<th>EGS</th>
<th>Morning Report</th>
<th>9T3 Conference Room</th>
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<td>6:30A-7:30A T</td>
<td>3164 MCN Conference Room</td>
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<td>7:30A-8:30A W</td>
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<td>6:15A-6:55A F</td>
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Divisional Educational Conferences

Trauma Service and Emergency General Surgery Morning Reports:

The problem of safe and efficient transfer of care has increased over the past decade as resident work hour restrictions have been implemented, an ever increasing number of diagnostic tools has become available, and an increasing percentage of complex patients has become concentrated at fewer and fewer facilities. In an effort to accomplish these educational responsibilities, centralize information handling, and facilitate the management and transfer of patient care information, a formalized morning report system will be conducted. This will improve the quality of the information transferred during the sign-out process, enhance resident and physician extender efficiency, provide an open forum for discussing the diagnostic work-up and management of the acutely injured patient, and improve the quality of the resident didactic experience. An organized sign out process will utilize the presence of post-call team members, a large chalk/marker board to organize and identify patient encounters (listed by alias), and a digital viewer allowing access to previous radiographic studies obtained over the previous 24 hour period.
Trauma/Emergency Department Resuscitation Conference:

This is a joint ED/Trauma quality assurance/process improvement conference with the Emergency Medicine Department that reviews the evaluation and resuscitation of critically ill trauma. Videos of resuscitations are reviewed for assessment of quality and performance improvement purposes. This is coordinated and moderated by Kevin High, RN.

Critical Care Fellows Journal Club/PBLD:

Weekly conference administered and hosted by Anesthesia Critical Care that alternates formats, covering both a journal club format and problem based learning and development.

Acute Care Surgery (ACS) Fellows Conference:

Weekly conference administered by the Division of Trauma and designed to provide Acute Care Surgery Fellows with in-depth knowledge of topics pertinent to the advanced delivery of care and operative management in trauma and emergency general surgery. The format is intended to be a fellow/attending level discussion of up-to-date topics in Acute Care Surgery with majority participation of faculty and trainees when possible. The conference combines topics such as surgical management, administrative issues, epidemiology, citizenship and social media, billing/coding/business and in-depth case reviews in a roundtable session to maximize participation and engagement.

<table>
<thead>
<tr>
<th>Emergency General Surgery</th>
<th>Trauma</th>
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<tbody>
<tr>
<td>Acute Appendicitis</td>
<td>ED Thoracotomy</td>
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<tr>
<td>Acute Cholecystitis</td>
<td>Trauma Laparotomy &amp; Damage Control</td>
</tr>
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<td>Cholangitis and Choledolithiasis</td>
<td>Trauma Thoracotomy / Median Sternotomy</td>
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<td>Duodenal and Gastric Ulcers</td>
<td>Operative Pulmonary Injuries</td>
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<td>Pancreatitis</td>
<td>Operative Cardiac Injuries</td>
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<tr>
<td>Diverticulitis</td>
<td>Operative Liver Injuries</td>
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<td>Acute Abdomen in the ICU</td>
<td>Operative Spleen Injuries</td>
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<tr>
<td>Skin and Soft Tissue Infections</td>
<td>Operative Stomach Injuries</td>
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<td>Necrotizing Fasciitis</td>
<td>Operative Pancreatic Injuries</td>
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<tr>
<td>Liver Abscess</td>
<td>Operative Bowel Injuries</td>
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<tr>
<td>Small and Large Bowel obstruction</td>
<td>Operative Bladder and Ureteral Injuries</td>
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<tr>
<td>Mesenteric Ischemia – all types</td>
<td>Operative Management of Penetrating Neck Injuries</td>
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<tr>
<td>Hernia – Incarcerated and Strangulated –all types</td>
<td>Damage Control</td>
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<td>Chest</td>
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<td>Abdomen</td>
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<td>Extremities</td>
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<tr>
<td>Percutaneous Tracheostomy</td>
<td>Additional conferences as requested</td>
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<td>Enteral Access: PEG, PEG-J, etc.</td>
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Multidisciplinary Critical Care Fellows Conference:

Weekly conference administered by the Division of Trauma, designed to provide Anesthesia and Surgical Critical Care Fellows with in-depth knowledge of topics pertinent to the advanced delivery of Critical Care Medicine. The conference may alternate in format between Socratic topic reviews provided by invited speakers or Critical Care Faculty, topic review seminars provided by the Critical Care Residents, and journal club format in which the first year fellows pick articles to be discussed. Handouts for the seminars and recent and/or landmark articles relevant to the topic with be selected and provided for review by attendees prior to the meeting.

Surgical Critical Care Resident’s Conference:

This didactic conference is for residents and students rotating in the SICU. Each Tuesday, Wednesday, and Thursday, from 1P-2P in the SICU 9T3 Conference Room, lectures incorporating material from the resident intensive care unit
education course from the Society of Critical Care Medicine will be given. Faculty and instructors provide lectures and supervisory role.

**Surgical Critical Care Divisional Research Conference:**

The goal of the Research Conference is to provide research training incorporating elements of study design, biostatistics, funding mechanisms, ethics and resources available at divisional, institutional and departmental level.

**Trauma Morbidity and Mortality (M&M) Conference:**

Monthly conference where in-depth discussions of trauma related morbid and mortal outcomes are discussed by fellows and residents. Selected cases are then presented at the Department of Surgery M and M.

**SICU Morbidity and Mortality (M&M) Conference:**

The goal of M&M is to identify and discuss serious adverse events that may indicate process or knowledge deficiencies amongst team members in the SICU. It provides a venue for fellow education regarding prevention of adverse events in complex settings, and allows preparation for the SICU presentation in the Department of Surgery's M & M conference. The SICU fellow for the month will be responsible for the identification and management of the morbidity and mortality data on a daily basis. Admission data will be provided by Heather Hart prior to the conference. Please see Appendix 11 for additional detail.

**SICU Process Improvement and Quality Assurance Conference:**

Intensivist/physician driven efforts to improve the delivery of care within the ICU realm are mandatory if patient care is to be maximized. Such efforts are complex, labor intensive and mandate involvement of multiple care groups and harmonious interfaces with broader systems within the hospital. The SICU has a well formed and established Process Improvement system and committee. All fellows are encouraged to attend the meeting but attendance is mandatory during their SICU rotation and when systems issues identified in M & M require presentation at the PI/QA level. The organizational structure is shown below. Fellows in the SICU for the month should review and present all morbidities and mortalities.

**TPOPPS (Trauma QA/PI) Conference:**

Monthly quality review, assessment of performance measures, and referral for process improvement of cases identified and reviewed by trauma coordinator and PI chair. All faculty, instructors, and fellows on trauma attend.

**Division of Trauma Faculty Meeting:**

Bimonthly meeting of all faculty, fellows, and administrative support from the Division of Trauma for the discussion of quality, administrative, financial, and personnel issues that affect the Division related to Trauma, EGS, RGS, and SICU. First and second year fellows should make every effort to attend.

**Multidisciplinary Surgical Critical Care Meeting:**

Monthly meeting of Surgical and Anesthesia Critical Care faculty, fellows, ACNP leadership, nursing leadership, and PharmD for the discussion of quality, educational, administrative, financial, and personnel issues for the Surgical ICU.

Fellows are expected to attend all of the above conferences when they are available. The night fellows are excused with the exception of Grand Rounds and M&M. Additional conferences are available throughout the medical center. The Fellows will be invited to additional conferences through the Anesthesia Critical Care program, and are invited to attend if they are available and the topic is relevant to surgical critical care.
C. ADMINISTRATIVE

Administrative skills of the Surgical Critical Care and Acute Care Surgery fellows will be enhanced through a graded increase in administrative responsibilities with direct support and supervision from the Program Director and faculty within the Division of Trauma and Surgical Critical Care. Logistical support for education conferences will be provided by the fellowship coordinator. Surgical Critical Care and Acute Care Surgery fellows will attend all divisional faculty meetings and retreats and will be actively involved in programatic development. Additionally they will specifically be involved in Process Improvement and Quality Assurance initiatives in both the SICU and TICU. They will participate in data driven management guideline development and implementation. They will participate in analysis of monthly quality indicators such as unit specific infection rates, self-extubation, etc.

FIRST YEAR FELLOW’S ADMINISTRATIVE DUTIES

For more detailed instructions about the administrative responsibilities assigned to each fellow, please see below.

- **Lisa Kodadek, M.D.**
  - SICU resident and student call schedule
    - Ensure compliance with ACGME work hour regulations
  - SICU resident and student evaluation process
    - Ensures monthly completion by SICU fellow for that month
    - Instructor: Christopher Guidry/ Faculty: Adams/Eastham
  - SICU M & M participation/reporting
    - Instructor: Christopher Guidry/ Faculty: Peetz

- **Sarah Lombardo, M.D.**
  - Multidisciplinary Critical Care Fellows Conference
    - Responsible for lecture series and scheduling faculty
  - Transitions for incoming and advancing Fellows 2018
    - Instructor: Robel Beyene / Faculty: Nunez

- **Keelin Roche, M.D.**
  - Fellows call schedule
    - Ensuring continuous coverage in-house
    - Ensure compliance with ACGME work hour regulations
  - Vacation and meeting scheduling and reporting
    - Bi-annual deadlines of 9/1 and 3/1
    - Instructor: Michael C. Smith / Faculty: Adams

- **Ronnie Mubang, M.D.**
  - SICU/TICU Resident Lecture Series
    - Organize monthly lecture schedule and coordinate faculty participation
    - Ensure resident attendance and timely completion of online module
    - Responsible for distribution of schedule to all interested parties
  - Transitions for incoming and advancing Fellows 2018
    - Instructor: Suarez-Rodriguez / Faculty: Eastham

- **ALL 1st Year Fellows**
  - SICU PI attendance while on service (and as possible)
  - Administration of trauma morning report during their TICU rotations
All 1st year fellows are expected to complete procedural and productivity information in the AAST Case Log System and CC volume in the ACGME Log

1st Year Fellow Administrative Descriptions:

SICU resident and student call schedule and evaluation process

- The fellow assigned to this task is responsible for completing the
  1. SICU resident call schedule
     ▪ This includes determining the needs of the residents and developing schedule
     ▪ Forwarding schedule to administrative coordinator (Dr. Nunez’ Assistant) to publish appropriately
  2. SICU resident and student evaluation process
     ▪ The fellow responsible for the process will ensure that fellows within the SICU for that month are aware of the evaluation process and complete in a timely fashion
     ▪ Fellows provide draft copies to Dr Adams (or Dr Nunez in her absence) for review and completion.

- Administrative Responsibilities:
  1. Assigned fellow will be ADMINISTRATIVE DIRECTOR for this assignment.
  2. Dr. Nunez as Program Director and Director of SICU and MDSCC will be the faculty supervisor.
  3. Dr Raeeanna Adams will assist Dr. Nunez with the educational component and resident/student evaluations.
  4. The program coordinator will provide administrative support and distribute schedules.

SICU Morbidity & Mortality Conference

- Purpose: to identify and discuss serious adverse events that may indicate process or knowledge deficiencies, to educate fellows regarding prevention of adverse events in complex settings, and to identify and prepare for the MDSCC/SICU presentation in the Department of Surgery’s M and M conference.

- Methods:
  - The Fellow responsible for the overall management of the conference will ensure that the fellows rotating each month understand the access to data, recording, and presentation methods.
  - The SICU fellow each month will be responsible for the identification and management of the data on a daily basis.
  - Utilize data collection sheets provided to record admission information and appropriate events on all patients with whom the ICU service is in consultation
  - Monthly reports consisting of total admissions, morbidities and mortalities will be formatted for presentation at the last educational conference of each rotation.
  - Data maintained in Excel file for management.

- Presentation: The end of the month presentation will consist of three parts:
  1. an overview of the morbidities and mortalities
  2. a brief discussion of the morbidities with appropriate responsibility assessed for each M & M
  3. 30 to 45 minute presentation covering one topic represented by the M & M findings. The presentation should contain a literature review of the topic and two to three relevant articles for discussion. The literature should be prepared prior to the conference for distribution to the entire faculty and all fellows. A list of topics will be kept to avoid repetition over the course of a 12 to 24 month period.

- Attendance: The attendance of the conference is mandatory Invited guests will include the entire faculty for the SICU and any residents interested in the topic.

- Administrative Responsibilities:
  1. The fellow assigned will be ADMINISTRATIVE DIRECTOR for this assignment.
  2. 1st year fellows on SICU service to collect M&M cases and responsible for presenting.
  3. Dr. Allan Peetz as M & M and PI Director will be the faculty supervisor.
  4. The program coordinator will provide administrative support.
Multidisciplinary Critical Care Fellows Conference

- Fellow assigned to administer this conference will work with the assigned faculty mentor to select topics, presenters (faculty within Division of Trauma and Surgical Critical Care, Anesthesia Critical Care, external faculty, and critical care fellows), format to cover topic outlined in a broad based critical care format.
- **Scheduled topics:** Ideally, topics will cover a broad range of subjects of importance to critical care. Topics should address those areas outlined in the “Educational Goals and Objectives for Surgical Critical Care” section of the manual. To allow flexibility and to maintain the ability to cover what is of greatest interest to the fellows at any given time, the formal schedule of topics will be only set 5 weeks in advance. At the beginning of each month, the following 5 weeks schedule will be put forth.
- **Participants:** This is the fellow’s critical care conference and is directed to them. All Anesthesia CC and Trauma CC faculty, fellows, R-4s and anesthesia resident on the service will be invited. The junior residents and students will not be invited.
- **Attendance Policy:** No conflicting obligations are to be scheduled during conferences if at all possible. Availability of Critical Care faculty and timing of conference generally should enable the Critical Care fellows to attend conferences the vast majority of the time. Occasional acute care situations that arise during conferences may require a specific Critical Care fellow’s attention. The Multidisciplinary Critical Care Residents Conference is specifically provided for their education and therefore, faculty generally cover acute issues that arise at that time.

1) **Administrative Responsibilities:**
   1. **Assigned fellow** will be ADMINISTRATIVE DIRECTOR for this conference.
   2. Dr. Timothy Nunez will be the faculty supervisor.
   3. The program coordinator will provide administrative support and distribute schedules.
   4. The administrative director is responsible for determining the format each week, selecting the speakers, topics, or articles for the conference with close assistance and supervision by Dr May.
   5. Attendance records and evaluations will be maintained for RRC and CME documentation purposes

1st year fellows’ call, vacation, meeting and time away schedule

- The fellow assigned to this role is responsible for
  - Completing the fellows call schedule each month
    - Working with fellowship coordinator to manage and publish schedule
    - Ensuring compliance with ACGME resident work hour guidelines
    - Ensuring continuous coverage in-house at night
    - Communicating and problem solving with Program Director in a timely fashion if goals cannot be met
    - Maintaining a excel log with administrative coordinator of the vacations, meeting, time away for the year
    - Should develop a draft plan for the year by August 31

Administrative Responsibilities:

1. Assigned fellow will be ADMINISTRATIVE DIRECTOR for this assignment.
2. Dr. Adams as Associate Program Director will be the faculty supervisor.
3. The program coordinator will provide administrative support and distribute schedules.

SICU/TICU Resident Orientation and Lecture Series

2) Didactic conference for residents and students rotating in the SICU and TICU. Each Tuesday, Wednesday, and Thursday Faculty and surgical critical care fellows provide lectures and supervisory role.
3) **Participants:** Faculty, fellows, residents, students rotating in the SICU and TICU. Monday and Friday teaching in a Socratic style on rounds will be primarily encouraged.

Administrative Responsibilities:

1. The assigned fellow will be ADMINISTRATIVE DIRECTOR for this conference.
2. Dr Raeanna Adams will be the faculty supervisor.
3. The fellowship coordinator will provide administrative support and distribute schedules.
Successful completion of administrative duties as assigned by the Program Director and outlined in body of the manual. These include:

- **Robel Beyene, M.D.:**
  - Burn curriculum development, outreach, and research
    - Faculty: Gondek, Thompson
  - Support Michael Smith with fellows’ scheduling
    - Faculty: Adams
  - Support Robel Beyene with Multidisciplinary Critical Care Fellows Conference
    - Faculty: Nunez

- **Michael Smith, MD:**
  - Direct the ACS Fellow’s conference
    - Faculty: Gunter
  - Administration for the Trauma Bi-monthly Newsletter
    - Faculty: Guillamondegui, Melissa Smith
  - Trauma Performance Improvement – August – January
    - Faculty: Dennis/Guillamondegui
  - Trauma Education Support (ATLS/ATOM/ASSET) – February – July
    - Faculty: Guillamondegui, Cathy Wilson

- **Christopher Guidry, M.D.:**
  - Supports the Trauma Research Conference
    - Faculty: Patel/Nunez
  - Support Luis Suarez-Rodriguez with SICU Resident/Student Lecture series
    - Faculty: Eastham
  - Support Michael Smith with fellows’ scheduling
    - Faculty: Adams
  - Trauma Performance Improvement – February – July
    - Faculty: Dennis/Guillamondegui
  - Trauma Education Support (ATLS/ATOM/ASSET) – August – January
    - Faculty: Guillamondegui, Cathy Wilson

- **Cesar Luis Suarez-Rodriguez, M.D.:**
  - SICU M&M/Process Improvement and Resident Orientation
    - Faculty: Peetz
  - MDSCC ACNP – Liaison: August – January
  - Supports Chris Guidry with SICU Resident and student call schedule, evaluation process, and SICU M and M.
    - Faculty: Adams / Eastham
  - Supports Michael Smith with call and vacation schedule
    - Faculty: Adams / Dennis

- All second year fellows will participate in the Trauma Outreach Program.
- All 2nd year fellows are expected to complete procedural and productivity information in the AAST Case Log System on a weekly basis.
2nd Year Fellow Administrative Descriptions:

Trauma Performance Improvement

- The assigned fellow will work closely with Brad Dennis/Melissa Smith (or PI nurse when in place) in the ongoing PI process for the trauma program. The goal for the fellow assigned will be that they can develop, implement, and manage a performance improvement plan approved by the American College of Surgeons.

Responsibilities will include the following.
1. Reviewing cases that have been identified through the PI process. This will include morbidities and mortalities.
2. Identifying/selecting cases to be presented at the appropriate peer review setting (General surgery M & M, MDTC, TPOPPS etc.)
3. Work to develop solutions for problems identified through the PI process, this may include Practice management guideline development, system/process changes, and counseling sessions for involved team members from identified cases.

Deliverables:
1. Working knowledge of TRACS system
2. Understand PEER REVIEW process
3. PMG updates

Trauma Education

- The assigned fellow will work closely with Cathy Wilson/Oscar Guillamondegui in our trauma educational process. The goal for the fellow assigned will be to develop the ability to create, implement and manage a comprehensive trauma educational program. Their responsibilities will include the following.
1. Training as instructor for ATLS, ATOM and ASSET, Coordinate and instruct for ATLS, ATOM, and ASSET.
2. Develop an internal educational process based on identified cases from our PI process to disseminate to our providers and our subspecialty colleagues. This will meet the need for our colleagues who do not obtain enough trauma specific CME for our ACS Level 1 Verification. The fellow will disseminate monthly to all providers a newsletter with trauma specific educational issues identified from the PI process.

Deliverables:
- Director status for ATLS, ATOM and ASSET
- Monthly educational materials database for recurrent use over a 24 month system

Outreach

- All second year fellows will work with Cathy Wilson/Melissa Smith/Oscar Guillamondegui in our outreach program. The goal for the fellow will be a complete understanding and management of a lead trauma center in a large regional trauma system. Their responsibilities will include.
  a. Insuring appropriate follow up and feedback to our referring hospitals, physicians, and EMS providers.
  b. Will communicate and/or travel to outside institutions for educational programs and academic detailing when our PI process has identified performance issues at particular institutions.
  c. Will attend and participate at regional and state level trauma system meetings/processes
  d. Rural Trauma Team Development course (RTTDC) involvement

Deliverables:
- Regional level presence at the STATE and ACS COT region 9 meetings
- Outreach letters for Positive and Negative outcomes for regional distribution
- Outreach CME credit lecture for use at regional outreach activities
1. **AAST Case Log:**

Every fellow must complete case information in the AAST Case Log system. Please take note of the AAST case requirements prior to completing this log.

2. **ACGME Case Log:**

Every fellow will be required to complete an ACGME case log for any patient with >24hr LOS and any procedures. Please review the reporting requirements of the ACGME for board eligibility while completing this log.

*Now optional, though useful:

**American College of Surgeons Case Log and Critical Care case log:**

Fellows have used the American College of Surgeons Case Log system to facilitate data capture. Aside from major operative cases, can log FAST ultrasounds, trauma resuscitations attended, and any relevant ICU procedures performed.
D. RESEARCH AND ACADEMIC DEVELOPMENT

Research and academic development of those who matriculate in Vanderbilt's Surgical Critical Care and Acute Care Surgery Fellowship is a very important component of the program. The enhancement of oral presentation skills, research design, database creation, basic statistical analytic skills, and the acquisition of a basic understanding of ethical conduct and research regulations are all basic components of the program. The Division of Trauma and Surgical Critical Care maintains substantial on-going funded research collaborations and maintains extensive Trauma, Burn, and ICU registries and databases. Within the Division are also dedicated and experienced research coordinators and a PhD with extensive on-going research activities. Masters level statistical courses may be taken during elective blocks (with appropriate communication with and approval of the Program Director and appropriate funding).

To assure successful academic and research development, a structured program has been created. Each fellow should attend (at least) one national conference/meeting per year (additional meetings contingent upon academic productivity). This meeting should be chosen by September of 1st year and early during the 2nd year and communicated to Dr. May & appropriate administrative fellow. Meetings are at the discretion of each fellow and expenses deducted from the individual fellow’s expense account. The most common meetings include the annual meetings of the following societies: EAST, AAST, SCCM, ACS, SIS, Western Trauma. Additionally, various continuing medical education courses have provided good reviews including Trauma, Critical Care, Acute Care Surgery courses in Las Vegas and National Harbor, Washington, D.C. During the second year, the AAST and EAST meetings are the two most useful for job searches.

By the second 6 months of the first year each fellow should identify at least one research project (basic or clinical) in which they can actively participate. This may be an ongoing effort or a new project of the fellows own design. Each fellow must identify at least one faculty mentor for their project. Prospective projects require a greater period of time to complete. Projects that are appropriate for external funding will likely require development during the first year of fellowship for implementation or portability. Requirements are described in detail below.

Identify project by February 1 and the following should be discussed with Program Director:

- Identification of at least one faculty mentor
  - Draft research concept (one page maximum)
  - Project title
  - Mentor(s)
  - Study design
  - Study population
  - Data source(s)

- Presentation of finalized concept at research conference
- IRB approval (Judy Jenkins)

Early in the second year discuss the following with Program Director:

- clinical administration & academic areas of interest
- discuss and develop job search strategies and timeline
One of the unique products of the Surgical Critical Care and Acute Care Surgery Fellowship program is the development of specific “niches” tailored for individual fellows. These “niches” should provide extra “tools for their toolbox” that are easily viewable through review of the fellow’s curriculum vitae. The ability to achieve this unique “niche” product continues to grow and mature but remains very labor intensive on the part of the program director. However, this product sets both our fellows and our program apart from others. The process of developing these “niches” is one of the more powerful tools for ensuring a successful transition from fellow to academic faculty as the fellow learns and refines numerous skill sets and is intensively mentored in the process of growing collaborative initiatives.

**Process:** Particular “niches” are developed through a series of meetings over the 1st year of the program between individual fellows and the Program Director, Dr. May. Through this process, fellow’s areas of interests and developing skills in clinical, educational, academic, administrative areas are identified. Connecting common themes between these typically diverse interests are identified by the Program Director and fellow and they are molded into a single area of clinical expertise. A curriculum is developed for the subsequent period of the fellowship and appropriate mentors are assigned. Continued mentoring by the Program Director is continued through this period. This process brings academic, educational, and administrative interests into a single related area. Examples of previous, current, and potential specialty “niches” follow:

1. Critical Care Nutritional Support
2. Surgical Infectious Diseases
3. Trauma/Critical Care Educator
4. Process Improvement/Quality Assurance
5. Basic/translational research
6. ECMO
7. Business of Trauma and Surgical Critical Care
UNDERLYING CONCEPTS

- Successful careers are greatly determined by the correct fit
- Maximizing likelihood of achieving success requires a systematic and directed approach with feedback from mentors
- The ideal methodology incorporates the following concepts:
  - do not leave first impressions to chance
    - Ensure personal contact from a faculty member before establishing contact or mailing CV
    - Faculty that are good friends – verbal contact
    - all opportunities are improved by at least written faculty/director contact
  - utilize all mentors at your disposal
  - leave no stone unturned

INITIATION OF PROCESS

The Program Director will ensure adequate direction and a systematic approach

- Fellow to set a meeting with the Program Director
  - Prior to meeting, determine and record your interests including:
    - Geographic region of interest
    - type of practice – academic, academic affiliated, private
    - type and mix of clinical practice – trauma, CC, EGS
    - Long term interests and where you see yourself in 5 years
    - list of any specific hospitals of interest
    - areas envisioned for promotion: academic interests, administrative, education, etc
    - provide list of jobs known to you at the time
  - During meeting will develop list of potential job interests
  - Will develop an action plan that includes:
    - Identifying potential jobs
    - Identifying faculty with contacts at programs of interest
    - Meeting with various faculty to discuss positions

CONTINUATION OF PROCESS

The Program Director will continue to coordinate the process and ensure adequate input by all mentors/faculty. The fellows must take an active process in ensuring coordinated involvement.

- Must develop tiered list:
  - avoid too many contacts
  - 1st round - 3 to 5 interviews
  - keep at least 2 active during process

- Establish contacts with top tier programs
- Personal introductions at meetings
  - program director to coordinate prior to meeting
- Continued meetings with program director at intervals determined by need
TIMELINE

➢ never too early to develop contacts
➢ Initiate process roughly 11 months prior to starting a job with the help of Dr. May. An organizational meeting will be held with each of the fellows early in the second year.
  o By August of second year
  o By October for 1 year fellows
  o Determine which meetings to attend by August of second year
  o Have action plan by September of second year

NEGOTIATIONS
GET INPUT FROM MENTORS!
Any issues or concerns regarding education, call schedule, work hours, interpersonal relationships, etc. that develop during the Surgical Critical Care residency should be addressed in a professional manner. The Critical Care Faculty is committed to the education and well-being of the residents and to excellence in the care of our patients. Standard, professional procedure in conflict resolution calls for:

1. a clear and concise expression of the issue at hand.
2. appropriate attempt to find a resolution to the problem.

These steps should be undertaken with the involved parties first. In almost all situations, those individuals immediately responsible for an issue should be given the opportunity to rectify the situation before others are involved. If full resolution cannot be attained, then the issue must be put forth to those in supervisory roles in a “real-time” manner. Retrospective conflict resolution is fraught with problems and is frequently inaccurate. The Critical Care Residents within the SICU and TICU function as the immediate supervisor for Anesthesia and General Surgery residents for issues regarding call schedules, lecture schedules, etc. If you are unclear of the appropriate supervisor, please communicate directly with Dr. May.

If issues are not communicated to the appropriate persons, then they must be assumed to be of insufficient merit to address. If a full resolution of an issue is not attained to everyone’s satisfaction, then it must be communicated to Dr. May (Program Director) at that time. Dr. May will make every possible effort to resolve the conflict to the satisfaction of all parties. If further redress is needed, progression along established supervisory lines and/or policies delineated in the Vanderbilt House Staff Manual should be followed.
Duty Hours:

Work hours are to be logged via an online system (New Innovations) – DAILY. The Division of Trauma and Surgical Critical Care is committed to ensuring full compliance with the resident duty hour policies set forth by the ACGME. In-house call will be managed via a night shift system. All residents will have at least one full 24-hour period per week without clinical duties. Additionally, residents’ work hours are to be limited to an average of less than or equal to 80 hours per week during each 4-week block beginning the 1st day of the month and for the entire month. Resident’s schedules should ensure that all fellows have greater than 10 hours off between all shifts. Additionally, resident’s clinical on-call duties must be compliant with the 24+4 hour requirement mandated by the ACGME. Resident duty hour policies are compliant with the institutional policies outlined in the Vanderbilt House Staff Manual (SCCR VI.B.4). Work hour violations can nearly always be anticipated, and it is the responsibility of the fellow to notify the department if there will be violations.

The Surgical Critical Care residents are responsible for organizing their schedules and ensuring that vacations and meetings are scheduled such that the above policy can be fulfilled. The schedule should incorporate the actual hours of clinical responsibility to facilitate timely departure from the hospital. Schedules are to be reviewed by the Program Director prior to publication. The Program Director is to be notified in advance if conflicts arise that do not allow Surgical Critical Care resident coverage of clinical obligations as outlined above.

Vacation/Sick Time Reporting:

Vacation and sick time reporting is a requirement of the GME office. Your time reporting is included in the monthly report for the Division’s exempt employees. You will be contacted each month to provide updates on vacation and sick time used in the previous month. Three weeks of vacation are allotted per year, in week aliquots. Fellows are discouraged from taking vacation during the months they are covering SICU days, SICU nights, and CVICU days.

Leave of Absence

Requests for leave will be administered according to applicable laws and in conjunction with the established guidelines in the Vanderbilt House Staff Manual (Section I.H.). Whenever possible, leave requests should be submitted to the program director at least 30 days in advance. Emergency requests should be submitted as soon as the situation allows. Each case will be considered on an individual basis and approved by the Program Director. In addition the resident will be fully informed as to his responsibilities during the absence as well as the effect of the absence on completion of the program and subsequent eligibility for board certification.

Call Schedule Postings:

Faculty and resident call schedules are available on SYNERGY at the end of each month for the upcoming month. Any subsequent changes to that schedule should be communicated through Vera Phelan in Dr. May’s office.

Licensure and Credentialing:

Application for Tennessee Medical License is required for all moonlighting and matriculation to the second year. While the 1st year is covered by an ACGME training license, application prior to the fellowship is encouraged. The deadline for submission is November 1 of your first year.

Furthermore, in order to REGISTER for the ABS General Surgery Certification Exam, an active medical license is required for the General Surgery ABS Certification exam. The use of FCVS service is advised and it is highly recommended to
save and scan all documents for easy access and forwarding for future credentialing (hospital credentialing). By January, you should have completed faculty and hospital appointment papers, which is very similar to the medical licensing process. This is facilitated by Fellowship Coordinator, who will contact you at that time. Failure to complete these papers in a timely fashion will result in an inability to start the second year.

**Examinations:**

First year fellows will take the MCCKAP online exam (critical care “in-service”) in March. This will be arranged by Fellowship Coordinator. It is highly encouraged that fellows pass the ABS Qualifying Exam and Certifying Exam for General Surgery. The on-line qualifying exam only offered in August and the certifying exam’s earliest administration date is October, which requires an ACTIVE medical license to register for.

Second year fellows will take the AAST Acute Care Surgery examination, typically in May. This exam is 100 question exam with a 2-hour time limit.
Surgical Critical Care and Acute Care Surgery specialties provide an ideal model for the acquisition of skills and knowledge to fulfill the six core competencies. These specialties mandate that 1) practitioners achieve high levels of medical knowledge and skills 2) practice is highly systems oriented and collaborative with multiple groups 3) practice is driven by evidence based medicine 4) physicians can communicate very efficiently and effectively to families regarding critical illness and death and to multiple team members to ensure appropriate direction of care 5) have well developed PI/QA systems to achieve highest level of care for this very complex patient group.

The VUMC Surgical Critical Care and Acute Care Surgery Fellowship assures that fellows achieve these core competencies through a highly integrated and intense program.

As outlined in detail above, fellows attain medical knowledge through a series of didactic and Socratic mechanisms as well as self-directed reading programs. Skills and knowledge are assessed by faculty on a near continuous basis.

Communication skills are developed, enhanced, and evaluated via numerous mechanisms. ATLS, Crew training, participation in the direction of trauma resuscitations with weekly review of these resuscitations, direction of critical resuscitation efforts with faculty evaluation in the ICUs, direction of OR teams, communication with numerous medical teams, communication with 100s of families with critically ill family members, communication regarding withdrawal of support, etc all ensure that fellows achieve high levels of skill. Didactic lectures on communication, leadership, and safety are provided during the program. Fellows’ communication skills are evaluated in a 360 degree format and considered in the evaluation process with each individual fellow. Fellows are also provided opportunity to enhance their skills through interaction with VUMC’s Faculty and Physician Wellness program as outlined below.

Professionalism is highly valued and reinforced throughout the program. Didactic lectures on communication, leadership, and safety highlight what we believe to be the core of extended professionalism. Throughout the program, evaluation of the fellows’ behavior and skills by faculty and nurses, mentorship through fellows’ participation in administrative duties is performed and provided to the program director. As noted above, fellows are also provided opportunity to enhance their professionalism through interaction with VUMC’s Faculty and Physician Wellness program as outlined below.

Systems based practice is mandatory throughout these specialties. Fellows are involved in faculty meetings, retreats, PI/QA mechanisms and are actively involved in enhancement of systems based practice throughout their fellowship. The ICU and Trauma and EGS services are highly systems based and this permeates all aspects of care and training.

Practice based learning and improvement is again achieved through numerous integrated mechanisms. Fellows participate in all aspects of the Division of Trauma and Surgical Critical Care’s efforts to develop and maintain evidence based “best-practice” medicine and be on the forefront of the delivery of acute care management. Fellows are involved in development and reviewing management and practice guidelines, order set development, PI/QA, educational and research initiatives that enhance knowledge, direct care, and improve outcomes.

**Collaboration with the VUMC Faculty and Physician Wellness Program:** To assure that all fellows can achieve the highest level of professionalism and communication skills, the Division of Trauma and Surgical Critical Care has established a collaborative effort with the VUMC Faculty and Physician Wellness Program. This program provides a breadth of services from communication and listening skills development, performance coaching, stress and fatigue management, to treatment services as required. These services are diagramed below. Didactic presentations are provided during fellowship orientation early during the academic year and supplemented throughout the completion of the program.
A table of support services provided by the University and the FPWP is provided in appendix IX.

POLICY ON RESIDENT MOONLIGHTING

The Division of Trauma and Surgical Critical Care concurs with the VUMC Office of Graduate Medical Education policies on moonlighting as outlined in the Vanderbilt House Staff Manual under the administrative section A., number 8. Any moonlighting by the residents in Surgical Critical Care must be approved by the Program Director and the Chief of the Division.
SUPPORT OF CRITICAL CARE FELLOWS

ADMINISTRATIVE SUPPORT:
- The Program Coordinator and is responsible for all your administrative needs, including coordinating licensure application and DEA application processes; administrative accounts, etc. Phone: 615-322-9676
  E-mail: sccfellowship@vanderbilt.edu or Tabitha.lacourse@vanderbilt.edu
- The Manager for the Division, Martina Haley, is responsible for facilitating the licensure process and other credentialing activities that are necessary for your appointment to the medical staff and faculty to begin your second year. Look for emails coming from her regarding credentialing starting in November.

FELLOW SALARY/FINANCIAL:
Salary for the first year of the fellowship is the VUMC – PGY6 level. Salary for the second year of the two year fellowship is at the VUMC – PGY7 level.

PROFESSIONAL EXPENSE ACCOUNT:
To enable appropriate academic development, yet encouraging financial responsibility, the Division of Trauma and Surgical Critical Care provides support for travel to conferences, texts, etc. Fellows are allotted $5000 per year to cover the processes outlined below. Travel or expenses beyond this amount are to be approved by the Program Director and may require personal or outside funds.

**Academic meetings and travel**
During the first year the Division will pay registration, lodging, and airfare expenses to one domestic trauma/critical care meeting as appropriate, usually one of the following society meetings: EAST (Eastern Association for the Surgery of Trauma), AAST (American Association for the Surgery of Trauma), WTA (Western Trauma Association), or SCCM (Society of Critical Care Medicine).

If travel is by personal automobile reimbursement for mileage will be made according to the current Section of Surgical Sciences travel policy guidelines*.

**IMPORTANT**
All travel that is related to Vanderbilt and/or to be reimbursed MUST have a Vanderbilt Travel Authorization form completed and approved prior to any business related travel. All travel must be booked through Vanderbilt Concur website.

Please coordinate all your travel arrangements with the Fellowship Coordinator so that the appropriate forms are completed and signed prior to your trip and expense reports are filed on a timely basis following your trip. Original receipts are required for all relevant travel expenses submitted for reimbursement. The process is outlined below:
Note: Expense for family or others who may accompany you on such trips is a personal responsibility. Also, Vanderbilt will only cover hotel costs for the dates of the actual conference. Any additional hotel days are a personal responsibility.

*See the full Section of Surgical Sciences Travel Policy located in the appendix of this manual. If you have any questions regarding this policy, please talk to the program coordinator. In addition, the travel policy will be sent to you electronically prior to each trip to remind you of the details.

General Surgery Board Review Course
Should you choose to attend a review course, the associated expenses may be allocated against your yearly Professional Expense Account.

Subscriptions
As many journals are available online through the Eskind Medical Library, the Division no longer maintains a physical inventory of journals; however, individual faculty members subscribe to a variety of publications which may be made available for your use. Should you wish to subscribe to other than what is currently being received by the faculty please consult with the Program Director and we will proceed as appropriate.

Textbooks
Two textbooks - 1 trauma & 1 critical care may be purchased via your Professional Expense Account. Beyond this, please consult with the Program Director. Please also consult with the program coordinator, as we have a departmental credit card that may be used to purchase the books on your behalf.

Memberships/Dues
Initial application and dues to societies such as the Eastern Association for the Surgery of Trauma (EAST) and Society of Critical Care Medicine (SCCM), may also be paid via the Personal Expense Account.

Expenses Covered by the Division
The following items are covered by the division, exclusive of the professional expense account:

- **MCCKAP EXAM**
  The MCCKAP exam dates normally occur in March each year. Exams will be ordered and Fellowship Coordinator will coordinate the examination session with your schedules.

- **Board Registration**
  Board registration for the General Surgery Qualifying Exam, General Surgery Certifying Exam and the Surgical Critical Care Certifying exam may be deducted from the fellow’s academic budget if these are taken during their fellowship years.
• **ATLS**
  You will be required to obtain ATLS Instructor Certification. If your provider status is not current, you will be enrolled in our yearly course in July and, upon satisfactory completion, arrangements will be made to enroll you in an instructor course. The Division will bear the expenses related to that certification process.

• **Other Certifications**
  In addition you are required to maintain current status in BLS and ACLS. Fees associated with those activities will be borne by the Division.

• **Office Supplies/Equipment**
  The Division will provide whatever supplies you require for your office. Vera Phelan orders supplies for the Division; please feel free to touch base with Vera or Fellowship Coordinator with your requests. Desktop computers will be provided and configured with all essential hardware/software by the Section’s IT staff. Addition of any other peripheral software must first be approved by the Division and installed by the computer support staff.

• **Lab Coats/Pagers**
  Initially you will be supplied with three (3) coats in the style of your choice, arranged by Fellowship Coordinator. The GME also provides one generic coat. Replacement coats will be ordered as needed. Division provides laundry service through Chesley Cleaners. Pickup/delivery day is Monday.

  Pagers are provided by the Division in lieu of those provided by GME, as it allows for continuity into the second year.

  If you wish to have access to Vanderbilt e-mail via your phone, please see Fellowship Coordinator to complete the appropriate paperwork to request this service. Often, this is easy to setup without additional paperwork.

• **Licenses**
  The Division will pay for the following:
  - **Medical License**: Initial application fee and renewals
  - **DEA License**: Initial application and renewals.
  - **Professional Tax**: The state of Tennessee assesses a yearly professional tax for various occupations. The Division will pay that tax on your behalf.

  If you have active licensure in other states and wish to maintain it, that expense is a personal responsibility.
First Year Expense Summary:

<table>
<thead>
<tr>
<th>Division Responsibility</th>
<th>Professional Expense Account</th>
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<tbody>
<tr>
<td>Medical License Application &amp; Renewal – TN only</td>
<td>Travel:</td>
</tr>
<tr>
<td>DEA Application and Renewal</td>
<td>1 National Trauma or Critical Care Meeting/yr</td>
</tr>
<tr>
<td>TN Professional Tax Assessment</td>
<td>Surgery Board Review Course</td>
</tr>
<tr>
<td>MCCKAP Examination Fee</td>
<td>Textbooks – 1 Trauma &amp; 1 Critical Care</td>
</tr>
<tr>
<td>Office Computer &amp; Supplies</td>
<td>Subscriptions</td>
</tr>
<tr>
<td>Lab Coats (3) &amp; Laundry</td>
<td>Society Membership and Dues</td>
</tr>
<tr>
<td>Pager</td>
<td></td>
</tr>
<tr>
<td>Phone Configuration for VU E-mail Access</td>
<td></td>
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<tr>
<td>ATLS Instructor Course Fee (as applicable)</td>
<td></td>
</tr>
</tbody>
</table>

MONITORING OF CRITICAL CARE FELLOW STRESS:

Critical care resident stress is monitored in several ways:

1. In-depth daily contact with faculty and director of the program.
2. Routine performance evaluations performed by faculty and nursing staff.
3. Maintenance of an “open door” policy in which the resident may approach the Program Director and Associate Program Directors at any time.
4. Frequent interactions with fellows outside of the hospital on a casual and social basis.
5. Mentoring program

Changes in fellow’s performance, lapses in judgement and communication skills, irritability, and declines in physical appearance are all considered possible manifestations of stress and fatigue and investigated as such. Any evidence of mental or emotional stress including dependencies which may interfere with the resident’s performance are immediately discussed and brought to the fellow’s attention. As outlined in section on the acquisition of core competencies, the Division of Trauma and Surgical Critical Care collaborates closely with the Faculty and Physician Wellness Center to assist residents, fellows, and faculty in maintaining appropriate professional-life balance, handling stress and fatigue, and in communication skills. Fellows are offered voluntary referral to the Wellness Center unless performance is deemed to place the fellow’s performance, the patient, or the Division at risk at which time referral becomes mandatory. All interactions are managed confidentially and in accordance with the University policy. Resident on-call duties and in-hospital town requirements are strictly outlined and communicated to both residents and staff and are compliant with the new guidelines set forth by the ACGME regarding resident work hours.

FELLOW HEALTH AND WELLNESS

The health and wellness of all house staff is supported by the Department of Health and Wellness which offers a variety of integrated services organized through four programs 1) the Vanderbilt Occupational Health Clinic 2) Health Plus (provides health promotion activities) 3) The Physicians Wellness Program and Employee Assistance Program and 4) the Vanderbilt Child Care Centers (comprehensive descriptions available on-line and through the Vanderbilt House Staff Manual). To assist house staff in the management of stress, the House Staff Advisory Council has developed a residency stress support group program in collaboration with the Center for Professional Health. A variety of management programs and support groups are available through this program as outlined in the Vanderbilt House Staff Manual.
OTHER MISCELLANEOUS INFORMATION

Simulation Training
Vanderbilt University Medical Center's Fellowship in Surgical Critical Care and Acute Care Surgery has extensive simulation training programs in which our fellows are deeply immersed. The fellowship utilizes the VUMC Center for Experiential Learning and Assessment (CELA) as well as Section of Surgical Sciences resources to assist in supporting these efforts. Additionally, the Division of Trauma and Surgical Critical Care and the fellowship program partners with Anesthesia Critical Care and the Department of Surgery to expand the expertise and resources available for instruction. Fellows both direct and participate in these courses so that they may assume leadership roles in the expanded application of these techniques during their career. For a list of examples of current simulation courses please see Appendix X.

Computer Support
Computer support is provided by the computer team from the Section of Surgical Sciences: Eric Howard, Paul Lang, and Sam Warren. Computers are configured for you with appropriate log-ins and the Microsoft Office components, i.e. Word, Excel, Access, Internet Explorer along with Starchart. Computers are “locked” and additional software cannot be installed unless installed by the computer team. Should you require anything additional please advise the Program Coordinator and we will obtain that for you from the appropriate resources.

Note: Strongly suggested that you back-up all documents on the computer to the F: drive. The F: drive is backed-up nightly and can be accessed anywhere on campus.

E-mail
E-mail is provided via Microsoft Outlook and supported by the Medical Center Informatics team. Any problems with your e-mail should be reported to the HELP desk, x-34357, not the Section team.

Reference library and reference system
To assist in future academic activities, each fellow is encouraged to develop a trauma and critical care reference library and reference system. The fellowship provides access to extensive reference materials and reference management systems to facilitate this.

Eskind Biomedical Library
The Eskind Biomedical Library is adjacent to the Main Hospital tower. 2016 specific information is provided in the table below.

<table>
<thead>
<tr>
<th>LIBRARY INFORMATION:</th>
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<tbody>
<tr>
<td>Total number of titles:</td>
<td>84,845</td>
</tr>
<tr>
<td>Total number of Journal Subscriptions:</td>
<td>2,412</td>
</tr>
<tr>
<td>Number of titles added during the last 12 months:</td>
<td>1,700</td>
</tr>
</tbody>
</table>

What is not apparent from simply reporting these numbers is the accessibility of this information to all medical personnel in the institution. The Eskind Digital Library (http://www.mc.vanderbilt.edu/diglib) makes available numerous journals, online, and easily searchable from any computer in the Medical Center, (or at home). Links to Clinical Key are available through the Eskind Digital library and through StarPanel (inf resources tab), and this is a valuable source of multiple full-text surgical textbooks (Shackelford, Blumgart, Sabiston, etc.)
The Surgical Critical Care and Acute Care Surgery Fellowship annual program evaluation system incorporates a multi-faceted process including:

1. quarterly evaluation of the fellows and faculty,
2. continuous and scheduled evaluation of fellowship program by fellows and faculty, and
3. annual review and implementation process by the Program Evaluation Committee

*See Samples of the Evaluations Here
*First Year Fellow Performance Evaluations follow the ACGME Milestones grids

Each component is outlined in greater detail below. Information from each of the three components is used to assess the effectiveness of the program and to guide enhancements and alterations in structure and curriculum on both a continuous and annual basis. The fellowship structure, efficacy, administrative compliance, and individual fellow performance are discussed as standing agenda items in the Divisional faculty meeting twice each month. Formal written evaluation and review of fellow’s progress and of the fellowship program occurs quarterly. Finally, the Program Evaluation Committee (PEC) meets in a series of meetings to develop and implement enhancements to the fellowship program for the subsequent academic year and incorporate those changes in the orientation materials and fellows manual.

1. Evaluation of Fellows and Faculty

The Program Director appoints a Clinical Care Committee (CCC) to complete the full evaluation process. The CCC meets quarterly and is composed of the Program Director, the two Associate Program Directors and the entire Division faculty. The committee responsibilities include:

- Review of all fellow evaluations, productivity, and duties quarterly with the final meeting ensuring all program requirements are met.
- Prepare and assure the reporting of Milestones evaluations of each fellow semi-annually to ACGME;
- Advise the Program Director regarding individual fellow’s progress, including areas of clinical, educational, academic, and administrative strengths and limitations and to adjudicate promotion, remediation, or dismissal.

Surgical Critical Care fellows and Acute Care Surgery instructors are evaluated through both formative (informal) and summative (formative) mechanisms. Both of these mechanisms are critical components of the complete evaluation process.

The formative evaluation process is an important, “real-time” process that allows fine-tuning of clinical skills, knowledge base, professionalism, administrative skills, behavioral issues, etc. These micro-evaluations typically take place in the clinical and administrative settings, as close in time as possible after specific behaviors (desirable or undesirable) are observed which warrant comment. The importance of these informal evaluations is that to be effective, feedback should be given closely in time after the behavior that is to be modified. All faculty are responsible for providing such feedback to the fellows. The Program Director and the Associate Program Directors actively seek information in “real-time” from faculty and staff to support and monitor fellows progress, interactions, and professionalism. Changes in performance may reflect a need for targeted intervention or referral to the Faculty and Physician Wellness Program.

The summative evaluation includes quarterly written evaluations of the Surgical Critical Care and Acute Care Surgery fellows by each of the Surgical and Anesthesia Critical Care faculty members and by representatives of the nursing and ancillary staff for the various ICUs. New Innovations is utilized for the evaluation process. All evaluations are anonymous. An evaluation summary is provided to the Program Director and the Associate Program Directors and
discussed in a full Divisional faculty meeting. The Program Director provides a summation to each Surgical Critical Care and Acute Care Surgery fellow in a scheduled, confidential quarterly meeting. During these quarterly meetings, each fellow is also asked to offer their own observations regarding their progress. Additionally, the fellow’s performance with administrative duties and the development of academic niche and career goals are discussed. A written summation of these quarterly reviews are shared with the fellow and entered as a part of the fellow’s permanent file. A copy of the evaluation is also given to the fellow.

**Evaluation Criteria:**

Written evaluations cover several dimensions that include the following

- Faculty evaluations including specialty-specific Milestones:
  - Patient care
  - Medical and cognitive knowledge
  - Practice-based learning and improvement
  - Interpersonal and communication skills
  - Professionalism
  - System-based practice

- Case Logs
- Conference Attendance
- Administrative Duties

**Clinical Evaluation and Mentoring Program:**

Both 1st and 2nd year fellows will also participate in the “Clinical Evaluation and Mentoring Program” which is headed by the Associate Program Directors, Dr. Raeanna Adams for the 1st year and Dr. Oliver Gunter for the 2nd year. To demonstrate their continued progress at attaining mastery of the care of the acute care surgery patient, the program includes monthly meetings with senior faculty to discuss all operative cases and complex resuscitations. This may include review of patient charts, radiographs, and review of videotaped resuscitations. For full details, including an example of the evaluation form, please see appendix I and II.

In an attempt to quantify fellow knowledge and competency, both 1st and 2nd year fellows will be asked to complete a questionnaire regarding their clinical experience and confidence in performing specific procedures. The questionnaire will be given at the beginning of their fellowship and at the conclusion of each clinical year.

**Referral to the Faculty and Physician Wellness Program:**

Feedback that could indicate that an individual fellow’s clinical, academic, or professional performance or success might be hindered through interpersonal interactions, communications, stress, fatigue or anger management, test taking, etc constitutes a confidential referral (either voluntary or mandatory) to the VUMC Faculty and Physician Wellness Program. Services that range from coaching to therapeutic intervention may be provided.

**MCCKAP examination:**

To assist with the evaluation of the acquisition of cognitive knowledge, the Adult Multidisciplinary Critical Care Knowledge Assessment Program examination is given each year to help the fellows prepare for the examination for the Certificate of Added Qualifications in Surgical Critical Care. Performance is reviewed and didactic educational initiatives are adjusted as needed.

2. Fellow and Faculty Evaluation of Program
As noted above, the fellowship structure, efficacy, administrative compliance, and individual fellow performance are discussed as standing agenda items in the Divisional faculty meeting twice each month. Formal written evaluation and review of the fellowship program occurs quarterly. As part of the quarterly evaluation process, each resident is asked to complete written evaluations of various aspects of the Surgical Critical Care and Acute Care Surgery programs, including individual faculty via New Innovations. Both strengths and weaknesses are stressed. This is anonymous. Feedback to the Program Director remains confidential when needed. At the end of the fellowship, each resident will also be asked to fill out an Exit Evaluation form (available on site) that asks some specific questions about our teaching strengths, the program’s soundness, etc.

Additional, each faculty member provides a written evaluation of the program on an annual basis prior to the Program Evaluation Committee meeting process. Results from both fellow and faculty evaluations are used in the annual review, improvement, and implementation process.

**Efficacy of Program**

The efficacy of the program is also monitored through the American College of Surgeons and the AAST case log systems, performance on the MCCKAP exam results, performance on the Surgical Critical Care Boards, academic and administrative productivity of the fellows, and subsequently through professional performance after completion of the program.

The Program Director meets at least annually and additionally on an "as needed" basis with the Director of the Core Surgery Program. A formal review is provided annually. Additionally, the Program Director meets on a regular basis with the Chairman of the Department of Surgery regarding his performance and evaluation.

### 3. Overall Program Evaluation by Committee

The Program Director appoints a Program Evaluation Committee (PEC) to formally evaluate the program, assess compliance with its requirements, and develop and implement enhancements for the subsequent academic year. The PEC is composed of the Program Director, the two Associate Program Directors and one first-year fellow and two second-year fellows. The committee meets annually and the responsibilities of this committee include:

- planning, developing, implementing, and evaluating educational activities and curricula of the program;
- reviewing and making recommendations for revision of competency-based curriculum goals and objectives;
- reviewing and making recommendations for revisions of administrative, education, and academic components of the fellowship curricula;
- addressing areas of non-compliance with ACGME or AAST standards; and,
- reviewing the program annually using evaluations of faculty, fellows, and others, as specified below.

The PEC begins a formal process of evaluation, improvement, and implementation in the spring each year, prior to the transition/graduation of the fellows and to the orientation process beginning each June. Based on formal and informal program evaluations throughout the year and fellow and faculty performance, modifications are incorporated. These modifications include updating the Surgical Critical Care and Acute Care Surgery programs, the Fellowship manual and the orientation process for the upcoming Fellowship year.
CERTIFYING EXAMINATION IN SURGICAL CRITICAL CARE

- The application form must be completed using the web-based form on the ABS web site www.absurgery.org. However, the form will need to be printed for signature and sent to the ABS.

- The application process requires a log-in using:
  - ABS Identification Number
  - Birth Date
  - Social Security Number

- Print the completed on-line application. Sign and date the application and obtain the signature of your program director. Make copies for your records and mail originals with other materials to ABS office.

- Other Materials required to accompany application:
  - Copy of Full and Unrestricted State Medical License
  - Report of Critical Care Experience Form – 50 cases. An activity report of surgical cases will be generated quarterly in excel format to be used for completion of this component. (Completed on-line, then printed for mailing purposes)
  - Application Fee of $400

Please refer to ABS web site for complete details and instructions regarding application requirements at www.absurgery.org.

Timeline:
- ALL YEAR Record surgical critical care cases
- July 17 Late Deadline for completed application
- September ABS Test Date
Policies for the Supervision of Surgical Critical Care and Acute Care Surgery Fellows

All patients within the Vanderbilt University Medical System have an identifiable credentialed and privileged attending physician who is ultimately responsible for that patient’s care. The Trauma, ICU, and Emergency General Surgery services have a) on-call and b) back-up faculty 24/7 with the schedule and contact information available through the Synergy system on all computer terminals and through the Vanderbilt University operator. The Trauma and Emergency General Surgery services have faculty available in-house 24/7. Additionally, Vanderbilt University Medical Center’s electronic medical record provides remote, real-time access to clinical, radiographic, and physiologic data.

A. Supervision of Fellows with Progressive Authority and Conditional Independence

Fellows matriculating in the two year Surgical Critical Care and Acute Care Surgery Fellowship are provided a closely mentored, supervised training with graded increases in progressive authority and independence that is conditional upon the evaluation and approval of the Divisional faculty and the Fellowship’s Clinical Competency Committee (CCC). Definitions: The following definitions are utilized to characterize and define the level of supervision throughout the program.

i. Direct Supervision: the supervising physician is physically present with the fellow and patient (type I)

ii. Indirect Supervision with direct supervision immediately available: the supervising physician is physically within the hospital or other site of patient care, and is immediately available to provide Direct Supervision (type IIa)

iii. Indirect Supervision with direct supervision available: the supervising physician is not physically present with in the hospital or other site of patient care, but is immediately available by means of telephonic and/or electronic modalities, and is available to provide Direct Supervision (type IIb)

iv. Oversight: the supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered (type III)

Guidelines for the definition of critically ill and/or complex cases include:
- Patients in whom a serious adverse event or death is likely during or following the case
- Cases in which the trainee has limited experience
- Hemorrhage requiring activation of the massive transfusion protocol
- Patients whose physiology necessitates high dose inotropic support or damage control approach
- Multiple operative cases and/or operative cases with ongoing multiple alerts

Surgical Critical Care – 1st year of fellowship:
During the Surgical Critical Care (1st) year of the fellowship, fellows lead critical care teams in various ICUs under the direct supervision of Critical Care Attendings throughout the entire year. Additionally, they participate in the resuscitation, and operative stabilization of acutely and critically injured trauma victims. During this 1st year, all fellowship supervision is either TYPE I or IIa. All operative cases are directly overseen by faculty.

During this year, fellow’s performance in the ICU, during resuscitations, and in the OR is evaluated through multiple methods (see evaluation section) and each fellow’s progress, case volume, competency, and independence evaluated by the CCC and Chairman of Surgery and determined whether the fellow has achieved and demonstrated adequate skills and decision making to advance to independence and matriculate to the second year of the fellowship.
Acute Care Surgery – 2nd year of fellowship:
During the Acute Care Surgery year of the program, fellows obtain in-depth mentored exposure and management of complex and critically ill or injured trauma and emergency general surgery patients. Throughout the second year, supervision will progress from TYPE I to TYPE IIa and subsequently TYPE IIb as determined by the Division of Trauma’s CCC and the Chairman of Surgery. A backup faculty is always available within 30 minutes and is indicated on the on-call schedule and available via web access through SYNERGY. At no time during the fellowship does supervision fall below TYPE IIb.

Process for Progressive Independence:
TYPE I to TYPE IIa: 1st year fellows perform all operative cases and acute trauma resuscitations during their first year with TYPE I supervision with notes dictated by the attending faculty and inclusion as assistant in the operative note.

All 2nd year fellows are American Board of Surgery board eligible or board certified general surgeons. Fellows whose 1st year resuscitative and operative case volume has been reviewed and approved by the CCC and Chairman to advance and is appointed to the medical staff as Instructors of Surgery can perform non-complex, general surgical cases in non-critically ill patients for which they are credentialed with TYPE IIa oversight for the first 3 months of their second year. All acutely ill patients and/or complex cases will remain TYPE I during this period and supervising faculty present in the OR. Beginning July 2016, faculty will utilize a digital documentation system for oversight early in the 2nd fellowship year, recording the type of oversight and details of provision.

TYPE IIa to TYPE IIb: After the initial 3 month oversight period within the second year, fellows whose operative decision making and case performance has been reviewed and approved by the CCC will have information presented Chairman of Surgery for final review, discussion, and approval to be on call faculty with TYPE IIb supervision. Back-up faculty are available within 30 minutes, assigned on the call schedule, and available via web access through SYNERGY. Those cases defined as critically ill and/or complex as outlined above (see definitions section) require notification of back up faculty with escalation to TYPE I oversight as deemed appropriate.

Documentation and Review of Oversight:
- Documentation of notification and involvement of back-up faculty will be included in the operative reports.
- All resuscitations and operative cases are reviewed by faculty in Trauma morning conference daily, the level of oversight reviewed, and compliance with notification of faculty verified.
- If the oversight is judged to be in question, the case is referred to Trauma Process Improvement for review and potential action.

B. NOTIFICATION AND INVOLVEMENT OF FACULTY IN PATIENT CARE BY RESIDENTS/FELLOWS

Trauma Service: Care of all patients on the Trauma Service is to be under the supervision of a faculty member within the Division of Trauma and Critical Care. In general, faculty members are present on rounds to supervise and direct discussions regarding plan of care and to provide educational input. If an individual faculty member responsible for the patient’s care is not present when the plan of care is established during rounds then faculty should be contacted as early as possible upon the completion of morning rounds to discuss the patient’s plan of care. Faculty members responsible for the patient’s care are to be notified when any of the following occur:

- All consultations and admissions. If any patient being evaluated is unstable and the faculty is not present, then the faculty should be notified immediately
- Any time the established plan of care cannot be completed
- Any significant decline in any patient’s clinical status (unless decline is anticipated and previously included within an established plan of care)
• The death of any patient (planned or unplanned)
• Any time invasive procedures must be performed on a patient
• When patients proceed to the OR. No patient may proceed to the OR without faculty notification or availability

If the faculty member responsible for the patient’s care cannot be reached (as directed by the guidelines above) or cannot be immediately available as needed for the clinical setting, then the on-call attending should be notified. A faculty member is present in-house 24 hours per day, 7 days per week for the direct supervision of patient care. In the event that circumstances dictate that care must be rendered to unstable patients without the presence of supervising faculty, then the most senior resident should proceed, utilizing good clinical judgment, to ensure the patient’s safety and best interests.

**Multidisciplinary Surgical Critical Care Service:** All patients seen in consultation by the MDSCC service (see consultation policy) are to be staffed by the Critical Care faculty on-call for the SICU. Faculty round daily with the Critical Care team and are available for all patient care issues. The on-call Critical Care faculty should be notified when any of the following occur:

- New consultations and any non-cardiothoracic admission to the SICU that is unstable. If any patient being evaluated is unstable and the faculty is not present, then the faculty should be notified immediately
- Any time the established plan of care cannot be completed
- Any significant decline in any consult patient’s clinical status (unless decline is anticipated and previously included within an established plan of care)
- The death of any consult patient (planned or unplanned)
- Any time invasive procedures must be performed on a consult patient

Occasionally, residents from the MDSCC service may be asked to assist in the management of a patient without formal consultation of the MDSCC service. This may be appropriate under the conditions that the patient is hemodynamically stable. Involvement of the MDSCC service residents in invasive procedures mandate notification of the Critical Care faculty prior to initiating such procedures.

If, for any reason, immediate involvement of faculty is required before the on-call faculty can be contacted or present, then the in-house Trauma faculty should be notified. In the event that circumstances dictate that care must be rendered to unstable patients without the presence of supervising faculty, then the most senior resident present should proceed, utilizing good clinical judgment, to ensure the patient’s safety and best interests.

**C. RESIDENT/FELLOW SUPERVISORY GUIDELINES FOR MORE JUNIOR TRAINEES**

Junior residents on either the ICU services or the Trauma service are supervised by more senior residents (ie. Trauma senior resident or Critical Care resident). The policies outlined above (see NOTIFICATION AND INVOLVEMENT OF FACULTY) should be utilized by the junior residents as a guide for when they should notify their more senior resident/fellow. In the event that the supervising resident cannot be notified or appropriately involved in a timely fashion, then the junior residents should notify faculty immediately.
The Surgical Critical Care Fellowship is under the auspices of the Division of Trauma and Surgical Critical Care, within the Department of General Surgery, and the Section of Surgical Sciences. The Section of Surgical Sciences encompasses all of the surgical subspecialties.

Section of Surgical Sciences Chairman – Daniel Beauchamp, MD
Department of General Surgery Chairman – Seth Karp, MD
Division of Trauma & Surgical Critical Care Chief – Richard Miller, MD

The Division of Trauma and Surgical Critical Care encompasses a number of clinical components including the Trauma Service, the Critical Care Consultation Service, the Burn Service, and the Emergency General Surgery Service. Additionally, the Medical Directorship of the SICU and the Trauma units are under the auspices of this Division. Addison K. May, MD is the Program Director for the Fellowship in Trauma and Surgical Critical Care. Two faculty assist him as Associate Program Directors for the Fellowship, Dr. Raeanna C. Adams (1st year) and Dr. Oliver L. Gunter (2nd year). This program interacts closely with the Anesthesia Critical Care Fellowship.

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<th>Name</th>
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<td>Richard S. Miller, MD,</td>
<td>Professor of Surgery Division Chief</td>
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<td>Assistant: Vera Phelan</td>
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<td>Addison K. May, MD</td>
<td>Ingram Chair in Surgical Sciences</td>
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<td>Prof. of Surgery &amp; Anesthesiology</td>
<td>Assistant: Vera Phelan</td>
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<td>Program Director, SCC &amp; ACS Fellowship</td>
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<td>Dir., SICU and MDSCC</td>
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<td>Oscar D. Guillamondegui, MD, MPH,</td>
<td>Professor of Surgery</td>
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<td>Trauma Medical Director</td>
<td>Assistant: Lisa Turner</td>
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<td>Vice Chair of Quality and Patient Safety</td>
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<td>Timothy C. Nunez, MD, MHMC</td>
<td>Associate Professor of Surgery</td>
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<td>Assoc. Chief of Surgery, VA</td>
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<td>Raeanna C. Adams, MD, MBA</td>
<td>Assistant Professor of Surgery</td>
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<td>Assoc. Program Director, SCC Fellowship</td>
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<td>Dir., Student / Resident Education</td>
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<td>Oliver L. Gunter, MD, MPH</td>
<td>Assistant Professor of Surgery</td>
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<td>Medical Director, EGS</td>
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<td>Assoc. Program Director, ACS Fellowship</td>
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<td>Bradley M Dennis, MD</td>
<td>Assistant Professor of Surgery</td>
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<td>Director of Process Improvement</td>
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<td>Dir., Trauma Outreach and Education</td>
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<td>Shannon C. Eastham, MD</td>
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<td>Mayur Patel, MD, MPH</td>
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<td>Lisa Rae, MD</td>
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| Allan Peetz, M.D.           | Assistant Professor of Surgery | Assistant: Vera Phelan
|                             |                              | Extension: 936-0189                         |
| Callie Thompson, M.D.       | Assistant Professor of Surgery | Assistant: Kim Maskill
|                             |                              | Extension: 36709                           |
Vanderbilt University Medical Center is a tertiary and quaternary academic medical center dedicated to excellence in education, patient care, and research. It is comprised of the Medical School, the Nursing School, the Hospital, the Children's Hospital, The Vanderbilt Clinic, the Child and Adolescent Mental Health Center, the Stallworth Rehabilitation Hospital, and the Vanderbilt-Ingram Cancer Center, designated in 2001 by the National Cancer Institute as a Comprehensive Cancer Center. Vanderbilt University Medical Center is a JCAHO approved 836 bed acute care hospital that serves a diverse patient population. The hospital provides care for a large number of critical ill and injured patients and maintains numerous specialized intensive care units including:

1) Surgical Intensive Care Unit
2) Trauma Intensive Care Unit
3) Burn Intensive Care Unit
4) Neurological Intensive Care Unit
5) Medical Intensive Care Unit
6) Coronary Care Unit
7) Obstetrical Intensive Care Unit
8) Neonatal Intensive Care Unit
9) Pediatric Intensive Care Unit

Each ICU has specifically trained nursing and ancillary personnel supporting care 24 hours per day, seven days per week. Vanderbilt University Medical Center serves as the Level I Trauma Center for all of central Tennessee and serves as the Transplant Center for this region. We had over 4,200 trauma admissions in 2016, with 700 burn admissions. Additionally, a busy, six helicopter transportation program handles over 4,700 flights per year transporting critically ill or injured patients to VUMC from around the region. In fiscal year 2014, Vanderbilt University Medical Center and Children’s Hospital served 1.8 million outpatient visits, and cared for 110,000 patients in its emergency rooms. Robust growth of VUMC over the last decade has resulted in well over 10,000 employees.
You have just completed reading a detailed description of your work environment, the persons with whom you will interface, the conferences you will be expected to attend (and prepare for), and the patients in whose care you will participate. We realize that you now come to us with a rich background in your general surgical education, and have some hopes and expectations about what you will learn during the course of your surgical critical care residency. This list of goals and objectives enumerates what we expect you to have achieved, with our help, by the end of the year. You may use this list to gauge your progress as the year passes. We will also observe you to be sure you have achieved these goals and objectives by the conclusion of your year. During your quarterly evaluations, the program director will note any areas where you need to progress. We anticipate that you will make rapid progress along this list, and realize that you may have already achieved many of these. What follows is what the Vanderbilt Surgical Critical Care faculty considers what a well-trained surgical intensivist should know and be able to do. These are the specific education goals for the Fellows as it pertains to your acquisition of knowledge in Surgical Critical Care.

A. CARDIOVASCULAR
1. Hemodynamic monitoring
   a. Indications
   b. Assessment
   c. Therapy
   d. Available technology
   e. Technical aspects
      i. Site selection
      ii. Methodology
   f. Complications
      i. Diagnosis
      ii. Treatment
2. Adequacy of cardiac output/assessment of function
   a. Evaluation of perfusion
   b. Categorization of low flow states
   c. Oxygen supply/demand balance
   d. Myocardial oxygen supply/demand balance
   e. Evaluation of preload, afterload, and contractility
   f. Reproduce and use formulae for RVEDV, SVR, PVR, R&LVSWI
3. Treatment: gain understanding and describe management of
   a. Hypoperfusion, including pressors/volume and rationale
   b. Hypertension, including pharmacology of treatment
   c. Acute myocardial infarction, including risk factors, diagnosis, preoperative assessment, anesthesia techniques, and acute management
   d. Dysrhythmias: diagnosis and treatment of atrial, ventricular, and nodal tachycardia, bradycardia, and heart blocks including pharmacologic and electrical management
   e. Heart failure: diagnosis and pharmacologic and mechanical (including assist devices) treatment
4. Critical Care Skills: demonstrate proficiency in cardiopulmonary resuscitation, cardioversion/pacing, insertion and interpretation of data from arterial, central venous, and pulmonary artery catheter.
B. PULMONARY

1. Define the differences between respiration and ventilation.

2. Discuss lung and chest wall mechanics, including total lung capacity, tidal volume, functional residual capacity, vital capacity, critical closing volume.

3. Define ventilatory failure and discuss the various categories of ventilatory failure.

4. Define other pertinent measurements in the ventilated patient: peak airway pressure, pulmonary compliance (static and dynamic), minute ventilation.

5. Recognize the harmful effects of excessive O₂ concentrations, volume, and peak airway pressure. Be able to balance ventilation parameters in complicated patients to minimize pulmonary damage. Outline protective ventilation strategies.


7. Discuss the action, mechanism, dosage and side effects of medications whose primary site of action is the lung. Discuss the side effects of other medications which may affect the lung.

8. Explain the impact of nutrition on respiration and ventilation.

9. Discuss the salient features, characteristic radiographic findings and treatment strategies for: obstructive and restrictive pulmonary disease, ARDS, pulmonary embolism, aspiration, bronchopleural fistula, respiratory tract infections, empyema, inhalation injury, pulmonary contusion, pneumothorax, and hemothorax.

10. Mechanical ventilation
   a. Define basic parameters of ventilation: PEEP, TV, FiO₂, rate, pressure support, continuous positive airway pressure, IMV, CMV, Volume Control, and PRVC.
   b. Define BIPAP, static and dynamic compliance, pressure control ventilation, inspiratory pressure, I/E ratio.
   c. Discuss the various modes of mechanical ventilatory support, along with their advantages and risks.

11. Interpretation of arterial and mixed venous blood gases
   a. State normal values for arterial and mixed venous pH, PCO₂, P0₂, percent saturation and bicarbonate.
   b. Identify and discuss respiratory acidosis and alkalosis. Explain the relationship between minute ventilation, PCO₂ and pH.

12. Endotracheal Intubation
   a. Describe the sequence for patient intubation, including the use of paralytic and sedative agents and proper tube placement.
   b. Discuss the procedure for emergency cricothyrotomy.
   c. Discuss the pros and cons of tracheostomy in the ICU patient. Discuss the relative merits of open tracheostomy, cricothyrotomy and percutaneous tracheostomy, and appropriate times for implementation of the various surgical airways.
   d. Discuss the complications of intubation, including tracheomalacia, sinusitis, barotrauma and others.

13. Weaning
   a. Describe methods for weaning a patient from mechanical ventilation.
   b. Discuss parameters which indicate readiness to extubate an individual patient.
   c. Discuss weaning of patients with restrictive and obstructive airways disease, myasthenia gravis.

14. Discuss suspicion for and diagnosis of ventilator associated pneumonia
   a. Rational for quantitatives cultures
   b. Importance of and rational for the selection of appropriate empiric therapy.

15. Critical Care Skills: demonstrate proficiency in
   a. endotracheal intubation
   b. bronchoscopic techniques and qualitative cultures
   c. surgical airway establishment
d. familiarity with ventilator modes

c. Be able to discuss abnormal blood gases with regards to pathophysiology, other organ interactions and treatment strategies.

C. NEUROLOGIC

1. Demonstrate understanding of the metabolic requirements of the brain, O2 consumption, glucose utilization, cerebral blood flow, the relationships of ICP, CVR and MAP, the relationship of CBF to cerebral functions, and the factors affecting ICP.

2. Pathophysiology
   a. Intracranial hypertension
      i. Intracranial blood volume
      ii. Increased CSF volume
      iii. Cerebral edema (cytotoxic vs. vasogenic edema)
      iv. Growing mass lesion (i.e., tumor, hematoma)
      v. Loss of CNS autoregulation
   b. Spinal Cord Impairment
      i. Functional and physiological consequences of anatomical disruption
      ii. Spinal cord lesions, cord syndromes, and loss of sympathetic tone
   c. Discuss advantages of various methods of measuring intracranial pressure
   d. Describe management algorithms for intracranial hypertension and cerebral perfusion pressure, and discuss the relative advantages and liabilities of different treatment strategies.

D. RENAL

1. Demonstrate understanding of applied physiology, including glomerular filtration, tubular absorption, renal blood flow and autoregulation, renin-angiotensin system, role of catecholamines, ecosanoids and other vasoactive substances, measurement of renal blood flow.

2. Demonstrate understanding of the assessment of renal function, including the use of: GFR, creatinine clearance, serum creatinine, serum urea nitrogen, sodium balance and ECF, water balance, acid-base balance, potassium balance.

3. Demonstrate understanding of the pathophysiology of acute renal failure, including diagnosis, etiology, and differentiation from pre, renal and postrenal types, and differentiation from chronic renal failure.

4. Produce a clinical algorithm for approaching “renal failure”

5. Discuss the prevention, treatment, and prognostic considerations in acute renal failure.

6. Demonstrate familiarity with indications for and relative advantages of renal replacement modalities, including hemodialysis, peritoneal dialysis, hemofiltration, CVVH, CVVHD.

7. Demonstrate understanding of and ability to manage the changes in drug metabolism and excretion which take place during renal failure.

8. Outline a plan of nutritional management for a patient in acute or chronic renal failure.

E. GASTROINTESTINAL

1. Discuss the etiologies of upper gastrointestinal bleeding in the critically ill patient. Demonstrate familiarity with the pathogenesis, diagnosis, management, and prevention of stress gastritis. Discuss the relationship of prevention strategies to nosocomial pneumonia.

2. Discuss the acute management of variceal bleeding, and the treatment of elevated portal pressure: vasopressin alone and with nitrates, octreotide, emergent transjugular portosystemic shunts.

3. Understand the diagnosis and management of the spectrum of antibiotic associated colitis and colonic complications of ulcerative colitis, from simple diarrhea to fulminant colitis and toxic megacolon.

4. Understand and discuss the risk factors, pathophysiology, diagnosis and treatment of: osmotic diarrhea, secretory diarrhea, exudative diarrhea, hypermotility states, and high filtration states.
5. Understand and discuss gut mucosal barrier function, particularly its role in multiple organ system dysfunction syndrome.
6. Discuss the role of enteral nutrition, role of essential gut nutrients and selective gut decontamination
7. Understand the diagnosis, etiology, and pathophysiology, stratification of risk and severity, and management of acute pancreatitis.
8. Hepatobiliary Disease
   a. Cirrhosis: understand the pathophysiology and management of ascites, ascitic leaks, ascitic infection, encephalopathy, and the hepatorenal syndrome
   b. Postoperative acute cholecystitis: discuss the incidence, risk factors and pathophysiology, diagnosis and management
9. Critical Care Skills: demonstrate the ability to
   a. evaluate the abdomen in the ICU using physical examination and diagnostic testing modalities
   b. Utilize gastrointestinal intubation and endoscopic techniques in the management of the critically ill patient.

F. INFECTIOUS DISEASE
1. Understand the factors predisposing the critically ill patient to infections, including immunosuppression, breakdown of normal barriers, iatrogenic procedures.
2. Discuss the immunosuppression of critical illness, and the roles of malnutrition, humoral immune deficiency, cellular immune deficiency, granulocytopenia, and immunosuppressive disease states
3. Understand the importance and techniques of prevention of nosocomial infections, including hand washing, body substance isolation, and indications for patient and personnel isolation. Discuss methods of reducing the colonization of devices, fluids, catheters, and ventilators, and approaches to the analysis of outbreaks in an ICU.
4. Discuss the nature, timing, appropriate indications and agents used for antibiotic prophylaxis.
5. Discuss the identification, diagnoses, and management of infections, including specimen collection and transport, culture methods, and sensitivity testing for bacterial, viral, and atypical infections
6. Demonstrate familiarity with the selection of and pharmacokinetics of antibiotics for infections commonly encountered in the ICU. Discuss common and uncommon complications of antibiotic therapy
7. Understand the role that HIV plays in the ICU setting, including identifying the high risk patient, the legalities of HIV testing, immunologic identification of HIV positivity, management of HIV positive and AIDS patients, awareness of the CDC recommendations for universal precautions, management of the health care personnel exposed to the AIDS virus, and the ethical aspects of AIDS management.
8. Discuss the indications for prophylaxis, presumed or empiric therapy for fungal and viral infections.
9. Discuss antibiotic prophylaxis for special conditions: prosthetic valves, grafts, and immunosuppression.
10. Be familiar with indications and results of hyperbaric oxygen therapy for anaerobic infections.
11. Critical Care Skills: demonstrate proficiency in techniques of isolation, identification and management of outbreak of resistant strains, infection control procedures, monitoring, collecting and analyzing the incidence of infections.

G. METABOLISM AND NUTRITION
1. Demonstrate the ability to assess nutritional status, including nutritional history, physical examination, and laboratory studies.
2. The relationship of the following should be appreciated in regard to theory of test, time period assessed by the test, means of obtaining the test, confounding factors, and efficacy as a nutritional status monitor: allergy skin testing, hematocrit/hemoglobin, red cell morphology, total lymphocyte count, albumin, pre-albumin, retinol binding protein, transferrin, nitrogen balance, blood glucose, glycohemoglobin A-1C, magnesium, phosphorus, calcium, prothrombin time, liver enzymes, acute phase proteins, anthropometrics, and calorimetry.
3. Define normal nutritional needs in terms of caloric needs and composition of nutritional sources, vitamins, minerals and trace elements, and dietary formulation.

4. Discuss ways to estimate resting energy expenditure (REE) using the Harris-Benedict equation and indirect calorimetry.

5. Demonstrate the ability to assess a nutritional regimen using nitrogen balance and REE and RQ measurements.

6. Discuss the significance of dietary omega-3, omega-6 fatty acid intake, and long and medium chain triglycerides.

7. Discuss the proper roles, indications and contraindications for, and complications of oral diets, gastric feeding, jejunostomy feeding, peripheral vein feeding, and central vein feeding.

8. Critical Care Skills: Perform a nutritional assessment, formulate and execute a nutritional support plan for each of the following patient types:
   a. Patients with organ failure/dysfunction including renal, hepatic, respiratory and cardiac dysfunction;
   b. Patients with special nutritional problems, including morbid obesity, pregnancy, major burn injury or trauma, alcohol dependence, and diabetes mellitus.

H. HEMATOLOGY AND COAGULATION

1. Demonstrate familiarity with the basic science of coagulation, including the coagulation cascade, endothelial vasoactive response, platelet kinetics and function, fibrinolysis and inhibition of coagulation

2. Know the indications for and complications associated with component transfusion

3. Demonstrate familiarity with the management and complications of massive transfusion.

4. Discuss blood salvage techniques.

5. Discuss the complications associated with transfusion, including red-cell and non red-cell related hemolysis, allergic reactions, febrile reactions, anaphylactoid reactions, pulmonary hypertension, graft vs. host disease, and post-transfusion purpura.

6. Discuss the infectious complications associated with transfusion, including bacterial contamination, viral infections (HIV, CMV, EBV, and hepatitis).

7. Be familiar with the immunosuppressive effect of transfusion.

8. Critical Care Skills: demonstrate proficiency in diagnostic evaluation of hemostatic integrity, criteria for administration of all components, diagnosis and treatment of transfusion reactions, and safety practices regarding handling of blood components and exposure to blood.

I. ENDOCRINE

1. Demonstrate an understanding of the pathophysiology and management of diabetes mellitus in the critically ill patient.

2. Demonstrate an understanding of the pathophysiology, diagnosis and management of thyroid storm and myxedema coma in the critically ill patient.

3. Demonstrate an understanding of the pathophysiology, diagnosis and management of acute and chronic adrenal failure in the critically ill patient, and the role for perioperative steroid coverage.

4. Discuss the diagnosis and management of a patient in the ICU with pheochromocytoma, including preoperative and postoperative considerations.

5. Discuss the pathophysiology, evaluation and management of states of insufficiency and excess of the posterior pituitary, including SIADH and diabetes insipidus.

6. Importance of glucose control in critically ill.

J. MUSCULOSKELETAL SYSTEMS AND THE SKIN

1. Be aware that alterations in mental status must be considered in evaluation, and the most common complications of musculoskeletal injury are neurologic or vascular injuries.
2. Demonstrate examination of the extremities, with attention to assessment of movement, sensory and motor nerve function, and peripheral vascular examination.
3. Discuss the pathogenesis, physiologic derangements, diagnosis (including measurement of compartment pressures) and management of complications seen in patients with rhabdomyolysis.
4. Demonstrate understanding of the management of skin surrounding wounds, drains, fistulas or stomas.
5. Discuss the pathogenesis, prevention, and management of pressure sores, including wound management and the use of special beds for patients at risk for pressure sores and the morbidly obese.
6. Discuss ICU associated myopathy and neuropathy.

K. IMMUNE SYSTEM
1. Discuss the physiology of the immunologic response to critical illness, in terms of normal host defenses, barriers, humoral defenses, cellular mechanisms, mediators and cytokines, and the major histocompatibility antigens.
2. Discuss mechanisms of immune dysfunction in the critically ill patient, including tissue injury, GI bacterial translocation, stress hormones, mediators, suppressor factors, suppressor cells, hypoxia, ischemia, nutritional deficiency, and sepsis syndromes/SIRS.
3. Discuss the role of immunomodulation in the critically ill patient, including nutritional pharmacotherapy (arginine, glutamine, etc.) immunologic blockade, antiendotoxin, eradication of septic focus, mediator inhibition, anti-TNF strategies, il-1 receptor antagonist, il-6 antibodies, strategies directed to neutrophil and endothelium, leukocyte receptor antagonist, oxygen radical strategies, antiproteases, and no inhibition.

L. OBSTETRIC AND GYNECOLOGIC ISSUES
1. Be familiar with physiologic responses to pregnancy, including changes in the following systems:
   a. respiratory
   b. cardiovascular
   c. hepatic
   d. renal
   e. central nervous system
   f. smooth muscle
   g. connective tissue
   h. hormonal changes
   i. hematologic
   j. immunologic
2. Demonstrate familiarity with stabilization and resuscitation of the pregnant patient, especially with respect to respiratory and cardiac function.
3. Demonstrate familiarity with hypertensive disorders in pregnancy, including chronic hypertension, preeclampsia/eclampsia
4. Demonstrate familiarity with obstetric concerns, including placental abruption, placental previa, uterine rupture, postpartum hemorrhage, premature labor, fetal distress and puerperal sepsis.

M. TRAUMA, THERMAL, ELECTRICAL AND RADIATION INJURIES
1. Demonstrate understanding of the epidemiology, and pathophysiology of trauma as a disease, including the current epidemiology of blunt and penetrating trauma, the concept of trauma systems, and general concepts of funding for trauma management and education.
2. Demonstrate proficiency in the initial and secondary surveys.
3. Demonstrate the ability to initiate ongoing resuscitation and evaluation of the multiply injured patient.
4. Understand basis for controversies in management, (evaluation of abdominal trauma by serial observation or lavage, the role of CT in retroperitoneal injuries, early fixation of pelvic fractures), newer concepts in trauma management: staged celiotomy, 'damage control', vascular shunts, etc. Demonstrate the ability to manage
drug and alcohol withdrawal, and pain and sedation in the trauma patient.

5. Discuss injury severity indices in the trauma patient (AIS, ISS, ATI, TS, and RTS), TRISS methodology, and the limitations of APACHE scores in trauma patients.

6. Be familiar with the pathophysiology and management of thermal injury, and smoke inhalation syndromes, including fluid support, escharotomy, and recognition and management of burn wound infections. Discuss special considerations for the burned pediatric patient.

7. Demonstrate familiarity with wound management techniques in burned patients, including methods and timing for skin grafting.

8. Discuss definitions, prevention, pathophysiology, diagnosis, and treatment of hypothermia and frostbite.

9. Discuss the incidence, pathophysiology (surface, internal current), factors determining the outcome (voltage, amps, resistance, type of current, duration, and pathway), clinical presentation and management of electrical injuries, including lightning injuries.

10. Discuss management of skin contamination, radiation skin burns, acute radiation syndromes and injury, internal contamination, and prevention of contamination of health care providers.

N. MONITORING AND MEDICAL INSTRUMENTATION

1. The resident should know when the clinical assessment is more (or less) reliable than data obtained from medical monitoring devices.

2. The cellular basis for production of electrical membrane changes which are monitored as signals should be fully understood as are the different techniques used in monitoring various physiologic states.

3. Clinical/laboratory use of specific monitoring devices should be understood in regard to: theory of device operation and calibration, common sources of error during clinical use, checks of data reliability, proposed clinical use (indications), and evidence of efficacy.

4. Understand the technical features and limitations of monitoring physiologic parameters, including ECG, EEG, temperature, pulse and heart rate, blood pressure, twitch monitoring of neuromuscular blockade, blood flow, blood and tissue oximetry, capnography, gastric tonometry.

5. Discuss clinical scoring instruments for documenting neurologic status, severity of illness or injury. The underlying theory, method of scoring, limitations, and efficacy for use, should be understood for each of the following:
   a. Acute Physiologic and Chronic Health Evaluation (APACHE)
   b. Glasgow Coma Scale (GCS)
   c. Injury Severity Score (ISS)
   d. Ramsay Sedation Score
   e. Revised Trauma Score (RTS)
   f. Therapeutic Intervention Score (TIS)

6. Critical Care Skills
   a. Calibrate and use as many of the above-noted transducers, amplifiers, recorders and scoring instruments as possible throughout your training.
   b. Realize that there are few isolated data points upon which a diagnosis can be made with certainty. The clinical use of monitoring involves an appreciation of information trends which suggest development of favorable or unfavorable physiologic states. Regardless of the monitoring system employed, there remains a continuing need to verify the reliability of clinical data so misinterpretations can be avoided.

O. CRITICAL PEDIATRIC SURGICAL CONDITIONS

1. Respiratory: most arrests are respiratory and in-hospital (vs. adult). May be due to upper airway obstruction from mechanical (foreign body aspiration) or inflammatory (epiglottis) causes. Lower causes include status asthmaticus.

2. Describe the special needs of children with respect to size of support and monitoring devices, drug, blood
product, and fluid dosages.

3. Discuss the special psychological needs of children, especially with respect to age differences and family interactions.

4. Critical Care Skills: the critical care resident should understand the differences in management between children and adult intensive care patients as necessitated by size, organ maturity, usual absence of chronic disease, and age-related disorders. These differences should be incorporated into intensive care management plans for children.

P. PHARMACOKINETICS AND EVALUATION OF DRUG METABOLISM AND EXCRETION

1. Discuss the drug use and selection process
2. Demonstrate familiarity with basic pharmacokinetic principles:
   a. Enteral, Pulmonary and Topical Administration of drugs - Absorption
   b. Parenteral administration of drugs
   c. Distribution
      i. Calculating the volume of distribution
      ii. Concept of volume of distribution
      iii. Using volume of distribution to calculate dosage
      iv. Compartmental models of drug distribution
dl. Elimination/Metabolism
3. Demonstrate familiarity with drugs requiring special pharmacokinetic considerations
4. Demonstrate understanding of the impact of special patient considerations on drug dosing and metabolism
5. Critical Care Skills:
   a. Establish and monitor drug therapy to achieve therapeutic goals while minimizing toxicity.
   b. Identify expected changes in absorption, metabolism and excretion in clinical situations noted above.

Q. ETHICAL & LEGAL ASPECTS OF SURGICAL CRITICAL CARE

1. Demonstrate an understanding of the basic principles of medical ethical models
2. Demonstrate an understanding of the role of legal issues in critical care decision making.
3. Critical Care Skills: demonstrate understanding of and the ability to obtain informed consent and refusal, participate in end-of-life decision-making, Do-not Resuscitate orders, establishing futility, withholding and withdrawing life support, establishing brain death, counseling patient & family, and request for organ donation

R. PRINCIPLES AND TECHNIQUES OF ADMINISTRATION AND MANAGEMENT

1. Verbalize understanding of total quality management, including the following concepts:
   a. ICU leadership as visionaries
   b. Empower healthcare associates to identify systems problems
   c. Development of a healthcare team
d. Collaborative management
2. Define mission of ICU service, with respect to the following:
   a. Clinical care models
      i. Consultative
      ii. Primary Care
      iii. Matrix
   b. Define lines of authority
      i. Role of attending of record
      ii. Role of ICU attending
iii. Role of specialty consultant
iv. Role of ICU fellow
v. Role of ICU resident
vi. Role of Chief resident
vii. Role of primary team

3. Critical Care Skills: demonstrate proficiency in the following skills:
   a. Establish lines of communication with ICU attending, primary attending, and chief surgical resident
   b. Establish plan for conflict resolution, understanding that attending of record has ultimate authority
   c. Establish triage plan, and identify resource personnel for triage with admission and discharge authority must be clearly defined
   d. Develop algorithm for "full unit policy", with coverage for ICU boarders and criteria for readmission to primary unit
   e. Develop strategies for common efficiencies, including tools such as critical paths, equipment standardization, cost-effective analyses, and research protocols

S. BIOSTATISTICS & EXPERIMENTAL DESIGN
1. Experimental design and evaluation of literature
   a. Analysis of existing articles
   b. Objective and Hypothesis testing
   c. Study Design
   d. Validity, bias and power
2. Fundamentals of Biostatistics in Medical Research
   a. Descriptive Statistics
   b. Statistical Inference
   c. Analyzing Diagnostic Tests
      i) Sensitivity: ability of a test to detect a disease.
      ii) Specificity: test negative when the disease is not present.
      iii) The positive predictive value is the chance of having the attribute if the test is positive.
      iv) Negative predictive value: exclude the attribute if the test is negative.
   d. Confidence Intervals (Limits)
   e. Common Regression Analyses
   f. Critical Care Skills
      i. Research Funding
         a. Applying for grants
         b. Corporate sponsorships
      ii. Contract negotiations
      iii. Animal rights issues
      iv. Writing proposal for institutional review board
      v. Manuscript preparation
      vi. Abstract submission
      vii. Slide preparation
      viii. Lecture technique
      viii. Computer literacy
Fellow Responsibilities in the Trauma Intensive Care Unit (TICU)

Rotation Goals and Objectives:

1. Achieve high level skill in the initial resuscitation of the acutely injured patient
   - Understand and manage both horizontal and vertical resuscitation strategies
   - Understand the concepts of command and control and effective communication strategies to avoid communication errors
   - Direct and maintain control during mass casualty events
2. Understand and apply indications for the use of massive transfusion protocols
3. Master the indications and contra-indications for resuscitative thoracotomy and skilled application of this technique
4. Resuscitation and monitoring strategies for the critically injured patient
5. Understand operative and non-operative management of severe closed head injuries
   - Neurologic exam and findings related to CHI
   - Interpretation of computed tomography
   - Indications for operative management
   - Management of intracranial hypertension including indications and uses of hypertonic saline, mannitol, pentobarbital, ICP and ventriculostomy placement, operative decompression
6. Resuscitation and management of spinal cord injuries
   - Indications for and maintenance of cord perfusion pressure
   - Indications for and complications of steroids
   - Complications of high spinal cord injuries and management strategies for their prevention
7. Operative management of blunt and penetrating injuries involving the neck, chest, heart, mediastinum, abdomen, pelvis, and upper arms and legs including:
   - Solid organs
   - Soft tissues
   - Vascular structures
8. Approaches to major vascular control in the chest, abdomen, and pelvis
9. Indications and approaches for damage control strategies
10. Operative and therapeutic approach to complications of chest wall and thoracic trauma
11. Management of complex soft tissue injuries
12. Approaches and indications for damage control orthopedics
   - Indications for and placement of external fixation devices
   - Indications for pelvic splinting techniques
13. Indications for arteriography and embolization techniques
14. Advanced strategies in the management of acute lung injury following trauma
   - Indications for and management with PRVC, Pressure control, BIVENT (APRV), VDR, and ECMO
15. Advanced bedside surgical techniques
   - Safety practices
   - Management of the open abdomen
   - Indications for and application of bronchoscopy, upper and lower endoscopy, percutaneous gastrostomy and gastrojejunostomy placement, percutaneous tracheostomy, IVC filter
16. Systems for the delivery of trauma care
   - Pre-hospital systems and transport
   - Intra-hospital systems including application of guidelines, protocols, compliance monitoring, safety and hand-over practices to ensure safety and quality
Medical Knowledge
The Surgical Critical Care fellow completing the core surgical critical care rotation is expected to demonstrate continued progress in attaining competency in basic clinical sciences and in improving a knowledge base of principles of acute care surgery. Additional expectations are the demonstration of knowledge and understanding in:

- The pathophysiology of cardiovascular instability including hypovolemic, neurogenic, cardiac, and septic shock
- Respiratory failure including acute respiratory distress syndrome, pulmonary contusion, chronic obstructive lung disease, respiratory muscle weakness, pneumonia, tension pneumothorax, and pulmonary embolus
- Acute and chronic renal insufficiency
- Central nervous system pathology including, encephalopathy, cerebral vascular accidents, traumatic brain injury, seizure and brain death
- Metabolic and electrolyte abnormalities
- Infectious disease processes including:
  - Basic bacteriology
  - Basic antimicrobial therapy
  - Basic pharmacokinetics
  - Antibiotic stewardship
  - Resistance
  - Indications for length and timing of therapy
  - Sepsis
  - Basic pathophysiology
  - Basis for therapeutic interventions
  - Goal directed therapy, importance of timing of AB and definitive surgical Rx
  - Soft tissue infections:
    - Common pathogens, surgical, antibiotic, ancillary Rx
    - Surgical approach and source control
    - Surgical Site infection
    - Necrotizing infections
    - Rapidly progressive infections
  - Peritonitis:
    - Primary, secondary, tertiary, and abscesses
    - Community vs nosocomial
    - High risk patients/ critically ill patients
    - Risk factors for failed source control
    - Management strategies for the high risk patient
  - Nosocomial pneumonia and blood stream infections
- Gastrointestinal diseases
  - Necrotizing pancreatitis
  - C. Difficile colitis
  - Diverticulitis
  - Ischemic bowel
  - Appendicitis
  - Cholecystitis
- Trauma to the major organ systems and physiologic response
- Support of the acutely ill emergency general surgery patient including:
  - Bedside surgery
  - Reoperative surgery
  - Abdominal wall defects
  - Complex hernias
- Thermal injuries
- Nutritional disorders
- The ethical and legal dilemmas between patients, families, and staff in the ICU

Patient Care
The Surgical Critical Care fellow is expected to:
- Demonstrate evidence based care to patients with critical illness and injury, including life threatening traumatic injury, multi-system organ failure, thoracic, vascular, gastrointestinal, endocrine, genitourinary, obstetric/gynecologic, orthopedic, neurosurgical, plastics, and ENT.
Demonstrate competency in surgical skills and decision making with regard to traumatic injury including blunt and penetrating trauma to the chest, abdomen, pelvis, and extremities.

Continue to demonstrate competency in resuscitation skills, including advanced cardiopulmonary resuscitation (ACLS), crisis management, and acute trauma assessment and resuscitation (ATLS)

Demonstrate competency in laryngoscopy, bronchoscopy, and routine and advanced airway techniques

Continue to demonstrate competency in ventilator management skills including the use of volume and pressure modes, positive end expiratory pressure, supplemental oxygen, and lung protective ventilation strategies

Continue to demonstrate proficiency in bedside procedures, specifically central venous and arterial catheterization, intubation, chest tube placement, pulmonary artery catheter insertion and monitoring, percutaneous tracheostomy, percutaneous endoscopic gastrostomy tube insertion, and fiber-optic bronchoscopy

Demonstrate proper knowledge of performance of brain death certification

Apply clinical criteria of brain death and basic principles of support for potential organ donors

Demonstrate competency in the management of intracranial hypertension including monitoring of ventricular drains, and ICP monitors

Demonstrate efficiency in managing current and future patient care needs through participation in daily census and administrative activities

**Practice-Based Learning and Improvement**

The Surgical Critical Care fellow is expected to:

- Apply principles of evidence-based medicine to patient care
- Maintain a personal patient log; engage in the practice of critiquing personal practice outcomes and setting learning goals
- Identify the best practice patterns to facilitate care of the critically ill patient, and identify compliance and departure from these practices
- Interpret, critique, evaluate, and when appropriate, apply the medical literature
- Improve upon medical knowledge and skill sets by participating in Multidisciplinary Rounds, Morbidity and Mortality Conference, Journal Club, Surgery Grand Rounds, Research Conferences, and Quality Improvement Committees

**Interpersonal and Communication Skills**

The Surgical Critical Care fellow is expected to display exceptional verbal and written communication skill by:

- Actively listening with cultural, ethnic, gender, racial, and religious sensitivity
- Recording complete and accurate patient information
- Establishing a professional relationship with the ICU support staff
- Demonstrating effective discussion of patient diagnosis, prognosis, and management plan (including risks, benefits, and alternative therapies) with patients and families using easily understood language
- Demonstrating both written and verbal techniques for transfer of care both within and between services
- Demonstrating proficiency at teaching medical students and residents who rotate on the critical care service
- Orchestrating care with other medical specialties and hospital services, including admission and discharge planning

**Professionalism**

The Surgical Critical Care fellow is expected to:

- Adhere to the institutional code of conduct, demeanor, behavior, and attire
- Demonstrate a strong work ethic and consistently and dependably carry out duties with honesty, self-motivation, and self-discipline
- Understand and incorporate basic ethical concepts in the planning and team member discussion of pre-operative, intra-operative, and post-operative care of patients and families
- Interact appropriately with multiple consultants, referring physicians, and ICU staff
- Be illegal/illicit substance free
- Know their own limitations and know when and where to obtain help for professional and personal issues
- Use resources available when ethical or professional behavior problems arise
- Develop teaching skills to facilitate medical student and resident learning
**Systems-Based Practice**

The Surgical Critical Care fellow is expected to:

- Promote multidisciplinary patient care by collaborating with residents, faculty, and other health professionals to provide comprehensive care for patients
- Utilize institutional resources (e.g., medical social work, discharge planning team) to provide efficient and patient-oriented discharge care
- Understand how health legislation, the third party payment system, and the sociological, psychological, cultural, and managerial factors impact provision of cost-effective health care
- Understand and discuss the need for cost-benefit analysis of workup and treatment options, and participate in the development of a cost-effective patient management plan
- Comply with HIPAA regulations regarding patient privacy and confidentiality
- Improve the accuracy of patient identification
- Examine the process and cause of medical error
Fellow Responsibilities in the Burn Intensive Care Unit (BICU)

During the Fellow rotation in the Burn Intensive Care Unit, surgical critical care fellows are expected to become proficient in the evaluation and management of the critical burn patient and the multi-system co-morbidities that concur with this type of injury.

**Patient Care**
An integrated team of physicians, nurses, therapists and support personnel including psychiatrists, and a chaplain who work as a team staffs the center. The surgical critical care fellow must coordinate rounds and procedures with attendings, residents, pharmacist, respiratory therapist, and bed-side nurse. The complicated nature of our patients poses a special set of obstacles. This team is dedicated to meeting the challenges of burn treatment and recovery, by applying the most advanced technology and treatment methods possible.

**Medical Knowledge**
- Acquire basic principles of care of the burn victim
- Develop an organized approach to the assessment, resuscitation, stabilization and provision of definitive care of the burn trauma victim
- Engage in the use of the diagnostic imaging modalities available for evaluation of the burn victim
- Develop procedural skills needed in the evaluation and management of burn trauma
- Determine immediate life and limb threatening injuries in burn patients
- Attain special considerations in the evaluation and management of various burn victims (pediatric, geriatric)

**Practice - Based Learning**
- Show appropriate use of educational resources
- Effectively utilize senior residents, fellows, and faculty that supervise during this rotation for education and optimizing patient care
- Review and discuss current literature as appropriate to patient care

**Didactic Teaching**
- Resuscitation strategies
- Management of respiratory failure includes using varied ventilation strategies depending on patient and pathology
- Advanced debridement and coverage strategies
- Evaluate burns and perform escharotomies and fasciotomies if required

**Interpersonal and Communication Skills**
- Demonstrate effective information exchange with patients and their families
- Communicate the treatment plan to supervising and consulting physicians
- Communicate effectively and listen to nursing staff as well as other ancillary staff

**Patient Rounds**
Teaching rounds are done on a daily basis. The multidisciplinary team, shares their knowledge and ideas during rounds to provide the highest quality of care to our patients.

**Patient/Family Support**
- Answer questions and provide information in a clear and respectful manner
- Convey respect for others and display an appropriate degree of confidence
- Utilize social work, case management and palliative care

**Professionalism**
- Apply appropriate ethical practice to patient care
- Maintain patient privacy and confidentiality
- Demonstrate sensitivity and responsiveness to the culture, age, gender and disabilities of patients and their caregivers/family

**Systems-based Practice**
- Understand basic resources available for care of the patient in the Burn Service setting
- Utilize the consultation process appropriately (CARE team, palliative care, Psychiatry)
Practice cost-effective health care delivery and resource allocation that does not compromise quality of care.
Advocate high quality health care and assist patients in dealing with complex health care delivery.
Fellow Responsibilities in the Surgical Intensive Care Unit (SICU)

**Patient Care**
Upon completion of the Surgical Critical Care Fellowship, every fellow will be able to:

- Demonstrate advanced decision-making skill and sound medical judgment
- Demonstrate skill in performing and teaching critical care procedures
- Gather primary information through clinical exams and medical records, and to form an appropriate differential diagnosis and plan
- Safely admit and discharge patients to and from the SICU
- Resuscitate critically ill patients, using evidence-based guidelines and appropriate technology
- Manage and wean patients from mechanical ventilation utilizing various techniques and ventilator modes
- Perform and teach ACLS and internal cardiac resuscitation
- Treat all forms of shock utilizing conventional and current techniques
- Identify, treat and prevent multiple organ system failure
- Identify, treat and prevent all life-threatening electrolyte acid-base disturbances
- Identify, treat and prevent malnutrition, utilizing advanced nutritional supplement methodologies
- Perform conscious sedation
- Perform and instruct the theory and techniques for appropriate pain management and advanced sedation strategies
- Manage pain, anxiety, delirium and agitation using a current, evidence-based approach
- Titrate inotropic and vasopressor drips based on hemodynamic monitoring
- Utilize medications safely
- Prevent and manage acute and chronic renal failure
- Manage coagulation disorders (acquired and congenital)
- Manage acute and chronic neurologic disease and injury
- Manage GI disturbances, such as GI hemorrhage, pancreatitis, diverticulitis and cholecystitis
- Recognize, treat and monitor hypertension
- Prevent and manage endocrine dysfunction related to DM, DI, adrenal and thyroid dysfunction
- Manage infectious disease, especially core ICU conditions, such as bloodstream infection and pneumonia
- Recognize, treat and monitor abdominal compartment syndrome
- Manage traumatic brain injury, including interpretation of data from invasive monitors and laboratory tests
- Manage complex surgical patients with multiple drains, monitors, and other devices

**Medical Knowledge**
Upon completion of the Surgical Critical Care Fellowship, the fellow will demonstrate:

- A strong foundation of knowledge related to all aspects of Surgical Critical Care
- Ability to identify indications for critical care admission and discharge
- Understanding of the etiology, pathophysiology, and management of the different types of shock
- An understanding of normal recovery from cardiovascular surgery, as well as complications such as hypotension, cardiac insufficiency, tamponade, arrhythmia, bleeding and Cerebrovascular Accident (CVA)
- Knowledge of the fundamentals and controversies of different approaches to hemodynamic monitoring
- An understanding of indications for mechanical ventilation, pros and cons of various ventilator modes, and indications for extubation or cessation of mechanical ventilation
- An understanding of Advanced Cardiac Life Support (ACLS) protocols
- Knowledge of pathophysiology and management of common arrhythmias
• An understanding of the definition, pathophysiology and prognosis of multiple organ system failure
• An understanding of the pathophysiology and management of electrolyte acid-base disturbances
• An understanding of the principles of critical care nutrition, including diagnosis of nutritional deficiency; understanding of the pros and cons of different forms of nutrition and common metabolic consequences of therapeutic alimentation
• An understanding of Indications and contraindications for conscious sedation
• Knowledge of effects, risks and dosing strategies of sedative and analgesic medications
• An understanding of the indications, effects, doses and complications of inotrophic and vasopressor drips, based on hemodynamic monitoring
• Appropriate knowledge of indications, risks and benefits of common ICU medications
• An understanding of the causes, pathophysiology and management of acute and chronic renal failure, including hemodialysis and continuous renal replacement therapies
• An understanding of the pathophysiology, diagnosis, and management of coagulation disorders (acquired and congenital)
• An understanding of the pathophysiology of traumatic brain injury, as well as principles of management, including medication, monitors, and indications for intervention
• An understanding of the diagnosis and management of common critical care GI disturbances, such as GI hemorrhage, pancreatitis, diverticulitis and cholecystitis
• An understanding of indications, choices, and risks of various types of antihypertensive medication
• An understanding of the diagnosis and management of endocrine dysfunction related to DM, DI, adrenal and thyroid dysfunction
• An understanding of critical care infectious disease, especially core ICU conditions such as bloodstream infection and pneumonia
• An understanding of the pathophysiology, diagnosis, and management of abdominal compartment syndrome

**Practice-based Learning and Improvement**
Fellows must demonstrate familiarity with the scientific information pertinent to their patients’ care. In addition, they must be able to evaluate the level of evidence supporting that knowledge. The venues for acquiring, disseminating and demonstrating this knowledge are individual reading and regular conference attendance/participation and clinical teaching. It is expected that fellows will demonstrate a pattern of independent learning about their patients’ illnesses.

Upon completion of the Surgical Critical Care Fellowship, fellows will demonstrate:

• A pattern of self-directed learning, related to issues pertaining to patients under their care
• Facility with current medical information sources, such as online search engines and databases, as well as print and e-journals
• An ability to use synthesize different types of evidence into safe care
• An ability to educate the health professional team, including residents and medical students.

**Interpersonal and Communication Skills**
Fellows are required to consistently communicate with patients, families and other health care professionals. The quality, quantity and attitude of communication are all important, both verbal and written. Fellows are required to effectively use and teach Star Panel, Simon, and other relevant communication tools.

Upon completion of the Surgical Critical Care Fellowship, every fellow will have demonstrated:

• Competence in written and verbal communication
• Fluency in appropriate medical software and communication tools
• Ability to educate the health professional team, as well as patients and patient families, regarding critical care ethical issues
• The ability to disseminate the appropriate information to patients and to their families
• Educate the health professional team, as well as patients and patient families, regarding critical care ethical issues

**Professionalism**
Fellows must maintain the highest standards of ethical behavior, with a commitment to continuous, high-quality patient care. The professional behavior extends to all patient care interactions as well as all interactions with other health care personnel. The fellows must demonstrate sensitivity to the diversity of ages, genders, cultures and relationships.

The professionalism expected also encompasses the individual professional behavior necessary to maintain the function of the hospital and training program, including timely medical documentation, completion of licensing and credentialing requirements, documentation of work-hours and adherence to the ACGME Duty Hours requirements.

Upon completion of the Surgical Critical Care Fellowship, every fellow will demonstrate:

• Compliance with existing duty-hour restrictions
• Effective and timely contribution to the medical record
• Ability to educate patients and their families all treatment options, outcomes and patient prognosis
• Appropriate dress, grooming and behavior
• An understanding of, and commitment to, patient privacy

**System-based practice**
Fellows must access the health system resources necessary to practice high-quality, cost-effective patient care. This includes understanding the roles of various specialists and other health care professionals in the care of their patients. Fellows must fulfill their important role in the care of patients on other services that are evaluated and followed as consult patients. They should understand the ways that the timing of their care and documentation affects the function of the medical center.

Upon completion of the Surgical Critical Care Fellowship, the fellow will:

• Demonstrate understanding of how critical care outcomes are related to a multidisciplinary system of care
• Initiate appropriate consultations with other specialists, and construct a clinical plan for complex critical care problems
• Demonstrate understanding of protocols and how they impact quality and safety
• Lead multidisciplinary rounds
• Demonstrate an ability to prioritize the recommendations of different specialties to optimize overall patient outcomes
• Have the ability to analyze, evaluate and perform critical care research
• Have the skill necessary to manage ethical and psychosocial challenges of critical care
• Initiate appropriate consultations with other specialists, and construct a clinical plan for complex critical care problems
• Utilize medications safely, and determine cost effectiveness of various therapeutic interventions
• Triage critically ill patients appropriately, understanding the needs of patients, units and the institution
• Participate in quality assurance processes, such as Mortality and Morbidity conference, performance improvement conference
**Documentation**

The achievement of these objectives is documented in several ways:

- Each fellow is required to keep a log of the critically ill patients that he/she has managed. Using this document, fellows maintain a record of their clinical activities during the training period, including their roles in the management of each patient, and a listing of major procedures, such as insertion of hemodynamic monitoring devices, endotracheal intubation and tube thoracostomy, among others.

- Acquisition of the critical care cognitive skills will be assessed by the fellow’s active participation in teaching rounds, didactic lectures, journal clubs and required formal presentations.

- The achievement of the educational goals of this Surgical Critical Care Fellowship will be documented also by the results of the Multidisciplinary Critical Knowledge Assessment Program (MCCKAP), which the Surgical Critical Care Fellow is required to take during his or her training year. The detailed report received clearly identifies objectively his/her strengths and weaknesses. This information is useful in identifying areas of each fellow’s surgical critical care curriculum, which might benefit from directed reading and specifically concentrated training.
Fellow Responsibilities in the Cardiovascular Intensive Care Unit (CVICU)

The CVICU provides the critical care fellow with the opportunity to care for a variety of postoperative patients, as well as patients with end-stage heart failure who need mechanical cardiac support as a bridge to transplant. The working environment is dynamic and fast-paced and the patient care is often complex. Specific duties and responsibilities are delineated below:

A. Patient Care
The fellow assigned to the CVICU will coordinate and manage the patient flow of the unit in concert with the attending in charge. Most patients will be admitted to the CVICU post-operatively and it is expected that the fellow will be present for all handoffs from the surgical and anesthesia teams and are expected to remain in-house until all cases are admitted, on an alternating basis with the CVICU attending (see “Call” section below). The fellow will also assist in the management of all aspects of the post-operative care until the patient is discharged to another care unit. This includes ventilator weaning and extubation, management of pulmonary artery catheters, and titration of vasoactive infusions, among other duties. As always, the level of attending involvement will be based on the fellow’s experience and willingness to assume a leadership role. The fellow will ensure that the patient care delivered is compassionate, appropriate, effective, and timely. Patients will be managed according to evidence-based guidelines and protocols to the extent practical and/or possible. The fellow will work directly with advanced practice nurses, who are vital members of the critical care team. It is also the fellow’s responsibility to coordinate and communicate with other care teams, including the primary service and consultation services, cardiology in particular.

B. Medical Knowledge
It is expected that fellows rotating in the CVICU acquire in-depth knowledge of surgical cardiac care, including coronary artery bypass graft (CABG) procedures, valve replacement/repair, mechanical support of advanced heart failure, and surgical correction of structural cardiac defects, among other topics. The attending intensivist’s role is to motivate and assist the ICU trainee to learn about the biomedical, clinical, and cognate aspects of surgical cardiac care, which are continually evolving; examples of emerging procedures are minimally invasive surgical techniques and transmyocardial revascularization.

Teaching
A core aspect of acquiring medical knowledge is employing it to teach others the principles of cardiac critical care, thereby improving the knowledge base of both instructor and learner. A suggested minimum teaching curriculum for CVICU fellows is outlined below. This curriculum will include self-learning modules, a weekly time allowance for studying textbooks and evidence-based literature, as well as bedside teaching by the intensivist and cardiologist.

- Post-operative ventilator management
- Management of vasoactive infusions
- Interpretation of pulmonary artery catheter data
- Interpretation of electrocardiograms
- Management of temporary pacemakers
- Recognition and management of arrhythmias
- Management of post-operative hemorrhage
- Management of VAD’s and other mechanical assist devices

The fellow will actively participate in bedside teaching of the ACNP’s and bedside nurses on topics germane to each practitioner’s level of training. This promotes esprit de corps among members of the multidisciplinary team and improves patient care.

C. Practice-based Learning and Improvement
In addition to improving her or his knowledge base, the CIVCU fellow must continually strive to critically appraise her or his patient care and solicit appraisal from nursing staff, advanced practice nurses, as well as surgical and anesthesia staff. The trainee should become familiar with CVICU protocols and other safety initiatives, such as prevention of ventilator-associated pneumonia.

D. Interpersonal and Communication Skills
Good communication is central to providing safe and effective patient care. The critical care fellow is responsible for interacting with all members of the critical care staff to coordinate care. Some specific communication roles are as follows:
Patient Rounds
The attending intensivist and attending cardiologist determine the time for morning and afternoon rounds. The fellow assigned to the CVICU is expected to pre-round (“sit down round”) with the advanced practice nurses at 0730 to formulate tentative care plans. Formal multidisciplinary rounds with the attending intensivist will begin at 0800. Afternoon rounds generally begin at 1600. During this time, the ACNP’s will present new admissions and updates on existing patients. It is expected that the CVICU fellow will actively participate in morning rounds and direct afternoon rounds.

Patient/Family Support
Establishing a warm rapport with patients and their families and integrating them into the critical care team is an essential duty for critical care trainees. Fellows are expected to meet with patients family members to discuss the daily care plan and answer questions whenever they arise. The fellow will also coordinate and lead family conferences under the supervision of the attending intensivist.

E. Professionalism
Fellows in the CVICU are expected to perform their duties in professional and timely manner, adhere to ethical principles, and respect the needs of the patient population, which is increasingly diverse. The need for punctuality and proper attire should go without saying. Unexcused absences will be reported to the fellowship director and may be grounds for failure to pass the rotation.

F. Systems-based Practice
Critical care trainees are expected to demonstrate an awareness of the larger system of healthcare in which they work and be able to call upon system resources to provide optimal patient care. Such resources include arrhythmia service, physical and occupational therapy, and respiratory care.

G. Procedure-based Learning
The fellow will supervise advanced practice nurses and other providers as appropriate during procedures at the discretion of the attending intensivist. It is expected that the fellow will supervise all procedures unless she or he has limited or no experience with the task being performed. If possible, the fellow should perform the procedures that are time-sensitive in nature, those that must be done emergently, and those that may increase the risk to the patient if not performed smoothly. Proper sterile technique MUST be used for any procedure unless the time required to do so would compromise patient care (such instances are very rare).

Basic CVICU procedures include:
- Arterial lines (with and without ultrasound guidance)
- Central venous catheters. (with ultrasound guidance when indicated)
- Pulmonary artery catheters
- Transvenous pacemakers
- Bronchoscopy, therapeutic and diagnostic
- Thoracentesis
- Thoracostomy tube placement
- Endotracheal intubation

H. Miscellaneous

I. Call
Call requirements may change as manpower needs change in the CV ICU, call responsibilities at present are covered by a “night-float” rotation by Anesthesia Critical Care.

Selected Reading
Fellow Responsibilities in the VA Surgical Intensive Care Unit (VA-SICU)

Supervising Physician: Christopher Hughes, MD

The VASICU provides the critical care fellow with the opportunity to provide critical care for veterans, who often have complex medical conditions and multiple co-morbidities. The VASICU patient mix includes general surgery patients, cardiac surgery patients, as well as patients under the care of other surgical sub-specialists. The patient care is often complex and challenging. Specific fellow duties and responsibilities are delineated below:

Patient Care
The fellow assigned to the VASICU will coordinate and manage the patient flow of the unit under the auspices of the attending intensivist. Most patients will be admitted to the VASICU post-operatively and it is expected that the fellow will be present for all handoffs from the surgical and anesthesia teams. The fellow will also manage all aspects of the post-operative care until the patient is discharged to another care unit. This includes ventilator weaning and extubation, management of invasive monitors, and titration of vasoactive infusions, among other duties. The fellow will assume a leadership role that is functionally at the attending level. Furthermore, the VASICU fellow will ensure that the patient care delivered is compassionate, appropriate, effective, and timely. Patients will be managed according to evidence-based guidelines and protocols to the extent practical and/or possible. The fellow will also work closely with the advanced practice nurse for the cardiothoracic surgery service, who is an integral member of care team. It is also the fellow’s responsibility to coordinate care between all teams, including the primary service, consultation services, and ancillary services.

Medical Knowledge
It is expected that fellows rotating in the VASICU acquire knowledge of post-operative surgical care in a patient population with multiple medical co-morbidities. The attending intensivist’s role is to motivate and assist the ICU trainee to learn about the biomedical, clinical, and cognate aspects of post-operative care in, with emphasis on geriatric care, substance use disorders, and social challenges, among others.

Didactic Teaching
A core aspect of acquiring medical knowledge is employing it to teach others the principles of cardiac critical care, thereby improving the knowledge base of both instructor and learner. A suggested teaching curriculum for VASICU fellows has been compiled by the Critical Care faculty and covers sentinel articles and topics in ICU medicine. The curriculum will be completed on a monthly basis and continually updated.

The fellow will conduct bedside teaching for medical students, interns, and residents assigned to the VASICU rotation. Topics should be germane to the cases in the ICU and other basic topics on ICU care.

Practice-based Learning and Improvement
In addition to improving her or his knowledge base, the VASICU fellow must continually strive to critically appraise her or is patient care and solicit appraisal from nursing staff, advanced practice nurse, respiratory care, as well as surgical and anesthesia staff. The trainee should become familiar with VASICU protocols and other safety initiatives; this is especially important since the VA system has become a national leader in patient safety.

Interpersonal and Communication Skills
Good communication is central to providing safe and effective patient care. The critical care fellow is responsible for interacting with all members of the critical care staff to coordinate care. Some specific communication roles are as follows:

Patient Rounds
The fellow determines the time for morning and afternoon rounds and conducts them in lieu of the attending when feasible. However, the expectation is that the attending be immediately available and will able to mentor the fellow when needed.

Patient/Family Support
Establishing a warm rapport with patients and their families and integrating them into the critical care team is an essential duty for critical care trainees. Fellows are expected to meet with patients family members to discuss the daily care plan and answer questions whenever they arise. The fellow will also coordinate and lead family conferences under the supervision of the attending intensivist.
Professionalism
Fellows in the VASICU are expected to perform their duties in professional and timely manner, adhere to ethical principles, and respect the needs of the patient population, which is increasingly diverse. Punctuality and proper attire go without saying. Unexcused absences will be reported to the fellowship director and may be grounds for failure to pass the rotation.

Systems-based Practice
Critical care trainees are expected to demonstrate an awareness of the larger system of healthcare in which they work and be able to call upon system resources to provide optimal patient care. Such resources include nutrition, physical and occupational therapy, and respiratory care.

Procedure-based Learning
The fellow will supervise medical students, interns and residents during procedures at the discretion of the attending intensivist. It is expected that the fellow will supervise all procedures unless she or he has limited or no experience with the task being performed. If possible, the fellow should perform the procedures that are time-sensitive in nature, those that must be done emergently, and those that may increase the risk to the patient if not performed smoothly. Proper sterile technique MUST be used for any procedure unless the time required to do so would compromise patient care (such instances are very rare).

Basic VASICU procedures include:
- Arterial lines
- Central venous catheters. Ultrasound guidance should be used whenever possible.
- Pulmonary artery catheters
- Bronchoscopy, therapeutic and diagnostic
- Thoracentesis
- Thoracostomy tube placement
- Endotracheal intubation

Miscellaneous

Call
The VASICU fellow will share home telephone/pager call with the attending intensivist and senior anesthesiology resident (when scheduled), usually on a rotating basis (i.e. q2 or q3). Furthermore, when on call, the fellow is expected to remain in the hospital until all post-operative patients have been admitted and must be prepared to return to the hospital on short notice should patient care needs demand it.
The clinical goals for the Acute Care Surgery year (2nd year) of the fellowship are to acquire knowledge and skills in the management of acutely ill and injured surgical patients over and above those obtained during general surgical training. To acquire this level of clinical expertise, fellows rotate on busy trauma, emergency general surgery, and burn services directing all aspects of their surgical and medical management. A month-long rotation at Saint Thomas hospital will provide supplemental experience in thoracic and vascular surgery.

Goals and objectives are presented below based on the related rotation as well as in the format to fulfill the ACGME 6 core competencies.

Rotation Goals and Objectives:

Trauma:
1. Achieve high level skill in the initial resuscitation of the acutely injured patient
   - Understand and manage both horizontal and vertical resuscitation strategies
   - Understand the concepts of command and control and effective communication strategies to avoid communication errors
   - Direct and maintain control during mass casualty events
2. Understand and apply indications for the use of massive transfusion protocols
3. Master the indications and contra-indications for resuscitative thoracotomy and skilled application of this technique
4. Resuscitation and monitoring strategies for the critically injured patient
5. Understand operative and non-operative management of severe closed head injuries
   - Neurologic exam and findings related to CHI
   - Interpretation of computed tomography
   - Indications for operative management
   - Management of intracranial hypertension including indications and uses of hypertonic saline, mannitol, pentobarbital, ICP and ventriculostomy placement, operative decompression
6. Resuscitation and management of spinal cord injuries
   - Indications for and maintenance of cord perfusion pressure
   - Indications for and complications of steroids
   - Complications of high spinal cord injuries and management strategies for their prevention
7. Operative management of blunt and penetrating injuries involving the neck, chest, heart, mediastinum, abdomen, pelvis, and upper arms and legs including:
   - Solid organs
   - Soft tissues
   - Vascular structures
8. Approaches to major vascular control in the chest, abdomen, and pelvis
9. Indications and approaches for damage control strategies
10. Operative and therapeutic approach to complications of chest wall and thoracic trauma
11. Management of complex soft tissue injuries
12. Approaches and indications for damage control orthopedics
   - Indications for and placement of external fixation devices
   - Indications for pelvic splinting techniques
13. Indications for arteriography and embolization techniques
14. Advanced strategies in the management of acute lung injury following trauma
   - Indications for and management with PRVC, Pressure control, BIVENT (APRV), VDR, and ECMO
15. Advanced bedside surgical techniques
   - Safety practices
   - Management of the open abdomen
   - Indications for and application of bronchoscopy, upper and lower endoscopy, percutaneous gastrostomy and gastrojejunostomy placement, percutaneous tracheostomy, IVC filter
16. Systems for the delivery of trauma care
   - Pre-hospital systems and transport

EDUCATIONAL GOALS AND OBJECTIVES FOR THE ACUTE CARE SURGERY FELLOWSHIP
• Intra-hospital systems including application of guidelines, protocols, compliance monitoring, safety and hand-over practices to ensure safety and quality

**Emergency General Surgery:**
1. Evaluation, work-up, and management of acutely ill surgical patients that present by consultation or visit to the ED
2. Acute preoperative preparation of the critically ill and high risk surgical patient
   • Understand the significance for timely and appropriate goal directed resuscitation, antibiotic therapy, and operative intervention
3. Indications for damage control strategies in emergency general surgery
   • Damage control in the physiologically exhausted patient
   • Staged versus on-demand strategies
   • Intraabdominal hypertension
4. Diagnostic, medical, and surgical management strategies for severe soft tissue infections
5. Management of severe peritonitis
   • Pathogenesis and differentiation of secondary and tertiary peritonitis
   • Source control strategies in severe peritonitis
   • Understanding and estimating risk of failure of source control in critically ill patients with peritonitis
   • Appropriate resuscitative, antibiotic, and adjuvant management strategies
6. Management of complex hernias, abdominal wall defects, and fistulas
7. Management of severe pancreatitis and its complications
8. Management of complex biliary tract disease
9. Management of acute esophageal, gastric, small bowel, and large bowel diseases including:
   • Perforation
   • Ischemia
   • Obstruction
   • Inflammatory and malignant conditions
10. Out-Patient management of complex abdominal wounds and fistula with a focus on nutrition support
11. Advanced bedside surgical techniques including:
    • Safety practices
    • Management of the open abdomen
    • Indications for and application of bronchoscopy, upper and lower endoscopy, percutaneous gastrostomy and gastrojejunostomy placement, percutaneous tracheostomy, IVC filter
12. Systems for the delivery of emergent general surgical care
    • Intra-hospital systems including application of guidelines, protocols, compliance monitoring, safety and hand-over practices to ensure safety and quality
    • PI/QA systems
13. Operative Experience:
    • Minimum of 150 Major cases: Abdominal, laparoscopic, Skin & Soft Tissue, Abdominal Wall Reconstructions
    • Minimum of 150 Minor Cases

**Burns:**
1. Early evaluation, work-up, and management of acutely burned patients
2. Achieve high level skill in the initial resuscitation of the acutely burned patient
   • Resuscitation strategies for thermal, chemical, electrical and inhalation injuries
   • Understand appropriate endpoints of burn resuscitation
   • Application of escharotomies
3. Advanced debridement and coverage strategies
4. Skilled application of excision and grafting techniques
5. Critical care support of the acutely burned patient
6. Wound management strategies
7. Systems for the delivery of burn care
   • Intra-hospital systems including application of guidelines, protocols, compliance monitoring, safety and hand-over practices to ensure safety and quality
   • Systems of burn wound management
   • Systems for outpatient rehabilitation, burn and scar management
**Thoracic Surgery at Saint Thomas Hospital:**

1. Exposure to all components of complex thoracic structures.
2. Direct involvement in pre-operative, operative, and post-operative care of thoracic cases as determined by preceptor.
3. Gain additional operative experience as first assistant in major thoracic cases including:
   - Major thoracic operative cases
   - Minimally invasive procedures
   - Anatomic and nonanatomic lung resections
   - Cases involving mediastinal structures
4. Direct involvement in major and minor vascular cases including but not limited to:
   - Procedures for aneurysmal and obstructive disease
   - Vascular access
   - Vascular reconstruction
5. Direct involvement in major plastics and reconstructive surgery cases with an emphasis on wound coverage and chest wall reconstruction.

**Medical Knowledge**
The PGY-7 resident completing the core surgical critical care rotation is expected to demonstrate continued progress in attaining competency in basic clinical sciences and in improving a knowledge base of principles of acute care surgery. Additional expectations are the demonstration of knowledge and understanding in:

- The pathophysiology of cardiovascular instability including hypovolemic, neurogenic, cardiac, and septic shock
- Respiratory failure including acute respiratory distress syndrome, pulmonary contusion, chronic obstructive lung disease, respiratory muscle weakness, pneumonia, tension pneumothorax, and pulmonary embolus
- Acute and chronic renal insufficiency
- Central nervous system pathology including, encephalopathy, cerebral vascular accidents, traumatic brain injury, seizure and brain death
- Metabolic and electrolyte abnormalities
- Infectious disease processes including:
  - Basic bacteriology
  - Basic antimicrobial therapy
  - Basic pharmacokinetics
  - Antibiotic stewardship
  - Resistance
  - Indications for length and timing of therapy
  - Sepsis
  - Basic pathophysiology
  - Basis for therapeutic interventions
  - Goal directed therapy, importance of timing of AB and definitive surgical Rx
  - Soft tissue infections:
    - Common pathogens, surgical, antibiotic, ancillary Rx
    - Surgical approach and source control
    - Surgical Site infection
    - Necrotizing infections
    - Rapidly progressive infections
  - Peritonitis:
    - Primary, secondary, tertiary, and abscesses
    - Community vs nosocomial
    - High risk patients/ critically ill patients
    - Risk factors for failed source control
    - Management strategies for the high risk patient
  - Nosocomial pneumonia and blood stream infections
- Gastrointestinal diseases
  - Necrotizing pancreatitis
  - C. Difficile colitis
  - Diverticulitis
  - Ischemic bowel
- Appendicitis
- Cholecystitis
- Trauma to the major organ systems and physiologic response
- Support of the acutely ill emergency general surgery patient including:
  - Bedside surgery
  - Reoperative surgery
  - Abdominal wall defects
  - Complex hernias
- Thermal injuries
- Nutritional disorders
- The ethical and legal dilemmas between patients, families, and staff in the ICU

**Patient Care**

The PGY-7 resident in the acute care surgery fellowship is expected to:

- Demonstrate evidence based care to patients with critical illness and injury, including life threatening traumatic injury, multi-system organ failure, thoracic, vascular, gastrointestinal, endocrine, genitourinary, obstetric/gynecologic, orthopedic, neurosurgical, plastics, and ENT.
- Demonstrate competency in surgical skills and decision making with regard to traumatic injury including blunt and penetrating trauma to the chest, abdomen, pelvis, and extremities.
- Demonstrate competency in surgical skills and decision making with regard to emergency general surgery including basic and advanced laparoscopy, hepatobiliary, colo-rectal, small bowel, gastric, and esophageal surgical disease processes.
- Continue to demonstrate competency in resuscitation skills, including advanced cardiopulmonary resuscitation (ACLS), crisis management, and acute trauma assessment and resuscitation (ATLS)
- Demonstrate competency in laryngoscopy, bronchoscopy, and intubation techniques
- Demonstrate competency in bedside procedures, specifically central venous and arterial catheterization, intubation, chest tube placement, pulmonary artery catheter insertion and monitoring, percutaneous tracheostomy, percutaneous endoscopic gastrostomy tube insertion, and fiber-optic bronchoscopy
- Demonstrate proper knowledge of performance of brain death certification
- Apply clinical criteria of brain death and basic principles of support for potential organ donors
- Demonstrate competency in the management of intracranial hypertension including monitoring of ventricular drains, and ICP monitors
- Demonstrate efficiency in managing current and future patient care needs through participation in daily census and administrative activities

**Practice-Based Learning and Improvement**

The PGY-7 resident is expected to:

- Apply principles of evidence-based medicine to patient care
- Maintain a personal patient log; engage in the practice of critiquing personal practice outcomes and setting learning goals
- Identify the best practice patterns to facilitate care of the critically ill patient, and identify compliance and departure from these practices
- Interpret, critique, evaluate, and when appropriate, apply the medical literature
- Improve upon medical knowledge and skill sets by participating in Multidisciplinary Rounds, Morbidity and Mortality Conference, Journal Club, Surgery Grand Rounds, Research Conferences, and Quality Improvement Committees

**Interpersonal and Communication Skills**

The PGY-7 resident is expected to display exceptional verbal and written communication skill by:

- Actively listening with cultural, ethnic, gender, racial, and religious sensitivity
- Recording complete and accurate patient information
- Establishing a professional relationship with the ICU support staff
- Demonstrating effective discussion of patient diagnosis, prognosis, and management plan (including risks, benefits, and alternative therapies) with patients and families using easily understood language
- Demonstrating both written and verbal techniques for transfer of care both within and between services
- Demonstrating proficiency at teaching medical students and residents who rotate on the critical care service
- Orchestrating care with other medical specialties and hospital services, including admission and discharge planning

**Professionalism**
The PGY-7 resident is expected to:
- Adhere to the institutional code of conduct, demeanor, behavior, and attire
- Demonstrate a strong work ethic and consistently and dependably carry out duties with honesty, self-motivation, and self-discipline
- Understand and incorporate basic ethical concepts in the planning and team member discussion of pre-operative, intra-operative, and post-operative care of patients and families
- Interact appropriately with multiple consultants, referring physicians, and ICU staff
- Be illegal/illicit substance free
- Know their own limitations and know when and where to obtain help for professional and personal issues
- Use resources available when ethical or professional behavior problems arise
- Develop teaching skills to facilitate medical student and resident learning

**Systems-Based Practice**
The PGY-7 resident is expected to:
- Promote multidisciplinary patient care by collaborating with residents, faculty, and other health professionals to provide comprehensive care for patients
- Utilize institutional resources (e.g., medical social work, discharge planning team) to provide efficient and patient oriented discharge care
- Understand how health legislation, the third party payment system, and the sociological, psychological, cultural, and managerial factors impact provision of cost effective health care
- Understand and discuss the need for cost-benefit analysis of workup and treatment options, and participate in the development of a cost effective patient management plan
- Comply with HIPAA regulations regarding patient privacy and confidentiality
- Improve the accuracy of patient identification
- Examine the process and cause of medical error
APPENDICES

I. Instructor Clinical Evaluation and Mentoring Program
II. Clinical Evaluation and Mentoring Program
   Fellow's Review of the Faculty Form
III. Fellowship Evaluation Forms
IV. Specific Curricula for Fellow's Academic Niche Development
   1. Critical Care Clinical Nutritional Support
   2. Curriculum for Trauma/Critical Care Educator
   3. Surgical Infectious Diseases
V. Clinical Management Guideline: Standard Trauma Resuscitation
   Trauma Resuscitation Team
   1. Personnel, Positioning, Responsibilities, Sequential Management, Detailed Description
VI. Curriculum for Application of Directed Ultrasound and
   Echocardiographic Examination in Critical Care and Acute Care
   Introduction, Curriculum, Performance documentation, Certification, SOP, Resources
VII. ACS Case Logs/Database
VIII. Trauma Attending Critical Care Progress Note
IX. VU Behavioral Resources/Physician Wellness Resources
X. Simulation Training
Appendix I:
Vanderbilt University Acute Care Surgery Fellowship
Instructor Clinical Evaluation and Mentoring Program

The Instructor Fellow completing the Acute Care Surgery Fellowship is expected to demonstrate continued progress in attaining mastery of the core competencies of medical knowledge, patient care, practiced based learning, interpersonal skills and communication, professionalism, and systems based practice. This evaluation will occur on a monthly basis with a member of the senior faculty.

Fellow Expectations
- The fellow will arrange a time and place to meet with senior faculty.
- The fellow should come prepared with a copy of all of their operative cases for that time period, any morbidity or mortality that occurred during that time period, and a list of any complex trauma resuscitations.
- The fellow should be prepared to discuss the patient in detail, their clinical course, the decision making process behind this specific patient problem, and when applicable, a review of the literature on this specific clinical problem.
- The fellow should come prepared to discuss any breakdowns in communication with the trauma team, or perceived failures of the trauma system, and an action plan to improve this deficit.

Senior Faculty Expectations
- The senior faculty evaluator must provide written feedback to the fellow regarding any areas of deficiency in one of the core competencies, as well as areas where the fellow has shown excellent judgement and/or competency.
- The senior faculty member must provide a written summary of the fellow’s performance to the fellowship program director.
- The senior faculty member is expected to help develop a plan for improvement when applicable.
Appendix II:
Vanderbilt University Acute Care Surgery Fellowship
Clinical Evaluation and Mentoring Program
Fellow’s Review of Faculty Form

Fellow ______________________________
Faculty Member _______________________
Month/Service_________________________

Please use the following key to answer the questions below:

1) disagree  2) slightly disagree  3) unsure  4) agree  5) strongly agree

The review/mentoring meetings took place monthly as scheduled…  _______

The faculty member addressed any deficiency in a professional manner
And also gave positive feedback…  _______

The faculty member was knowledgeable of the clinical scenarios
discussed, or if not, followed up with their own study of the topic…  _______

My performance improved as a result of teaching or further self study
that was stimulated by this review process…  _______

This review process should be continued next year…  _______

Overall Comments (required):

______
Appendix III

EXAMPLE CURRICULAE FOR FELLOW’S ACADEMIC NICHE DEVELOPMENT

I. Critical Care Clinical Nutritional Support Curriculum:

Vanderbilt University has a nationally renowned nutrition support staff that an academic trauma surgeon, Dr. Bryan Collier, Director of Critical Care Nutrition and Dr. Doug Seidner, director of the Center for Human Nutrition, gastroenterology. Fellows with interests in research, education, and administration of nutritional support for acutely ill or injured patients have the opportunity to expand and develop particular expertise in Critical Care Nutritional Support during their two year fellowship. During their first year of their fellowship, fellows identify and communicate this interest with the Fellowship Program Director in addition to identifying specific research, educational, and administrative interests. Dr Collier and an appropriate mentoring committee direct the development of the fellows’ curriculum. During the second year of the Surgical Critical Care and Acute Care Surgery Fellowship, the fellow participates with nutritional support services through a structured curriculum. This curriculum is made up of three components to enhance the overall educational experience.

The first component develops the clinical approach to inpatient and outpatient nutritional support. Participation with physician directed TPN rounds as well as unit specific nutrition team evaluation will occur during the first 6-8 months. Focus will be with intensive care patients who require attention to both macro- and micronutrient supplementation. Interaction with surgical (Dr. Bryan Collier) and medical (Dr. Doug Seidner) physicians who participate with the nutrition service will occur. During this time, experience with outpatient TPN administration will also occur. The final months of the year, the fellow will have the opportunity to assume a leadership position with TPN and nutritional support rounds.

The second component consists of a research project that is typically initiated during the first year of the fellowship. This clinical nutrition research project will be completed during this year, including oral presentation at the national level and publication submission in a peer reviewed journal. Appropriate mentoring will be provided through a mentoring committee. To their research interests, fellows may elect to enroll in biostatistical courses through Vanderbilt’s MPH or MSCI programs. Fellows may interface with on-going NIH funded nutritional research initiatives and have access to Critical Care databases and TRACS databases.

Finally, administrative duties will entail contribution to the development and execution of nutritional protocols throughout Vanderbilt Hospital. Methods of ensuring compliance with and outcome from these protocols, both enteral and parenteral nutrition, will also be evaluated. This interaction completes the fellow’s abilities to administer nutritional support at the attending level and assume institutional leadership roles. In addition, the three parts of the curriculum will provide the tools to successful national certification through the American Society for Parenteral and Enteral Nutrition (ASPEN) and the National Board of Nutrition Support Certification.

Clinical nutrition focus during 2nd year of Trauma/Surgical Critical Care fellowship

I. Clinical
   A. TPN rounds participation - > 20 times by Dec 31
   B. Leader of TPN rounds – latter half of year per Dr. Seidner/Collier
   C. Participation outpatient TPN clinic - > 5 times by Dec 31
   D. Ongoing participation with TICU and SICU Registered Dietitian

II. Research - clinical research project with appropriate mentoring
   A. Oral presentation at national meeting
   B. Publication submission to peer-reviewed journal
III. Administrative – Development and execution of nutrition protocols
IV. Preparation and registration for examination of CNSP (fall following 2nd year) – Certified Nutrition Support Physician

Developed by Bryan Collier, DO, CNSP, FACS
Surgical Critical Care and Acute Care Surgery Fellow 2003 – 2005
Assistant Professor of Surgery, Division of Trauma, 2005 – 2012
II. Curriculum for those with educator focus:

For fellows interested in teaching and education, opportunity exists for the development of skill sets particular to this area.

Fellows can apply for a Surgical Education Research Fellowship (SERF) through the Association for Surgical Education (https://surgicaleducation.com/surgical-education-research-fellowship-overview/) and complete projects as developed through the fellowship.

Fellows may wish to become an Advanced Trauma Life Support (ATLS) Course Directorship during their two years. Becoming a director allows you the opportunity to teach fundamentals of trauma patient evaluation and management to physicians and nurses and direct ATLS programs.

The Advanced Trauma Operative Management (ATOM) and Advanced Surgical Skills for Exposure in Trauma (ASSET) courses are offered several times a year to senior residents and trauma fellows, with the potential to become an instructor. Additionally, by becoming a Course Coordinator for Fundamentals in Critical Care Support (FCCS), you manage the resident lecture series during their rotation within the Surgical Intensive Care Unit.

To become an ATLS Course Director:
1. You must first obtain ATLS Instructor status:
   – You are eligible to take the ATLS Instructor course if you are an ATLS provider who has been recommended for Instructor status.
   – The ATLS Instructor course is offered 2-4 times/year at Vanderbilt.
   – Catherine Wilson (ATLS Course Coordinator) can enroll you in an Instructor course.
2. Teach a minimum of four ATLS classes.
3. Co-direct an ATLS course with a nationally approved ATLS Director (Rick Miller, Oscar Guillamondegui, Tim Nunez), who will then submit an evaluation of your performance to the American College of Surgeons, and a request for promotion to Director status.

To become an Advanced Trauma Operative Management Course Instructor:
1. Take the ATOM Course, which is offered 2-4 times/year at Vanderbilt.
   – contact person is Catherine Wilson.
2. After successful completion of the ATOM Course, and with the approval of Rick Miller, Oscar Guillamondegui, or Tim Nunez you can teach both in the didactic and practical portions of the course.
III. Curriculum for development of Surgical Infectious Diseases Niche:

The specialty of Surgical Critical Care and Acute Care Surgery involves the management of surgical infections and a significant role in the prevention and management of hospital acquired infections. For those with an interest in becoming experts in Surgical Infectious Diseases, a curriculum with Dr. Addison May and other Division faculty may be pursued.

GENERAL AREAS OF INTEREST FOR SURGICAL INFECTIOUS DISEASES:

- general pathogenesis of common surgical bacteria
- general AB coverage and characteristics
- infections within the acute care surgery set
  - secondary peritonitis
  - tertiary peritonitis
  - peritonitis in critically ill patients and issues of source control
  - the high risk patient for failed source control
  - necrotizing soft tissue infections
  - necrotizing pancreatitis
- nosocomial infections
- bacterial resistance
- infections in the immunocompromised
- glucose and infections
- pathogenesis of sepsis

TALKS

- 1 fellow’s conference / 1 acute care conference each year
- Grand rounds quality
- Topics within outline above

INFECTION RELATED RESEARCH PROJECT

- nosocomial infections
- antibiotic use and antibiotic resistance
- glucose related issues and infection
- bronchoscopic diagnosis
- adequacy of emperic coverage with protocols
- compliance with de-escalation
- prediction of failure source control in peritonitis
- others: xigris in peritonitis, gender and infection

DEVELOPMENT OF CURRICULUM FOR SURGICAL RESIDENTS:

- develop lecture series\curriculum
  - pathogens surg imp
  - ABC's of AB RX
  - approach to critically ill septic patient
  - peritonitis
  - ssti
  - necrotizing pancreatitis
  - nosocomial infections
    - line
    - pneumonia
    - surgical site
  - C. Diff
  - inf in immunocomp\tx
  - resistance and antibiotic rotation
  - prophylaxis

ACADEMIC DEVELOPMENT

- SIS membership
IV. Curriculum for Global Health Acute Care Surgery Niche:

Global Health Fellowship (as a supplement to SCC and ACS fellowship)
Trauma is the leading cause of death worldwide and access to trauma and acute care services pose a significant limitation to care. Expansion of systems of care delivery into areas without existing programs offers considerable opportunity to affect trauma related morbidity and mortality. Committed experts in the field of trauma, acute care surgery, and critical care are needed to expand a long term, systematic, collaborative approach. Significant interests in global health exist among current trainees in Surgical Critical Care and Acute Care Surgery and Vanderbilt University is uniquely positioned to train fellows in Global Health Acute Care Surgery.

Acute Care Surgery with a Global Health focus – fellows with a strong interest in developing the skills for long term development of access to acute care surgery resources in underdeveloped areas may participate in this curricula.

Program Components of an Acute Care Surgery with a Global Health Focus:
– 2 year SCC/ACS fellowship
– Elective months during 1st year and 4 weeks of second year for program development and travel
– Research, administrative, and educational components focused in Global Health
– Collaborate with Anesthesia Global Acute Care Surgery program (Kelly McQueen) and the Vanderbilt Institute for Global Health
– Develop and implement action plan to attain skills and academic global health skills

An existing collaboration between VIGH, our fellowship, and the Universidade Eduardo Mondlane in Maputo, Mozambique has been used for the development and research interests of fellows in this area.

Additional locations and outlets that are established with VUMC include but are not limited to relationships in Kijabe, Kenya and Guyana.

Existing funding and support structures:
Vanderbilt Institute for Global Health
Vanderbilt, Emory, Cornell, and Duke Fogarty Global Health Fellowships
Frist Global Health Leaders Program

Institutional collaborators:
Kelly McQueen, MD, MPH – Assoc. Professor of Clinical Anesth., Director VUMC Anesth. Global Health & Development
John Tarpley, MD – Professor of Surgery, Department of Surgery
Mark Newton, MD - Assoc. Professor of Clinical Anesth., Director- VUMC International Anesthesia
Seth Wright, MD, MPH – Assoc. Professor of Emergency Medicine, Director – Division of International Health
JP Rohde, MD – Assoc Professor of Emergency Medicine
Cathryn Rolfe, Director, International Clinical and Administrative Initiatives, Vanderbilt University Medical Center
Vanderbilt Institute for Global Health

Drafted by Addison May, MD
Program Director, Surgical Critical Care and Acute Care Surgery Fellowship
APPENDIX IV

Clinical Management Guideline: Standard Trauma Resuscitation

Global Communication is the key to a well-organized and efficient trauma resuscitation. Individual conversations must be kept at a minimum and in general only ONE voice should be heard by ALL trauma resuscitation team personnel. All information is to be communicated for every member of the team to hear. This information is directed by the trauma team leader.

Individuals with direct patient contact, or those who will have possible contact with bodily fluids, will observe Universal Precautions, instituted prior to the patient’s arrival if possible. This will include:

**Essential**
- Gown
- Head Cover
- Shoe Cover
- Gloves
- Eye Protection
- Mask

**Optional:**
- Lead apron – preferable for those at head of bed, primary nurse and PCT

Sterile gowns and gloves, head covers and mask plus sterile barriers SHOULD BE USED WHEN PERFORMING ALL STERILE PROCEDURES such as chest tube insertion, central line placement and diagnostic peritoneal lavage, ED thoracotomy or wound explorations.

**Trauma Resuscitation Team: Personnel**

1. Trauma Team Leader (TTL) – PGY4 Surgical Resident
2. Trauma Attending / Fellow (TA/TF) –
3. Primary MD (PMD) – PGY² Surgical Resident, PGY – 1 or 2 ED resident rotating on Trauma Service
4. Primary Airway MD (PAMD) – PGY 2/3 ED resident
5. ED Attending (EDA)
6. Primary Nurse (PN)
7. Secondary Nurse (SN) or Paramedic (P)
8. Scribe Nurse (Scribe)
9. Patient Care Technician (PCT)
10. Radiology Technicians (RT)
11. Trauma Nurse Practitioner (TNP) – present at night, occasionally during day
12. Medical Student (MS) MS 3 or 4, ½ time
Trauma Resuscitation Team – Positioning

EDA / PAMD

PN

JR RES

PCT

SN or P

TNP

Scribe Nurse

TTL

TA/TF

JR RES

PN

SN or P

TNP

Scribe Nurse

TTL

TA/TF
Trauma Resuscitation Team Personnel: Responsibilities

1. **Trauma Team-Leader (TTL):** A Senior (PGY-4) Surgical Resident will be the team leader and directs the overall resuscitation. He/She will be identified by a green surgical head cover. The TTL will initiate the primary survey and assume responsibility for life saving procedures such as assisting with airway management including surgical airway, emergent chest tube placement, and ED thoracotomies. The TTL may pass the responsibility of directing the resuscitation to the Trauma fellow or Trauma Attending if personally performing such advanced procedures. The TTL is responsible for the majority of communication except during intubation when it is allocated to the PAMD & ED Attending.

2. **Trauma Attending or Fellow** (TA or TF) – The Trauma Attending or Fellow will be overall responsible for the resuscitation and supervising the Trauma Team Leader. If the Trauma Attending or Fellow is not present, the ED Attending will assume this role and responsibility. TA/TF is the designated trauma triage officer directing flow of patients to the OR, CT and ICU. TA/TF must be in close communication with the Trauma Charge Nurse for bed allocation and bed availability.

3. **Primary MD (PMD)** – A Second Year Surgical or Emergency Department Resident rotating on the trauma service will perform their portion of the primary survey (BCD) assisted as necessary by the trauma team leader. This MD will then perform the secondary survey from the neck down, which will include assuring that two large bore IV’s are in place and functioning, blood has been obtained for T&S or C and labs, and that the placement of nasogastric tubes and Foley catheters has been carried out. The TTL may also assign the PMD to perform invasive procedures such as central line placement, chest tube insertions, wound explorations and assisting with ED thoracotomies.

4. **Primary Airway MD (PAMD)** - A 2nd or 3rd year ED resident will be responsible for assessing the adequacy of the trauma patient’s airway and in concurrence with the EDA and TTL determine the need for intubation (if not already performed by pre-hospital personnel). If the patient is awake and conscious, the PAMD should briefly inquire about allergies, pre-existing medical problems and medications. If intubation is necessary the PAMD & or EDA confirms and communicates to the PN, RSI medication doses. Once intubated and PAMD confirms and globally communicates ETT color change, saturations, ETT size and position. The PAMD is also responsible for C-spine stabilization, head examination of the secondary survey including pupillary and verbal response of a neurologic examination, control of bleeding from scalp lacerations and insertion of either an NG or OG.

5. **ED Attending (EDA)** – Will be responsible for the airway and supervising the PAMD. In the absence of the TA or TF, the EDA will be overall responsible for the resuscitation and supervising the TTL. The EDA is also responsible for all ED staffing, equipment and triage into the ED. The EDA will also assume the role of TTL during the resuscitation of multiple patients.

6. **Junior Resident (JR RES)** – role is typically performed by member of the trauma team, will be responsible for the secondary survey below the neck and report this aloud for the scribe and team. They will also assist with rolling the patient, performing the digital rectal exam if indicated, and will perform procedures such as tube thoracostomy or central line placement, if directed by the TTL.

7. **Primary Nurse (PN)** - This is a nurse who will give direct patient care by helping perform the primary assessment, including assisting with airway management if necessary or starting O2 with a high flow mask. Monitoring devices such as EKG’s and O2 sat monitors should be promptly placed, and the blood pressure should be frequently monitored. The PN will then assure that 2 large bore IV’s are in place and functioning, or will place such IV’s (14 or 18 gauge). The PN will assist as needed with the secondary assessment, NG, Foley or log-rolling the patient and then prepare the patient to leave the resuscitation room by making available O2 or ventilators, securing all IV bags.
and by preparing appropriate monitoring for transport. The PN is also responsible for administering any medications for rapid sequence intubation, antibiotics, steroids or medications for pain and analgesia.

8. **Secondary Nurse (SN)** – The SN or P will assist the PN with all of the above

   Or **Paramedic (P)** mentioned duties. The SN or P will obtain the first B.P. from the left arm and call out the reading for everyone to hear. This person is also responsible for transporting the patient to CT, O.R. or TICU and having the Gold Key available for the elevator leading directly to the O.R.

9. **Scribe Nurse (Scribe)** This nurse is primarily responsible for keeping records, assuring that all standard tests or other labs as ordered by MD, are completed. (Blood sent to the blood-bank for T and S or C, blood & urine for lab testing, CT scans ordered, Trauma gram ordered, etc.) This nurse will also assist in direct patient care in times of hemodynamic instability or managing multiple simultaneous trauma admissions. The Scribe Nurse will also assist with preparation for transport from the resuscitation room if all their primary responsibilities are complete. The Scribe Nurse is also responsible for noise control and ensuring only those personnel directly involved in patient care are in the trauma bay. All others will be asked to leave the area.

10. **Patient Care Technician (PCT)** - The PCT’s primary responsibility should be to assure that blood and or urine are sent for appropriate tests. PCT’s will also be responsible for errands such as the retrieving Emergency Blood from the Blood Bank or assisting with transportation. They should perform all other tasks as directed by the Primary Nurse, such as placing monitors, removing clothes, and gathering patient’s valuables for safe keeping and helping log roll the patient.

11. **Radiology Technicians (RT)** - The RT should be present at all trauma resuscitations and be prepared to perform the standard chest x-ray and pelvis x-ray in cases of blunt trauma as directed by the Trauma Team Leader. Both of these x-rays should be processed through the PACS system as soon as possible and be available prior to transportation to CT scan for Trauma gram. In cases of penetrating trauma, the RT’s should be initially prepared to perform AP films over the areas where there may be retained foreign bodies. These films should be processed and lateral cross table films planned according to the results of the initial films. A radio-opaque marker or the tip of a paper clip should mark all penetrating wounds. The Trauma Team Leader will direct the RT’s on the studies to be obtained and on the order in which they should be obtained. The XR machine should be on the left side of the patient in room 1 and on the right in rooms 2 and 3.

12. **Trauma Nurse Practitioner (TNP)** - The TNP will be available to assist with trauma resuscitations at night and occasionally during the day depending on the acuity and volume of the TNP service. The TNP will initiate filling out the trauma history and physical, call the OR for operative intervention, assist the PN, SN or P with resuscitation efforts including management of the Level I transfuser. The TNP will make bed arrangements with the charge nurse on 10N and communicate with the liaison concerning bed assignments and family issues. Once the patient’s stat name has been placed in the computer, the TNP will initiate placing Wiz orders.

13. **Medical Student (MS)** - The role of the MS is commensurate with their abilities as determined by the trauma service. The MS will be assigned tasks by either the TTL or PMD which may include: assistance in removal of clothing, log rolling, femoral vein blood draw and insertion of a Foley catheter.

14. **Service Center Personnel** – Shall remain outside the trauma bay to assist in providing additional supplies needed for the resuscitation.

15. **Environmental Services** - Shall remain outside the trauma bay to assist with needed cleaning issues.
16. **Vanderbilt University Police Department** – In the event of a violent crime, a VUPD officer will be available for safety issues and crowd control.

**Trauma Resuscitation: Sequential Management**

0. Crew resource management- identification process
1. Move patient from stretcher to Trauma Bay Bed
2. Primary Survey
   a. Assess airway by PAMD – may ask patient a few questions regarding past medical history and allergies if airway is intact.
   b. Breathing by PAMD & PMD
      Circulation by PMD
      PN/SN/P – IV’s/EKG/SATS/1st B.P.
   c. Disability by PAMD – pupils/ GCS
      PMD – move all 4 extremities
   d. Exposure/Environment by SN, MS, PCT completely undress, cover with warm blankets
3. EMS/Flight Crew report
4. CXR/ +1- pelvis XR/ FAST exam
5. Assess need for pain / sedation / enter standing orders
6. Secondary Survey including assessing the need for NG/OG
7. Roll patient / palpate entire spine from occiput to sacrum
8. Rectal exam
9. Assess need for Foley catheter
10. Full range of motion all extremities
11. Traumagram versus OR
STANDARD TRAUMA RESUSCITATION: DETAILED DESCRIPTION

Crew Resource Management – Identification process. Trauma Resuscitation Team members should identify themselves by name and roles. Most importantly the TTL, PMD, PAMD, PN and scribe need to introduce themselves to the entire team prior to the arrival of the patient.

Pre hospital personnel including Emergency Medical Services or the air transport team will bring the patient into the Trauma Resuscitation room and quickly move the patient to the resuscitation bed with the assistance of the Primary Nurse, Primary MD and PCT’s as available. After securing an adequate airway and the primary survey is performed, the pre hospital primary care provider should be encouraged to give the entire team a report including mechanism of injury, pre hospital vital signs, Glasgow coma scale, treatments and response to such treatments and any pertinent past medical history. A complete report should not exceed 60 seconds in length. Courtesy towards EMS and Air-Transport Personnel MUST BE MAINTAINED. Other conversations during the report should be kept to a minimum. The Scribe Nurse should record all information as reported to the trauma team.

Primary and Secondary Survey:
The PAMD should begin the primary assessment immediately upon the patient’s arrival to the resuscitation bed and should verbalize findings to the entire trauma team. The Primary MD will complete the primary survey after an adequate airway is secured. The TTL directs the resuscitation based on the PAMD and Primary MD’s assessment and determines the need for additional access or airway management. If life threatening conditions are present, for example- establish a surgical airway, chest tube placement, emergency thoracotomy, the TTL will assume a position to deal with these issues. During this time, the TTL may relinquish their responsibility to the TA or TF and communicate this process to the entire team.

Primary Survey:

Airway: The Primary Assessment of the Airway should be performed by the PAMD & EDA who are positioned at the head of the bed. Collaboration between the PAMD / EDA and TTL regarding definitive airway management should be made expeditiously. If intubation is not deemed necessary the primary nurse should place O₂ by hi-flow mask on all patients.

Breathing: The PAMD and PMD should assess breathing jointly. The Primary Nurse should place the pulse oximeter on the patient. During this primary assessment, any life threatening conditions discovered should be immediately treated. For example a suspected tension pneumothorax should be treated by needle decompression followed by an emergent chest tube.

Circulation: The Primary Nurse should place EKG leads and the SN or P obtain an initial blood pressure to assess circulation and report these results to the TTL and Scribe. If not already present, the Primary Nurse should also place 2 large bore IV’s. The Primary MD should assess peripheral pulses, skin color and mental status and determine if central venous access is indicated. Blood for laboratory evaluation should be obtained during assessment of the circulation by the Primary MD or personnel assigned by the TTL.

Disability: Disability should be assessed during the primary assessment by noting the level of consciousness, pupil examination, and ability to move all 4 extremities.

Exposure and Environment:
The patient should be undressed for complete examination. Once the examination is complete, the patient should be **covered with warm blankets**. Warm IV fluids should be given via the Level I transfuser in all multi trauma patients.

**SECONDARY SURVEY:**
The PMD should continue with the secondary assessment. This should include rapid examination of the entire patient’s anterior surface followed by log rolling the patient off the back board, examination of the back and flanks, and performing the rectal exam. The entire spinal column from occiput to sacrum must be inspected and palpated for deformity, ecchymosis, step off and pain. The patient must be log rolled in both directions to adequately examine both flanks and axillary regions. Again, findings must be verbalized to the entire team. The patient will remain on the back board until arrival in the Trauma Unit or operating room.

The Trauma Team Leader determines the need and exact sequence of placement of additional IV’s, the timing of laboratory assessment, and the radiologic assessment required. Trauma x-rays should be completed immediately following examination of the back. These typically include chest x-ray and pelvic x-ray for blunt trauma and the appropriate AP and cross table lateral films for penetrating trauma. If the patient is hemodynamically stable and there is no evidence of major pelvic trauma, the pelvic x-ray can be deleted and replaced with the pelvic portion of the CT trauma gram.

The PMD should perform a detailed head to toe examination while x-rays and other procedures are being performed and findings communicated.

Consultants should be notified early upon recognition of injuries that need their evaluation. Fractures should be splinted and wounds dressed appropriately.

The TTL will then determine where and when the patient should be moved from the resuscitation room to complete their workup. It may be determined that an unstable patient requires transport out of the resuscitation room prior to completing the full work up for operative intervention or to continue the resuscitation in the Trauma Intensive Care Unit.

**PERSONNEL and Their Responsibilities for the Resuscitation of Multiple Patients.**
A Primary Nurse, Primary MD, Surgical Resident, ED Resident and a Trauma Team Leader (PGY 4 Surgical Resident, Trauma Fellow, Trauma Attending or ED Attending) should be available to resuscitate each patient.

The TTL may direct multiple resuscitations simultaneously. The Scribe Nurse (scribe) may record the details of multiple resuscitation simultaneously. The Trauma Team Leader will prioritize radiologic studies and direct the radiology techs accordingly.

Individual patients will be identified by their STAT name when multiple patients are being cared for simultaneously. The Trauma Team Leader, Trauma Attending or Trauma Fellow will decide when patients are stable for transfer out of the resuscitation room.

Only the Trauma Attending in conjunction with the Emergency Department Attending will determine if Vanderbilt should go on diversion for Trauma.

**Specifics for Penetrating Trauma**
All ballistic wounds should be marked prior to radiologic intervention with a paperclip. For gunshot wounds to the torso, and patients that are not agonal, three films taken one after the other from the chest through the pelvis will allow trajectory determination. In non-hypotensive patients, if a foreign body is seen on the AP films then a lateral film will help determine its exact location.

**Additional Important Points**
*EVERY PERSON TAKES RESPONSIBILITY FOR THEIR OWN SHARPS*

- Disposal of sharps are the responsibility of the person using the sharp instrument. A large sharp box will be readily accessible in each Trauma Room.
- No XRs are obtained during insertion of any IV access, especially central line insertion.
- If the patient’s initial B.P. is within normal limits, repeat B.P. will be obtained every 5 minutes. If the patient is hypotensive (SBP < 100) the obtain BP every ONE minute.

If a death occurs in the Trauma Bay during a Trauma Alert and the patient arrived via EMS, it is the responsibility of the ED staff to communicate this information to family members. If the patient arrived by air transport, the Trauma Service will perform this duty as long as the TTL, TA or TF is available and not scrubbed in the O.R. or actively resuscitating other critically ill patients.

Practice management guidelines (PMG) have been developed by the division of Trauma, Burns and Surgical Critical Care in an attempt to standardize and optimize care. They are based on a combination of accepted surgical practice and recent contributions to the medical literature. PMG’s are intended to provide guidelines to the management of the majority of patients and are not proposed as rules, policies or as a substitute for good clinical judgment. Deviations from the PMG’s are necessary and expected; all exceptions should be documented in the medical record and discussed with the Attending Physician.
APPENDIX V
Curriculum for the Application of Directed Ultrasound and Echocardiographic Examination in Critical Care and Acute Care Surgery

The use of intensivist directed, real-time, bedside ultrasound/echocardiographic evaluation in the management of critically ill and injured patients is being recognized as a useful adjunct to current critical care management. The goal of the Surgical Critical Care and Acute Care Surgery curriculum is to ensure that our faculty and fellows are trained in the use and application of new tools and technologies and continuously seek to improve the care of critically ill and injured patients. To that end, a curriculum for the application of directed ultrasound and echocardiography examination in critical care has been developed.

The specific goal of this curriculum is to train surgical critical care fellows both from a didactic and practical standpoint, how to perform goal-directed ultrasound and echocardiographic examinations in an intensive care and trauma setting. The document below provides an outline of the course curriculum as well as specific details regarding the handling and maintenance of our equipment as outlined here:

A. Course introduction
B. Course curriculum
C. Documentation of study performance
D. Certification
E. Standard operating procedure (SOP) for the use and maintenance of equipment
F. Resources

A. Course introduction:
The ultrasound and echocardiography curriculum for critical care fellows utilizes a combination of scheduled didactic sessions and hands-on mentored experience with the use of the equipment in clinical settings. The didactic portion will occur during scheduled fellow’s conference time slots. Fellows will be required to attend these didactic sessions prior to moving into the clinical portion of the curriculum. The fellows will be responsible for ensuring adequate performance of examinations as provided in the outline below. It will be expected that fellows will seek appropriate mentoring, perform necessary exams, and record data into a shared database. Fellows who complete the didactic training and complete and record necessary exams will receive a certificate of completion from the department of Trauma.

B. Course Curriculum:
The didactic portion of this course will be held in 6 sessions grouped at the beginning of the academic year. The didactic portion will cover the information outlined below:

- Physics and technical considerations
  - Physics
    - define ultrasound
    - demonstrate the relationship of sound waves used in imaging to those of higher or lower frequency with other properties
    - develop a working knowledge of frequency, sound speed, wavelength, intensities, and decibels
    - demonstrate the interaction of sound waves with tissue
      - reflection
      - attenuation
      - scatter
      - refraction
      - absorption
      - impedance
- discuss the generation and detection of ultrasound waves
- describe the Doppler phenomenon
- review pulse-Echo principles
- discuss beam formation/focusing

- **Bioeffects and safety**
  - thermal and non-thermal effects on tissue
  - relative effects of grayscale, M-mode, pulsed wave Doppler, color flow imaging, power imaging, and harmonics
  - contrast agents

- **Imaging applications/equipment operation**
  - Transducer choice frequency: grayscale/Doppler, understanding trade-offs of penetration versus resolution.
  - Optimal grayscale probe made up the optimal Doppler probe
  - shape: linear, sector, curved
  - approach: external, endocavitary, et cetera.
  - Display: grayscale, M-mode, pulsed wave Doppler, color/power imaging
  - image orientation: standard images in different planes
  - image optimization: power output, gain, time/gain compensation
  - image recording options: electronic, film, paper, videocassette
  - interventional techniques

- **Artifacts**
  - understanding the underlying principles: straight narrow sound beams, simple reflection, constant sound speed
  - beam width artifacts, side lobes, slice thickness
  - multiple reflection artifacts: mirror image/reverberations
  - tissue characteristics: shadowing/enhancement
  - refractive artifacts
  - Doppler artifacts: pulse wave, color imaging (includes aliasing)

- **Quality Assurance**
  - equipment Q & A program
  - phantoms: spatial and contrast resolution
  - sonographer/position based Q & A program

- **Clinical Uses of Ultrasound**
  - **General considerations**
    - examination protocols
      - protocols for each route the examination should be well understood. Published protocols will be reviewed and are subject to local modification.
      - Basic cross-sectional/ultrasound anatomy and the range of normal sonographic findings as related to age and sex for each of the anatomic areas listed below
      - General diagnostic criteria used to evaluate tissue characteristics and distinguish normal from abnormal (e.g. cystic versus solid)
      - techniques for ultrasound guided invasive procedures
      - reporting skills/requirements
    - **Specific Applications**
      - Chest
        - pleural fluid determination
        - ultrasound guided thoracentesis
        - determination of pneumothorax
• Cardiac
  o evaluation of pericardial effusion
  o goal-directed, ultrasound-guided resuscitation
  o adjunct use in shock

• Trauma
  o abdominal sonography for trauma
  o thoracic ultrasound evaluation of pneumothorax/hemothorax
  o cardiac evaluation of pulseless electrical activity arrest

• Abdominal
  o Shock determination
  o Bladder scan
  o paracentesis

• Central Vascular Catheter Placement
  o internal jugular or femoral lines
  o peripheral IV
  o arterial cannulation

> Minimum Required exams for certification
  o 50 FAST exams w/ CT or operative confirmation
  o 50 Cardiac exams w/ at least 20 TEE
  o 20 Chest exams w/ at least 10 invasive procedures
  o 25 Catheter placements
    ▪ 10 jugular
    ▪ 5 femoral
    ▪ 5 arterial

C. Documentation of Study Performance:
Each US exam will be recorded in a shared database by each fellow. The database may be accessed by the F:drive as outlined in fellow’s orientation. For each patient, record patient demographics including name and medical record number, in addition to examining physician.

Our ultrasound machine has the capability to record short clips of data, and will store them in conjunction with each individual patient. There is a mode on the machine that allows for playback of the saved clips. Alternatively, these can be downloaded to a magnetic optical disk. We do have a blank disk that is reusable that came with the machine. However, none of our desktop computers have the capability to play this media format. Currently, we are searching for an affordable drive that we can use to transfer our examinations from the ultrasound machine to a desktop computer in order to incorporate these studies into Power Point presentations for display.

D. Certification:
VUMC fellows certification: There currently is no national Critical Care US certification. Fellows successfully completing the Vanderbilt Trauma and Critical Care US course will receive a certificate of completion from the Vanderbilt University Medical Center Surgical Critical Care and Acute Care Surgery Fellowship program. Fellows with a special interest may complete additional training and apply for RDMS certification and sit for one of the basic exams.

Other certification options:
1) The American College of Surgeons through the Committee of Emerging Surgical Technology (CESTE) has historically offered three levels of credentialing: basic, advanced, and instructor. There was a CD-ROM based curriculum, with standards set for didactic courses, CME credits, and case numbers required to obtain certification. However, certification through the ACS is no longer be available.

2) The American College of Emergency Physicians has set standards for emergency ultrasound credentialing, and offers a year-long postgraduate fellowship in ultrasonography. This credentialing process is more
involved because it encompasses the broadest range of applications: OB-GYN, vascular, thoracic, echocardiography, abdominal, and trauma.

3) The American Registry of Diagnostic Medical Sonography offers certification (RDMS) after completion of accepted CME-approved didactic course and varying levels of case completion. There are many subspecialties within RDMS certification that have varying requirements with regard to case numbers.

E. Standard Operating Procedures for the Use and Maintenance of Equipment:
The Trauma and Surgical Critical Care Patient Care Center has purchased an Acuson Cypress ultrasound machine for use in the Trauma and Surgical Intensive Care units. This standard operating procedure manual was developed to answer questions regarding its use, storage, maintenance, and data collection. This machine features a battery unit that allows the machine to be transported without power disruption from one place to another. The machine comes with an internal magnetic optical drive that can burn magnetic optical discs in DICOM format (standard radiology format for transmitting images). Overall size is comparable to portable EKG machines, slightly taller. We have been using the machine in the trauma intensive care unit to familiarize ourselves with it and to troubleshoot potential problems.

E1. Access
Currently, the ultrasound machine is stored in a locked closet in the SICU. The SICU charge nurse has a key for access 24 hours a day. Use is limited to surgical critical care fellows, trauma faculty, and anesthesia critical care faculty while they are rotating through the Surgical Intensive Care unit. This machine is not to be loaned out to anyone else under any circumstance.

E2. Storage
There is a closet set aside for the machine to be stored in the Surgical Intensive Care unit. This is across the hall from unit manager's office. This closet has access restricted by key access. Keys are maintained by the charge nurse and procedure support nurse.

E3. Cleaning
The ultrasound machine comes with multiple probes, and aside from the transesophageal probe, these are very easy to clean. Cleaning should be done with a damp cloth or paper towel. Disinfectant (example, alcohol or chlorhexidine) can be used, but the preference is that we not get any of this material on the actual transducing surface of the probe. There is a thin, rubber surface that could be degraded over time if subjected to any abrasive substances. Clearly, the machine must be kept clean of any potential biohazard in an effort to prevent potential infectious organism transmission. The transesophageal probe requires a different cleaning process. The transesophageal probe requires a different cleaning process that will be similar to what is done with our endoscopes, and protocolization of this technique is currently pending.

E4. Managing the probes
The machine comes with several probes. There is a linear probe, a cardiac probe, transesophageal probe, and an abdominal probe. The advantages of the probes are as follows:
Linear probe-this can be used for her central line placement, assessment of pneumothorax, assessment of potential deep venous thrombosis.
Cardiac probe-this is our transthoracic echocardiogram probe. It also can be used for repeat fast exam, volume status determination, bladder scan. We have also used this probe to perform ultrasound-guided thoracentesis. Of note, the orientation of this probe is 180 degrees different from the emergency department probe.
Abdominal probe-this gives the greatest detail for intra-abdominal organs, however the size limits its use for her fast examinations. It does however give the best resolution for looking at the liver, kidneys, and spleen. He can be used to assess the bladder as well in the setting of urinary retention or post renal obstruction.
Transesophageal probe-this is primarily a cardiac probe. Special care must be taken with this probe with regard to cleaning and storage. We are developing a system to keep this within a plastic lock box in the closet in the surgical intensive care unit but this has not been finalized as of yet. As we gain expertise in cardiac ultrasonography, we will be
making greater use of this probe. Many of our patients are unsuitable candidates for transthoracic echocardiography, and that is my expectation for where this probe will be used.

The probes stay with the machine. The reason that they should stay with the machine is that one may require multiple probes to evaluate multiple different aspects on a single patient.

**Exquisite care should be taken in caring for the probes, as these are the most expensive parts of the machine. These probes cost anywhere in the thousands of dollars, particularly the transesophageal probe.**

**E5. Troubleshooting**
For issues that arise with the machine, the procedure support nurse should be contacted first. Additionally, there are two contact people that we can call for problems with the ultrasound machine, or technical questions.

**G. Resources:**
- Manual of Emergency and Critical Care Ultrasound (Paperback)
  Vicki Noble, Nicholas Sutingco, Bret Nelson
- Ultrasound for Surgeons: The Basic Course – CD ROM by the ACS
APPENDIX VI

TRAUMA ATTENDING CRITICAL CARE PROGRESS NOTES

- To qualify for a critical care note, the patient must be either on the ventilator and/or require multisystem level of care.

- If critical care note is chosen, determine if time involved > 30 min or not. Chose a regular trauma progress note if time < 30 min.

- Under Star Notes for your selected patient, click on “Trauma Attending Critical Care Progress Note”

- Boxes 1, 2, and 3 carry over from the past days critical care note. If your patient was transferred from T2/T3 back to the ICU, new data for boxes 1, 2 and 3 will have to be generated/created.

**Box #1: Physical Exam**
This carries a system based exam over from yesterday’s daily note (Neuro, Ophtho, Cardiac, Pulm, GI, GU, Extremities). Update this daily, especially the neuro section regarding following commands, intubated, sedated, etc.

**Box #2: Injuries**
Identifies all the injuries and is carried over from yesterday’s note. Also include in a separate paragraph their underlying past medical history, and social history.

**Box #3: Hospital course**
This carries a running tally (from yesterday’s daily note) of ‘key words’/ICU diagnoses. This section is especially important, as TRACS coders obtain information & co-morbidities from here. The most common key words are listed as follows:

- Anemia of acute blood loss
- Coagulopathy
- Adrenal insufficiency
- Hyponatremia, hypokalemia
- Respiratory failure
- Thrombocytopenia
- Deep venous thrombosis, Acute
- Hypothermia
- Hyperpyrexia
- Metabolic acidosis
- Lactic acidosis,
- Metabolic alkalosis
- Hyperglycemia
- Atrial fibrillation
- Supraventricular tachycardia
- Multiple premature ventricular contraction
- Agitation
- Delirium/Encephalopathy
- Protein calorie malnutrition requiring parenteral nutrition
- Protein calorie malnutrition
- Intracranial hypertension
- Atelectasis
- Ventilator associated pneumonia
- Bacteremia
- Sepsis
- Acute Adult respiratory distress syndrome
- Systemic inflammatory response syndrome
- Spinal shock
Septic shock  
Cardiogenic shock  
Hypovolemia  
Leukocytosis  
Fever  

**BOX #4: 24 hours course - this does not carry over from prior notes**

Paragraph 1: “This is hospital day ___, and the past 24h are marked by” … (summary of 24h events, current vent settings, swan numbers, nutrition route/reason, sliding scale/insulin drip ranges). Specify transfusions and the reason. Specify reasons for any procedures. Summarize any family discussions, especially those surrounding major decisions, end-of-life care…

Paragraph 2: Summarize today’s plan, especially any operative ones. Be specific.

Paragraph 3: “PROGNOSIS: ______ ” Words such as guarded, poor, encouraging, excellent. Stick with guarded and poor, for those patients still in the ICU with critical issues related to multisystem trauma and/or mechanical ventilation. Uplifting terminology can be employed if transitioning to T2/Backhall or beyond.

Paragraph 4: “DISPOSITION: ________” Options include Home, Skilled Nursing Facility (SNF), Long Term Acute Care (LTAC), Select Specialty Hospital (LTAC), Bordeaux (must be resident of Davidson county, unfunded, cannot accept DHTs), Respite (for those with unsafe home environments or without homes), Stallworth Rehab, Sky Rehab (KY residents), Shepard (spine rehab in Atlanta), Hospice, and “Unclear while evaluating resources and family environment”, etc. Try to specify a day for these events.

General considerations: If caring for those with closed head injury who cannot follow commands, they cannot qualify for rehab and require a SNF. Rehabilitation generally requires insurance or TNCare if age<18. Most medicare recipients qualify for LTACs. Admissions > 21days are reviewed by comprehensive care committee and Dr. Morris. Discuss every patient with the case managers every day.

Preferred Providers for continued care for our trauma patients are chosen for the following reasons:
- Relations established due to large volume of referrals resulting in optimal outcomes
- Some of these providers have data linked into Starpanel
- Some of these providers have special arrangements for reverse transfer

<table>
<thead>
<tr>
<th>Long Term Acute Care (LTAC)</th>
<th>Skilled Nursing Facility (SNF)</th>
<th>Rehabilitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select</td>
<td>NHC</td>
<td>Vanderbilt Stallworth Rehab</td>
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**NOTE CREATION OPTIONS, COSTS, BENEFITS:**

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<tr>
<th>TYPING</th>
<th>BILLING</th>
<th>COMMUNICATION</th>
<th>LIABILITY PROTECTION</th>
<th>COST</th>
</tr>
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<tr>
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<td>-1</td>
<td>+2</td>
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<th>COMMUNICATION</th>
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<th>COST</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Useful for H&amp;P, D/C, Op Notes</td>
</tr>
</tbody>
</table>

Communication is the key element and closely linked to liability protection.
# APPENDIX VII

## Physician Wellness Resources

### Behavioral RESOURCES for Supervisors of Faculty and Physicians

<table>
<thead>
<tr>
<th>General Problem</th>
<th>Resources</th>
<th>Services Provided</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administrative</strong></td>
<td><strong>Faculty Faculty Affairs</strong></td>
<td>Areas of responsibility and oversight for the Office include faculty appointments and promotions, academic development, training and compliance, and conflict of interest assessment and management.</td>
<td>322-2165 320 Light Hall</td>
</tr>
</tbody>
</table>
| Need: Advice regarding problem that is a patient safety, research compliance, conflict of interest, contract, leave, or legal concern.  
(“I have a bad feeling”, “something is not right”, I no longer want to work with person.) | **Housestaff Office of Associate Dean of Graduate Medical Education** | Supports the trainees, faculty and staff in the residency and fellowship programs for new physicians. | 343-7688 209 Light Hall |
| **Post docs** | **BRET Psychological Services** | BRET Psychological Services are available for postdoctoral research fellows and graduate students in the School of Medicine. | 343-0714 |
| **Awareness/Education** | **Faculty and Physician Wellness Program of Work/Life Connections-EAP** | **Skill Development Workshops** | 936-1327 108 Medical Arts Building |
| Need: Awareness (education) and skill development  
(AVOIDING fatigue, managing change, setting professional and personal boundaries, work/life balance, coping with stress, etc.) | **Center for Professional Health** | The Center for Professional Health provides education and training to physicians and other healthcare professionals (Distressed Physician, Boundaries, and Prescribing Controlled Drugs CME classes) | 936-0678 1107 Oxford House |
| **Office of Teaching and Learning** | **The Office of Teaching and Learning in Medicine** | 938-8555 |

<table>
<thead>
<tr>
<th>General Problem</th>
<th>Resources</th>
<th>Services Provided</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Learning in Medicine</strong></td>
<td><a href="https://medschool.vanderbilt.edu/otim/">https://medschool.vanderbilt.edu/otim/</a>, which works to support the medical education mission of the Vanderbilt University School of Medicine. Includes supporting faculty development.</td>
<td></td>
<td>2213 Garland Avenue 3402 Medical Research Building IV</td>
</tr>
<tr>
<td><strong>Center for Teaching</strong></td>
<td>Committed to excellence in teaching and learning. Programs and services are available to the entire university’s teaching community. (<a href="http://cft.vanderbilt.edu/">http://cft.vanderbilt.edu/</a>) The Center conducts confidential individual consultations, facilitates faculty and graduate student working groups and offers practical and theoretical workshops on teaching and learning.</td>
<td></td>
<td>322-7250 1114 19th Ave. S 3rd Floor</td>
</tr>
</tbody>
</table>
| **Academy for Excellence in Teaching** | The Academy for Excellence in Teaching ([https://medschool.vanderbilt.edu/aet/](https://medschool.vanderbilt.edu/aet/)), which is "a collective of outstanding teaching faculty and those highly engaged in the educational mission, who strive to have a significant impact on the Educational Enterprise within the Vanderbilt University School of Medicine."
<p>| | 322-7285 5-2221 Medical Center North | Nashville, TN 37232-2631 Phone: (615) |
| <strong>HR Organizational Effectiveness Team</strong> | Mission is to align learning opportunities with Vanderbilt initiatives in order to equip the organization, leaders, and employees to work to their potential, further the goals of their department, and support Vanderbilt’s mission. | | 322-8320 2525 West End, Ste 500 |
| <strong>Coaching/Counseling/Treatment</strong> | <strong>Center for Professional Advocacy</strong> | CPPA’s mission is to promote patient and professional satisfaction with healthcare experiences | 343-4500 |</p>
<table>
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<tr>
<th>General Problem</th>
<th>Resources</th>
<th>Services Provided</th>
<th>Contact</th>
</tr>
</thead>
</table>
| Need: Focus on individual’s needs and accomplishments; close observation;      | Faculty and Physician                           | Personal Performance Coaching is enhances an individual’s performance, effectiveness, and productivity at work by identifying need, setting goals, developing plans, implementing plans, and evaluating progress. Coaching is not about dealing with psychopathology or past events in one’s life but rather focuses on enhancing current effectiveness through skill building http://healthandwellness.vanderbilt.edu/faculty-physician-wellness-program/child_interior/faculty-physician-wellness-program-home
<p>| impartial and non-judgmental feedback on performance (Effective communication,  | Wellness Program of Work/Life Connections-EAP   |                                                                                                       | 936-1327       |
| Listening skills, Career development, transitions, leadership)                 | Personal Performance Coaching                   |                                                                                                       | 018 Medical Arts Building |
|                                                                                | Office of the Assistant Vice Chancellor          | Clinical Coaching enhances an individual’s performance, effectiveness and productivity in the clinical setting. | Call 343-1024 |
|                                                                                | Chancellor of Health Affairs Clinical Coaching    |                                                                                        |                |
| Need: To understand the cause of a problem and work with a counselor to        | Faculty and Physician                           | Solution-Focused Counseling to resolve issues improves relationships, and deal with life circumstances. | For appt call  |
| understand the process of learning to make good decisions. (Relationships,     | Wellness Program of Work/Life Connections-EAP    |                                                                                                       | 936-1327       |
| financial, personal, emotional, behavioral, or substance related problems)     | (FPWP) Solution Focused Counseling               |                                                                                                       |                |
|                                                                                | Faculty and Physician                           | The FPWP has experienced mental health counselors and psychiatrists who can help assess, stabilize and provide appropriate referrals to community resources in a timely fashion. Referrals are to | For appt call  |
| Need: To provide professional support in obtaining treatment (Depression,      | Wellness Program of Work/Life Connections-EAP    |                                                                                                       | 936-1327       |
| anxiety, PTSD, substance use, or mental health)                               | Psychotherapy/Medication                        |                                                                                                       |                |
|                                                                                |                                                                                                   |                                                                                                       |                |
| General Problem                                                                 | Resources                                      | Services Provided                                                                                     | Contact        |
| condition)                                                                     | resources both internal and external to VU. Services are confidential and there are no records in the medical record. |                                                                                                       |                |
| Need: Assessment for a serious psychiatric concern that may pose a safety      | Faculty and Physician                           | FPWP provides professional assessment of serious clinical concerns that may threaten the safety of a person or the workplace. When patient safety or legal concerns are involved, required referrals are necessary. | 936-1327       |
| risk (Addiction, suicidal, severe depression, workplace threats)              | Wellness Program of Work/Life Connections-EAP   |                                                                                                       |                |
|                                                                                | Assessment/-Treatment/Rehabilitation/ Monitoring  |                                                                                                       |                |
| Need: Support for critical event (Death of co-worker, violence in workplace,   | Faculty and Physician                           | Critical Incident Stress Management Services: Psychological support following any event which has the potential to produce unusual or distressing emotional symptoms that can impact the workplace. | Call to schedule 936-1327 |
| bad patient outcome, disaster)                                                | Wellness Program of Work/Life Connections-EAP    |                                                                                                       |                |
|                                                                                | (FPWP) Psychological First Aid                   |                                                                                                       |                |
| Need: Care for work-related injury/illness, medical determination for leave    | Occupational Health Clinic (OHC)                 | Occupational Health Clinic (OHC) treats work-related illness and injury. OHC provides services at One Hundred Oaks and Williamson County to Vanderbilt employees on those campuses. | 640 Medical Arts building 936-0955 |
| request, or fit for duty                                                       |                                                                                                   |                                                                                                       |                |
| Need: Care for minor ailment.                                                 | Occupational Health Clinic (OHC Express Care)     | OHC Express Care: Convenient location and walk-in services for faculty and staff fees as a benefit.     | 112 Medical Arts Building Enter from the front of the building |
| Legal/EAD/                                                                       |                                                                                                   |                                                                                                       |                |
| Human Resource                                                                  |                                                                                                   |                                                                                                       |                |
| Need: Legal advice.                                                            | Office of General Counsel                        | To ensure that the legal rights &amp; opportunities of University &amp; its employees are protected, and that legal obligations are met | 322-8331 2100 West End Ave |</p>
<table>
<thead>
<tr>
<th>General Problem</th>
<th>Resources</th>
<th>Services Provided</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need: Advice about liability and malpractice.</td>
<td>Risk Management</td>
<td>Promotes safety, promote &amp; deliver quality healthcare, identify and control hazards &amp; injuries &amp; protect the University resources</td>
<td>936-0661 2100 West End Ave Suite 700</td>
</tr>
<tr>
<td>Need: Advice about harassment or discrimination issues</td>
<td>EAD- Office of Equal Opportunity, Affirmative Action and Disability</td>
<td>EEOC issues, including ADA, discrimination, harassment, etc</td>
<td>322-4705 Baker Building Suite 808</td>
</tr>
<tr>
<td>Need: Understand patient complaints</td>
<td>Center for Professional Advocacy</td>
<td>CPPA's mission is to promote patient and professional satisfaction with healthcare experiences and restrain escalating costs associated with patient dissatisfaction.</td>
<td>343-4500 2135 Blakemore</td>
</tr>
<tr>
<td>Need: Clarification about a policy – staff concern</td>
<td>Employee Relations</td>
<td>Provides consultation and advice to management and staff on employment issues. Assist in the interpretation of policies, the investigation of policy violations and the resolution of complaints or grievances.</td>
<td>343-6831 1105 Oxford House</td>
</tr>
<tr>
<td>Need: Help with VISAs for a visiting research faculty member</td>
<td>OIS-Office of International Services</td>
<td>Assists foreign faculty, staff and their dependents in obtaining and extending their nonimmigrant visas for work eligibility within the US</td>
<td>322-7467 310 25th Ave S Suite 103</td>
</tr>
</tbody>
</table>
APPENDIX VIII

Vanderbilt University Acute Care Surgery Fellowship Simulation Training

Curricula in which simulation is an integral component are outlined below:

a) **ATLS provider, instructor, and course director curricula:** The Division of Trauma and Surgical Critical Care sponsors multiple courses yearly, in which the fellows participate, become instructors, and course directors if desired.

b) **Advanced Trauma Operative Management course:** This course is provided yearly by the Division for fellows in both the first and second year of their training. After the completion of the formal course, this format is used to support training in orthopedic and neurosurgical procedures.

c) **IVC filter placement course:** A half day IVC filter course utilizing simulation is often provided annually for fellows and faculty.

d) **Ultrasound in Critical Care and Acute Care Surgery curriculum:** The full curriculum for optional ultrasound program is included in our manual on line.

e) **Transesophageal Echocardiography curriculum:** The Division of Trauma and Surgical Critical Care partners with our Anesthesia Critical Care and Cardiac Anesthesia programs for simulation and training in TEE and has become a yearly event.

f) **Advanced Airway curriculum:** The Division partners with the Anesthesia Critical Care Division to undergo airway management and endotracheal intubation using simulation training.

g) **Surgical Critical Care and Acute Care Surgery Fellows’ Cadaver Operative Exposures and Anatomy Cadaver Lab:** The Division administers a series of cadaver dissections throughout the year for first and second year fellows. In this lab, certain operative exposures are performed by the fellows and observed by the faculty.

h) **Resident Skills Courses:** (fellows have administrative and instructor involvement)
   a. Interns and Acute Care Nurse Practitioner Central Line Insertion courses
   b. Interns and Acute Care Nurse Practitioner Bedside Bronchoscopy courses
   c. Trauma resuscitation procedures course.

i) Simulation lab for mock trauma alert and arrest scenarios
Appendix IX
Regarding the SICU Schedules

The SICU schedule can be fairly complicated to maintain ACGME work hour regulations, so some background:

Resident Complement:
– Interns x 3 – Typically 1 surgery and 2 anesthesia or 2 surgery and 1 anesthesia. In the fall, there will be OB/Gyn interns as well. The schedule and requirements are the same for all of them.
– Second year Residents x 2 – One Anesthesia CA-1 and one Surgery PGY2. The schedule and requirements are the same for both

ACGME Requirements:
Multiple duty hour requirements that we must comply with in making the SICU schedule. Here’s what you need to know for scheduling purposes

1. No resident can ever work more than 28 hours straight (ACGME 24+4 rule): which is never a problem in the SICU as all shifts are 12 hours or less
2. Residents MUST have 1 day off per week averaged over the 4 week rotation.
3. Residents MUST work less than 80 hours/week averaged over the 4 week rotation.
4. PGY-1 residents MUST have direct supervision from a senior resident/fellow or attending at all times (This comes into play on weekends, when there is no R2)
5. **Residents MUST NOT be scheduled for greater than 6 consecutive days of night shifts.** I starred this one because it’s the easiest one to violate, and wreaks the most havoc on making a schedule.

And, from an institution/schedule perspective, here is the coverage we provide:

1. PGY2 coverage on weekday days, and all nights (weekday and weekend). That is – There’s no PGY2 on Saturday Day or Sunday Day shifts and some occasional weekday day shifts when the residents are switching from nights to days.
2. Intern coverage during all day shifts (weekday and weekend).
3. Round the clock 24/7 fellow coverage (combined anesthesia critical care and surgical critical care coverage)

And the daily schedule:
05:45 – Morning sign-out
08:00 – Daily SICU team rounds (varies by attending and Friday rounds are at 9 because of Grand Rounds)
11:00 – Rounds end
12:00 – Noon conference (variable)
17:45 – Evening sign-out

So how do we make a schedule…
I did not solicit requests for days off from interns and just assigned the 4 days off. You can entertain days off requests from the interns/residents within reason (weddings, etc) but I found that it overly complicates the schedule to be too lenient with requests and just creates tons of work for you. For each block, figure out who the 3 interns are and if they have any departmental required activities that will pull them away from the SICU. Figure out who the Anesthesia and General Surgery PGY2s are and if the surgery PGY2 has vacation during their SICU block. Once you know this information, the SICU schedule is pretty straightforward.

I’ll outline highlights:
1. Make the PGY2 schedule first. This is the most complicated step and requires the most planning.
2. For PGY2s, alternate weekends off between anesthesia and surgery if possible. I tried to always have the PGY2s scheduled off on the last weekend of their block so as not to impact the service they are rotating onto.
3. Backfill the PGY2 nightshifts once the weekends are set – keeping in mind that they **CANNOT do more than 6 nights in a row.**
   a. Try not to have the PGY2 switch day (uncovered PGY2 day during the week) be on Monday or Friday where possible. Mondays are often busy, and sometimes have changes in intern complement.
   b. Fridays have the attending switch and the fellow is working the long shift.
4. Identify any night shifts that will require moonlighter coverage and email Kyla Terhune ASAP
5. Try to minimize the PGY2 shifts between days and nights.
6. Ensure each PGY2 has an equal share of night shifts. This should work out to 14 nights for anesthesia PGY2s (out of a possible 28 nights shifts during their 4 week block) and 17 night shifts for surgery PGY2s (out of a possible 35 nights during their 5 week block)
7. Once the night shift schedule is set, then make the corresponding day shift schedule and identify the switch days.
8. Make the intern dayshift schedule. The interns work only during dayshifts. They rotate working early, late and normal shifts
9. There are 2 interns for each weekend day shift. The third intern has the day off.
10. I try not to have the intern be off when the Fellows or PGY2s are switching so there’s some presumable continuity of care and adequate patient care manpower.
11. Ensure that each intern and resident has the required number of days off for the block.

**Resident Schedule**

Notify the NPs if there is more than one day without a resident during the week (i.e vacation weeks for the Surgery PGY2s).

**Odd Cases:**
The only odd case that comes up with regularity is vacations. Anesthesia is not allowed to take vacation during their SICU block (Thanks anesthesia!). Surgery does not have this rule, and obviously this creates an issue for the schedule. When this happens, you have to uncover all the day shifts for that week. Additionally, you need to request moonlighter coverage for one of the nightshifts from Kyla Terhune (General Surgery Program director). Try to do this with as much advance notice as possible (i.e look ahead at the Surgery PGY2 schedule to anticipate vacation time).

Occasionally, specific programs will request days off for their residents while on the SICU. This is typically for retreats, in service examinations, etc. These are usually treated as service days and cannot be counted as a day off (verify this with program directors/coordinators).

The Christmas holiday and end of the academic year schedule can get difficult to navigate and stay ACGME compliant. Verify what resident complement you will have when making these schedules. You may be short staffed with interns during these times but the PGY2 night shift must always be covered.

**NP Schedules:** NP schedules are currently made by Sarah Davis. She should be the one you notify when there are issues with the resident schedule. They have some flexibility in their schedule and can often compensate for resident coverage problems. I would routinely cc Sarah when I sent out the resident schedules so that she was aware of any potential scheduling issues. I would also email her directly if there was specific issue I knew about.

Once you’ve made the schedule, send it to the interns and residents via email. The interns and residents will then often email you with requests for changes, some reasonable and some not. For clearly necessary things like Step 3 exams, health care, or whatever, I would make the changes for them. For things that seem elective or unreasonable, I like to tell them that I’m open to changes in the schedule, but they’re adults, and they should work out the coverage with their colleagues and submit changes for my approval. Then update the schedule if necessary and send it out again. Lastly, make sure the schedule has been updated in Synergy. In particular, the SICU fellow must be designated at all times in Synergy or you will get hate email.
Appendix X

Surgical Critical Care and Acute Care Surgery Fellowship Program
Fellow Travel Checklist

Fellow Name:
Requested Dates of Travel:
Conference/Course Name:

1. All supporting documentation, including itemized receipts, should be in date order and attached to this checklist. Please provide supporting comments in appropriate boxes on the checklist below.
2. All receipts must be itemized.
3. Tips cannot exceed 20%; amounts exceeding 20% are not reimbursable.
4. Meal reimbursements are limited to $100/day
5. Alcohol is not reimbursable.
6. All airfare must be booked through Concur with your personal credit card. In the event a cheaper flight can be found elsewhere, please contact Concur Travel Management at 1-866-303-1019 or concurexperience@vanderbilt.edu.
7. Airport parking max per day is $21, or the most up-to-date rate on the BNA website; amounts exceeding $21/day are not reimbursable; valet parking is not reimbursable.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>[Replace this text with a brief description of the purpose of travel.]</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Meeting/Conference Documentation</th>
<th>*Agenda should denote city, state, venue of meeting, dates and start/end times of meeting; conference block</th>
<th>☐</th>
<th>☐</th>
</tr>
</thead>
</table>

| Presenting? | ☐ | ☐ |

<table>
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<tr>
<th>Prior Authorization</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has written approval for requested travel been provided by Program Director or their designee?</td>
<td>☐</td>
<td>☐</td>
<td>Attach documentation of written approval.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Actual Travel Expenses</th>
<th>Yes</th>
<th>No</th>
<th>Actual Cost &amp; Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking – BNA</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Method of Travel</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Taxis</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Hotel</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Registration fees</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Meals ($100/day max)</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Additional expenses (if any)</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>