



# **A Guide to Fellowship Training Programs in Surgical Critical Care and Acute Care Surgery**

**Second Edition**

Developed by the

## **SURGICAL CRITICAL CARE PROGRAM DIRECTORS SOCIETY**

### **EDITORS**

**William C. Chiu, MD, FACS, FCCM**  
Associate Professor of Surgery  
University of Maryland School of Medicine  
Director, Surgical Critical Care  
Fellowship Program  
R Adams Cowley Shock Trauma Center  
University of Maryland Medical Center  
Baltimore, Maryland

**Samuel A. Tisherman, MD, FACS, FCCM**  
Professor of Surgery  
University of Maryland School of Medicine  
Director, Center for Critical Care  
and Trauma Education  
Director, Surgical Intensive Care Unit  
R Adams Cowley Shock Trauma Center  
University of Maryland Medical Center  
Baltimore, Maryland

**Kimberly A. Davis, MD, MBA, FACS, FCCM**  
Professor of Surgery  
Vice Chair for Clinical Affairs  
Chief, Section of General Surgery, Trauma,  
and Surgical Critical Care  
Yale University School of Medicine  
Trauma Medical Director  
Yale-New Haven Hospital  
New Haven, Connecticut

**David A. Spain, MD, FACS**  
David L. Gregg, MD Professor  
Chief of Acute Care Surgery  
Associate Chief, Division of General Surgery  
Department of Surgery  
Stanford University School of Medicine  
Trauma Medical Director  
Stanford Health Care  
Stanford, California

**Hasan B. Alam, MD, FACS**  
Norman W. Thompson Professor of Surgery  
Head, Section of General Surgery  
University of Michigan Medical School  
University of Michigan Health System  
Ann Arbor, Michigan

**Robert A. Maxwell, MD, FACS**  
Associate Professor of Surgery  
University of Tennessee College of Medicine  
Director, Surgical Critical Care  
Fellowship Program  
University of Tennessee Health Science Center  
Chattanooga, Tennessee

**Revised: 11/19/2018**

## Contributors

### **Michelle R. Brownstein, MD, FACS**

Associate Professor  
Department of Surgery  
Division of Acute Care Surgery  
Associate Program Director, Surgical Critical Care Fellowship  
East Carolina University  
Greenville, North Carolina  
*20. Re-entry Applicants*

### **Clay Cothren Burlew, MD, FACS**

Professor of Surgery  
Director, Surgical Intensive Care Unit  
Program Director, Surgical Critical Care Fellowship  
Program Director, Trauma & Acute Care Surgery Fellowship  
Ernest E. Moore Shock Trauma Center  
Denver Health Medical Center  
University of Colorado School of Medicine  
Denver, Colorado  
*1. Acute Care Surgery*

### **Robert A. Cherry, MD, MS, FACS, FACHE**

Adjunct Professor of Surgery  
Chief Medical and Quality Officer  
UCLA Health  
Los Angeles, California  
*10. Geographic Considerations*

### **William C. Chiu, MD, FACS, FCCM**

Associate Professor of Surgery  
University of Maryland School of Medicine  
Director, Surgical Critical Care Fellowship Program  
R Adams Cowley Shock Trauma Center  
University of Maryland Medical Center  
Baltimore, Maryland  
*Preface, Preface to First Edition  
SAFAS Applicant Instructions  
5. How Many Years of Fellowship Training?  
24. Web Sites of Interest  
25. Acknowledgment*

### **Daniel J. Cucher, MD**

Dignity Health  
Chandler Regional Medical Center  
Chandler, Arizona  
*9. What Do Fellows Do, Day In, Day Out?*

### **Kimberly A. Davis, MD, MBA, FACS, FCCM**

Professor of Surgery  
Vice Chair for Clinical Affairs  
Chief, Section of General Surgery, Trauma, and Surgical Critical Care  
Yale University School of Medicine  
Trauma Medical Director  
Yale-New Haven Hospital  
New Haven, Connecticut  
*1. Acute Care Surgery*

**Matthew L. Davis, MD, FACS** (posthumous)

Assistant Professor of Surgery  
Texas A&M Health Science Center College of Medicine  
Trauma Medical Director  
Scott & White Hospital and Healthcare  
Temple, Texas

- 3. Surgical Critical Care or Acute Care Surgery Fellowship?*
- 4. Should I Do An Elective At An Institution That I Am Considering?*

**Therese M. Duane, MD, MBA, CPE, FACS, FCCM**

Professor of Surgery  
University of North Texas  
Chief of Surgery and Surgical Services  
John Peter Smith Health Network  
Fort Worth, Texas

- 5. How Many Years of Fellowship Training?*

**Paula A. Ferrada, MD, FACS**

Professor of Surgery  
Medical Director, Surgical and Trauma ICU  
Director, Surgical Critical Care Fellowship  
Division of Trauma, Critical Care, and Emergency Surgery  
Virginia Commonwealth University Health System  
Richmond, Virginia

- 3. Surgical Critical Care or Acute Care Surgery Fellowship?*

**Shea C. Gregg, MD, FACS**

Chief, Section of Trauma, Burns, and Surgical Critical Care  
Yale New Haven Health – Bridgeport Hospital  
Bridgeport, Connecticut

- 6. What Things Should I Look For At Each Program?*

**David A. Hampton, MD, MEng**

Assistant Professor  
Division of Trauma and Acute Care Surgery  
Department of Surgery  
University of Chicago Pritzker School of Medicine  
Chicago, Illinois

- 7. International / Overseas Surgical Rotations*

**Lewis J. Kaplan, MD, FACS, FCCM, FCCP**

Professor of Surgery  
Division of Trauma, Surgical Critical Care and Emergency Surgery  
University of Pennsylvania Perelman School of Medicine  
Chief, Section of Surgical Critical Care  
Philadelphia Veterans Affairs Medical Center  
Philadelphia, Pennsylvania

- 16. Coaches, Advisors and Mentors: What You Need and Why*

**Mansoor A. Khan, MBBS (Lond), PhD, FRCS(GenSurg), FEBS(GenSurg), FACS, AKC**

Surgeon Commander, Royal Navy  
Consultant Trauma Surgeon  
Associate Professor in Military Surgery  
Royal Naval Medical Services  
St. Mary's Hospital  
Imperial College Healthcare NHS Trust  
London, United Kingdom

*23. International Physicians*

**Jennifer C. Knight Davis, MD, FACS**

Associate Professor  
Division of Trauma, Emergency Surgery and Surgical Critical Care  
Department of Surgery  
West Virginia University School of Medicine  
Trauma Medical Director  
Jon Michael Moore Trauma Center  
Morgantown, West Virginia

*11. Family Considerations*

**Maureen McCunn, MD, MIPP, FASA, FCCM**

Professor  
Department of Anesthesiology  
University of Maryland School of Medicine  
Division of Trauma Anesthesiology  
R Adams Cowley Shock Trauma Center  
Baltimore, Maryland

*22. Anesthesiologists*

**Benjamin J. Moran, MD**

Trauma / Surgical Critical Care / Acute Care Surgery Fellow  
R Adams Cowley Shock Trauma Center  
University of Maryland Medical Center  
Baltimore, Maryland

*8. What to Expect in a Fellowship Program*

**David S. Morris, MD, FACS**

Medical Director, Acute Care Surgery Research and Trauma Outreach  
Intermountain Medical Center  
Salt Lake City, Utah

*2. Acute Care Surgery Traits*  
*5. How Many Years of Fellowship Training?*  
*6. What Things Should I Look For At Each Program?*  
*13. Application Chronology*  
*14. Preparing Your Personal Statement*  
*15. Letters of Recommendation*

**Chet A. Morrison, MD, FACS, FCCM**

Medical Director, Trauma/Neurology Intensive Care  
Attending Trauma Surgeon  
Penn Medicine / Lancaster General Health  
Adjunct Associate Professor of Surgery  
University of Pennsylvania Perelman School of Medicine  
Lancaster, PA

*19. What is the Post-Fellowship Job Outlook?*

**Nathan T. Mowery, MD, FACS**

Associate Professor of Surgery  
Director, AAST Acute Care Surgery Fellowship  
Wake Forest School of Medicine  
Wake Forest Baptist Medical Center  
Winston-Salem, North Carolina  
*6. What Things Should I Look For At Each Program?*

**Catherine S. Nelson, MD**

Southwestern Critical Care Medicine Pllc  
Yuma Regional Medical Center  
Yuma, Arizona  
*12. Applying to Fellowship Programs*  
*13. Application Chronology*  
*14. Preparing Your Personal Statement*  
*15. Letters of Recommendation*

**Priya S. Prakash, MD**

Assistant Professor  
Division of Trauma and Acute Care Surgery  
Department of Surgery  
University of Chicago Pritzker School of Medicine  
Chicago, Illinois  
*16. Coaches, Advisors and Mentors: What You Need and Why*

**Joseph V. Sakran, MD, MPH, MPA, FACS**

Assistant Professor of Surgery  
Associate Chief, Division of Acute Care Surgery  
Director, Emergency General Surgery  
The Johns Hopkins Hospital  
Baltimore, Maryland  
*2. Acute Care Surgery Traits*  
*5. How Many Years of Fellowship Training?*  
*6. What Things Should I Look For At Each Program?*  
*13. Application Chronology*  
*14. Preparing Your Personal Statement*  
*15. Letters of Recommendation*

**Edgardo S. Salcedo, MD, FACS**

Associate Professor of Surgery  
Program Director, General Surgery Residency  
Program Director, Surgical Critical Care and Surgical Simulation/Education Fellowships  
Division of Trauma, Acute Care Surgery, and Surgical Critical Care  
University of California, Davis Medical Center  
Sacramento, California  
*2. Acute Care Surgery Traits*  
*5. How Many Years of Fellowship Training?*  
*6. What Things Should I Look For At Each Program?*  
*13. Application Chronology*  
*14. Preparing Your Personal Statement*  
*15. Letters of Recommendation*

**C. William Schwab, MD, FACS**

Founding Chief, Senior Consultant, Penn Trauma Network  
Emeritus Professor Clinician-Educator of Surgery  
Division of Traumatology, Surgical Critical Care and Emergency Surgery  
Penn Presbyterian Medical Center  
Philadelphia, Pennsylvania

*16. Coaches, Advisors and Mentors: What You Need and Why*

**David A. Spain, MD, FACS**

David L. Gregg, MD Professor  
Chief of Acute Care Surgery  
Associate Chief, Division of General Surgery  
Department of Surgery  
Stanford University School of Medicine  
Trauma Medical Director  
Stanford Health Care  
Stanford, California

*19. What is the Post-Fellowship Job Outlook?*

**Rafael A. Torres Fajardo, MD, JD**

Surgical Critical Care Fellow  
Division of Trauma, Acute Care Surgery, and Surgical Critical Care  
University of California, Davis Medical Center  
Sacramento, California

*13. Application Chronology*

**Gary A. Vercruysse, MD, FACS**

Professor of Surgery  
Director of Emergency General Surgery  
Division of Acute Care Surgery  
University of Michigan Medical School  
University of Michigan Health System  
Ann Arbor, Michigan

*5. How Many Years of Fellowship Training?*

**James F. Watkins, MD, MSc, FACS**

Gothic Trauma Services  
Snowmass Village, Colorado

*18. How to Prepare for the SCC Board Certifying Examination*

**Julie Mayglothling Winkle, MD, FACEP, FCCM**

Associate Professor  
Department of Emergency Medicine  
Department of Surgery, Division of Acute Care Surgical Services  
Associate Director, Center for Adult Critical Care  
Virginia Commonwealth University Health System  
Richmond, Virginia

*21. Emergency Physicians*

**Salina M. Wydo, MD, FACS**

Assistant Professor of Surgery  
Cooper Medical School of Rowan University  
Associate Program Director, Surgical Critical Care Fellowship  
Division of Trauma, Surgical Critical Care and Acute Care Surgery  
Cooper University Hospital  
Camden, New Jersey

*17. Identifying and Developing Your Interests*

## Contents

Chapter	Title	Authors	Page
	<b>Preface</b>	Chiu	<b>8</b>
	<b>Preface to First Edition</b>	Chiu	<b>9</b>
	<b>SAFAS Applicant Instructions</b>	Chiu	<b>10</b>
<b>1</b>	Acute Care Surgery	K. Davis Burlew	<b>11</b>
<b>2</b>	Acute Care Surgery Traits	Morris Sakran Salcedo	<b>13</b>
<b>3</b>	Surgical Critical Care or Acute Care Surgery Fellowship?	Ferrada	<b>14</b>
		M. Davis	<b>15</b>
<b>4</b>	Should I Do An Elective At An Institution That I Am Considering?	M. Davis	<b>15</b>
<b>5</b>	How Many Years of Fellowship Training?	Duane	<b>16</b>
		Salcedo Morris Sakran	<b>17</b>
		Vercruysse	<b>18</b>
		Chiu	<b>19</b>
<b>6</b>	What Things Should I Look For At Each Program?	Gregg	<b>20</b>
		Mowery	<b>22</b>
		Salcedo Morris Sakran	<b>23</b>
<b>7</b>	International / Overseas Surgical Rotations	Hampton	<b>24</b>
<b>8</b>	What to Expect in a Fellowship Program	Moran	<b>25</b>
<b>9</b>	What Do Fellows Do, Day In, Day Out?	Cucher	<b>27</b>
<b>10</b>	Geographic Considerations	Cherry	<b>29</b>
<b>11</b>	Family Considerations	J. Knight Davis	<b>30</b>
<b>12</b>	Applying to Fellowship Programs	Nelson	<b>31</b>
<b>13</b>	Application Chronology	Torres, Morris Sakran, Salcedo	<b>32</b>
		Nelson	<b>33</b>
<b>14</b>	Preparing Your Personal Statement	Sakran Salcedo Morris	<b>33</b>
		Nelson	<b>34</b>
<b>15</b>	Letters of Recommendation	Sakran Salcedo Morris	<b>35</b>
		Nelson	<b>35</b>
<b>16</b>	Coaches, Advisors and Mentors: What You Need and Why	Prakash Schwab Kaplan	<b>36</b>
<b>17</b>	Identifying and Developing Your Interests	Wydo	<b>39</b>
<b>18</b>	How to Prepare for the SCC Board Certifying Examination	Watkins	<b>40</b>
<b>19</b>	What is the Post-Fellowship Job Outlook?	Morrison	<b>41</b>
		Spain	<b>42</b>
<b>20</b>	Re-entry Applicants	Brownstein	<b>43</b>
<b>21</b>	Emergency Physicians	Winkle	<b>44</b>
<b>22</b>	Anesthesiologists	McCunn	<b>46</b>
<b>23</b>	International Physicians	Khan	<b>48</b>
<b>24</b>	Web Sites of Interest	Chiu	<b>49</b>
<b>25</b>	<b>Acknowledgment</b>	Chiu	<b>49</b>

## Preface

### History of the Surgical critical care and Acute care surgery Fellowship Application Service (SAFAS)

The first informal meetings of Surgical Critical Care (SCC) Fellowship Program Directors were held in conjunction with the annual meeting of the American Association for the Surgery of Trauma (AAST) in 2003 and 2004, organized by William Cioffi, AAST Critical Care Committee Chair. The primary topics discussed were common issues in training SCC Fellows, including curriculum updates, ACGME competencies, and possibly developing a Fellowship Match program. After several meetings, it became clear that a concerted effort was needed from the Program Directors. Independent meetings were held during the American College of Surgeons Clinical Congress starting in 2005. In 2008, the Surgical Critical Care Program Directors Society (SCCPDS) was formally incorporated in the State of Rhode Island as a 501(c)(6) non-profit organization, with Dr. Cioffi as Founding President.

In those early years of SCCPDS, the Fellowship application process had not yet begun to evolve. There were separate Fellowship listings on the Web sites for the Accreditation Council for Graduate Medical Education (ACGME), Eastern Association for the Surgery of Trauma (EAST), AAST, and SCCPDS. Back then, Residents with an interest in a SCC Fellowship were required to conduct their own research on available programs. They were required to contact each Program individually, most often by regular postal mail and occasionally by telephone. At the time, most Programs did not yet have a significant Web presence, so Programs typically sent out application forms by mail. Since each Program's application forms were different, applicants were required to complete each one separately, either in handwriting or rarely using a typewriter. Completed applications were sent by mail. Recommenders were provided a list of Program addresses to send personalized letters of recommendation by mail. Mail navigated through institutional channels, and arrived in Fellowship Program offices without delay, only when lucky.

In 2010, David Spain, SCCPDS Treasurer, first introduced the idea of SCC Fellowship Programs using the Electronic Residency Application Service (ERAS®). At the 2011 SCCPDS Annual Meeting, under President Frederick Luchette, members discussed and endorsed the use of ERAS, with Secretary Samuel Tisherman leading the implementation process. In 2013, many SCC Fellowship Programs started using ERAS, but several major concerns became evident. SCC Fellowship Programs had historically accepted applications beginning in the spring, but ERAS would not open until July annually. This allowed for a short application season, with the National Resident Matching Program (NRMP®) Rank Order List deadline in September annually. Moreover, ERAS did not alert Programs to new application submissions, forcing Programs to log in to ERAS daily to check for updates. These issues doomed ERAS for SCC, and members unanimously voted to discontinue participation in ERAS after the one-year trial.

In November 2013, the SCCPDS Board of Directors began discussion on a combined SCC and Acute Care Surgery (ACS) standard application service. In February 2014, with the assistance of our freelance Web site developer, the Surgical critical care and Acute care surgery Fellowship Application Service (SAFAS) was "under construction." By May 2014, SAFAS underwent beta testing, but several key issues (system glitches) could not be resolved. In February 2015, SCCPDS abandoned the project with the freelancer, and contracted with a professional developer. FluidReview®, a subsidiary company of SurveyMonkey®, was the leading online application management platform on the Web, powering the application processes of organizations, educational institutions, and foundations around the world. With the one-year development experience struggle behind us, customization and implementation of SAFAS on FluidReview became an easy one-month process. SAFAS, sponsored by SCCPDS, launched on March 2015, and has since been the application service utilized by all ACGME-accredited SCC Fellowship Programs and AAST-approved ACS Fellowship Programs.

William C. Chiu, MD  
President-Elect  
Surgical Critical Care Program Directors Society  
November 19, 2018



## Preface to First Edition

On February 11, 2010, Eastern Association for the Surgery of Trauma (EAST) President Donald Jenkins extended a “thought for the EAST website” to Bruce Crookes (EAST Information Management and Technology Committee Chair) and me. One of his fourth-year Surgery Residents from the Mayo Clinic, Nicole Krumrei was an EAST Oriens Award applicant, and had submitted a personal essay on “This is Why I Want a Career in Trauma.” The story that President Jenkins related was that there seemed to be a lack of clarity or central location of information for Residents applying for Trauma Fellowships, and it was surprising that there wasn’t more information on the process.

The EAST Web site has emerged as the leading resource for Fellowship information in our specialty. The EAST Fellowships Listing originated from the *Trauma Care Fellowships* booklet, published by the Fellowship Task Force of the Careers in Trauma Committee in 1996. In 1997, this booklet was converted to electronic format for the EAST Web site. The EAST Fellowships Listing has represented a current database of the most comprehensive descriptive information available on Fellowships in Trauma, Critical Care, and Acute Care Surgery.

When I was a Surgery Resident, I had a copy of the “little red book,” a resource to medical students who were applying for Residency Programs in Surgery, a guide to finding and matching with the best possible Surgery Residency. This book was created by Drs. Kaj Johansen and David Heimbach, both from the University of Washington. The book has since been adapted to an electronic format with expanded content, and is available on the American College of Surgeons Web site.

This current Fellowship guide will uniquely represent the only comprehensive resource available offering subjective advice for prospective Fellows in our specialty, and will have a staged development plan. The initial effort will be presented in Portable Document Format (PDF), available on the EAST Web site. With the renovation of the EAST Web site, we hope to eventually progress with a transition to an interactive electronic resource.

On May 5, 2011, Michael Rotondo, EAST Past President and Past Careers in Trauma Committee Chair offered me a “thought” on what he envisions as the future development of a Fellowships guide (similar to TripAdvisor®, “Read Reviews from Real People. Get the Truth. Then Go.”) This initiative should continue to sustain the EAST Web site as the definitive information resource for Residents interested in Fellowship Training in Trauma, Critical Care, and Acute Care Surgery.

William C. Chiu, MD  
Chair, Careers in Trauma Committee  
Eastern Association for the Surgery of Trauma  
May 30, 2011



# SURGICAL CRITICAL CARE PROGRAM DIRECTORS SOCIETY

## Surgical critical care and Acute care surgery Fellowship Application Service (SAFAS)

[www.safas-sccpds.fluidreview.com](http://www.safas-sccpds.fluidreview.com)

### APPLICANT INSTRUCTIONS

Please print and read all instructions prior to beginning application process.

#### REGISTER and CREATE ACCOUNT:

1. On the SAFAS Home page, go to "Sign Up" for an Account.
2. Complete the Registration form.
3. Your Password must be at least 8 characters.
4. You will receive a confirmation E-mail.
5. Click on the hyperlink in the E-mail to confirm Registration.

#### CREATE and EDIT APPLICATION:

6. Click on "Get Started" and then click on "SAFAS Application Form".
7. Complete all 4 sections of the Application Form.
8. You may Save, Sign Out, and Continue Editing later.
9. "Save & Exit" when complete.

#### UPLOAD SUPPORTING DOCUMENTS:

10. Upload your Photograph, Curriculum Vitae, and Personal Statement.
11. Upload a copy of your USMLE and ABSITE Scores (or equivalent).
12. The preferred image type is JPG and document type is PDF.
13. Upload Word documents only if you cannot convert to PDF.
14. Any Additional Document or the Extra Comments form is optional.

#### REQUEST RECOMMENDATIONS:

15. Give your Recommenders advanced notice.
16. Enter 3 Names and 3 different E-mail addresses for 3 Recommenders.
17. Each Recommender will receive an automated E-mail request.
18. Each Recommender will be requested to complete 2 tasks:  
Standardized and Separate Letter of Recommendation.
19. You will receive an automated E-mail notification upon upload of each letter.
20. If Recommender's institutional firewall blocks Web-generated E-mails, Contact SAFAS Administrator.

#### SELECT PROGRAMS and FEE:

21. Select the Programs you wish to receive your application materials.
22. Your Recommenders will have access to download:  
All of your completed and uploaded documents in-progress.  
Your Fellowship Programs Selection Form, if completed.
23. Programs selected will NOT have access to your Programs Selection Form.
24. The Application Fee is \$10 for each Fellowship Program selected.

#### SUBMIT APPLICATION:

25. Submit your Application - Do NOT wait for Recommenders to upload Letters.
26. Upon Submitting your Application, it becomes Locked from Editing.
27. You will receive an automated E-mail confirmation.
28. Each Program selected will receive an automated E-mail notification.
29. You may "Download submission" as a ZIP file.
30. To Edit/Withdraw Locked Application, Contact SAFAS Administrator.

#### SUBMIT APPLICATION TO ADDITIONAL PROGRAMS:

31. You may Create another Submission by returning to Applicant Home Page.
32. You may edit your Application Form and Supporting Documents.
33. Do NOT re-enter Recommenders, unless you wish to edit them.
34. Select new Programs – Do NOT select Programs previously selected.

#### HELP and SUPPORT:

35. Resources, Links, and Contact information at the SAFAS Web top navigation bar.

## 1. Acute Care Surgery

**02/01/2018 Kimberly A. Davis, MD, MBA, FACS, FCCM (New Haven, CT),  
Clay Cothren Burlew, MD, FACS (Denver, CO):**

Although often used interchangeably, “emergency general surgery” and “acute care surgery” have different meanings. Whereas *emergency general surgery* (EGS) refers to acute general surgical disorders, *acute care surgery* (ACS) includes surgical critical care and the surgical management of severely ill patients with a variety of conditions including trauma, burns, surgical critical care or an acute general surgical condition. The challenges in caring for these patients include around-the-clock readiness for the provision of comprehensive care, the often-constrained time for preoperative optimization of the patient, and the greater potential for intraoperative and postoperative complications due to the emergency nature of care. Doubling as surgical intensivists, acute care surgeons provide not only a much-needed service but a continuity of care; the acute care surgeon combines both operative care of the acute surgical disorder as well as postoperative management for the critically ill patient. This combination of skill and breadth of care is not matched in any other field.

The core components of ACS are trauma, surgical critical care and EGS; fellowship training is designed to create a versatile surgeon able to confront a host of acute surgical disease processes. Recent curricular changes in the fellowship included the identification of a minimum number of operative cases needed in specific body regions, similar to defined case volumes for general surgery. Additionally, there is a list of desired cases for the fellows; these provide guidance to the fellows, program directors and subspecialty colleagues as to the types of cases deemed important for the fellows' training. To distinguish the surgical training in the fellowship from that obtained in surgical residency, metrics regarding patient comorbidity as defined by the American Association for the Surgery of Trauma (AAST) EGS disease grading scales and the technical difficulty of the operative case were added to the case log documentation system.

The AAST ensures that ACS fellowships will continue to build on the strong foundation of process and structure that already exist. The creation of a comprehensive core curriculum is underway. It will offer not only didactic information on trauma and EGS topics but will also offer state-of-the-art media dedicated to complex surgical exposures. Additionally, key areas will have added “pearls from the experts” with technical tricks for complex operative procedures; these tips may be particularly advantageous for patients who, due to severity of illness, do not have the luxury of preoperative physiologic restoration.

The goals of training acute care surgeons is to demonstrate mastery in the field of ACS, expanding on the basics learned in a general surgery residency. Those trained in ACS fellowships are eligible for board certification in surgical critical care through the American Board of Surgery. Added certification in ACS following the 2 year fellowship is currently offered through the AAST. Currently there are twenty-one approved ACS programs. Unlike most specialty training, this paradigm strives to create a broad-based surgical specialist, specifically trained in the treatment of severely ill patients with acute surgical disease across a wide array of anatomic regions.

Our most critically ill surgical patients have benefited from the evolution of ACS, with improved outcomes, more efficient care, and decreased mortality. The training paradigm for ACS fellows will continue to ensure that fully trained acute care surgeons are comfortable with a wide variety of anatomic exposures across all body regions. Acute care surgeons are uniquely positioned to decrease health care costs and improve care in the United States as mandated by the Affordable Care Act of 2010. Cost savings can be actualized, and the system for care delivery can be optimized by focusing on efficiency and the use of standardized, evidence-based, consistent care. Acute care surgeons stand at the front line of care delivery for the patients who are most critically ill and injured. Getting the right patient to the right venue at the right time is the paramount skill that the acute care surgeon, through training and experience, adds to the value equation.

## 2. Acute Care Surgery Traits

**03/03/2018 David S. Morris, MD, FACS (Salt Lake City, UT),  
Joseph V. Sakran, MD, MPH, MPA, FACS (Baltimore, MD),  
Edgardo S. Salcedo, MD, FACS (Sacramento, CA):**

Surgeons who choose Acute Care Surgery as a career come from a wide variety of backgrounds with ultimate career goals that may be vastly different as well. Several traits are common among those in the field. Chief among these are an interest in multi-organ system physiology, a desire to operate in many areas of the body, and a love of caring for the most acutely ill patients. In general, acute care surgeons are drawn to managing the challenging or unexpected case and are accustomed to being called to help when there's no one left to call.

As a resident, did you find yourself thinking often about the complexities of human physiology as you cared for your patients? Did you enjoy the time you spent in the ICU? Did you ever find yourself wishing that you could really understand how to manage a difficult ventilated patient, or balance the sometimes-competing requirements of failing organ systems? Surgeons who choose to do a critical care fellowship generally enjoy the medical aspects of surgical care. The acute care surgeon is a further extension of this principle. Fellowship training in surgical critical care affords the opportunity to maximize one's knowledge of medical care and augments the surgical skills one has worked hard to develop as a resident.

The acute physiology learned in the ICU portion of fellowship becomes the foundation for trauma training. Trauma surgery involves many decisions that must be made quickly, often without complete information. Unlike elective surgery, where anatomy drives the decision-making, trauma surgery is driven by physiology. As a trained trauma surgeon, one is qualified to use the knowledge of acute physiology to intervene on behalf of very sick patients. This intervention knows no anatomic bounds – if the physiology requires the opening of the chest, or exposure of peripheral vasculature, the trauma surgeon will go there. The physiology dictates the extent and timing of the operative repairs required.

In many cases, the trauma surgeon will wish to call for the assistance of specialists. One key reason to pursue training in acute care surgery, however, is to prepare oneself for the day (or more likely night) when such assistance is not available. Trauma surgeons are trained to handle the middle of the night disaster and to put forth the heroic effort to save a patient against all odds. Surgeons who require a fixed schedule and predictable workday will do better in another field.

In summary, the work of the acute care surgeon is hard, with long, unpredictable hours. The work is often thankless and definitely not glamorous in most cases. But the satisfaction of saving the life of a patient in extremis makes the time and effort worthwhile.

### **3. Surgical Critical Care or Acute Care Surgery Fellowship?**

**08/22/2018 Paula A. Ferrada, MD, FACS (Richmond, VA):**

Why do an extra year? Why Acute Care Surgery Fellowship?

Acute Care Surgery (ACS) includes three specialties in one: Trauma, emergency general surgery, and critical care. ACS is not a new concept, however, ACS fellowship is relatively new. The AAST has several approved fellowships in ACS currently, each one with different strengths and opportunities.

The concept of ACS was born many years before it was recognized as a specialty because of the need to have further specialized training in general surgery. There is a real necessity to train surgeons to take care of emergencies with proficiency, and to recognize the immense and growing demand for emergency and critical care surgical coverage that exists globally.

Having an extra year of ACS training will help you maintain an ample scope of practice and make you more marketable. This is true if you want to go to the community or stay in academics. In the community, the surgeon that takes care of trauma also provides care to all the other surgical emergencies, and sometimes including critical care. These surgeons are the backbone of rural hospitals and emergency general surgery is an important source of revenue. In the academic setting, the extra year will help you by offering you more technical exposure and time for research, as well as time to reflect on your academic path after your training.

The extra year consists of 1-3 months rotations of different services with you acting as the fellow (transplant, thoracic, vascular). This will enhance your technical abilities. In some places, an added training or mentoring in research is also available for ACS Fellows. This extra time makes you more comfortable as a technician and can help when you join a group as junior faculty. You will feel the benefits of this extra time in the OR within your first few months of junior faculty. This is true even if you had ample cases during residency. Your role changes as you continue to grow in training.

Some fellowships offer the possibility of doing international rotations. If you can take the opportunity to travel abroad, this is an amazing experience. Not only it gives you exposure to different procedures and techniques, it allows you to understand trauma systems differently, as well as to have a new appreciation for what we take for granted in the United States. Some of these international rotations are trauma heavy, some offer more experience in emergency general surgery or burns. You will learn to take care of patients with different resource allocation. I believe this experience can offer more than technical training, it can help you develop as a leader of a team that can function in difficult circumstances.

In summary, the extra year that I spent as an ACS fellow can offer a vast operative experience, time for research, but most important a different perspective to help you build an academic career.

**06/22/2011 Matthew L. Davis, MD, FACS (Temple, TX):**

ACS vs Surgical critical care alone

In deciding whether a surgical critical care or an acute care surgery fellowship is right for them, trainees also must consider their training background. Was their general surgery residency completed in a place that had a large amount of emergency general surgery, in addition to well-balanced specialty cases? How many cases did he/she complete during their five years of clinical general surgery training? It is also important that trainees be honest with themselves regarding their comfort level caring for complex general surgical emergencies. In many residencies, trainees are mainly a spectator or first assist during the vast majority of training. In others, a high level of operative responsibility and autonomy is built in early. Those trainees who, after honest introspection, feel that they need more experience to be comfortable with a wide variety of surgical emergencies should definitely look at an acute care surgery fellowship.

#### **4. Should I Do An Elective At An Institution That I Am Considering?**

**06/22/2011 Matthew L. Davis, MD, FACS (Temple, TX):**

Elective at the prospective fellowship institution

Doing an elective rotation at an institution that you are really interested in can have multiple advantages. First of all, you are able to see for yourself how the institution functions on a day to day basis. You are able to watch the staff-staff, staff-fellow and fellow-fellow interactions and get a feel for how you and your personality fit in at that institution. Each training center has a distinct personality and it helps to know if that personality meshes well with your own. Often, programs have developed a reputation or have a name that, once you visit, you may feel is not deserved and that will lead you to look elsewhere. Experiencing rounds, cases, management of trauma victims and sitting in during didactic sessions can give you a real feel for an institution. If it is good for a month, it is likely really good. Anything can be dressed up for interview day. Next, it gives you the opportunity to show yourself off. When a program gets to know that you are bright, willing to work hard and have a strong interest in their program, they will remember that at match time. Be cautious though – if your performance is below standard, they will remember that as well. I have seen several candidates lose their chance of joining fellowships due to a lackluster performance. If your life is unsettled or the rotation is closely following the birth of a child, near a board exam or other areas of personal turmoil, it is best to either not do the rotation, or re-schedule for a better time.

## 5. How Many Years of Fellowship Training?

**09/13/2017** Therese M. Duane, MD, MBA, CPE, FACS, FCCM (Fort Worth, TX):

Careers in Trauma: Choosing 1 vs 2 years of fellowship.

This advice is meant for those residents considering a surgical critical care fellowship, not an ACS fellowship (which includes the one year of surgical critical care and is always two years). I think there are pros and cons to both the one and two year, and it has to be based on the individual's career goals. However, here is my general advice as someone who was intending to do two years and changed my mind in the middle of my first year.

The fellows who benefit from two years are those who ultimately want to pursue an academic career in which research and publishing will be an integral part, yet they have done very little during their training. The extra year provides dedicated time to gain the skills necessary to learn how to execute clinical trials, prepare IRB documents, develop research protocols as well as data collection and manuscript preparation. All of these skills can only happen through practice, and once out in practice it is difficult to find the time to learn all of these skills as well as gain the confidence necessary to get these projects going. The time is even more important for fellows interested in bench science, as this absolutely requires dedicated time in a lab to learn techniques and become facile with basic science research.

The fellows for whom a second year is not necessary, although still an option, are those who have already taken research time during their training. This is true even if it was in fields other than trauma, as the skill sets are similar. If the individual feels comfortable with the process of developing study questions and seeing them answered to fruition, then an additional year may not be necessary. This needs to be couched with the person's goals, objectives, financial and family situation. The other fellows who may not need a second year would be those whose intention is to work in a non-academic setting in which he/she does not intend to continue a research focus.



**03/03/2018** **Edgardo S. Salcedo, MD, FACS (Sacramento, CA),  
David S. Morris, MD, FACS (Salt Lake City, UT),  
Joseph V. Sakran, MD, MPH, MPA, FACS (Baltimore, MD):**

All ACGME-accredited fellowship training programs for Surgical Critical Care complete the Surgical Critical Care portion of the training in one year. Many programs offer a 2<sup>nd</sup> year of training. A 2<sup>nd</sup> year is not accredited by the ACGME and is not monitored by the RRC. The American Association for the Surgery of Trauma (AAST) approves programs for 2<sup>nd</sup> year fellowships in Acute Care Surgery that is meant to partner with the 1<sup>st</sup> year of fellowship in Surgical Critical Care. The goal of the 2<sup>nd</sup> year is to refine surgical skills and decision making in managing the broad presentations of acute surgical disease seen in trauma, surgical critical care and time-sensitive general surgery. Although the AAST approval provides for a rigorous standard in curriculum and experience, the focus for the 2<sup>nd</sup> year fellow can vary from program to program. At some institutions the 2<sup>nd</sup> year provides an opportunity to earn an additional graduate degree. 2<sup>nd</sup> year fellows in some programs will function as attending surgeons, taking independent calls with admitting and OR privileges. Not all 2<sup>nd</sup> years of fellowship are AAST approved. In general, these remaining programs are career-development opportunities to practice at a clinically busy, Level 1 Trauma Center with a proven record of academic productivity. Such programs allow fellows to tailor their 2<sup>nd</sup> year experience consistent with their ultimate career aspirations. Similarly, fellows often function as attending surgeons and may be able to pursue graduate degrees.

Choosing to proceed with a 2<sup>nd</sup> year depends on where you come from and where you intend to go. The number of trauma centers that see a high volume of penetrating trauma are far fewer than the number of surgical residency programs that see those types of cases. If you trained at a place where penetrating trauma was rare, continuing on to a 2<sup>nd</sup> year where gunshot wounds and stab wounds are more common will help you gain confidence with managing those injuries. Even if you do not intend to practice in a place where these injuries are common, the principles employed when managing such cases are invaluable and applicable in many arenas.

For those interested in pursuing an academic career the additional year provides the time to learn and hone the skills necessary to complete research projects and present them to the academic community. But the 2<sup>nd</sup> year of training is valuable even for those destined for less traditionally academic positions. Surgeons who wish to be trauma directors at regional centers, perhaps more community-based, would do well to consider a 2<sup>nd</sup> year. The inner workings of what it takes to run a trauma center smoothly are best learned from mature institutions that have been serving their communities for decades. The details of these logistics may not be in place at non-trauma center residency training programs, or if they were, you probably did not pay as close attention to them because you were focused mostly on learning how to take care of patients and operating. The 2<sup>nd</sup> year offers the unique opportunity to witness, “how the experts do it” both clinically and from a systems level viewpoint.

**03/06/2018 Gary A. Vercruysse, MD, FACS (Ann Arbor, MI):**

### One vs. Two Year Fellowship Programs

This is some advice for the fellow candidate pondering a one year or two year fellowship in trauma/surgical critical care (SCC). I am a graduate of a one year fellowship with an optional second year (I did only the first year.) I now work at a program that has a one or two year fellowship. Either a one or two year fellowship can lead to a successfully trained Trauma/SCC surgeon. There are benefits and drawbacks to both, and ultimately the choice is a personal one that should be made after some serious consideration. What follows are simply one surgeon's opinion.

For me, the great thing about a one year fellowship was that it was over in one year. As a resident, I felt like I had adequate operative experience (but graduated before the implementation of the 80 hour work week) and mostly needed to work on my critical care skill set. An added benefit was that I could start making an attending salary after only 6 years of post-graduate training. The downside of the one year fellowship for me was that I did not have adequate time to accomplish any research whatsoever, not even one case report. I have since built some skills in research and have accomplished several successful projects that have led to grant funding etc., but it was not easy to accomplish without early mentorship (that may have occurred during my second year of fellowship). Having said all that, I still feel that my personal decision to pursue a one year fellowship was a good one.

After working at several institutions that have mandatory two year programs, I can definitely see some good things about the two year plan as well. Firstly, having a whole year dedicated to trauma surgery, fellows get to do several hundred operations in order to hone their skills at complex trauma surgery. In the post 80 hour work week age, with less resident operative experience, this could be interpreted as a benefit. Secondly, the fellows also get an extra year of critical care exposure as they co-manage patients in the SICU with the SCC fellows their trauma year, and are primarily responsible for the SICU patients in their SCC year. Thirdly, all fellows get ample opportunities to begin to acquire the skills necessary to have a successful academic career by becoming actively involved in research projects that stretch over both fellowship years.

**08/18/2018 William C. Chiu, MD, FACS, FCCM (Baltimore, MD):**

For many Fellowship applicants, the decision on a one- or two-year program is frequently based upon the perceived extent of training and experience that is needed to achieve independent competence and confidence. Many other applicants are burdened by an overwhelming sense of educational debt, and are most influenced by the need to begin earning a salary that will enable the start of loan repayment. I have had Fellows who had initially committed to two years, and then changed minds mid-year, and found jobs after one year. I have also had Fellows who were initially planning for just one year, and then decided to pursue a second year. My advice to prospective applicants would be to first choose the best program and institution as a priority, and then assess the personal benefits and options for additional years.

American Association for the Surgery of Trauma (AAST)-approved Acute Care Surgery (ACS) Fellowships are mandatory two-year programs. The minimum duration required by the Accreditation Council for Graduate Medical Education (ACGME) Surgery Residency Review Committee (RRC) for a Surgical Critical Care (SCC) Fellowship is one year. The majority of SCC Fellowships are one-year programs, with or without an optional second year. Some programs have separate tracks for one-year and two-year curricula. Some programs may spread the ACGME required SCC one-year experience into two years. There are some two-year mandatory SCC programs, and some with an optional third year.

With the exception of AAST-approved ACS programs, those SCC Programs that have a mandatory or optional second year have a variety of curricula, with no national consistency or regulatory oversight. These second year curricula are not monitored by the ACGME, and may include required clinical experience as a Fellow or a senior Fellow, attending responsibilities, research, academics, and various formats and arrangements. Some programs offer opportunities to pursue additional educational degrees, such as a Master's Degree in Public Health (MPH) or Business Administration (MBA), or Certificate Programs.

## **6. What Things Should I Look For At Each Program?**

**02/21/2018 Shea C. Gregg, MD, FACS (Bridgeport, CT):**

### **What is the specialty of Surgical Critical Care?**

A Surgical Critical Care specialist receives additional training in the management of acute, life threatening or potentially life threatening surgical conditions.<sup>1</sup> Specific knowledge that is gained during fellowship will include the following: physiology of tissue injury from trauma, burns, operation, infections, acute inflammation, or ischemia and their relation to other disease processes.<sup>1</sup> Additional topics that fellows are typically exposed to include ICU administration, infection control, palliative care, organ donation procedures, declaration of brain death, ICU billing and compliance and national quality improvement guidelines.

### **Where to start: Residency considerations**

Fellowship is meant to solidify your knowledge base in the physiology of critical illness, augment your command of the technologies currently employed in management, and expand your appreciation of outcomes among intensive care patients. With residents having varying degrees of exposure and comfort managing critically ill patients, one should perform a self-evaluation of their previous residency training prior to researching fellowship programs: What were the strengths and weaknesses of my residency program in regards to the trauma, critical care, and/or emergency general surgery experiences? After you define educational objectives, the following questions may be useful when evaluating individual fellowship programs:

#### ***General considerations:***

- Where is the program located?
- Will I be managing a diverse group of patients?
- Will I be rotating in academic and/or community-based hospitals?
- How well does the program adhere to work-hour regulations?
- How many fellows are in the program? Is there competition for educational experiences?
- How collegial are the faculty? Administrators? Nursing staff? Ancillary staff? Fellows? Residents?
- Are faculty engaged in the educational process?
- Do fellows find mentors/coaches during their fellowship training?
- Are the Program Director and/or Division Chief well-established? Are they active in the educational process?
- Does the program participate in the National Resident Matching Program (NRMP)?
- How competitive is it to get accepted into the fellowship?
- Is the fellowship accredited by the Accreditation Council for Graduate Medical Education (ACGME)?
- What is the regional, national, and international reputation of the fellowship?
- Are women and/or minorities comfortable in the fellowship?

#### ***Family considerations:***

- How many years is the fellowship?
- Will the family be happy in the chosen fellowship location?
- Where do fellows live?
- How is the commute?
- Will the fellowship salary and benefit package adequately support your family over the course of the fellowship training experience?
- Are there local job opportunities for your spouse?

#### ***Educational considerations:***

- How formalized is the didactic curriculum?
- Is there protected time for lectures?
- How formalized are teaching rounds?
- What opportunities are there to participate in simulation-based education?
- What educational opportunities exist outside of the institutional curriculum (i.e. courses sponsored at national meetings, Advanced Trauma Life Support, Advanced Trauma Operative Management, etc.)?

- What are the American Board of Surgery-Surgical Critical Care examination pass rates for previous fellows?
- How does fellowship prepare you for the board examination?
- Are there international rotations/opportunities?
- Are there opportunities to work towards advanced degrees as part of the fellowship (i.e. Master's in Public Health, Master's in Business Administration, etc.)
- Is there a curriculum dedicated to leadership training? ICU administration? Billing and compliance issues? Critical incident stress debriefing? Quality improvement? Infection control? Palliative care? Geriatrics?

***Research considerations:***

- What are the research expectations?
- Is there protected time to conduct research?
- Are there basic science and/or clinical research opportunities?
- What is the previous fellow experience with completing and presenting research at meetings?
- Is there support to attend conferences and/or national courses pertaining to surgical critical care?

***Details of the critical care training:***

- What technologies are being employed in the intensive care unit (i.e. Advanced airway management, open-lung ventilation strategies, adjuncts to managing ARDS, damage control methods, renal replacement therapies, ultrasound, extracorporeal membrane oxygenation, bedside procedures, etc.)?
- Are subspecialists managing these technologies or do fellows manage them?
- Do simultaneous rotators (i.e. medical students, residents, other fellows, etc.) compromise the educational experience?
- “Closed” versus “open” intensive care unit?
- What patients will you be caring for: Medical? Surgical? Trauma? Cardiac?

***Details of the trauma experience:***

- What is the patient volume?
- What is the operative experience?
- What are the call expectations?
- Will simultaneous rotators be competing for cases?
- What is the penetrating versus blunt trauma experience?
- Is there any experience managing severe burns?

***Details of the emergency general surgery experience:***

- What is the patient volume?
- What cases will I be performing?
- What are the call expectations?
- Is there an outpatient experience?
- Is there any experience managing necrotizing soft tissue infections?

***Career considerations:***

- Where do fellows find jobs?
- How difficult is it to get a job after completing fellowship?
- Is there an opportunity to become a faculty member at the institution where fellowship is being completed?

**Summary:**

Finding the right fellowship in Surgical Critical Care can be intimidating given that everyone's circumstances and experiences are diverse. By using the above questions as a basis for evaluation, you will hopefully find a fellowship that will maximize your educational experience and accommodate your lifestyle outside the hospital.

**Bibliography:**

1. “Specialty of Surgical Critical Care Defined.” Absurgery.org. March, 2008. Web. Accessed: 2/20/2018. <http://www.absurgery.org/default.jsp?aboutscdefined>

**04/11/2018 Nathan T. Mowery, MD, FACS (Winston-Salem, NC):**

Once you have made the decision to seek out additional training in Surgical Critical Care you must sort through the abundance of well-qualified programs available. In the end your focus must be on selecting the program that will make you the best possible attending physician but also keeps all career options available to you. At the beginning of fellowship you may still be struggling to decide between an academic career and a private practice job. You may not have decided if you want to go to a place that requires significant research or one that would allow you to focus solely on patient care. You may decide mid training that you want to switch from one track to another. I would encourage you to pick a fellowship that can train you in all those areas so that you will not limit your future employment choices. It is important to keep focus on the fact that you are choosing a program that addresses not only your strengths but potentially can make some of your weaknesses into strengths. Did you train at a residency without a significant penetrating trauma experience? Now could be a time to seek out an urban program that can round out that experience. Have you not gotten a chance to experience research? Now would be a time to find a program that is familiar with mentoring inexperienced fellows and that has multiple projects at various stages of development. Everyone wants to be in an environment where our strengths are amplified but often a critical assessment of what you need to improve in your weakest areas will lead you to be a better physician.

It is also important to consider what type of career you want after fellowship. Selecting a fellowship that can train you for that job and has the networking connections to place you into it is invaluable. If you plan to move to a geographic area with limited penetrating trauma and practice surgical critical care you would be ill served to do a fellowship at a location that is heavy in penetrating trauma and whose critical care experience consists mainly of the care of sick trauma patients. Also, it is important to look at the track record of programs in placing fellows in jobs they desire. You do not want your job search to be limited to jobs that are readily advertised but instead to be able to pick your “dream location” and have a realistic chance of them hiring you. If you do not know what type of practice you will want at the completion of your fellowship I would encourage you to select a training program that will keep as many options open to you as possible. It would stand to reason that programs that have sought out the highest available designation from our parent organizations would be more likely to hire fellows who had chosen to train at centers that also carried that designation.

Do not discount the advantages that a certain geographic location can afford you and potentially your family outside of the hospital. You have no doubt worked hard to have options available to you and should not feel bad in having the location of the training program factor into your decision. There are fantastic programs available in all parts of the country that offer a variety of activities outside the hospital. Surgeons often feel guilty about letting our extracurricular activities influence our career paths, but with strong programs in a variety of settings (urban vs. rural, warm vs. cold, beach vs. mountains) there is no reason to compromise. Take advantage of the benefits your efforts to this point have netted you and select a program that meets both your professional and personal needs.

**03/03/2018 Edgardo S. Salcedo, MD, FACS (Sacramento, CA),  
David S. Morris, MD, FACS (Salt Lake City, UT),  
Joseph V. Sakran, MD, MPH, MPA, FACS (Baltimore, MD):**

The Surgical Critical Care (SCC) year and the optional second year of training can be evaluated separately. Only the SCC year is addressed here. When assessing the strengths and weaknesses of the SCC year it is important to understand what your role will be within the program's Intensive Care Unit (ICU) and ultimately, what you are looking to gain at this stage of your training. At some programs you will be the first-call for all patient care questions for anything from a missing Tylenol order to the coding patient. At other programs you will be overseeing residents and advanced practitioners. One might be expected to conduct teaching rounds, and mentor other trainees in bedside procedures (e.g., central line placement, bronchoscopy). Some programs require in-house call, while others take only home call.

The composition of the ICU attending staff is also important to consider. Some institutions have units that are run solely by trauma surgeons while others have units that are run by surgeons, anesthesiologists and medical intensivists as well. In general, it is valuable to see how different specialists manage critically ill patients. While unifying literature exists for some conditions to direct practice patterns, each practitioner brings a different perspective to the bedside and the more exposure you have to different thought processes the more informed you will be when forming your own management approach.

Remember that fellowships are not required to rotate you in their SICU for the entire 12 months of the year. Learn about what other rotations each program offers besides the core time spent in the SICU. Some institutions will have separate critical care teams for pediatric, neuro, cardiothoracic, burn and pulmonary / medical patients. The opportunity to rotate with these other services is another way to gain new perspectives on critical care issues. Learn about the different elective opportunities for each program you visit and also the flexibility of the various elective rotations within the schedule.

The ICU's place within the health system's care paradigm is also important. Fundamentally, you want to know if the unit is closed or open, if the ICU team is primary or consulting and the flow of the orders you write and the decisions you make for each of the patients on your unit. That said, every ICU, wherever you practice should always adhere to principles of transparency and open communication between surgical and ICU teams in the care of critical patients.

It's important to know what patients are admitted to the SICU for the SCC Service to manage. Are all of the patients from the general surgery sub-specialties (surgical oncology, colorectal, thoracic, vascular, transplant, etc.) being covered by the SICU and the SCC Fellows? Similarly, are there clinical relationships with other surgical specialties that routinely require critical care level services for their patients (spine surgery, orthopedics, etc.)? Although trauma and emergency general surgery patients will often provide enough clinical material for a rich and varied SCC Fellowship experience, the opportunity to see patients with conditions related to other surgical specialties is valuable.

The educational program for the SCC year will be mostly uniform at different institutions because the training program is monitored by the ACGME and RRC. While all programs will provide educational opportunities at the bedside while caring for individual patients, some places will have more established lectures and conferences available to their trainees. If there are multiple critical care services in the system, the programs may have varying degrees of inter-disciplinary educational activities as part of their curriculum. Discuss these issues with current fellows during your interview process. This is probably one of the best ways to really find out what takes place at the program you might be interested in.

## 7. International / Overseas Surgical Rotations

**05/07/2018 David A. Hampton, MD, MEng (Chicago, IL):**

An international surgical rotation is an educational opportunity which can enhance your Fellowship experience. Depending on the location, it has the potential to provide a high level of independence, challenge your clinical and technical skills in a resource-limited environment, and expose you to end-stage surgical pathology that may not be routinely seen at your home institution. Aside from the surgical duties, the opportunity to explore a new country, experience its culture and food, and discuss world events with your newly found colleagues are added benefits that can only occur while abroad.

Several US Fellowship programs have established relationships with international medical centers. Their respective US institutions have vetted these sites to ensure they maintain a clinical and educational standard. Depending upon the relationship established, your surgical cases and procedures can be applied toward your ACGME requirements.

In preparation for your excursion, navigating the host country's medical licensure pathway will be your first undertaking. Several US-based organizations, such as the Electronic Portfolio of International Credentials (EPIC), [www.ecfmgepic.org](http://www.ecfmgepic.org), are documentation repositories. They will verify your credentials' authenticity, and forward them to the host nation's licensure board. The duration of this process is variable and may take several months to over a year. Once your decision to travel abroad is entertained, this process should begin.

Any domestic or international trip has an associated level of personal risk which needs to be considered. The US Department of State, [www.state.gov/travel](http://www.state.gov/travel), monitors countries around the world and can provide information regarding political stability, areas of increased personal violence, or health concerns. This site can also provide immunization requirements, embassy and consulate contact information, and monetary exchange rates.

Even though you will be working in a host nation medical facility participating in an academic relationship with your home institution, worldwide standards of care are variable. In the event you require medical care or a potential hospital admission, organizations such as International SOS, [www.internationalsos.com](http://www.internationalsos.com), can provide added services such as liaising with local physicians and surgeons, or personal extraction to higher levels of care or to your country of record.

Having gone through the aforementioned process, I spent 5 weeks at Groote Schuur Hospital, a University of Cape Town, South Africa, training facility. Our international team consisted of medical professionals from the United States, Canada, Estonia, Switzerland, Libya, UAE, Tanzania, Zimbabwe, Mauritius, and South Africa. We experienced over 900 trauma activations and performed over 200 procedures. It was a personally and professionally enlightening rotation and resulted in numerous life-long friendships.

With a modicum of forethought, an international surgical opportunity can be a fruitful endeavor. It has the potential to change your care pathways, help establish and develop professional connections, and build your confidence as an independent surgeon. All Surgical Fellows should consider this opportunity.



## **8. What to Expect in a Fellowship Program**

**06/06/2018 Benjamin J. Moran, MD (Baltimore, MD):**

First, it is important to understand that not all fellowship programs are the same. All programs will have the required amount of intensive care experience needed to get you to and pass your surgical critical care boards, but each will vary with respect to the amount of trauma, critical care, ECMO, and acute care surgery experience they offer. The amount of in house-call, home call, and responsibility will differ as well. Fellows may be required to run trauma activations, lead rapid response and code blue teams or be the junior acute care surgeon. Whatever the differences in each fellowship, it is critical to decide how much of each factor you want and what opportunities you need to become an expert in critical care.

Day one of your fellowship, you will not be expected to be an expert in surgical critical care or acute care surgery. The reason why you are in a fellowship is to learn the art of critical care and acute care surgery. However, the earlier you show the staff that you are a capable, confident, and knowledgeable physician with a willingness to learn and improve, the sooner they will treat you like an expert and the better experience you will have.

It is also important to remember that as a fellow you are not a 'glorified resident' but a board eligible (or certified) general surgeon who knows the ins and outs of general surgery but is honing his or her intensivist skills. Your job is to act like an attending and assume the role of a surgical intensivist alongside someone who has more knowledge and experience to guide you through it. You will become an educator, team leader, and be ultimately held responsible for patient care. Your attending may treat you like a resident at first, but do not take this personally as they are testing your skills and assessing your knowledge base. You will need to initially work with your attendings to develop patient care plans, but the earlier you distinguish yourself from the role of a follower to that of a team leader, the sooner you will garnish respect and accrue more responsibility. Remember the trust and respect of your attending staff, colleagues and junior staff should be earned and not demanded or expected.

It is important to see yourself as a patient care leader in the ICU. The fellowship will expect that you will lead and communicate your patient care plans with the entire ICU team. This includes the ICU staff, nurses, social workers, clergy, physician extenders, respiratory therapists, and all others involved in patient care. Remember, utilize the experience of the staff around you to help plan and provide the best patient care. Additionally, part of developing your surgical critical care skills and undertaking the role of an attending is to accept the responsibility of your patient's care. Your attendings will expect you to make sound assessments, provide team leadership and instruction, and deal with the trials and tribulations of patient care.

If a case you participated in is selected for a morbidity and mortality review, expect to be an integral part in presenting and reviewing the case. You are expected to speak with your patient and their family prior to the operating room, post operation and additionally in the ICU. You will be responsible for explaining any complications to the patient and family and discuss the next plans of action. In the ICU you will develop your own style of communicating with patients and families and learn how to deliver bad news and lead discussions in end of life care.

As a future educator and clinical leader, expect to be involved in resident education. You will instruct residents informally at the bedside and during rounds but also you may be required to give formal didactic sessions. Additionally, you will guide residents through bedside procedures and cases in the operating room. The fellowship will help you develop your own teaching style, where you allow residents enough distance to learn but provide enough supervision and guidance to provide adequate patient care. This is the ultimate transition from a follower to leader and educator.

Lastly remember that you are in fellowship to learn. On a daily basis you will be pulled in a multitude of directions; from leading ICU rounds, to performing bedside procedures, operating, or stabilizing a trauma patient. Remember to stay humble and have a willingness to learn. Each attending will have a different background and can provide a new perspective to patient care. You may not like all of it but incorporate pieces into your skillset and your style of practice. Remember that attendings are not the only teachers; you have nurses, respiratory therapists and physician extenders that have a litany of experience that you can tap into on a daily basis to help your education. No matter what fellowship you matriculate into, you will be surrounded with knowledgeable and compassionate people who will work with you to become an expert surgical critical care physician.

## **9. What Do Fellows Do, Day In, Day Out?**

**06/01/2018 Daniel J. Cucher, MD (Chandler, AZ):**

The way you spend your days and nights as a Surgical Critical Care fellow will vary greatly depending on which institution you attend for fellowship, your rotation schedule, and the people you work with. The intention of this chapter is not to orient you to working in an ICU, or list your daily responsibilities. By the time you start fellowship, post-Surgical, Anesthesia or Emergency Medicine training, you have already spent time as an intern and resident in the ICU taking care of trauma patients and the critically ill. The purpose of this chapter is to describe how to maximize your training by approaching the daily and nightly activities as a Surgical Critical Care fellow and embracing your new role in patient care and education.

### **Pre-rounds**

Regardless of your variable role in presenting patients, co-attending morning rounds, or fully leading rounds, a degree of pre-rounds is advisable. Just as it is impossible to present a patient on rounds without updated information on your patient's condition, it is difficult to lead rounds relying entirely on what you see and hear presented in the morning. Unlike a resident, however, knowing your patients' lab values and precise I/O data before rounds is not as important as ascertaining a big-picture concept of how your patients are doing in respect to their major physiologic ailments. Doing this efficiently is contingent on a solid knowledge of your patients' chronic and acute medical problems. A tremendous amount of information can be gleaned by simply walking around the unit in the morning. Why is there a code cart outside a patient's room? Why have the infusion pumps multiplied by a patient's bedside? Why are there three nurses and an RT in a room? Who is still or newly intubated? Which patients are sitting up and appear ready to transfer out of the ICU? Pre-rounds as a fellow may sometimes look like residency, but the goal is to hone your ability to rapidly assess and determine what needs to be discussed on rounds.

### **New Admissions**

Whether you are at the bedside when a new patient shows up in the ICU or you discover them in the morning when you arrive, every new patient requires a complete and accurate assessment. When you first meet a new patient, try to anticipate all that he needs in order to transfer out of the unit. Although it may change as your patient's disease state evolves, make a plan of action early and see to it that your ICU team is making progress with that patient.

### **Triage**

Critical Care fellows often bear the responsibility of being gatekeepers to the precious and limited ICU beds. The starting point for this job is to understand how bed flow works in your institution. Where do patients come from, and where can they go when they leave the ICU? What other critical care areas are there in the hospital? How is overflow managed? You must also know which patients in your unit are appropriate to transfer, and who must stay in the ICU. When you cross-cover a unit, make sure it is clear in your hand-off which patients you can transfer.

Every bed request you get is a call for help. Your first responsibility is to the patient, regardless of the ICU census. If you truly feel that a patient needs an ICU bed and your unit is full, and all of your patients are too sick to transfer out, know who you can call to advocate for the patient. There is often a ranking faculty member who can move mountains to make a critical care bed available somewhere in the hospital for a patient in need.

When you receive a bed request, your primary objective is to determine "What are this patient's critical care needs?" Sometimes, you won't be able to come up with anything except that the primary team members are uncomfortable managing the patient and feel overwhelmed. A call from a surgical subspecialty intern at 3 am because a post-operative patient has a "borderline respiratory status" may indicate a crashing patient who needs to be intubated, or perhaps a stable patient with chronic respiratory issues who just needs to be more tightly managed on his home regimen. Go see the patient and figure out what he needs. If you don't feel an ICU bed is warranted, this is a good opportunity to educate the resident and make management recommendations.

## **Rounds**

Your role on rounds is likely to vary depending on your rotation and attending. Whether you are presenting patients, an “expert consult” for the residents, co-attending rounds, or leading rounds by yourself, your goal is always to learn how to lead rounds as an attending. Know the literature behind your management decisions, and be familiar with national practice guidelines. As an attending, you don’t want to manage, for example, ventilator weaning a certain way just because that’s the way you did it in residency training. Much has been written on virtually every important topic, and it will serve you well to be familiar with the literature and be able to defend your practice with data. Be open to learning from everyone on rounds.

## **Procedures**

If you are not already proficient in a wide range of bedside procedures when you start fellowship, now is the time to gain that expertise. Balance your need and desire to do procedures with your responsibility to teach residents how to do them safely and efficiently. Know when to take over a difficult procedure, and which patients’ procedures need to be handled by the one who is most experienced.

## **Evening Rounds**

If you are in charge of evening rounds, keep them brief and try to walk around the unit. The goals are to see if your team has made progress with the patients and anticipate any impending crises before the unit turns over to the night team. This is a good opportunity to circle back to important clinical and educational questions asked on morning rounds. At the end of evening rounds, recap which patients you’re most concerned about so that your team can exercise appropriate vigilance.

## **Hand-offs**

Unfortunately, due to ACGME regulations, you can’t be on call 24 hours a day and 7 days a week. This necessitates handing off your patients to another fellow, and also cross-covering ICUs where you aren’t familiar with the patients. It is in everyone’s best interest to keep an up-to-date patient list with pertinent information well maintained. As the team leader, make sure that the things you think are important about each patient are on that list.

## **Other tasks**

The previous version of this chapter by Marcin A. Jankowski DO included an excellent summary of the many things you may find yourself doing during Surgical Critical Care fellowship. We have reprinted it here for your benefit.

- supervise or perform bedside procedures
- attend to all SICU emergencies
- prepare fellow lecture series or PowerPoint presentations for students and junior house staff
- schedule Fellows Conference guest speakers
- prepare morbidity and mortality presentations
- read critical care texts
- perform research and literature reviews
- update educational resources
- review and update current management protocols
- staff, supervise or assist with OR cases
- perform bedside junior staff lectures
- present lectures at weekly Fellows Conference
- log operative cases and complete any related required fellowship paperwork
- attend staff meetings
- update families and significant others
- attend end-of-life family meetings

## **10. Geographic Considerations**

**02/02/2018 Robert A. Cherry, MD, MS, FACS, FACHE (Los Angeles, CA):**

Choosing the right location for your fellowship training is an important consideration and should not be underestimated. There are numerous factors to consider that might impact your personal lifestyle and professional career path. For instance, access to indoor and/or outdoor recreational activities, shopping, restaurants, sporting events, museums, theatres, and schools will carry varying degrees of weight depending on your lifestyle. Cost of living and affordable housing may be an issue depending on your financial resources. Spouse and child preferences are important since family satisfaction often influences the degree to which you are engaged and finding value in your work. Whether or not you have a significant other, a built-in support system may be important to you during your training. Proximity to immediate and/or extended family and in-laws may therefore drive your decision-making with respect to location.

Some people choose a particular geographic area that they plan to live in after completion of their fellowship training. If this is your situation, then it will be important to know if there are ample employment opportunities for you and any significant other. Geographic variations may also have a significant influence on the trauma and critical care population that you will be caring for. Population density, socioeconomic factors, local culture, seasonal variations, and market competition may profoundly define your clinical, educational and research experience, including trauma center volume, injury patterns, and acute care surgery presentations.

Nevertheless, a robust commitment to your education by a highly regarded group of faculty - in a location that you find personally and professionally desirable - should compensate for any geographic differences between fellowship programs over the long term.

## **11. Family Considerations**

**02/09/2018 Jennifer C. Knight Davis, MD, FACS (Morgantown, WV):**

### **Balancing Work and Life in Fellowship**

Fellowship is a different experience than residency. Balancing work and life remains challenging and if this is an important factor for you, special considerations should be made. A fellowship program will have varied responsibilities and expectations unique to each program, like call schedules, patient loads and vacation options. Time commitments will vary. Some programs have at-home call and you come in for special circumstances, while others have in-house call. Realistically exploring each of these may affect the appeal of a fellowship and as an applicant you should ask these questions during your interview. The current fellows can shed light on specifics and asking them is helpful.

#### **A few things to consider:**

Factoring in the "others" in your life like a significant other, children or pets is needed. Depending on the length of the fellowship, having career options for your significant other is important. Some fellowships in established GME programs have established support systems for these endeavors. Smaller programs may be more limited. There will likely be more options in an urban setting versus rural. If you are planning for a long-distance relationship during your fellowship, you should look into transportation options. Airports, train stations, highways etc. Living close to an airport can make this more convenient.

If you have children, some programs have amenities like day care. Finding at-home help for childcare in an urban setting will likely be more expensive. Combining at-home childcare could be an option if coworkers are in a similar situation. Urban areas will have wait lists for pediatricians and if the hospital system that your fellowship is affiliated with can provide that care, it might be easier to get an appointment.

Planning ahead for healthcare and insurance will prevent gaps. Now that most fellowships start August 1, gap coverage will be necessary. Your residency program coordinator can help with options for gap coverage supplied by your institution.

Extracurricular activities should be considered. With fellowships all over the country, coastal, mountainous, urban and rural options are there. The lifestyles in each setting can be picked to suit various interests.

How much of a factor each of these challenges poses will be different by the program and the applicant.

## 12. Applying to Fellowship Programs

04/15/2018 Catherine S. Nelson, MD (Yuma, AZ):

### 1) The Timeline:

- The National Resident Matching Program - ([www.nrmp.org/fellowships/surgical-critical-care-match](http://www.nrmp.org/fellowships/surgical-critical-care-match)) organizes the program match that surgical critical care participates in. They maintain a list of important dates for the application process on their website.

### 2) Lists of Programs:

- ACGME's <https://apps.acgme.org/ads/public/> page allows you to create a "List of Programs by Specialty" which lists all active programs. It also allows you to search by state and specialty under its "Program Search"
- Surgical Critical Care Program Directors Society ([www.SCCPDS.org](http://www.SCCPDS.org)) hosts information for candidates under their "future fellows" page. They maintain a list of ABS-approved EM-SCC programs, a list of links to active fellowship programs, and a list of unfilled positions after the match.
- The American Association for the Surgery of Trauma maintains a list of currently approved Acute Care Surgery Fellowship training programs at - [www.aast.org/list-of-aast-approved-programs](http://www.aast.org/list-of-aast-approved-programs)
- The Eastern Association for the Surgery of Trauma (EAST) maintains the [www.east.org/career-management/fellowships](http://www.east.org/career-management/fellowships) website where programs are organized by state or by type (trauma only, critical care only, acute care surgery only, combined). Each program's entry includes program director, university affiliation, hospital data, information on the fellowship such as number of years, RRC certification, ratio of blunt to penetrating trauma, and number of spots available per year.
- The National Resident Matching Program - ([www.nrmp.org/fellowships/surgical-critical-care-match](http://www.nrmp.org/fellowships/surgical-critical-care-match)) organizes the program match that surgical critical care participates in. They release a list of all the participating programs from the previous year, though these are grouped by state not by specialty. They also publish the results of the program directors survey on factors used to select candidates.

### 3) The Application:

- The Surgical Critical Care Program Directors Society has created a central application process called SAFAS ([www.safas-sccpds.fluidreview.com](http://www.safas-sccpds.fluidreview.com)). This allows you to apply to multiple sites via the same application packet.

### **13. Application Chronology**

**03/03/2018** Rafael A. Torres Fajardo, MD, JD (Sacramento, CA),  
David S. Morris, MD, FACS (Salt Lake City, UT),  
Joseph V. Sakran, MD, MPH, MPA, FACS (Baltimore, MD),  
Edgardo S. Salcedo, MD, FACS (Sacramento, CA):

The application for surgical critical care fellowship takes place the year prior to admission. This means applicants should start preparing the application at the end of their fourth year of residency. The following is an approximate guideline of when and what you should be doing:

#### **January - February**

- Surgical critical care and Acute care surgery Fellowship Application Service (SAFAS) opens in January
- Start working on personal statement
- Update curriculum vitae
- Figure out which programs you are interested in
- Begin asking for letters of recommendation.
  - o This is always the most time consuming step. Start early!!

#### **March – May**

- Fill out and submit applications
- Check on status of your letters of recommendation
- Should start the interview process
- Touch base with programs if you have not heard from them (sometimes applications get lost in the mix, but programs' timelines differ)

#### **June – July**

- The National Resident Matching Program (NRMP) conducts the match, registration begins in June
- Majority of interviews will take place during June - August

#### **August**

- More interviews
- SAFAS application deadline is in mid-August
  - o Be sure to check if program has a deadline for application submission that is earlier than the SAFAS deadline
- NRMP opens up the rank order list submission function
- Start thinking about programs you are interested in / rank list

#### **September**

- Have mentors call programs you are really interested in
- Certify rank order list occurs, check for deadline date

#### **October**

- Match occurs early in the month
- Positions that are not filled/open will be listed on the Web
- SAFAS remains open for post-match unfilled positions

All dates are subject to change and need to be verified directly with:  
SAFAS ([www.safas-sccpds.fluidreview.com](http://www.safas-sccpds.fluidreview.com)) and  
NRMP ( [www.nrmp.org/fellowships/surgical-critical-care-match](http://www.nrmp.org/fellowships/surgical-critical-care-match) ).



**04/15/2018 Catherine S. Nelson, MD (Yuma, AZ):**

January to February	SAFAS opens/create account
March to May	Research programs for compatibility
	Write personal statement and CV
	Request letters of recommendation
	Submit application
June to August	Interview at programs
	Match opens/register for NRMP
August	Ranking opens
8/15	SAFAS application deadline
September	Rank Order List deadline
October	Match day

#### **14. Preparing Your Personal Statement**

**03/03/2018 Joseph V. Sakran, MD, MPH, MPA, FACS (Baltimore, MD),  
Edgardo S. Salcedo, MD, FACS (Sacramento, CA),  
David S. Morris, MD, FACS (Salt Lake City, UT):**

At this point in your career you have probably written a number of personal statements that have gotten you into college, medical school, and residency. Having spoken to a number of fellowship program directors, I can tell you that for the most part the personal statement is probably not going to hurt you and it's probably not going to help you. This is not a green light to put together any old statement for your application. What will hurt you is if the person reading your statement stumbles across grammatical/spelling errors. That just shows a lack of attention to detail. Try not to regurgitate your curriculum vitae, which the program already has. Tell us something that we don't know, and why you as a person might stand out from all the other prospective applicants. This is really an opportunity for the applicant to get across a point that might not be evident from the application, and can potentially provide insight as to the unique background/qualities one might possess.

**04/15/2018 Catherine S. Nelson, MD (Yuma, AZ):**

This is your chance to make yourself stand out from the pile of applications sitting on a program director's desk. The average applicant will likely have equally good letters of recommendation, experiences and research so you can use the personal statement as a way of differentiating yourself from others. Keep in mind when writing your statement that many applicants choose to specialize in trauma and/or critical care for similar reasons. Don't waste space talking about what everyone else will. Instead mention things that make your application unique or memorable.

Your personal statement should be no more than one page in length, if it's too long readers will be more likely to skim though it. Consider the organization; you can devote a paragraph to discussing why you are interested in trauma/critical care. Try to list specific examples of interesting patients or experiences. Make this personal. Everyone likes trauma because of the excitement and unknown. Find aspects about the field that appeal to you as a career that others might not think about. Talk about the teamwork or research into prevention.

Another paragraph can be spent on where you see yourself in the future. Are you interested in general surgery and managing your own ICU patients? Do you want to focus on trauma in a high volume center? Are you interested in teaching or research? This will give your reader a sense of your interests and also allow them to figure out if you will be a good fit for their program. After all, they are going to be preparing you to assume the role you will choose.

Once you are done writing your essay, find a good editor. This is arguably the most important part. It goes without saying that your spelling and grammar need to be accurate. Find someone who will also assess your essay for readability, flow, and content. You need an editor who isn't afraid to tell you when things need to be rewritten or removed. Be prepared to rewrite whole sections multiple times. Give yourself enough time so that you do not rush through the editing process. You want to feel that you have best presented yourself and your interests in the one page that you have to work with. Your personal statement will often be referenced during your interview so be prepared to talk about what you have written.

To review

- start early; think March or April
- figure out what sets you apart from other applicants
- get a good editor

## **15. Letters of Recommendation**

**03/03/2018 Joseph V. Sakran, MD, MPH, MPA, FACS (Baltimore, MD),  
Edgardo S. Salcedo, MD, FACS (Sacramento, CA),  
David S. Morris, MD, FACS (Salt Lake City, UT):**

This part of the application process is probably one of the most important steps. The trauma/surgical critical care community is relatively small. Most of us know each other, or have interacted in a committee or at a meeting. While getting a letter from a “big name” might draw attention to your application, it is also important to note that you really want the individual to know you. It is usually evident in the letter of recommendation if the person really knows the applicant. This is the program’s opportunity to get to know the individual from a somewhat objective standpoint. You should always waive your right to see the letter. Don’t ask for a letter if you don’t think they will write you a good one. Most individuals will let the applicant know if they don’t feel like they are able to write them a letter that will help their application. Most programs require three letters of recommendation. I always say ask for four. Why? Well this allows you to have a safety net in case one of the letters falls through. Be prepared; don’t ask for a letter of recommendation at the last minute. You should ask months in advance. Make it easy for the person writing the letter. Supply them with your personal statement and CV. Finally, after you have narrowed down the programs you are really interested in, it usually is a plus if the person writing your letter will pick up the phone and call the program director.

**04/15/2018 Catherine S. Nelson, MD (Yuma, AZ):**

Each program requires letters of recommendation from attendings that you have worked with. The number of letters varies between programs but is often three. You may or may not be asked to provide a letter from either your Program Director or Chair. Ask for your letters early (March or April if possible). You will want to leave plenty of time before they are due. Your letter writers should be people that know you well and have worked with you. You should include a Trauma/Critical care attending if possible. Letters will be uploaded to the SAFAS common application process -

( [www.safas-sccpds.fluidreview.com](http://www.safas-sccpds.fluidreview.com) )

## **16. Coaches, Advisors and Mentors: What You Need and Why**

**10/19/2017 Priya S. Prakash, MD (Chicago, IL),  
C. William Schwab, MD, FACS (Philadelphia, PA),  
Lewis J. Kaplan, MD, FACS, FCCM, FCCP (Philadelphia, PA):**

### **1. Why You Need a Guide**

As you transition to a new location and a new role as a Fellow or a faculty member, you need a guide for everything from orientation to goal setting. Some roles are already scripted such as that of your Program Director – but that is a task-based role and different from the individual or individuals who will help you craft the next steps in your professional as well as personal development. Your guide may help you decide about projects to undertake, meetings to attend, societies to join, and places to look for a job. Furthermore, guides challenge you to expand the boundaries of how you think, the skills you acquire, and the goals you set all while seeking to maintain life-work balance. Some of these domains are longer-lived than others, naturally crafting different kinds of guides including mentors, advisors and coaches.

### **2. Mentoring versus Advising or Coaching**

Perhaps the most common guide is that of an advisor. Advisors are problem-oriented solution providers addressing issues such as which elective to select, and where one might find a job. While the advisor is invested in you – and your problem – the advisor's role may be readily defined by the boundaries of the problem at hand. Advisors and coaches may have overlapping roles and activities, but coaches generally provide solutions within the confines of a specific problem while advisors offer more expanded aid. Advisors often have a more expanded role including personal and professional development rather than guiding you through a specific task.

A mentor is fundamentally different from either the advisor or the coach in several key fashions. First, both the mentor and the mentee derive benefit from the relationship. Second, the relationship is not assigned, but instead develops as each partner in the dyad identifies important values and features of the other. Mentors find that their mentee has qualities that they want to develop and that they have the capacity to develop those qualities. Mentees find that their mentors serve as guides to both professional and personal development along a line of shared values and goals. Third, mentorship exceeds the life of a training period – it is more of a relationship for life. Fourth, the goals for the mentoring relationship change over time as each member of the dyad grows and further matures such that the relationship fits evolving needs rather than task-based requirements. Fifth, mentorship includes guidance about life both in and outside of the healthcare facility or practice in a give-and-take fashion. Sixth, mentors and their mentees start in a somewhat hierarchical relationship that evolves into one of equality as a goal and not as happenstance. Perhaps most importantly, the mentor asks questions to help guide the mentee along their path, supporting exploration without a predetermined notion of where that exploration will lead the mentee.

### **3. Qualities of a Good Mentor**

Individuals hailed as good mentors share common traits but perhaps most importantly are universally believed to be of sound character, and ethically, morally and professionally beyond reproach. Furthermore, they are generally good listeners, ask good questions, dedicate time to meet their mentees

needs, are available both in a scheduled fashion as well as on-demand for urgent issues, have sufficient experience to be able to offer perspectives, can relate to issues relevant to the mentee, and are dedicated to advocating for their mentee. One of the defining characteristics the mentee might seek is to identify the person that other individuals, both within a department and outside, count on in a dilemma, troubling situation, or crisis. This is not to be construed as the need for every mentor to be a Division or Section leader, but rather to identify that successful mentorship generally shares some elements that may inform the search for one. In particular, the faculty member who is NOT the Section or Division leader may have more availability to engage in mentorship as a result of reduced administrative encumbrance. Done well, the mentor should be subtly and progressively challenging the limits of the mentee's comfort zone with regard to thinking, skill sets, and perspective. A good mentor leads the mentee to solutions and decisions by constructing a journey of introspection, analysis and deductive reasoning that in most instances is a learning process for both. Mentorship takes time by both individuals and relies on significant trust in one another as well as the process.

#### **4. Qualities of a Good Mentee**

In some ways it may initially be more difficult to be the mentee than the mentor. A good mentee must also be a good listener, be willing to dedicate time to meet with their mentor, as well as time to explore what their mentor suggests. Often the mentee needs to spend time in an introspective fashion assessing values, likes, dislikes, cognitive focus, and passion in order to clearly define their goal. Additionally, time spent in service, on academic pursuit, suggested tasks, and personal goals may unwittingly create a time conflict – one that should be specifically discussed and addressed with one's mentor! Options for resolution that may not be intuitively obvious may be the perfect solution, and remain opaque for the mentee. Remember that your mentor has trod this path before and can share what they have learned with you. The mentee needs to be open to hearing what the mentor has to say even when it is apparently contrary to previously firmly held beliefs.

#### **5. Where to Locate Your Mentor**

As a fellow, it is perhaps most straightforward to find your mentor within your Fellowship Program, especially if it is a two-year program. Individuals in a one-year program may have insufficient time to find a mentor, but find it easier to embrace an advisor. Alternatively, one-year trainees find their mentor over the course of the year and have that relationship blossom only after they have graduated. If you are a new faculty member, finding a mentor at your new institution is ideal as they are conversant with your new home, the key individuals with whom you need to interface, as well as the relevant local issues that might impact your specific needs. Moreover, they are accessible in the same time zone, and have likely faced many of the same challenges you will face in that practice environment. In particular, leveraging the summative experience of emeritus faculty who are no longer clinically active, but academically or administratively engaged, may be a superb starting point for mentorship as one embarks on an academic career. For those with a laboratory research focus, a basic science department with research scientists aligned with your interests may yield the right mentor who possesses the ideal qualities to help guide the details of your scientific inquiry career.

#### **6. Mentors Within and Without Your Specialty**

Since mentorship is less about technical proficiency and more about professional and personal development, finding a mentor outside of your parent specialty often benefits from having some area of subspecialty overlap to ensure some common goals and experiences. For instance, many Acute Care surgeons have a mentor in Anesthesiology where the overlap is the critical care aspect of their practice. Similarly, an increasing number of Emergency Medicine faculty find Surgery mentors with overlaps in trauma and surgical critical care. Many permutations are possible as long as the relationship works for both the mentor and mentee.

## 7. Local versus Long-distance Mentoring

While it is logistically easier to have a local mentor, long-distance mentoring can also be very successful. Technological advances in interpersonal communication that facilitate two-way video linking via computer, tablet or smart phone allow the subtlety of facial cueing to remain an integral part of the relationship. The biggest challenge in long distance mentoring is finding sufficient time such that what is set aside for discourse is not subject to interruption. Long-distance mentoring may impair the spontaneity that characterizes some aspects of a local mentoring dynamic. Of course, one may embrace a local as well as a long-distance mentor all at the same time.

## 8. More Than One Mentor

Early in one's career a single mentor often suffices. However, as one matures, more than one mentor to help address specific aims and needs may be quite appropriate. An alternative approach to the dedicated single mentor-mentee relationship recognizes that time is a continually vanishing commodity and instead leverages several mentors, often with slightly different focuses from one another. This approach is termed "mosaic mentoring" with mentors entering and exiting from different phases or aspects of one's career. One might envision a mentor for research who is different from professional society advancement and further different from administrative advancement. This approach runs the risk of developing into "mosaic advising or coaching" but has its own merits, especially in a time constrained environment or with a time limited engagement such as during a single year Fellowship.

## 9. Divorcing Your Mentor

Both partners should regularly evaluate whether the relationship is working, and have a plan to discuss how the dynamic is progressing; indeed, a static relationship aids neither party. An honest assessment of mentee development and success is important. When each partner is benefitting and each person is continuing to develop the partnership is successful. When this goal cannot be achieved, investigating why should be undertaken as the mentor and the mentee initially found something very valuable in each other. Often the inquiry leads to repair and some restructuring of the partnership. Sometimes, no amount of repair will be successful, or one partner may no longer wish to remain in their role. Recognizing that not all mentor-mentee relationships will span a career, one should be prepared for that eventuality. Retirement, disability, relocation, and changes in life circumstance all may derail a successful partnership. Unsurprisingly, most have more than one mentor in their careers as a natural consequence of career and life progression.

## 10. Take Home Points

Everyone benefits from having a guide throughout their career and a structured way to identifying your guide and how they can help you is essential. A useful way to characterize guides you may encounter and specifically find is as follows:

*Coach:* specific skill, task, solution for a specific problem (how to hit a fast ball)

*Advisor:* a more expanded solutions solver (how to grow to a level so that you can hit all pitches, not just the fast balls)

*Mentor:* a guide for an active relationship that draws on your past, understands your vision for the future, and helps to move you (does not direct you) to accomplish life's bigger goals, especially fulfillment and happiness - both professionally and personally (helps you to become the coach for the people who need to learn how to hit all the pitches). As such this is a long-term relationship that benefits both mentor and mentee and may span an entire career.

Being a good mentee helps prepare you to be a good mentor in the future!

## **17. Identifying and Developing Your Interests**

**11/06/2017 Salina M. Wydo, MD, FACS (Camden, NJ):**

### Identifying and Developing Your Interests

Development from resident to fellow to partner involves more than just exposure to clinical medicine.

Fellowship is an opportunity to fill the gaps in your experience, refine the focus of your future practice, and to do so in a structured, guided and supportive environment. For residents who already have recognized and developed interests, it's an opportunity to further hone your skills and make connections in the large field of practicing specialty physicians. It is important to seek a fellowship or faculty position at a program whose "hidden curriculum" explores and identifies your interests and can help you cultivate your niche. Seek a mentor (or mentors, as several may be needed to help you reach all of your goals) early in training or practice.

Important questions to ask yourself during the fellowship/job-seeking process are:

1. What has my experience been so far (e.g., have I trained at a facility that has had research prospects; have I seen enough operative trauma; has our ICU been technologically advanced, up-to-date with evidence-based medicine)?
2. What haven't I done/seen/experienced (e.g., research projects; participated in development of institutional protocols; taken the time to teach and get feedback on my teaching; not enough operative trauma/penetrating trauma; have I been exposed to ECMO, peri-operative cardiac surgery patients)?
3. What do I enjoy (e.g., trauma v. surgical critical care v. acute care surgery; direct patient care v. administration; research; teaching);
4. Do I have non-clinical aspirations or interests within medicine, but outside of clinical medicine?
  - a. Several common areas of non-clinical focus are research, education, administration, and humanities.
    1. Education – does my institution have a medical school and residency, fellowship? Are there opportunities within the GME - committee/council positions, teaching opportunities, faculty development?
    2. Administration – Are there opportunities to have mentorship from the administrative leadership -
    3. Research – what are the opportunities at this institution (basic science only, clinical science only, both; are there animal labs)? How involved are the faculty? Do they have appreciable local resources (such as a dedicated coordinator or faculty protected time)? Are there research requirements for fellows and faculty? What is the representation at national meetings?
    4. Humanities – mission work/care for underdeveloped nations, ethics and palliative care

Know your strengths and interests, or have a plan to explore them with guidance. By recognizing your strengths and interests, you can commit to activities that will benefit your career, but not to those that don't offer value or personal satisfaction. Enjoyment is important, but projects you enjoy but for which you lack an aptitude may take a disproportionate amount of time and effort. The converse – things that come easily but offer no satisfaction - aren't likely to be meaningful and contribute to a long and fruitful career.

## 18. How to Prepare for the SCC Board Certifying Examination

**12/30/2017 James F. Watkins, MD, MSc, FACS (Snowmass Village, CO):**

Most taking the Examination will have completed a surgery residency and so will have had success with the ABSITE and the ABS Qualifying Examination, which are similar to the Surgical Critical Care Certifying Examination. There is no oral component as there is in the General Surgery Certifying Examination. If you had problems with prior examinations, you should probably make extra effort to prepare for this one. The overall pass rate fluctuates between 92 and 98%, according to statistics [posted](#) on the ABS website, which are better than those for the Qualifying Examination, although the Board does not offer any "comparables" or "risk-adjusting" to help you debug whether the applicant pool is stronger than that taking the Qualifying Examination. Your program should have statistics for pass rates for their recent graduates, although beware the "small-numbers" problem.

If we assume that you've done OK on these sorts of exams before, then you probably know the basics. Probably the most important thing is not to try to cram at the end. If you have problems with tests and chose a very time-intensive program, then take a month or two off prior to starting work and just read. Find a decent textbook and read it -- everyone has his or her favorite, and the partisans can be pretty intense, so I'm not going to name one here -- ask peers or program director. Read the literature (your program will have had journal clubs, and the citations in texts can guide you when trying to fill any gaps), although you will not be expected to cite cutting-edge work, it will help lead you to areas of special interest, and the questions on the exam are posed by people, not some robot, so you ought to be able to figure out what the areas of interest actually are. Ask recent examinees, particularly those who've been through your program, what they found hard or received more emphasis than they expected, and go there. Conversely, it is unlikely that you will be asked questions where the data are inconclusive or lacking, such as whether one vent mode is better than another -- instead, they may ask about PEEP, tidal volumes, and permissive hypercapnia, where there are data -- I'd be willing to bet that ARDSNet will show up. Be careful in reading the questions and tying them to your reading; just because you read a paper for therapy X that hit a secondary endpoint in a famous trial is not the same as it being accepted as standard of care, and similarly, it's easy to misread the questions when you're excited.

The question could easily be construed as asking if taking a review course is necessary. The short answer is: "no." I took the SCCM course, though, and thought it was worth every penny as it provided a comprehensive review by experts from outside the cloister of the program I'd just completed. You need to know, if you are considering that particular course, that it is aimed across multiple specialties, and they mean it -- it's not called "Multiprofessional Critical Care Review Course" for nothing. What this means in practice is that while the arrhythmia review may be awe-inspiring, it may be overkill for most surgeons, unless you are working in an open-heart unit where they do maze procedures; the ABS exam does not go into that kind of depth at all, although I am sure that the cardiologists are expected to know this in minute detail. Aside from the fact that the course may not be specifically designed for the ABS examination, it seems, to me, to be hard to beat. There are other courses about which I don't know enough to form an opinion, so ask around, everyone loves to opine.

In terms of specific test answers, I saw no real trick questions, nor questions designed to see if you spend your days reading Shock or J. Exp. Med. Just give them safe, up-to-date answers that reflect widespread practice and you should do fine. It struck me in other ABS exams that the Board is looking to assure safety, not measure brilliance, and my impression is that this holds for the Critical Care exam as well. Good luck.



## 19. What is the Post-Fellowship Job Outlook?

**09/08/2017 Chet A. Morrison, MD, FACS, FCCM (Lancaster, PA):**

The post-fellowship job outlook: A long term secular growth story

Glendower: I can call spirits from the vasty deep

Hotspur: Why so can I, or so can any man  
But will they come when you do call for them?

Shakespeare *Henry IV, Part 1*

The term ‘secular growth story’ comes out of investment writing and generally means a company or a stock that is expected to sustainably increase profits and earnings across economic cycles, rather than being dependent on them. So I think we can still apply this term to the job outlook in trauma/critical care and acute care surgery in that demand will continue to grow; not only across economic cycles, but also irrespective of changes within the health care profession that have occurred. I therefore believe that graduating fellows will face a very robust job market that should allow them a range of geographic, economic and practice choices, driven by an underlying demand for our services that should grow with the years. I also believe that the fellowship graduate can continue to look forward to a generous salary that should provide lifelong financial security.

There are several reasons for this. The aging population, the rise of the numbers of patients cared for in the ICU and the rise in cases of sepsis nationwide is a well-documented phenomenon. As patients are living longer and more elaborate treatments are being offered for previously untreatable conditions, the need for critical care specialists will have to rise in parallel. Work done in the past decade by Dr. Young and colleagues, for example, suggests that outcomes are better in ICUs managed predominantly by full-time intensivists. In their analysis, it was estimated that full implementation of intensivist-model staffing would save approximately 53,850 lives each year in the United States. The authors further noted that “Because of potential constraints related to the workforce and other resources, the feasibility of fully implementing intensivist-model ICUs nationwide is uncertain”. Furthermore, intensivist staffing has been shown to be cost effective and potentially cost saving in terms of decreasing costs associated with intensive care and length of ICU stays. Unfortunately for the population, but perhaps fortunately for the graduating fellow, a shortage of intensive care physicians is projected to be as high as 35% in the next 20 years, according to well thought out models.

Paralleling this is the rising need for trauma surgeons, which can be expected to include the 'Acute Care Surgeon'. Part of this is also driven by the aging population, as well as the increasing number of patients who require emergency surgical care; Indeed the Institute of Medicine released a report in 2006 that labeled hospital based emergency care "At the Breaking Point". It was noted that three quarters of hospitals report difficulty finding specialists to take emergency and trauma calls." Also, a survey in 2009 found that there was a significant shortage of trauma surgeons nationwide, with a mean of approximately two additional trauma surgeons per center and an average time a position stood vacant of 19 months; this despite the compensation of a trauma surgeon which often totals more than \$400,000 per year (above the mean surgical income across all specialties of approximately \$351,000). Contributing to the need for the acute care surgeon is the decline of the non-specialized general surgeon. A substantial number of people in this country live in a county that does not have a general surgeon. This is not a situation likely to change as more and more graduates subspecialize and the number of surgical GME positions is not expected to change. Thus another reason the need for acute care surgeons will grow substantially in the future. Within the past seven years, numerous reports in the literature have documented improved or equivalent outcomes in patients cared for under the new Acute Care Surgery model, and it remains attractive to future surgeons due to the enhanced professional satisfaction and also the potential for a controllable lifestyle. Thus, as the specialty refines itself further in the coming years, there should be increased institutional support for the hiring of qualified physicians able to meet the demands of the Acute Care Surgery model.

It is also an unfortunate aspect of the world we live in that national disasters and pandemics as well as man-made catastrophes and malicious terrorist attacks occur that generate numbers of patients in need of the services of trauma/critical care physicians. When these catastrophes occur, the services of the well-trained acute care surgeon and critical care specialist will be essential; it has been noted that political disaster planning tends to end at the hospital door. This is also inadequate, as a serious expansion of critical care capacity will be needed in the event of a major disaster. The recent mass shooting atrocity in Orlando is a case in point. This episode taxed the resources of even a very well-staffed level one trauma center and major referral facility.

So, when one weaves these strands together one is led directly to the conclusion stated at the beginning: that the future for the fellowship graduate in trauma, critical care and acute care surgery is bright indeed, and the graduating fellow need have no doubt that his or her job prospects are excellent and highly likely to stay that way for the foreseeable future. We bring unique and critically needed skills to the healthcare profession, and, as alluded to in the opening epigraph, we come when called. And physicians who come when called will always be needed.

**08/19/2018 David A. Spain, MD, FACS (Stanford, CA):**

Fellows in 1 year programs have to be very organized and start the job hunting process fairly early into the fellowship. I always emphasize that by X-mas time they need to be sending out inquiries and assessing opportunities.

## 20. Re-entry Applicants

**01/07/2018 Michelle R. Brownstein, MD, FACS (Greenville, NC):**

What about the applicant who is re-entering into practice after a hiatus from clinical practice?

Speaking from personal experience, the Surgical Critical Care (SCC) fellowship can be a component of a reentry plan for someone who has taken time off from clinical practice. I took time away from practice to focus on my family and was fortunate enough to have key mentors help me reenter when the time was right.

I'm writing this piece not only for potential candidates, but also for program directors so they can keep an open mind if approached by a colleague or an individual. Globally, reentering surgeons is one way to address our workforce shortage needs. More granularly, it is a meaningful way to pay it forward by realizing the shared investment made previously by that individual and all who had previously trained him or her.

In order to be an appropriate candidate for a fellowship you will need to either maintain or reinstate your board certification in general surgery and have an active medical license. This can be an arduous task but it is not insurmountable. Anyone considering reentering into clinical practice will need to evaluate critically their own circumstances to assess their personal knowledge and skill gaps. A general resource to do is this website (<http://physician-reentry.org/>). Under the resources listed there you will find issue briefs on the topic and in particular a schema for reentry to educational system that outlines the basic needs. In addition to a needs assessment, the cornerstone is having a mentor/coach/champion who will facilitate navigating the system.

Each state medical board has specific requirements regarding maintaining or regaining a medical license with specifics for anyone who has been clinically inactive. Many have specific reentry components depending on the time away and the reasons for that. My state does and my entire reentry plan was dictated structurally by those requirements and included a graduated, proctored clinical experience tailored to my needs followed by a 1 year SCC fellowship resulting ultimately in me being recertified in general surgery and board certified in critical care. The Federation of State Medical Boards ([www.fsmb.org/](http://www.fsmb.org/)) is a resource to assess the requirements of any state and also has a special committee on reentry into practice. They released a Report of the Special Committee on Reentry into Practice in 2011.

Since 2012 the American Board of Surgery (ABS) has formalized the expectations for a surgeon who wants to re-enter into clinical practice after a hiatus ([www.absurgery.org/default.jsp?policypracticereentry](http://www.absurgery.org/default.jsp?policypracticereentry)).

There are 5 components: Assessment of status of practice at departure, Re-entry pathway constructed by the local physician champion, Proctoring plan, Outcomes assessment and ABS MOC. In special situations, the SCC fellowship could serve as the sole clinical component of a re-entry plan depending on how the fellowship is structured, the specific skill deficits of the surgeon and his/her ultimate practice goals. Alternatively, a SCC fellowship can be coupled initially with an individualized period of time with proctored opportunities to fill in missing skills prior to starting the fellowship. Anyone who wants to consider completing the process will have an easier time if they have kept copies of all of their credentials and certificates as well as maintain a current resume. If you are able to continue doing CME that will facilitate the process as well.

Ultimately, you will need to work with the medical board in the state where you would do your re-entry program and fellowship and also the ABS to meet all requirements. Plan ahead as acquiring all of the necessary documents, finding an appropriate mentor and meeting all the requirements just to get started requires 6 -9 months in advance at a minimum.

## **21. Emergency Physicians**

**02/04/2018 Julie M. Winkle, MD, FACEP, FCCM (Richmond, VA):**

### CRITICAL CARE FELLOWSHIP TRAINING FOR EMERGENCY PHYSICIANS FREQUENTLY ASKED QUESTIONS

#### **1. Why do a surgical CC fellowship program?**

Emergency Physicians (EP's) report different reasons for wanting to pursue critical care (CC) fellowship training. Current options include fellowships in medical CC, anesthesia CC and surgical CC (SCC). Reasons stated for why EP's may train in CC include:

- Interest in taking care of critically ill patients and a wish to develop more of an understanding and an expertise in the management of these patients
- Enjoying ICU rotations and a wish to practice in-patient CC
- Wanting a sub-specialty within Emergency Medicine (EM)
- A fascination with surgical pathology and the care of surgical patients, but not wanting to be a surgeon
- A desire to improve the care of CC patients in the emergency department
- Affinity for procedures- SCC physicians can do bronchoscopy, percutaneous tracheostomy and some feeding tubes, as well as central lines and chest tubes
- An interest in trauma and the possibility of combining post-graduate training in both trauma and CC

#### **2. How are the two years of surgical CC fellowship structured?**

Currently, the American Board of Surgery (ABS) requirements state that EP's that have completed residency training must complete a preliminary year of surgical training, followed by an ACGME-accredited SCC training program **at the same institution** ([https://www.absurgery.org/default.jsp?certscce\\_abem](https://www.absurgery.org/default.jsp?certscce_abem)).

One of the most common questions for EP's considering a SCC training program is in regards to the structure of this first year of training. Curricula and requirements vary depending on the program, but the goal of this year is to give EP's a fundamental understanding of the pre-operative, intra-operative and post-operative conditions that are encountered in caring for critically ill surgical patients<sup>3</sup>. Individual programs submit their proposed curriculum for approval to ABS. Applicants are encouraged to ask programs how this year is structured and what the EP's role will be on surgical teams.

#### **3. Will I be board certified in CC after doing a surgical CC fellowship?**

EP's may become board certified in SCC by the ABS by meeting the following requirements: successful completion of EM residency and achievement of ABEM board certification, completion of a preliminary year of surgical training followed by an ACGME-accredited SCC training program at the same institution, and successful completion of the board certifying exam.

#### 4. What should I look for in a fellowship?

An important aspect for EP's interested in a CC fellowship is to find a program that is supportive of EM physicians practicing CC. EM trainees have a different skill set entering CC fellowship - most tend to be more adept at certain topics such as management of arrhythmias, acute coronary syndrome, neurologic emergencies, and airway management; but may not have an extensive knowledge of surgical pathology. It may be helpful to have supervising physicians that are aware of that fact and have experience training EP's. Important in any CC training program is a comprehensive didactic program, a strong clinical experience consisting of a diverse, critically ill patient population, and the opportunity to pursue elective or research interests.

#### 5. Which programs currently have ABS-approved 2 year fellowship programs?

The following is a list of fellowships that have been approved by ABS. This list may not include all programs and applicants are encouraged to check the SCC program director society's website for an updated list (<http://sccpds.org/future-scc-fellows/em-scc-approved-programs/>)

##### Surgical Programs

University of Maryland Medical Center, Baltimore, MD  
Massachusetts General Hospital, Boston, MA  
Albany Medical College, Albany, NY  
St Luke's Hospital, Bethlehem, PA  
University of Pennsylvania, Philadelphia, PA  
Medical College of Wisconsin, Milwaukee, WI  
Methodist Health System, Dallas, TX

#### 6. What are my options for practice after CC fellowship?

Over 250 EM physicians have done CC fellowships over the past 3 decades. Most of these dual trained physicians practice both EM and in-patient CC. Now that there are pathways to board certification in CC, practice options are wide for EP's. Options for post-fellowship practice include academic, community, or VA institutions, as well as surgical, surgical subspecialty and combined Medical-Surgical ICU's. There is a growing number of EM physicians that are concentrating on improving critical care in the emergency department and are working towards "bringing the upstairs downstairs" (see emcrit.org).

##### **Helpful References**

1. Mayglothling JA, Gunnerson KJ, Huang DT. Current practice, demographics, and trends of critical care trained emergency physicians in the United States. *Acad Emerg Med.* 2010 Mar;17(3):325-9.
2. Huang DT, Osborn TM, Gunnerson KJ, Gunn SR, Trzeciak S, Kimball E, Fink MP, Angus DC, Dellinger RP, Rivers EP; Society of Critical Care Medicine; American College of Emergency Physicians; Society of Academic Emergency Medicine; Council of Emergency Medicine Residency Directors; Emergency Medicine Residents Association. Critical care medicine training and certification for emergency physicians. *Crit Care Med.* 2005 Sep;33(9):2104-9.
3. Tisherman SA, Alam HB, Chiu WC, Emler LL, Grossman MD, Luchette FA, Marcolini EG, Mayglothling JA; for the Surgical Critical Care Program Directors Society Task Force on Emergency Medicine-Surgical Critical Care Training. *J Am Coll Surg.* 2013;217(5):954-9.e3

## 22. Anesthesiologists

**09/17/2017 Maureen McCunn, MD, MIPP, FASA, FCCM (Baltimore, MD):**

Trauma Anesthesiology and Acute Care Anesthesiology Fellowship Training

Anesthesiologists and surgeons are co-dependent in many aspects of their practices, particularly in the operating room. Many anesthesiologists do not want to practice, nor have an interest in, trauma care and very few are skilled or trained in the management of the acutely ill patient in need of urgent operative intervention. If you are the type of person who thrives in a high-intensity, high-stakes (life or death) environment, is challenged by emergency cases, wants to develop a procedure-heavy skill set, and are flexible, adaptable and calm under pressure, this is the field for you.

There are currently SIX trauma anesthesiology fellowships in the U.S.:

University of Maryland

<http://www.umm.edu/programs/shock-trauma/services/clinical/trauma-anesthesiology>

University of Texas

<https://med.uth.edu/anesthesiology/education/fellowship/trauma-anesthesiology-fellowship>

University of Washington

<http://depts.washington.edu/anesth/education/fellows/trauma.shtml>

University of California, San Francisco

<https://anesthesia.ucsf.edu/trauma-acute-care-surgery-anesthesia-fellowship>

University of Alabama

<https://www.uab.edu/medicine/anesthesiology/education/fellowships/trauma-and-acute-care/applicant-information>

Washington University

[http://anest.wustl.edu/trauma/fellowship\\_overview](http://anest.wustl.edu/trauma/fellowship_overview)

What kind of job can you expect with this training?

Very few hospitals and medical centers can support a full-time practice in trauma anesthesiology, so you may end up doing general OR and will have trauma/emergency surgery cases intermittently. Critical care fellowships in anesthesiology are generally 1 year, but can be 2 or more, depending upon the fellow's interest, such as cardiac, neurocritical care, or trauma. A new concept has recently developed, similar to Acute Care Surgery (trauma, emergency care and critical care) that is called "Acute Care Anesthesiology". (McCunn, et al) The proposed curriculum includes a minimum requirement of 9 months of ICU training, and the program that you select may be flexible in designing additional training in trauma, EMS/pre-hospital care, emergency preparedness/disaster management, extracorporeal support modalities, research, ultrasound, or global health. There are only a few trauma ICU's in the country in which to practice. However, the clinical proficiency that you obtain during a trauma/acute care anesthesiology fellowship and the critical-thinking skills that you gain – in addition to flexibility and readiness training – each add to your ability to work in a high-intensity and readiness environment at all times.

Doing an elective rotation at an institution where you are considering a job or a fellowship is beneficial to both you (do you like the staff, the system and the package) and the program (do they like you, do your goals match their mission?).

The work hours, although limited by ACGME requirements, are usually longer than those of an anesthesiologist in the OR, and during fellowship include in-house call nights, weekends and holidays. Many programs fund a 2<sup>nd</sup> year of fellowship by having the fellow work as an attending anesthesiologist in the OR part-time. If you complete critical care fellowship training, after passing your boards you will have a certificate in the subspecialty of critical care anesthesiology. There is no equivalent certification for trauma or acute care anesthesiology, so it is highly recommended that you do a 9-month critical care base year, and then focus on your area of interest, in order to be eligible for the additional certification.

#### Reference

McCunn M<sup>1</sup>, Dutton RP, Dagal A, Varon AJ, Kaslow O, Kucik CJ, Hagberg CA, McIsaac JH 3rd, Pittet JF, Dunbar PJ, Grissom T, Vavilala MS. Trauma, Critical Care, and Emergency Care Anesthesiology: A New Paradigm for the "Acute Care" Anesthesiologist? Anesth Analg. 2015 Dec;121(6):1668-73.

## 23. International Physicians

**12/30/2017 Mansoor A. Khan, MBBS (Lond), PhD, FRCS(GenSurg),  
FEBS(GenSurg), FACS, AKC (London, United Kingdom):**

### Guidance for Application from the UK for Fellowship in Trauma/Surgical Critical Care in the USA

Preparation for a fellowship in the USA is a time consuming process that requires a lot of steps. I started my application process 2 years in advance! Prior to any application/correspondence it is a good idea to have discussed this with your educational supervisor, Programme Director and/or Postgraduate Dean as these individuals will have a big say in whether you can get approval for the post to be recognized as Out of Programme Experience (OOPE) or Out of Programme Training (OOPT) – more to follow on this later!

The initial decision is to decide where in the USA one should undertake the fellowship. There are numerous sites on the internet, [www.aast.org](http://www.aast.org) and [www.east.org](http://www.east.org), all of which can easily be accessed to help you decide which programme would be the best suited for you to apply for.

It is imperative that you check eligibility criteria: do you possess the USMLE? Are you at the right stage of residency (or equivalent)? Will this fellowship programme aid your career or do you need to look at a different institution? If you do not possess the USMLE and it is a requirement, then you must allow sufficient time to obtain this, as many institutions require this before you even apply.

Remember, the key is to keep your UK programme faculty updated at all times. Once you have decided to apply, you will require references. In my case, I obtained references from my Educational Supervisor, Programme Director and Associate Postgraduate Dean.

Once all references are available, apply for the Fellowship and wait an interview date. If successful at interview, then prepare for even more paperwork. I applied for my fellowship to be recognized as OOPT, which is recognized training and counts towards a Certificate of Completion of Training (CCT) – although I believe this option is no longer available.

### Out of programme post approval process

In order to get any period of out of programme training approved, trainees should be aware of the following process: once they have been offered a fellowship they must inform their Deanery of their request. The deanery will then write a supporting letter in which you must state the exact job description, roles and responsibilities, weekly timetable so that the Dean can seek agreement from the relevant Royal College/faculty that the experience is appropriate and relevant for the CCT.

Once approval from the relevant College is obtained, the Deanery can then apply to the General Medical Council (GMC) and relevant Advisory Committee for approval for this training to count towards CCT. This whole process can take a few months! In 2010, the PMETB has merged with the GMC, however the application process still remains the same - (<http://www.gmc-uk.org/education/index.asp>).



## **24. Web Sites of Interest**

**08/18/2018 William C. Chiu, MD, FACS, FCCM (Baltimore, MD):**

Accreditation Council for Graduate Medical Education (ACGME): [www.acgme.org](http://www.acgme.org)

American Association for the Surgery of Trauma (AAST): [www.aast.org](http://www.aast.org)

American Board of Emergency Medicine (ABEM): [www.abem.org](http://www.abem.org)

American Board of Medical Specialties (ABMS): [www.abms.org](http://www.abms.org)

American Board of Surgery (ABS): [www.absurgery.org](http://www.absurgery.org)

American College of Surgeons (ACS): [www.facs.org](http://www.facs.org)

Eastern Association for the Surgery of Trauma (EAST): [www.east.org](http://www.east.org)

EAST Fellowships Careercasts:  
<https://www.east.org/professional-development/careercast?categoryId=30>

European Society of Intensive Care Medicine (ESICM): [www.esicm.org](http://www.esicm.org)

General Medical Council – United Kingdom (GMC-UK): [www.gmc-uk.org](http://www.gmc-uk.org)

National Resident Matching Program (NRMP): [www.nrmp.org](http://www.nrmp.org)

Society of Critical Care Medicine (SCCM): [www.sccm.org](http://www.sccm.org)

Surgical critical care and Acute care surgery Fellowship Application Service (SAFAS):  
[www.safas-sccpds.fluidreview.com](http://www.safas-sccpds.fluidreview.com)

Surgical Critical Care Program Directors Society (SCCPDS): [www.sccpds.org](http://www.sccpds.org)

## **25. Acknowledgment**

**11/19/2018 William C. Chiu, MD, FACS, FCCM (Baltimore, MD):**

I am indebted to Dora Russell, SAFAS Administrator, for all of her dedication and assistance in formatting the SCCPDS Fellowship Guide into an interactive PDF document with hyperlinks to easily navigate to individual chapters.