



SLEEPY TIMES

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MESSAGE FROM THE CHAIRMAN: HUMAN FACTORS & ANESTHESIOLOGY -SCOTT T. REEVES, MD, MBA

Inside This Issue:

-Message from Chairman	1
-Ebola Article	2-3
-Preop Med Updates	4-6
-Annual MyQuest Training Due June 30th	6
-The Pager Goes Off	7
-Annual Bowling Night	8
-We're on Facebook	9
-SJCH Site Tour	9
-Grand Rounds	10
-Department Events	11

Over the past several years, Sleepy Times has highlighted the department's "OR of the Future" work. Over the next several years, department members Ken Catchpole, Ph.D. and Myrte de Alfred, Ph.D., along with our faculty, will significantly expand this work to critically evaluate three strategic areas within perioperative care using the lens of Industrial Engineering and Human Factor's methods. They include:

1. Operating Room Systems based Medication Administration Error Reduction Team (OR-SMART)

The delivery of anesthesia medications is associated with between 200,000 and 2 million injuries in the USA every year. Addressing this problem requires a systems engineering approach to improving decision making, reducing procedural and technological vulnerabilities, and improving the work environment and culture. A highly experienced multi-disciplinary team of clinicians, scientists and engineers will use a combination of innovative techniques to address this threat to patient safety in the most comprehensive study of anesthesia medication safety systems ever conducted.

2. Human Factors and Systems Integration in High Technology Surgery (HF-SIGHTS)

Though new surgical technologies are intended to benefit patients, they can also introduce new stresses on teamwork, technical knowledge, and functional space in the operating room. We will evaluate multiple interventions to address these specific challenges in Robotic Assisted Surgery, studying both whether and how they work and can be spread. This will be the largest study of this kind ever conducted, allowing us to explore the causes of errors in more detail than ever before, and fundamentally improving our ability to make the best use of innovative surgical technologies.

3. Logistic Center and Sterile Processing

MUSC Health is in the process of building a 150,000 square feet logistic and sterile processing center. This is an Amazon-like distribution center with a Volvo robotic assembly line to sterilize our surgical instruments. It will be only the 4th such center in the country. How do we hire the necessary people to work in this technology/robotic rich environment? How is the warehouse laid out to optimize work flow of both materials and people? Once trucks are loaded, what is the process to deliver the surgical and other supplies "just in time" to our numerous sites? Ken and Myrte de plan to collaborate with Mike Denham and our medical directors to address these and many other questions.

It is expected that these studies will further the department's growing reputation in seeking new strategies to improve patient and provider safety.



**PROTECTING THOSE ON THE FRONTLINE FROM EBOLA
PUBLISHED IN AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE (AAAS)**



A new online training program developed by researchers at the Medical University of South Carolina helps keep health care workers safe when treating patients with Ebola. This photo shows Dr. Lacey MenkinSmith (left) and Dr. Jerry Reves (right) in the Health Care Simulation Center at the Medical University of South Carolina.

EurekaAlert!
The Global Source for Science News

AAAS

In a world where we can travel the globe by jet, diseases that were once thought to plague faraway places can now strike close to home.

The U.S. had to learn this the hard way. In 2014, a patient harboring Ebola returned home to Dallas, Texas from Liberia. Within 15 days of this person's arrival, the Centers for Disease Control and Prevention (CDC) had confirmed two secondary cases in nurses who were treating the infected patient.

Ebola virus is very easily contracted from body fluids -- a mere ten viral particles will do it -- and people who get it have up to a 78 percent chance of dying. Health care workers are among the most vulnerable.

According to a 2015 report by the World Health Organization, health care workers can have an infection rate up to 32 times higher than the general population in certain parts of the world. Infected health care workers can unknowingly spread the disease, and once sick, are unable to care for patients.

In addition to a human toll, Ebola also exacts an economic one. Treatment of an Ebola patient in the U.S. can range from \$30,000-\$50,000 per day, limiting the number of hospitals who can treat it, and making its spread a very costly problem.

PROTECTING THOSE ON THE FRONTLINE FROM EBOLA CONTINUED...

The best hope for controlling this lethal foe is to prevent it. Researchers at the Medical University of South Carolina (MUSC) have created an online software package via the SmartState spin-off company, SimTunes, LLC, to train health care workers using simulation in safe Ebola disease response. They report promising findings in a small cohort of MUSC health care workers in an article published in the December 2018 issue of Health Security.

"This training program takes information from multiple resources, including the CDC, the National Ebola Training and Education Center and the European Network for Infectious Diseases," says Lacey MenkinSmith, M.D., assistant professor of Emergency Medicine at MUSC and first author of this article.

"What makes the program unique is that it combines all that information into one training program that is widely distributable."

"The entire course, including background material and hands-on simulation practice, is delivered over the Internet, so people can be trained immediately," adds Jerry G. Reves, M.D., distinguished professor and emeritus dean of the College of Medicine at MUSC and principal investigator of the CDC-funded study.

The software package includes a self-study component, a "hands-on" simulation workshop and a data-driven performance assessment toolset. A post-test evaluates trainees' knowledge of Ebola treatment, and software tracks and scores individual and team performance in Ebola treatment scenarios.

This training package aims to reduce the number of critical errors and risky actions committed when treating an Ebola patient. Critical errors put an individual at risk of infection or contaminate the clean zone. Risky actions increase the chance of committing a critical error.

The researchers tested the usefulness of their software package in 18 health care workers at MUSC, a state treatment center for Ebola. The health care workers were divided into two groups based on their experience level with treating high-risk infectious disease. The software package increased the knowledge of both groups about effective prevention by up to 19 percent.

Both groups also performed extremely well in simulation scenarios, with only 2.3 percent of 341 total steps flagged for critical errors in both groups. These scenarios included cleaning up spills, putting on a biosuit correctly and properly responding to a needle stick. Practicing all of these scenarios helps to reduce the risk of infection of the health care workers treating the Ebola patient.

These results validate this software package as a way to streamline and adequately educate health care workers on proper techniques to reduce infection when treating an Ebola patient.

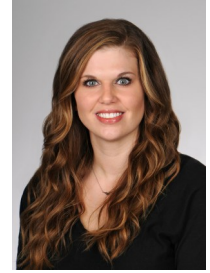
The MUSC team plans next to test their training program in other health care settings relevant to Ebola. These include community hospitals, where Ebola patients might first be seen, or intermediary hospitals, which would care for them until they could be sent to a treatment center like MUSC.

MenkinSmith, who specializes in global emergency medicine, would also like to test the program in developing countries, and is planning to use the course in Uganda.

"I want to see how we can adapt what we have to a place that is a low-resource health care setting, such as a site like Uganda that I am set to visit," says MenkinSmith. Uganda's neighbor, the Democratic Republic of Congo, is currently experiencing an Ebola outbreak.

"Instituting this training at various universities and hospitals across the world will take time and adjustments" says Reves. "However, this represents the beginning of a concrete way to ensure that health care workers are protected from Ebola with just-in-time training anywhere in the world."

PREOPERATIVE MANAGEMENT OF DIABETES MELLITUS BY KATHRYN BRIDGES, MD



Injectable – Insulin and Noninsulin

MEDICATION		Day before surgery		Day of surgery
		AM dose	PM dose	
Glargine, Detemir, Tresiba	If OD	Usual dose*	80% of usual dose*	80% of usual dose*
	If BID	Usual dose	Usual dose	80% of usual dose
NPH or 70/30 Insulin		80% of usual dose	80% of usual dose	50% of usual dose if BG \geq 120. Hold if BG < 120
Lispro, Aspart, Glulisine, Regular		Usual dose	Usual dose	Hold
Noninsulin injectables [Exenatide, Liraglutide]		Usual dose [@]	Usual dose [@]	Hold

*Taken per patient's usual regimen.
[@] Hold when starting bowel prep and/or if restricted to clear liquids 12-24 h before surgery

Anesthesiology 3 2017, Vol.126, 547-560

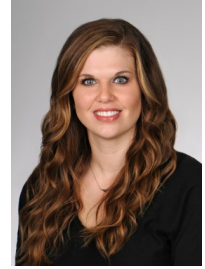
Oral Agents

MEDICATION	Drugs (few examples)	Day before surgery	Day of surgery
Secretagogues	Glipizide, Glyburide, Repaglinide.	Take	Hold
SGLT-2 Inhibitors	Dapagliflozin, canagliflozin	Hold	Hold
Thiazolidinediones	Pioglitazone	Take	Hold
Metformin		Take*	Hold
DPP-4 Inhibitors	Sitagliptin	Take	Take

*Hold if patient having a procedure with intravenous contrast dye administration, particularly in those with glomerular filtration rate < 45 ml/min

Anesthesiology 3 2017, Vol.126, 547-560

PREOPERATIVE MEDICATION MANAGEMENT BY KATHRYN BRIDGES, MD



Preoperative Medications

As a general rule, we recommend that all medications should be continued on the day of surgery. Medications should be taken with a small sip of water prior to coming to the hospital. Exceptions to this recommendation are listed below:

Class of Medication	Medication	Recommendations
Oral Hypoglycemic Agents	pioglitazone (Actos), glimepiride (Amaryl), rosiglitazone (Avandia), chlorpropamide (Diabinese), glyburide (DiaBeta), metformin (Glucophage), glipizide (Glucotrol), miglitol (Glyset), tolbutamide (Orinase), repaglinide (Prandin), acarbose (Precose), nateglinide (Starlix), tolazamide (Tolinase)	Hold on morning of surgery. May take usual dose the day prior to surgery.
Diuretics	furosemide (Lasix), HCTZ (Hydrodiuril), triamterene (Dyrenium), torsemide (Demadex), spironolactone (Aldactone), acetazolamide (Diamox)	Hold on morning of surgery, UNLESS taken for management of CHF.
Insulin	NPH, Regular, Lantus	See Diabetes Protocol for recommendations.
Herbal and Alternative Supplements	Saw palmetto, ginkgo biloba, ginseng, garlic, St. John's wort, red rice yeast, etc.	Stop all herbal supplements as well as Vitamin E one week prior to surgery
ACE inhibitors and Angiotensin Receptor Blockers (ARBs)	Lisinopril, enalapril (Vasotec), benazepril (Lotensin), captopril (Capoten), ramipril, losartan (Cozaar), candesartan, telmisartan (Micardis), valsartan (Diovan), irbesartan (Avapro), olmesartan (Benicar)	Hold on morning of surgery. If on >3 medications for management of HTN and/or poorly controlled, continue ACE-I/ARB on morning of surgery. Hold for any patient coming for free flap (ENT, plastics).
Anticoagulants	Coumadin (warfarin), Lovenox (Enoxaparin), Plavix (Clopidogrel), dabigatran (Pradaxa), aspirin/dipyridamole (Aggrenox), apixaban (Eliquis), rivaroxaban (Xarelto), ticagrelor (Brillinta), aspirin 325mg	Pt should follow surgeon instructions for the length of time to hold these medications. Continue ASA 81mg unless surgeon requests otherwise.

PREOPERATIVE MEDICATION MANAGEMENT CONTINUED...

It is very important for patients to take their usual morning dosage of the following medications on the morning of surgery:

- Beta blockers and calcium channel blockers such as metoprolol, labetalol, Norvasc, etc.
- Clonidine – holding this medication may cause severe rebound hypertension
- Antiarrhythmics such as digoxin, flecainide, amiodarone, sotalol, etc.
- Asthma medications including daily and rescue inhalers, Advair, Singulair, and/or steroids.
- GERD medication including Pepcid, Zantac, Prevacid, Prilosec, Protonix, Nexium, etc.
- Statins such as Zocor, Lipitor, etc.
- Aspirin – unless specifically told by their surgeons, patients should continue to take their ASA, especially if they have cardiac stents.
- Medications for the treatment of Parkinson's disease (Sinemet, etc.)
- Steroid medications
- Chronic pain medications, including long and short acting opioids (OxyContin, Soma, Percocet etc).

ANNUAL MYQUEST TRAINING DUE BY JUNE 30, 2019

It is time again to complete our MUSC Annual Mandatory Training courses which can be accessed through MyQuest. Training modules are tailored for specific roles in the organization and are due on or before June 30, 2019.

To access your required training modules, use the MyQuest icon found on your desktop and login using your netID and password. Your specific modules will be displayed in the *Enrollments* section of your home screen shown here.

Remember, these are mandatory and must be completed by June 30.



MYQUEST

The screenshot displays the MyQuest web application interface. At the top, there is a navigation bar with the MUSC logo and the MyQuest logo. Below the navigation bar, there are several tabs: MYQUEST, MY LEARNING, ENROLL, SOCIAL TOOLS, MY WORK, REPORTS, and INSTRUCTOR. The main content area is divided into several sections: MUSC HEALTH, BROWSE CATALOG, MY TEAM, and REPORTS. Below these sections, there are two columns: NEW COURSES and NEWS TICKER. The NEWS TICKER section contains a message: "Looking to improve your performance? Check out the Career Development Catalog". The ENROLLMENTS section is the largest and contains a list of training modules with status indicators (e.g., "Not Started").

Module Name	Status
MUSC Annual Mandatory Training	Not Started
2017 Only Act Training #	Not Started
2017 Code of Conduct and HIPAA #	Not Started
2017 Culture of Safety #	Not Started
2017 Education #	Not Started
2017 Emergency Management Campus Security #	Not Started
2017 Family Educational Rights and Privacy Act (FERPA) #	Not Started
2017 Infection #	Not Started
2017 Infection Control #	Not Started
2017 Information Security #	Not Started
2017 Meeting the Unique Care Needs of Patients #	Not Started
2017 MUSC Accreditation #	Not Started
2017 MUSC Health Compliance #	Not Started
2017 OSHA Review #	Not Started
2017 Smoke & Heat Early Recognition Sign #	Not Started
MUSC Inpage 2018 #	Not Started

**THE PAGER GOES OFF—FEATURED IN ANESTHESIOLOGY MAGAZINE MARCH 2019
BY DAVID GUTMAN, MD**

The Pager Goes Off

David A. Gutman, M.D.



The pager goes off.
I shudder.
I raise the pager to my eyes and squint at the text.
I will never get used to hearing that forsaken machine go off.

The emergency department is requesting anesthesia assistance.
If they are calling . . . it is likely quite bad.

My team and I arrive, equipment at the ready.
We see no patient.
We fuss and shame our ED staff.
We hem and haw about the busy ORs and the value of our time.

The patient rolls into the trauma bay.
We promptly shut our traps.

Seven-year-old female.
No history of any kind, sobs grandma.
No prior surgeries, wails her grandma.
No nose either.

Horrific dog attack.
Latched on and would not release the face.

I look at my resident.
He is white as a sheet.
He later tells me that I was white as a sheet too.
He suggests we intervene before things get worse.

I tell him to prepare a tube and call for some advanced airway equipment.
This is going to be tricky.

The patient is sitting with a mauled face not crying or screaming.
Likely she is stunned.
Likely she is in shock.
Likely her life will never be the same.

We sedate and promptly intubate.
She is rushed to the ICU and shortly plastics will attempt to reconstruct a passable face.

Upon stepping out of the emergency department he looks my way.
We both know he's about to cry.
We know I will cry shortly thereafter.
We have rooms to staff and go our separate ways.

The pager goes off.

FACULTY TRIUMPH YET AGAIN!

On February 20th, our faculty defended their bowling championship title against the residents at The Alley. A very large group participated this year. The amazing thing about this annual event is that literally anyone can win based on our scores. Residents Ellen Hay (124) and Armando Aguilera (132) put up a good fight but fell to faculty member Joel Sirianni (143). This year, we even had 2nd year medical students participating, with Lauren Rocco (120) leading their effort.

What a difference a year makes as new faculty recruits come on board. Better luck next year!



DEPARTMENT'S NEW FACEBOOK PAGE

We're on Facebook now! [Click here](#) and "Like" our page to keep current.



ADMINISTRATIVE STAFF TOURS SHAUN JENKINS CHILDREN'S HOSPITAL

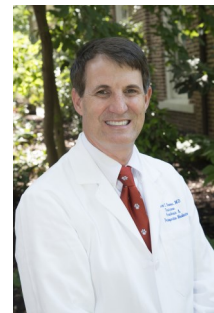


GRAND ROUNDS FOR THE MONTH OF MARCH



**“Updates in Cardiac Anesthesia at MUSC”
March 5, 2019
Loren Francis, MD, Assistant Professor
Dept. of Anesthesia & Perioperative Medicine
Medical University of South Carolina**

**“Report Cards for Cardiac Surgery and Anesthesia:
Do They Affect the Outcome?”
March 12, 2019
Scott Reeves, MD, Professor & Chairman
Dept. of Anesthesia & Perioperative Medicine
Medical University of South Carolina**



**“Lung Transplantation”
March 19, 2019
J. Devin Roberts, MD, Assistant Professor
Dept. of Anesthesia & Critical Care
University of Chicago Medical Center**

**“Morbidity & Mortality Conference”
March 26, 2019
Anushri Desai, MD, CT Fellow
John Green, DO, CA II Resident
Dept. of Anesthesia & Perioperative Medicine
Medical University of South Carolina**





DEPARTMENT OF ANESTHESIA AND
PERIOPERATIVE MEDICINE

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[CHECK OUT OUR WEBSITE](#)

Future Events/Lectures

Intern Lecture Series

March 7—Anesthesia for Peds,
Dr. Sabbagh, SEI 314

March 21—Hematologic Disorders,
Dr. Finley, ART 3037

CA 1 Lecture Series

March 6—Anesthesia for Cardiovascular
Surgery, Dr. G. Whitener, ART TBD

March 13—Obstetric Anesthesia PBL,
Dr. Tobin, CSB 429

March 20—Pediatric Anesthesia PBL,
Dr. Redding, CSB 429

March 27—Special Problems or Issues in
Anesthesiology PBL, Dr. Moore, CSB 429

CA 2/3 Lecture Series

March 18—Visiting Professor Lecture, All
Residents, Dr. Roberts (Univ. of Chicago),
CSB 429

March 25—Heart Failure & Cardiomyopathy
PBLD, CT Fellow Dr. McKinnon, CSB 429

Grand Rounds

March 5—Updates in Cardiac Anesthesia at
MUSC, Dr. Francis

March 12—Report Cards for Cardiac Surgery and
Anesthesiology, Dr. Reeves

March 19—Visiting Professor Lecture, Lung
Transplantation, Dr. Roberts (Univ. of Chicago)

March 26—Morbidity & Mortality Conference,
Drs. Desai & Green



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 Tammie Matusik. Thank you!



Save the Date!



Resident Graduation 2019
Friday, June 14, 2019
Founders Hall

Holiday Party 2019
Saturday, December 7, 2019
Carolina Yacht Club



MUSC Leading Health Innovation for the Lives We Touch

[Imagine 2020 Strategic Plan](#)

We Would Love to Hear From You!

If you have ideas or would like to contribute to *Sleepy Times*, the deadline for the April edition will be March 15, 2019.