



# SLEEPY TIMES

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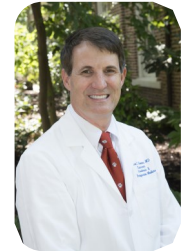


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## Message from the Chairman: A Call to Action

-SCOTT T. REEVES, MD, MBA



It is not often that one has the opportunity to help define what it means to be an anesthesiologist. During my presidency of the Society of Cardiovascular Anesthesiologists (SCA), I lead an effort to incorporate perioperative ultrasound (US) into residency training. Perioperative ultrasound is defined as the use of ultrasound for patient management during the perioperative period. The SCA Call to Action was published in the June edition of *Anesthesia & Analgesia* (heading below), and its purpose was to define the scope of perioperative ultrasound, review the current status of US training practices during anesthesiology residency, and suggest recommendations for current and future trainees on how to obtain perioperative US proficiency.

### ■ SPECIAL ARTICLE

## Perioperative Ultrasound Training in Anesthesiology: A Call to Action

Feroze Mahmood, MD,\* Robina Matyal, MD,\* Nikolaos Skubas, MD,† Mario Montealegre-Gallegos, MD,‡ Madhav Swaminathan, MD,§ Andre Denault, MD,|| Roman Sniecinski, MD,¶ John D. Mitchell, MD,\* Mark Taylor, MD,# Stephen Haskins, MD,\*\* Sajid Shahul, MD,†† Achikam Oren-Grinberg, MD,\* Patrick Wouters, MD,‡‡ Douglas Shook, MD,§§ and Scott T. Reeves, MD, MBA|||

It is expected that perioperative US would include transthoracic and transesophageal echocardiography, procedural guidance (during vascular access or regional anesthetic procedures), and point of care US (abdominal, chest wall and airway imaging) during cardiovascular and hemodynamic emergencies in critical care and perioperative settings.

### Recommendations:

1. During anesthesiology residency, perioperative ultrasound training should be continuous and structured.
2. Within the expectations of achieving ACGME milestones, residency programs should create their own teaching tools and evaluation metrics to demonstrate the progression of learners. It is the hope of the Society of Cardiovascular Anesthesiologists that this call to action article will intensify the debate within our specialty to establish standard training expectations within our residency training programs. There is a substantial overlap between the different perioperative US modalities that makes unified teaching attractive from an efficiency standpoint. Because of the importance of US to the evolution of anesthesiology as a specialty, it would be prudent to develop and implement fundamentals of perioperative US education and training to be universally adopted in accredited anesthesiology training programs.

So in conclusion, the SCA proposes that formal perioperative US education becomes an essential component of the anesthesiology residency curriculum so that adequate exposure and attainment of proficiency in perioperative US is obtained at the completion of anesthesiology residency.

## MESSAGE FROM THE CHAIR CONTINUED...

Accompanying the Call to Action was an editorial by Gregory Janelle, MD (University of Florida) and Martin London, MD (University of California at San Francisco). They get the concept writing, *the fact remains that trainees are not uniformly exposed to perioperative US in a structured teaching format across the United States...In addition, many residency programs may not have the necessary infrastructure to develop a residency wide curriculum.*

To that end, Alan Finley and GJ Guldan have been hard at work developing simulation based models to provide the necessary learning content. We are also looking at utilizing the curriculum being developed by the SCA. Please take a few minutes to read these articles in June's *Anesthesia & Analgesia*.

### RIPCHD. OR Patient Safety Project Team Meeting; April 2016

In April, Jake Abernathy, Ken Catchpole, Wanda Jones and Scott Reeves traveled to Clemson to review the first year of our 4-year Agency for Healthcare Research and Quality (AHRQ) grant. John Schaefer also attended as a member of the steering committee. The first year was very successful with over 30 high fidelity recordings of orthopedic, pediatric and general ambulatory surgery cases being obtained. Year two will consist of analyzing the data and developing mock operating rooms.



## MUSC Arrives at the Society of Pediatric Anesthesiologists Annual Meeting by Scott Walton, MD



The Society of Pediatric Anesthesiologists (SPA) annual meeting was held on March 31 to April 3, 2016 in Colorado Springs, CO. MUSC was represented at the meeting by Drs Heine, Schnepfer, Furse and Walton.



The SPA is preceded by day-long meetings of the Society for Pediatric Pain Medicine (SPPM) and the Congenital Cardiac Anesthesia Society (CCAS). MUSC was also represented at these subspecialty society meetings.

During the SPPM meeting, Drs. Schnepfer and Furse moderated a problem based learning discussion (PBLD) titled **“Your patient's face is half-red, did you use special tape? Unilateral facial flushing following pectus repair and thoracic epidural placement.”** The Congenital Cardiac Anesthesia Society sessions were attended by Drs. Walton and Heine. You can view the program for these at:

[SPA 2016: Society of Congenital Cardiac Anesthesia Program Agenda](#)

[SPA 2016: Society of Pain Anesthesia Program Agenda](#)

[SPA 2016 Program Agenda](#)

At the CCAS meeting, interesting information was presented regarding the ability of persons with patent foramen ovale (PFO) to compensate to high altitudes. In short, persons with PFO are unable to fully compensate compared to those without PFO. There might be a good opportunity to screen for and occlude PFO's among alpine adventurers and military personnel who must perform at high altitudes!

The PBLD titled **“Gastrostomy on a 4 week old, status-post Norwood: Who should captain the ship and how should it be sailed?”** was moderated by Drs. Heine and Walton during the general SPA meeting.

Also attending the SPA general sessions were several past and future MUSC anesthesiologists. The group from the past was: Trevor Adams---currently at Seattle Children's, Ashley Lefevre---currently at Henrietta Eggleston Hospital for Children in Atlanta, and Jeanna Havidich---currently at Dartmouth Children's. The group of the future was: Lauren Moore---currently in fellowship at New Mexico Children's and Samantha Vizzini---currently at Nationwide Children's. The highlight of the meeting was a dinner gathering of all MUSC anesthesiologist past, present and future. A warm evening of shared experiences and friendship was had at the Blue Star restaurant:

<http://www.opentable.com/the-blue-star>

In summary, the division of pediatric anesthesia was well represented at the 2016 SPA annual meeting. The gathering of MUSC pediatric anesthesiologists from the past, present and future made obvious that we are becoming a sizable community and an increasing presence in the larger community of pediatric anesthesiologists. Here is the **total** current list of MUSC pediatric anesthesiologists past, present and future: Charles Wallace, Calvert Alpert, Hugh Dorman, Scott Reeves, Norman Brahen, Napoleon Burt, Steve Dierdorf, Brian May, Michelle Rovner, Diane Hanks, Labron Chambers, Tommy Burch, Cesar Rodriguez-Diaz, Frank Stewart, Frank McGowan, Carlos Bracale, Grace Wojno, Ilka Theruvath, Marc Hassid, Cory Furse, Patty Roland, Keith Tomlin, Curtis Brown, Jake Freely, Amanda Redding, Mike Sabbagh, Gregg Schnepfer, Heather Byrd, Tracy Wester, Chris Heine, Trevor Adams, Bennet Cierny, Alison Jeziorski, Deborah Romeo, Ashley Lefevre, Jay Motley, Samantha Vizzini, Lauren Moore and Scott Walton. That is 39 if you were counting! I could have easily missed some members of this group and extend an apology for any oversight.



## MUSC Arrives at the Society of Pediatric Anesthesiologists Annual Meeting by Scott Walton, MD Continued...



## ANESTHESIA ICCE LEADERSHIP SELECTED

From the April 21, 2016 edition of The Catalyst:

In an era when collaboration and integration are pivotal to MUSC's continued success, being informed means each of us needs to take ownership of and gain perspective about major changes under way across the MUSC landscape. As the university and hospital more closely align, what happens on one side increasingly affects the other.

The next phase in the development of MUSC Health took place earlier this month when leaders were announced for the Integrated Centers of Clinical Excellence (ICCE). ICCE are vital organizational structures to improve strategic alignment and operational effectiveness across MUSC Health, unfolding in tandem with our research and educational missions.

After a robust internal search and interview process, the following were named ICCE Leadership for MUSC Health:

### Collaborative Integrated Centers of Clinical Excellence

**Carlee Clark, MD—Anesthesia ICCE Chief**

**Brenda Dorman, MBA—Anesthesia ICCE Administrator**



*Congratulations*

## LIBRARY RESOURCES JUST FOR YOU!

BY EMILY BRENNAN, MLIS, RESEARCH & EDUCATION LIBRARIAN

Did you know that there is a library guide specifically for the Department of Anesthesia and Perioperative Medicine? This guide <http://musc.libguides.com/anesthesia> contains library resources (clinical resources, journal database, ebooks, mobile apps) specifically for you. Think of it as your homepage to the library. I will highlight a few of my favorite resources here.

One of your most valuable resources is me: your librarian, Emily Brennan. I can help you with database searching, evidence-based practice, citation management, mobile device apps, and more – so please contact me ([brennane@musc.edu](mailto:brennane@musc.edu)) with any library needs!

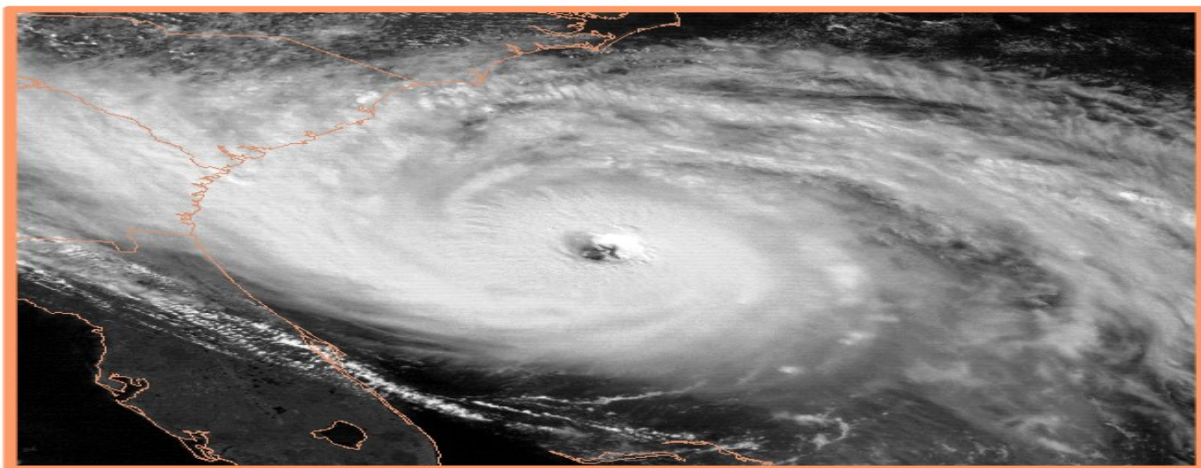


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The library subscribes to many mobile apps (UpToDate, DynaMed, ClinicalKey, AccessMedicine, Lexi-Comp, Johns Hopkins ABX Guide) but the latest and greatest is BrowZine. Do you remember the good old days of browsing the latest issue of your favorite print journal? Have you ever tried to browse an ejournal from the library website? Urgh! BrowZine displays library-subscribed journals in a browsable format on your iPad, iPhone or Android tablet. Save your favorite journals in *My Bookshelf*, and save your favorite articles in *Saved Articles* (read articles offline!). Keeping up with the latest studies has never been so easy.

[Click Here To View the Hurricane Plan](#)

### Department of Anesthesia and Perioperative Medicine



### Hurricane Plan

Created: 2007  
Updated: 09/2008, 06/2010, 06/2014

Page 1 of 32

Last saved by: MEK  
Revised: May 19, 2015

ASRA ARTICLE

# Outpatient Hip and Knee Arthroplasty: Are We Ready for This?

As anesthesia and pain management strategies evolve to facilitate physical therapy, more orthopedic procedures are moving into the outpatient arena. Classically, total hip (THA) and total knee arthroplasties (TKA) have been inpatient surgeries requiring a 2- to 4-day hospitalization followed by discharge home or transfer to rehabilitation facilities. However, in the last few years, an increasing number of hospitals and ambulatory surgery centers have adopted standardized enhanced recovery protocols, thereby significantly decreasing hospital length of stay.<sup>1</sup> Consequently, many centers have started to promote the concept of ambulatory hip and knee arthroplasty.

The anesthesiologist's role is integral to the success of ambulatory arthroplasty. Repeated publications have emphasized the role of opioid-sparing analgesia, through regional anesthesia and multimodal oral analgesics, to both minimize side effects and promote early rehabilitation. Intraoperatively, both general and neuraxial techniques have been used as long as the technique promotes rapid patient recovery. Thus, if utilizing a neuraxial technique, lower quantities or shorter duration local anesthetics are preferred to decrease time until physical therapy can be initiated.

Peripheral nerve blocks should be placed preemptively. The majority of the literature focuses on minimally invasive or muscle-sparing knee arthroplasty. Consequently, femoral nerve block—single injections and catheters—is widely cited as a key component for ambulatory arthroplasty as the preferred postoperative regional technique.<sup>2</sup> Adductor canal blockade has recently gained favor due to the

*“Despite all the excitement, it is not likely that outpatient total hip and knee replacements will become the norm in 2016.”*



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low frequency of quadriceps weakness. Similarly, lumbar plexus and psoas compartment blocks have been described for postoperative analgesia following hip replacement as single injections or continuous perineural catheters. Consequently, the anesthesiologist caring for

ambulatory arthroplasty patients must have a system to manage indwelling ambulatory perineural catheters.<sup>3-4</sup>

**Figure 1:** Example of outpatient knee arthroplasty pathway.



**Figure 2:** Example of outpatient hip arthroplasty pathway.



## ASRA ARTICLE CONTINUED...

**Table 1:** *Sample multimodal analgesic regimen*<sup>5,6</sup>

Medication	Preoperative dose	Postoperative dose (scheduled)	Exclusions
<b>All Patients</b>			
Acetaminophen	1000 mg	650–1,000 mg TID	Liver disease
Celecoxib	200–400 mg	200 mg BID	Renal disease; sulfa allergy
Gabapentoids			Renal disease; delirium; increased somnolence
Pregabalin	75–150 mg	75 mg BID or QHS	
Gabapentin	300–600 mg	300 mg TID or QHS	
Tramadol	—	50 mg TID	SSRI prescription; renal disease; liver disease
<b>Breakthrough pain</b>			
Oxycodone	—	5–10 mg PRN q4h	Intolerance; delirium
Hydrocodone	—	5–10 mg PRN q4h	
<b>Opiate-tolerant patients</b>			
Ketamine	Intraoperative: 0.5mg/kg or 50 mg IV		
Gabapentoids			Renal disease; delirium; increased somnolence
Pregabalin	150 mg	75 mg BID	
Gabapentin	600 mg	300 mg TID	
<b>Extended-release (ER) opiates</b> (adjust doses based on patient's home preoperative regimen)			
Oxycodone ER	10 mg	10 mg q12h	Delirium; increased somnolence; sleep apnea
Morphine ER	15 mg	15 mg q12h	
Oxycodone	—	10–15 mg PRN q4h	Intolerance; delirium

Multimodal analgesics are also integral to promoting physical therapy and reducing opioid consumption (Table 1). Nonsteroidal anti-inflammatory medications and acetaminophen have been promoted classically, while both ketamine and gabapentoids have documented opioid-sparing properties. Further, ketamine may be especially useful in patients on chronic opioids and at risk for hyperalgesia. The majority of protocols include acetaminophen (1000 mg), celecoxib (200–400 mg), and pregabalin (75–150 mg) or gabapentin (300–600 mg) to be given preoperatively and continued in a scheduled fashion in the postoperative period. Immediate-release opiates (oxycodone or hydrocodone) are used for breakthrough pain, while extended-release opioids are reserved for patients with opioid tolerance. Glucocorticoids may be utilized to minimize postoperative nausea with some additional analgesic benefits. Example pathways for ambulatory knee and hip arthroplasty, from our practice, are presented in Figures 1 and 2, respectively.

Despite all the excitement, it is not likely that outpatient total hip and knee replacements will become the norm in 2016. While outpatient TKA and THA numbers are growing, they are still the minority of joint replacements. In the first quarter of 2014, data from Crimson Continuum of Care member hospitals revealed that 24% of hospitals reported performing at least one outpatient total knee arthroplasty; however, only 23 hospitals reported doing more than five. Member hospitals performed 29,321 TKAs, but only 470 were ambulatory procedures (1.6%). Outpatient THAs are even less common, with 33 ambulatory THA procedures reported in 17 centers over that same period. Much of this is due to the specific requirements for ambulatory lower extremity arthroplasty, which are rather specific and limited to maintain patient safety and optimize success (Table 2).

**PATIENT FACTORS**

Ambulatory arthroplasty is usually limited to patients under 65 years old with a BMI <35 and a medical history free from sleep

## ASRA ARTICLE CONTINUED...

**Table 2:** Exclusion criteria for outpatient arthroplasty<sup>7,8</sup>

Patient factors	
Age	>65 years old
BMI	>35 kg/cm <sup>2</sup>
Medical comorbidities	Sleep apnea
	Severe cardiopulmonary disease
	Chronic obstructive pulmonary disease
	Congestive heart failure
	Coronary Artery Disease
	Venous thrombosis
Psycho-social	Absence of motivation and support at home
	Living alone
Physical	Severely disabled preoperatively
Insurance	Medicare
Surgical factors <sup>9,10</sup>	
Long operative times	
Operative completion after noon	
Techniques not minimally invasive or muscle sparing (more commonly described)	

apnea, severe cardiopulmonary disease, venous thrombosis, or multiple medical problems. Cirrhosis, chronic obstructive pulmonary disease, congestive heart failure, and coronary artery disease are independent risk factors that increase serious postoperative complications occurring after 24 hours. Patient selection, motivation, and support at home are other crucial keys for success. Outpatient arthroplasty requires a strong support system at home, as patients will need significant assistance. Consequently, patients living alone or severely disabled preoperatively are not candidates.

**SURGICAL FACTORS**

Surgical factors must also aim for swift recovery and initiation of early physical therapy. Thus, minimally invasive techniques have been more commonly described for ambulatory procedures. Many publications have described surgical durations of approximately one hour. However, other publications simply state that ambulatory arthroplasty cases should be completed before noon.

**INSURANCE**

More than 70% of patients seeking lower extremity arthroplasty will not qualify due to their Medicare coverage, which does not

reimburse outpatient arthroplasty. Similarly, not all private payers will reimburse for ambulatory arthroplasty.

**Costs.** A 2014 study found overall costs were lower in the outpatient group, although patient selection may bias these results.<sup>11</sup> Conversely, some centers have reported the need to bill the implants separately (TKA implant costs can exceed \$3,000–5,000) from the procedure to cover costs. Negotiations on this are important prior to instituting an ambulatory arthroplasty program.

**Ambulatory or Not Really.** The definition of *ambulatory* varies. Most centers describe ambulatory patients being done “before noon” for successful physical therapy participation to permit a late afternoon or early evening discharge. Other facilities utilize a stay of less than 23 hours and 59 minutes. Patients who do go home are usually required to live within a certain radius of the surgical facility. Alternatively, surgical centers may advocate discharge only to a nearby rehabilitation facility with the ability to handle acute nursing care, including management of perineural catheters, similar to an inpatient unit.

**CONCLUSION**

In conclusion, the frequency of hip and knee arthroplasty in the ambulatory setting will continue to grow. Anesthesiologists will play a crucial role in the success of these patients by assisting with opioid-sparing techniques including regional anesthesia and multimodal analgesia.

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## ADMINISTRATIVE PROFESSIONALS LUNCHEON



The Department celebrated Administrative Professionals Day on Wednesday, April 27, 2016, with a luncheon at the Rutledge Cab Co. In attendance were Dr. Reeves, Tammie Matusik, David Chandler, Andria Brown, Dawn Leberknight, Brenda Dorman, Brandon Nevills, Tara Chauhan, Rhonda Haynes, Kim Warren, Kim Pompey, Patrick Carlson, and Eric Woltz.

## SHAWN JENKINS CHILDREN'S HOSPITAL AND WOMEN'S PAVILION CONSTRUCTION PHOTOS



Demolition has begun on the old county hospital to make way to begin construction of the new Children's Hospital and Women's Pavilion. It will be very exciting to watch the building come down and the new one go up. Anticipated date of opening will be in 2019.

## **HISTORY OF ANESTHESIOLOGY AND MEDICINE: A BRIEF COLLECTION OF *RECOLLECTIONS* FROM DR. LAURIE BROWN**

### OPERATING ROOM SAFETY

#### (Fires and Explosions)

The main anesthetic agents in use were Ether, Cyclopropane and Ethylene – all three flammable and explosive. High humidity in the Lowcountry kept us all from being “blown to smithereens” at one time or another. Both Ether and Cyclopropane are heavier than air, but Ethylene is lighter and would literally fill an operating room during the time when a patient was under Ethylene analgesia.

As previously noted, I have anesthetized patients in operating areas which had wooden floors and had open electrical outlets in the baseboards. The main operating room at Old Roper Hospital (the amphitheater which had wooden benches on the second floor for observation by medical students and nurses, and for teaching), had flooring similar to bathroom tiles. There were open electrical outlets, and extension cords were provided for the portable lights to get near enough to the operating table to be of benefit to the surgeon. One would not rarely see sparks fly from an outlet when a light or electrical appliance was plugged in. Although these outlets were dangerous, we were even more concerned about static electricity. Often a wet towel was paced under foot on the floor in order for the anesthetist to be grounded while remaining in contact with the patient, the operating table and the anesthesia machine. Even though the floor was not of a good conductive nature, anesthesia machines were equipped with bronze “drag chains” in order to dissipate static electricity. Two newly graduated nurse anesthetists who were trained in Pittsburgh were employed by Roper and they utilized wet towels draped from the patient to the anesthesia machine to the flooring for the same purpose. One must remember that there was no air conditioning at that time and electric fans often sat on the floor and not only kept the air, the dust, bacteria, etc. stirred up, but also aided in dissipating the gases which were settling to the floor. When the anesthetist maintained contact with the patient, kept a hand on the anesthesia machine, and kept a foot on the floor, there was little danger of static electricity of any significance.

Wearing apparel was always made of cotton and everyone was warned not to go into the operating room unless they were dressed in cotton clothing. There was even some concern about under garments which were made of material other than cotton. Leather sole shoes were recommended and it was always scary when someone came into the operating room wearing shoes which had rubber soles.

I have actually seen tiny sparks and heard a popping noise when a physician came into the operating room dressed in street clothes covered by a cotton gown, wearing shoes that had rubber heels and soles, and placed a hand on the anesthesia machine. A small shock ensued, enough for the physician to feel, and quite sufficient to give me a good scare. This was always a hazard and anyone coming into the operating room was warned to stay away from the anesthetist and the anesthesia machine. Just as with any other equipment, the anesthesia machine seemed always to be a good place to rest one’s arm if one came into the operating room to ask questions or to observe.

In addition to safeguards by the anesthetist, it was also the duty of all operating room personnel to observe that “safety is everybody’s business.” If rubber sheets or pillow covers were used on the operating table, or stretchers coming into the operating room, they were covered by cotton sheets or pillow covers. There was always danger of static sparks if a cover were pulled off the rubber sheeting and this was not to be done if the operating room. Adhesive tape was not unrolled or torn in the vicinity of the anesthetist for fear of causing a static spark. Cleaning buckets and carts had rubber bumpers so that metal could not come in contact with metal during cleanup. An attempt was made to prevent any situation or action which might cause a static spark.

The flooring in the New Roper Hospital operating suite was of a conductive material consisting of linoleum-like tiles, about 10 x 10 inches in size which were impregnated with carbon dust during manufacture. The carbon particles made the flooring conductive and the entire area was connected to water pipes which led to the ground underneath the hospital. In this manner electrical and static electricity could be conducted into the ground.

Explosion-proof electrical plugs and outlets were also built into the operating suite. This was a great advance in electrical safety. These were heavy metal plugs which when pushed partially into the wall outlet, then turned several degrees and inserted further to make contact. In this manner no sparks could escape from the plugging in of equipment which had explosion-proof plugs. The only problem was that all x-ray equipment and other electrical devices which came into the operating room did not have explosion-proof plugs, so regular extension cords had to be used. Standard electrical outlets were placed 5 feet from floor level to be above the range of the anesthetic agents within the room.

The operating suite at the newly constructed Medical College Hospital was modern and up to date from the standpoint of safety features. The flooring was conductive and easily cleaned. (I might add that cleaning solution which left no residual film on operating room flooring was to be used at all times in all operating suites.) Electrical outlets were all “explosion-proof” and explosion-proof plugs were on all portable lights and equipment which was to be used in the operating rooms. Overhead operating table lighting was designed in both the New Roper Hospital and the Medical University Hospital.

## HISTORY OF ANESTHESIOLOGY AND MEDICINE: A BRIEF COLLECTION OF *RECOLLECTIONS* FROM DR. LAURIE BROWN

### OPERATING ROOM SAFETY CONTINUED...

Anesthesia breathing bags, breathing tubes, face masks and all rubber tubing on the anesthesia machines were soon being made of “conductive” rubber. This process greatly reduced, but did not eliminate, the hazard of static electricity. Rinsing the inside of rubber goods in the breathing circuit prior to use continued, as in the past, in order to further reduce the formation of static.

Conductive shoes were designed which had soles made of rubber with conductive carbon particles mixed in. Also, conductive shoe covers became available. The heavy cloth bootie had a conductive sole and a conductive strap which was tucked beneath the heel inside the shoe, making the grounding circuit complete if enough moisture was present in the shoe.

To illustrate the hazards of explosions within the operating rooms, Dr. George Thomas from Pittsburgh, a specialist in the field of flammable and explosive anesthetic agents, came to Charleston to demonstrate these dangers. His experiments were set up on the stage in Baruch Auditorium. He wore wool trousers in order to illustrate the danger of this popular material in the operating room. Because of the naturally high humidity, in several of Dr. Thomas’ experiments more than one attempt was necessary to cause an explosion. It was difficult for him to believe that we were essentially immune from explosions if proper precautions were carried out. This was not only a learning experience for us, but also for our teacher.

To my knowledge, there was never an explosion or fire in the Charleston operating rooms which was due to an anesthetic accident, thanks to the local high humidity.

A conductive shoe cover is in the history showcase in the Department of Anesthesiology.

## RESEARCH CORNER

### Enhanced Recovery After Surgery Protocols Are Valuable in Pancreas Surgery Patients

Katherine A Morgan, MD, FACS, William P Lancaster, MD, Megan L Walters, PA-C, Stefanie M Owczarski, PA-C, Carlee A Clark, MD, Julie R McSwain, MD, David B Adams, MD, FACS

- 
- BACKGROUND:** There is increasing interest in implementing comprehensive perioperative protocols, including preoperative optimization and education, perioperative goal-directed fluid management, and postoperative fast tracking, to enhance recovery after surgery. Data on the outcomes of these protocols in pancreatic surgery, however, are limited.
- STUDY DESIGN:** A retrospective review of a prospectively maintained pancreas surgery database at a single institution from August 2012 to April 2015 was undertaken. An enhanced recovery protocol was initiated in October 2014, and patients were divided into groups according to preprotocol or postprotocol implementation. Preoperative, intraoperative, and postoperative data were tabulated. Statistical analysis was performed with Student’s *t*-test and Fisher’s exact tests, as well as equality of variances where appropriate, using SAS System software (SAS Institute).
- RESULTS:** Three hundred and seventy-eight patients (181 men, mean age 54 years, BMI 28 kg/m<sup>2</sup>) underwent elective pancreatic surgery during the study period, 297 patients preprotocol and 81 postprotocol. There were no significant differences in preoperative or intraoperative characteristics. Mean postoperative length of stay was significantly lower in the Enhanced Recovery After Surgery group (7.4 vs 9.2 days;  $p < 0.0001$ ). Hospital costs were similarly lower in the Enhanced Recovery After Surgery group (\$23,307.90 vs \$27,387.80;  $p < 0.0001$ ). Readmission (29% vs 32%) and pancreatic fistula (26% vs 28%) rates were similar between groups. Delayed gastric emptying was lower in the Enhanced Recovery After Surgery group (26% vs 13%;  $p = 0.03$ ).
- CONCLUSIONS:** Implementation of an enhanced recovery after pancreatic surgery protocol significantly decreased length of stay and hospital cost without increasing readmission or morbidity. Despite patient complexity and the potential need for individualization of care, enhanced recovery protocols can be valuable and effective in high-risk patient populations, including pancreatic surgery patients. (J Am Coll Surg 2016;222:658–664. © 2016 by the American College of Surgeons. Published by Elsevier Inc. All rights reserved.)

**WELCOME THE NEW CA 1 CLASS TO THE DEPARTMENT!**



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MUSC



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**Sam Luebbert, MD**  
University of Virginia



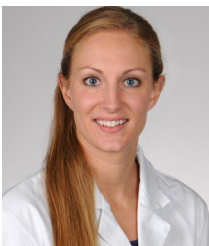
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University of Southern Florida



**Kirsten Dahl, MD**  
UT San Antonio



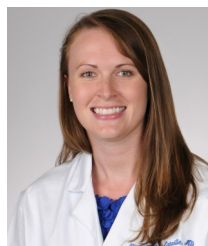
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University of South Carolina



**Hannah Purcell, MD**  
University of South Carolina



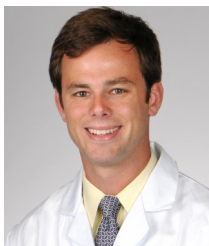
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**Ali Lataille, MD**  
MUSC



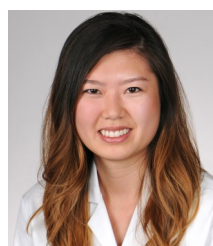
**Anne Wanaselja, MD**  
Indiana University



**Clay Forest, MD**  
Virginia Commonwealth



**Anthony Lehn, MD**  
Medical College of Georgia

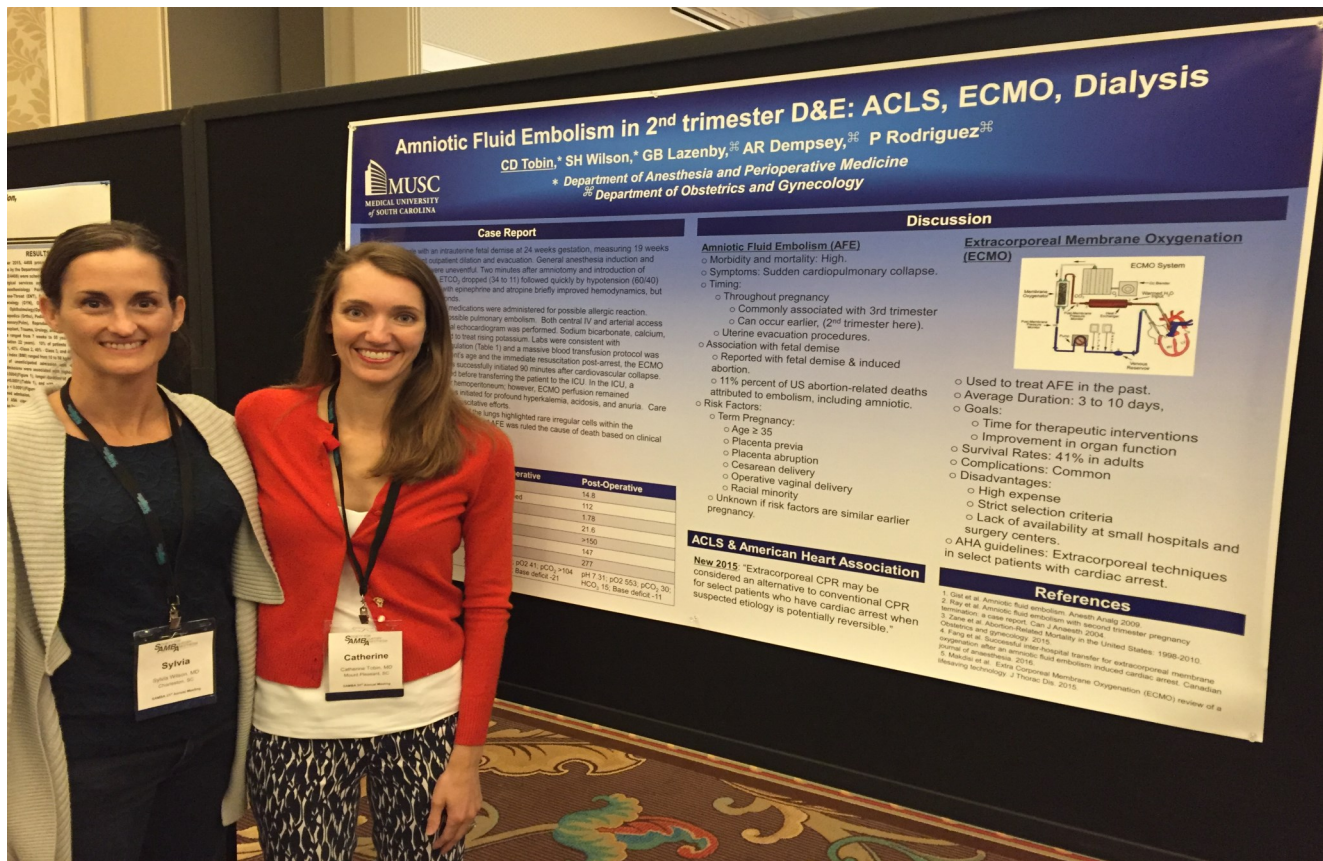


**Sherry Zhou, MD**  
MUSC

## ANNUAL MEETING FOR THE SOCIETY OF AMBULATORY ANESTHESIA (SAMBA), MAY 5-7, 2016 IN ORLANDO, FLORIDA

The annual meeting for the Society of Ambulatory Anesthesia (SAMBA) was held May 5<sup>th</sup>-7<sup>th</sup> in Orlando, Florida. MUSC was well represented by Drs. Catherine Tobin and Sylvia Wilson. Dr. Tobin participated and presented in a moderated poster presentation, "Amniotic Fluid Embolism during the 2<sup>nd</sup> Trimester Dilation and Evacuation treated by ACLS guidelines, ECMO and Dialysis." She also took part in SAMBA's Education Committee where she has worked on a peer-reviewed module on Perioperative Glucose Management in the ambulatory setting for an online Anesthesia Toolbox. She is also working on a MOCA (Maintenance of Certification in Anesthesia) module for ambulatory surgery glucose management. Dr. Wilson participated in SAMBA's Regional Anesthesia Committee meeting where they discussed strategies to improve updates and education for ambulatory anesthesiologists regarding non-opioid multimodal analgesics and newer regional techniques.

Several lectures discussed some new changes in anesthesia. One highlighted lecture discussed new guidelines involving timing of elective surgery when a patient has coronary stents. The old guidelines indicated waiting at least one year when a patient has a drug eluting stent (DES). However, the newer generation DES are greatly improved and may allow cessation of dual anti-platelet therapy 6 months after DES placement. While it is imperative to check with the cardiologist, we all may start to see a change in these recommendations. Other highlights included the surge in outpatient procedures in the United States and the possible approval for Target Controlled Anesthesia in the next 5 years.



## ANNUAL MEETING OF AMERICAN SOCIETY OF REGIONAL ANESTHESIA AND PAIN (ASRA) MEETING BY DR. SYLVIA WILSON

New Orleans, LA

This past April, several members of the Regional Anesthesia Division had the opportunity to travel to the Big Easy and attend the annual meeting for the American Society of Regional Anesthesia and Pain Management (ASRA). MUSC's Department of Anesthesia and Perioperative Medicine was well represented by residents Drs. Lawson, Pillow, Powelson, Shamburg and Robinson, and regional attendings Drs. Wilson, Bolin and Doty. Our wonderful regional fellows, Drs. Matos and Aho, were also in attendance.



Much was learned over the four days in New Orleans. The daily lecture series allowed the residents and attendings to partake in presentations and discussions regarding current and often debated topics in regional anesthesia by several of the leaders in the field. The poster presentations in the gallery were full of current research that confirmed our current practices in regional anesthesia, but also offered insight into future areas of research that are prime for further investigation.

The attendings were busy as well. Drs. Wilson, Bolin and Doty were hard at work learning about the cutting edge technologies and medicines. They also participated in several small groups learning how to progress and improve both our Regional Anesthesia Fellowship and resident education.

MUSC also had multiple poster presentations. Drs. Robinson and Doty presented their poster, "Spontaneous Resolution of Neurologic Deficits Related to Epidural Catheter Associated Epidural Hematoma." Drs. Matos, Powelson and Wilson presented their research on "Examination of Intraoperative Thermoregulation in Total Joint Arthroplasty: an Observational Study." Drs. Aho and Bolin presented a case report, "Paraplegia Associated with Epidural Hematoma from Undiagnosed Spinal Metastasis in a Patient Receiving Epidural Analgesia." Drs. Aho, Wilson, and Doty also presented, "A retrospective review of lumbar epidural and lumbar plexus nerve blocks for patients undergoing primary total hip arthroplasty and receiving multimodal analgesics." All posters were very well received by the crowds.

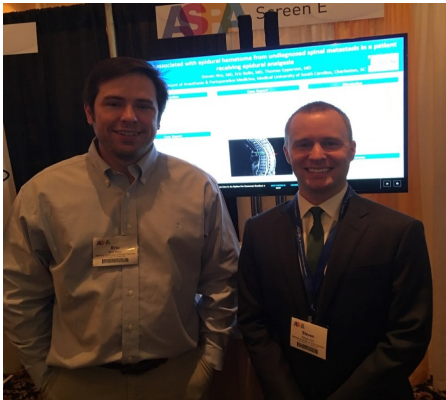


Despite all this hard work and learning, we did manage to have a bit of fun. The team managed to take some time to explore the city and enjoy a few beignets; on the second night of the conference, the department sponsored dinner. It was a great time where we all were able to sit together, enjoy a nice meal, and have many, many laughs.

As far as conferences go, ARSA presented a great opportunity for all of us to learn new information in the field of regional anesthesia. I am confident that each member was able to learn something that we were able to bring back to MUSC and continue to provide excellent regional anesthesia and acute pain management. I can only hope that next year's conference in San Diego, CA provides as much of a useful and fun experience as was had in New Orleans, LA.

Left to right: Clinton Pillow, Eric Bolin, Sylvia Wilson, Wesley Doty, Stephanie Robinson, Stephen Aho, Jenny Matos, Andrew Powelson

# ANNUAL MEETING OF AMERICAN SOCIETY OF REGIONAL ANESTHESIA AND PAIN (ASRA) MEETING PICTURES CONTINUED...



Drs. Bolin and Aho



Dr. Robinson



Drs. Powelson, Pillow, Robinson, and Matos



Department sponsored dinner

## WELCOME BACK, CHRIS DEVINE, CRNA!



We are thrilled to welcome back Chris Devine. After a short stint at the VA Hospital, Chris realized that MUSC was the place he wanted to continue his career. Not only have we regained an excellent clinician, but Chris continues to proudly serve our country in the Air Force Reserves. Also, Chris has the best comedic timing and we look forward to his many hilarious commentaries. Thank you, Chris, for coming to your senses and returning to the best CRNA team!

**DEPARTMENT CELEBRATION & NEW RESIDENT WELCOME**

Please join us for the Anesthesia Department's  
New Resident and Fellow Welcome Celebration

Saturday, August 20 at 6:00 p.m.

360 Fishburne St., Charleston, SC 29403



***Charleston Riverdogs***  
***Baseball Game***

Tickets, BBQ, and beer will be provided.  
Families and kids are welcome to attend!

*Please RSVP by August 1st to Tara Chauhan  
chauhan@musc.edu or (843) 792-4316*





**GRAND ROUNDS FOR THE MONTH OF JUNE**



**“Goal-Directed Therapy”  
June 7, 2016  
Will Hand, M.D., Associate Professor  
Medical University of South Carolina**

**“Patient Blood Management”  
June 14, 2016  
Jerry Squires, M.D., Associate Professor  
Medical University of South Carolina  
Pathology & Laboratory Medicine**



**“Morbidity and Mortality Conference”  
June 21, 2016  
George Guldan, M.D., Assistant Professor  
Ryan Gunselman, M.D., Assistant Professor  
Medical University of South Carolina**

**“Management of Diabetes in Ambulatory Surgery”  
June 28, 2016  
Grant Carlson, M.D.  
Wadley R. Glenn Professor of Surgery  
Emory University School of Medicine**





DEPARTMENT OF ANESTHESIA AND  
PERIOPERATIVE MEDICINE

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Fax: 843-792-9314

CHECK OUT OUR WEBSITE AT:  
[HTTP://WWW.MUSC.EDU/ANESTHESIA](http://www.musc.edu/anesthesia)

**Future Events/Lectures**

**Intern Lecture Series**

No June lectures

**CA 0 Lecture Series**

[Link for CA0 Lecture Schedule](#)

**CA 1 Lecture Series**

No June lectures

**CA 2/3 Lecture Series**

June 6th — Management of Patients with Ischemic Heart Disease (Stoelting Ch. 1), Dr. G. Whitener, Moodle

June 13th — Physiologic Changes Associated with Aging, Dr. McSwain, Moodle

June 20th — OR Management Skills— **All Residents**, Dr. Clark, 4:00pm CSB 429

June 27th — **Visiting Professor Lecture—All Residents**, Dr. Carlson (Emory), 4:00pm CSB 429

**Grand Rounds**

June 7th — Goal-Directed Therapy, Dr. Hand

June 14th — Patient Blood Management, Dr. Squires (MUSC)

June 21st — Morbidity & Mortality Conference, Drs. Guldán and Gunselman

June 28th — Management of Diabetes in Ambulatory Surgery, Dr. Carlson (Emory)



**I HUNG THE MOON**

Please don't forget to nominate your co-workers for going 'Beyond the Call of Duty'. I Hung The Moon slips are available at the 3rd floor front desk, and may be turned in to Kim Pompey. Thank you!

Molly Sekar, Anesthesia Tech—Helping out in the department during a code & covering heart & vascular. Great teamwork!

Tori Flynn, Unit Secretary—Being proactive in the discovery of an electrical issue in the OR. Great job!

Ethan Syracuse, Anesthesia Tech—Doing a great job covering the whole OR so a tech could cover a code. Awesome job!

Alexandrina Davis, Anesthesia Tech—#1-Staying on call all night and still working the next day! Thank you! #2-Helping out tremendously during a code and staying late to help! Great teamwork!

Kari Platts, Anesthesia Tech—Going above and beyond on several occasions and completing all of the daily jobs in the morning. Thank you!

Zack Halewood, Anesthesia Tech—Picking up a last minute call shift. Greatly Appreciated!

Leslie Ancrum, Instructor—Dropped everything she was doing to assist on a difficult case. Thank you!

Eric Nelson, DO—In addition to regular duties, Dr. Nelson volunteered to assist in a difficult case to help out the nursing staff. Thank you!

Kelley Nevill, Anesthesia Tech—#1-Helping with a difficult case & startup. #2-Kelley Nevill and Macy Uebelhoer Belt: Jumping in & being a great help with a difficult case first thing in the morning. You rock!



**Resident Graduation, June 17th**  
**Founders Hall**

**Department Celebration &**  
**New Resident Welcome, August 20th**  
**Riley Park**

**June 2016**

**Standard of the Month**

**Demonstrate pride in my  
work and do what is expected  
of me with timeliness and  
quality.**

**We Would Love to Hear From You!**

If you have ideas or would like to contribute