

Rothman, Wanderer present at XGM

Brain Rothman, MD, and Jonathan Wanderer, MD, MPhil, will present during the Expert Group Meetings (XGM) Epic from Monday, April 29 to Friday, May 10.

Rothman's Presentation

Rothman's presentation is titled "Periop Flightboards in Every OR." The presentation demonstrates Vanderbilt's successful OR Flightboard implementation using Epic Monitor across more than 90 OR locations. "This was a 'big bang' implementation. At that time, I don't believe the Epic flight board had been implemented simultaneously in that many locations," said Rothman. "Our implementation wasn't perfect at first, but we got it to work seamlessly in a reasonable amount of time."

"Our teams prepared extremely well for the implementation," Rothman explained, "and there is only so much that can be done before you just have to turn the system on. It is the team's



Brian Rothman, MD



Jonathan Wanderer, MD, MPhil

response after the system is turned on that matters. Our build team went above and beyond."

OR Flightboards positively impact patient care and contribute to patient safety throughout the intraoperative period. The presentation will discuss how this tool improves care team work flows, patient safety, and the necessary build for a successful implementation. The presentation focuses on the real-time electronic timeout feature, in particular, that electronically supports required pre-incision timeouts to

improve patient safety and decrease the likelihood of wrong surgeries.

Rothman explained that VUMC worked with Epic to get an electronic timeout with a design element that helped implement it. Electronic timeout is the right thing to do in a perioperative space, and Epic provides a tool to do that. The World Health Organization (WHO) has said that timeouts before surgery are important.

"We partner with Epic," he said. "They do site visits where they come to our office." VUMC and Epic collaborated to have Saga, VUMC's website, work together with Haiku, a mobile application. Another thing they have worked on with Epic has been document mass transfer protocols.

Wanderer's Presentation

Wanderer's presentation at XGM, titled "Procedure Path and Enhanced Recovery After Surgery: A Path to Opioid-Free

Continued on page 3

- XGM | 1
- VIA Fundraiser | 1
- Phythyon Lecture | 2
- Smith Lecture | 2
- Pain Management | 3
- CRNA Week | 3
- Department Achievements | 4
- 2019-2020 Residents | 6
- New Department Members | 7
- Department Publications | 8

Vanderbilt International Anesthesia Fundraiser



The annual Vanderbilt International Anesthesia Fundraiser was held on Saturday, April 6, 2019 at Kijabe Hospital in Kenya. Mary Mungai, Head KRNA at Kijabe Hospital in Kenya, gave an interview with Blake Farmer from Nashville National Public Radio about health disparities and how the VIA is helping with those disparities.

The VIA auctioned many items, from an authentic South African braai to concert tickets, and raised over \$50,000.

A thank you to presenting sponsor Renasant Bank and to the other sponsors: Akins Real Estate Jim 'N Nick's Bar-B-Que, DAAD, VoluMetrix, Synovus, Shoemaker Financial, First Tennessee Bank, KraftCPAs, Burke Financial Group, Michelle HSU Realty, and F&M Mortgage.

DEPARTMENT OF ANESTHESIOLOGY AT
VANDERBILT UNIVERSITY MEDICAL CENTER
OFFICE OF THE CHAIR
1211 21ST AVENUE SOUTH, 722 MAB
NASHVILLE, TN 37212 | 615-936-1595

MESSAGE FROM THE CHAIR



Warren Sandberg, MD, PhD

Spring is here and the Department of Anesthesiology has already done so much since the beginning of the year.

To start, we had the Dr. Bradley E. Smith Endowed Lectureship and the Dr. James Phythyon Endowed Lectureship. Both speakers for these events were insightful, and we were honored to host them.

We also had our annual Vanderbilt International Anesthesia Fundraiser, which raises money for our anesthesia providers to go to Kenya and other countries with health disparities and teach safe anesthesia. We raised almost twice as much as we did last year.

We are also getting ready to welcome a new class of residents along with the new

chief residents for 2019 through 2020. New residents means new beginnings, just like Spring. The Department looks forward to working with them.

Brian Rothman, MD, and Jonathan Wanderer, MD, MPhil, are headed to the Expert Group Meetings for Epic to give presentations about how VUMC has implemented Epic programs to improve

the quality of our patient care. This is a testament to how much our Department and faculty make a difference in and have an impact on the medical center as a whole and the entire Epic program.

I look forward to seeing what else the Department accomplishes in the upcoming months.

Dr. James Phythyon Endowed Lectureship



Randall Flick, MD, MPH, was the featured speaker at the Dr. James Phythyon Endowed Lectureship in Pediatric Anesthesiology. The reception was held on Thursday, April 4, 2019, and the lecture was presented on Friday, April 5, 2019. The title of his lecture was "Anesthetic Related Neurotoxicity in Young Children: GAS, PANDA, & MASK."



Dr. Bradley E. Smith Endowed Lectureship



On Friday, Feb. 8, 2019, David Warner, MD, gave the Dr. Bradley E. Smith Endowed Lectureship on Medical Professionalism. The title of his lecture was "Professionalism Writ Large: Amplifying Your Influence."

XGM continued

Anesthesia,” describes the tooling that VUMC has put together to support our enhanced recovery after surgery protocols. “This is helping with reduction in length of stay, reduction of intraoperative opioids, and reduction of opioids prescribed at discharge,” Wanderer said. He explained that the most engaging presentations demonstrate novel use of Epic’s functionality as well as share the results that have been obtained with the help of those tools.

In keeping with that approach, he will also discuss VUMC’s enhanced recovery after surgery implementation and results. The Department of Anesthesiology’s Perioperative Consult Service team provides regional anesthesia and/or multimodal analgesia for patients prior to certain procedures and input on medical management, from decision to operate through discharge. “We developed robust informatics support for that service in our legacy system, and then I invested time before Epic Go Live rebuilding that function in our eStar system,” he said.

“I became certified as a physician builder and learned system architecture to create tools within eStar that provide services to the perioperative consult service team and regional anesthesia team.”

A lot of complex configuration is possible within Epic, and Wanderer will be showing off tools within Epic that made the perioperative configuration possible. Epic’s tools can be used in different ways at different institutions. “We are able to learn from other institutions and share what we’ve learned at XGM so we can



make our respective electronic health records function better.” Wanderer also leads VUMC’s Physician Builder Program and serves on Epic’s Anesthesia Specialty Steering Board, where he provides feedback on new features under development, highlighting areas for improvement.

Summary

Rothman said that working with Epic on special projects reflects the innovative culture of VUMC.

According to Wanderer, “VUMC is unique because the institution has really committed to involving clinicians with system design and optimization. “We have support from Dr. Balsler for growing our physician builder program which, in the long run, will help us optimize our eStar system across all of our clinical programs.”

Anesthesiology Department Chair Warren Sandberg, MD, PhD, said it is truly amazing to see how much the Epic implementation at VUMC has changed and improved over the past year, due to the hard work of numerous people like Rothman and Wanderer. “Epic is so important to the quality of care here at VUMC, and they continue to lead developments that lock in the quality of care we expect.”

Personalized pain management

By Niyati Vachara. Originally published on Feb. 28, 2019, in The Reporter.

There is an urgent need to identify reliable predictors of opioid responses to develop personalized opioid therapy for chronic pain management. A goal is to target opioid therapy to patients most likely to benefit from treatment with few side effects and low risk of opioid misuse.

Stephen Bruehl, PhD, and colleagues previously established an inverse correlation between levels of endogenous opioids (EOs), natural brain chemicals with pain-relieving properties, and analgesic responses to morphine.

Their latest study, published in the March issue of the journal *Pain*, tested whether circulating endocannabinoids, which stimulate the same brain receptors turned on by the active ingredient in marijuana, directly influence opioid analgesic responses or interact with EO function.

While they did not find that endocannabinoids directly affect morphine responses, they did find that the inverse association between EO activity and the analgesic and subjective effects of morphine was strongest in those with low endocannabinoid levels.

These findings may assist in developing approaches in personalized pain medicine to predict opioid analgesic responses in patients.

This research was supported by grants from the National Institutes of Health (DA037891, AA026186, GM108554, TR002243).



CRNA Week



Department Spotlight: Celebrating Departmental Accomplishments

Congratulations to our inaugural Perioperative Medicine Fellow, **Christine Abboud, MD**.

Randall Brenn, MD, won the the Best in Show Award from the Society for Technology in Anesthesia for his abstract entitled "Endotracheal Tube Intra-cuff Pressure is Not Equal to Tracheal Wall Pressure on a Simulated Trachea."

Andrew Franklin, MD, MBA, has been appointed to a three year term as Secretary of the Pediatric ERAS Society.

Andrew Franklin, MD, MBA, was elected president of the Tennessee Society of Anesthesiologists.

Andrew Franklin, MD, Steve Hyman, MD, and Paul St. Jaques, MD, attended the Association of Anesthesia Clinical Directors Perioperative Management Summit in San Antonio, Texas. St. Jacques completed his term as president and assumed the role of immediate past president. Franklin gave a presentation on demonstrating value in pediatric anesthesiology, and Hyman gave an update on physician burnout.

Elisabeth Hudson has been appointed to serve on the Association of Anesthesiology Program Administrators and Educators Council.

Heather Jackson, MSN, RN, APRN-BC, reports that her manuscript entitled "A Scoping Review of Acupuncture as a Potential Intervention for Neonatal Abstinence Syndrome (NAS)" was recently accepted for publication in *Medical Acupuncture*.

Walter Lee, CRNA, assumed the role of Lead Pediatric CRNA.

Justin Liberman, MD, has been appointed Associate Quality and Patient Safety Director.

Jordan Miller, CRNA, assumed the role of Senior Quality and Patient Advisor in the Department of Anesthesiology.

Amy Robertson, MD, was acknowledged for her contributions to the American Society of Anesthesiologists Self Education and Evaluation Continuing Medical Education Program.

Brian Rothman, MD, and Bridget Loveless will give a presentation for the upcoming Perioperative Advisory Council (Periop) at Epic XGM in May. Their presentation is titled "Flightboards and Their Impact In Every OR."

On Tuesday, Feb. 26, 2019, **Ban Sileshi, MD**, delivered a talk entitled "Educational Capacity Building in Low Resource Settings: A Department's Approach" in Eskin Biomedical Library.

Jonathan Wanderer, MD, MPhil, has been asked to serve as the Vice Chair of the Anesthesia Quality Institute Data Definitions Committee.



Chris Canlas, MD, was named interim Ambulatory Division Chief.



Letha Mathews, MBBS, was named Neuro-anesthesiology Division Chief.



Michael Pilla, MD, was named Multispecialty Adult Anesthesiology Division Chief.



On Tuesday, March 5, **Denise De La Torre** attended INSPIRE Research Coordinator Training at the Research Triangle in North Carolina.



A retirement celebration was held for **B.J. Barker, CRNA**, on Wednesday, Jan. 16, 2019.



Tom Stewart, PhD, and **Robert Freundlich, MD**, met with Congressman Jim Cooper and his staff in Washington D.C. to discuss increased NIH funding for clinical and translational research, as well as to advocate for reauthorization of PCORI.



Send us your news for inclusion in department publications:
Weekly Update,
Anesthesia Monitor & Blog
anesthesiology.comuncations@vumc.org



A retirement celebration was held for **Barb Doring, CRNA**, on Tuesday, March 19, 2019.

Department of Anesthesiology PGY-1 Class for 2019-2020



Willie Agee
Meharry Medical College



Chia Amanchukwu
University of Texas
School of Medicine
San Antonio



Kim Aut
University of Wisconsin
School of Medicine
and Public Health



Bobby Barnes
University of Nebraska
College of Medicine



Alex Cesare
Pennsylvania State University
College of Medicine



Jamie Clark
Wayne State University
School of Medicine



Veronica D'Ambra
Wake Forest
School of Medicine



Taylor Drees
University of Kansas
School of Medicine



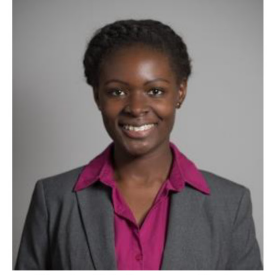
Maggie Galloway
Univ. of Texas Medical Branch
School of Medicine
Galveston



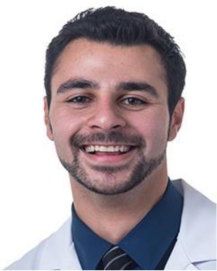
Katie Gorman
University of Colorado
School of Medicine



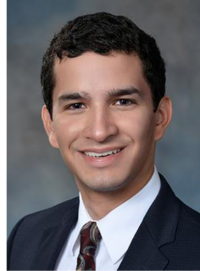
Hannah Gray
East Tennessee State University
James H. Quillen
College of Medicine



Rudo Makonza Goto
University of Pittsburgh
School of Medicine



Mazi Nourian
University of Utah
School of Medicine



Luis Perez
Baylor College of Medicine



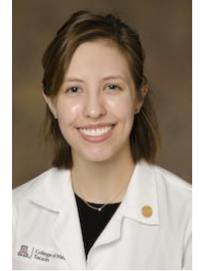
Erin Shirley
University of Oklahoma
College of Medicine



Sarah Stender
Louisiana State University
School of Medicine

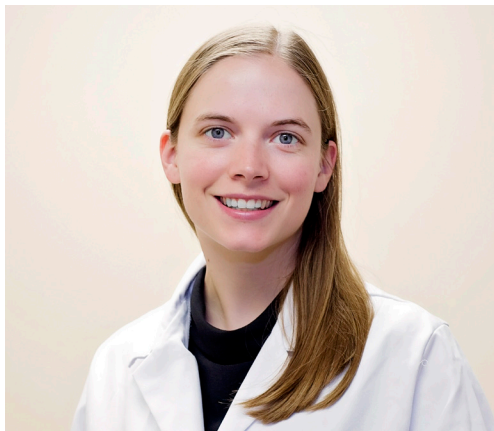


Sara Valek
University of Texas
School of Medicine
San Antonio



Olivia Valencia
University of Arizona
College of Medicine
Tucson

Chief Residents of 2019-2020



Lucy Brunker, MD



Bennett Roman, MD



Katherine Williams, DO

NEW DEPARTMENT MEMBERS



Donna Bundrick
Certified Registered
Nurse Anesthetist

EDUCATION:
BSN,
University of North
Carolina, Florence AL
(1977)

FUN FACT:
Terrible golfer but an
excellent world traveler.



Sonja Carter
Senior Administrative
Assistant
Multispecialty Adult
Anesthesiology
Neuroanesthesiology



Lindsay Dickson
Associate Program Manager
Administration

EDUCATION:
BS, Communications and
Advertising, University of
Tennessee, Knoxville, TN
(2006)

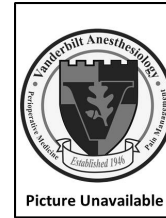
FUN FACT:
I am a huge Disney fan and
visit the parks frequently. I
am also a certified Disney
Travel specialist and love
helping others plan trips to
Disney.



Richard Doehring
Certified Registered
Nurse Anesthetist

EDUCATION:
MSN, Anesthesiology,
Middle Tennessee School of
Anesthesia, Madison, TN
(1995)
BSN, University of South
Alabama, Mobile, AL (1988)

FUN FACT:
I give 110 percent to
everything.



Ralph Gyasi
Database Administrator
Vanderbilt Anesthesiology &
Perioperative Informatics
Research

EDUCATION:
BS, Kwame Nkrumah
University of Science and
Technology, Kumasi, Ghana
(1999)

FUN FACT:
I ran a marathon in high
school.



Ashley Hall
Senior Administrative
Assistant
Pediatric Cardiac
Anesthesiology

FUN FACT:
I went to the kickball
national championships in
Las Vegas.



Michael Mantinan, MD
Assistant Professor of
Clinical Anesthesiology
Cardiothoracic
Anesthesiology

EDUCATION:
Fellowship, Cardiothoracic
Anesthesiology Johns Hopkins
Hospital, Baltimore, MD
(2013)
Residency, Anesthesiology
and Critical Care Medicine,
Johns Hopkins Hospital,
Baltimore, MD (2012)
MD, Michigan State University
College of Human Medicine,
East Lansing, MI (2008)

FUN FACT:
I speak Spanish.



**David McIlroy, MB.BS,
MD, MClinEpi, FANZCA**
Associate Professor
Cardiothoracic
Anesthesiology

EDUCATION:
Fellowship, Cardiothoracic
Anesthesiology, Monash
University, Melbourne,
Victoria, Australia (2001)
Residency, Anesthesiology,
Monash University,
Melbourne, Victoria, Australia
(1999)
MB.BS., Monash University,
Melbourne, Victoria, Australia
(1993)

FUN FACT:
I'm Australian born and
bred but have spent
time working as an
anesthesiologist at Columbia
University in New York and
University of Washington
in Seattle.



Morgan Rohde
Certified Registered
Nurse Anesthetist

EDUCATION:
MSN, Anesthesiology,
Middle Tennessee School of
Anesthesia, Madison, TN
(2018)
BSN, Cumberland University,
Lebanon, TN (2008)

FUN FACT:
I am a black belt in karate.



Ryan Smith, MD
Assistant Professor of
Clinical Anesthesiology
Multispecialty Adult
Anesthesiology

EDUCATION:
Fellowship, Perioperative Clinical
Ultrasound, McMaster University,
Hamilton, Ontario (2014)
Fellowship, Clinical Ultrasound,
University of Melbourne via
Distance Learning, Melbourne,
Australia (2013)
Residency, Anesthesiology,
Western University, Culch School
of Medicine and Dentistry,
London, Ontario (2013)
MD, University of Calgary,
Faculty of Medicine, Calgary,
Alberta (2008)

FUN FACT:
I worked as an environmental
planner for pipeline projects in
Canada's Arctic before studying
medicine.



Lexi Tittor
Associate Program Manager
Administration

EDUCATION:
BS, Human Performance
Exercise Science, University
of Alabama, Tuscaloosa, AL
(2018)

FUN FACT:
I lived in the same house
from birth until I left for
college.



Jonathan Wilson, MD
Assistant Professor of
Clinical Anesthesiology
Obstetric Anesthesiology

EDUCATION:
Fellowship, Obstetrical
Anesthesiology, Wake Forest
University, Winston-Salem, NC
(2013)
Residency, Anesthesiology,
University of Arizona, Tucson,
AZ (2012)
MD, University of Arizona,
Tucson, AZ (2008)

FUN FACT:
I love woodworking and
building things for my
family.

Recent Publications

- Akintoye E, Sethi P, Harris WS, Thompson PA, Marchioli R, Tavazzi L, Latini R, **Pretorius M**, Brown NJ, Libby P, Mozaffarian D. Fish Oil and Perioperative Bleeding. *Circ Cardiovasc Qual Outcomes*. 2018 Nov;11(11):e004584. doi: 10.1161/CIRCOUTCOMES.118.004584. PubMed PMID: 30571332.
- Akkermans A, van Waes JAR, Thompson A, Shanks A, Peelen LM, Aziz MF, Biggs DA, Paganeli WC, **Wanderer JP**, Helsten DL, Kheterpal S, van Klei WA, Saager L. An observational study of end-tidal carbon dioxide trends in general anesthesia. *Can J Anaesth*. 2019 Feb;66(2):149-160. doi: 10.1007/s12630-018-1249-1. Epub 2018 Nov 14. PubMed PMID: 30430440; PubMed Central PMCID: PMC6331507.
- Alexander LA, **Newton MW**, McEvoy KG, Newton MJ, Mungai M, DiMiceli-Zsigmond M, **Sileshi B**, Watkins SC, **McEvoy MD**. Development and Pilot Testing of a Context-Relevant Safe Anesthesia Checklist for Cesarean Delivery in East Africa. *Anesth Analg*. 2018 Oct 30. doi: 10.1213/ANE.0000000000003874. [Epub ahead of print] PubMed PMID: 30379674.
- Allen BFS, Gupta RK, Singleton M**, Elsharkawy H. Are we studying the same block or not? A video is worth a thousand words. *Reg Anesth Pain Med*. 2019 Feb 20. pii: rapm-2019-100438. doi: 10.1136/rapm-2019-100438. [Epub ahead of print] PubMed PMID: 30787045.
- Aretz CD, Morwitzer MJ, Sanford AG, Hogan AM, Portillo MV, **Kharade SV**, Kramer M, **McCarthy JB**, Trigueros RR, Piermarini PM, **Denton JS**, Hopkins CR. Discovery and Characterization of 2-Nitro-5-(4-(phenylsulfonyl)piperazin-1-yl)-N-(pyridin-4-ylmethyl)anilines as Novel Inhibitors of the *Aedes aegypti* Kir1 (AeKir1) Channel. *ACS Infect Dis*. 2019 Mar 15. doi: 10.1021/acsinfectdis.8b00368. [Epub ahead of print] PubMed PMID: 30832472.
- Arroyo JP, Johnson DC, Lewis JB, Al Sheyyab A, King A, Danter MR, **McGrane S**, Fessel JP. Treatment of Acute Intoxication From Inhaled 1,2-Difluoroethane. *Ann Intern Med*. 2018 Dec 4;169(11):820-822. doi: 10.7326/L18-0186. Epub 2018 Aug 14. PubMed PMID: 30105355.
- Bamikole PO, Theriault BM, Caldwell SL, **Schlesinger JJ**. Patient-Directed Music Therapy in the ICU. *Crit Care Med*. 2018 Nov;46(11):e1085. doi: 10.1097/CCM.0000000000003365. PubMed PMID: 30312244.
- Blackney KA, Kamdar NV, Liu CA, **Edwards DA**. Methylalntrexone-Associated Bowel Perforation in Postoperative Opioid-Induced Constipation and Ogilvie Syndrome: A Case Report. *AA Pract*. 2019 Jan 15;12(2):44-46. doi: 10.1213/XAA.0000000000000840. PubMed PMID: 30020107.
- Boncyk C**, Nahrwold DA, **Hughes CG**. Targeting light versus deep sedation for patients receiving mechanical ventilation. *J Emerg Crit Care Med*. 2018 Oct;2. pii: 79. doi: 10.21037/jeccm.2018.10.03. Epub 2018 Oct 19. PubMed PMID: 30443646; PubMed Central PMCID: PMC6233900.
- Brenn BR, Reddy SK**, Van Arendonk KJ, Morgan WM. Perioperative management of an anterior mediastinal teratoma in an infant: one more tool in the toolbox. *BMJ Case Rep*. 2018 Nov 1;2018. pii: bcr-2018-227022. doi: 10.1136/bcr-2018-227022. PubMed PMID: 30389739.
- Bruehl S**, Burns JW, Morgan A, Koltyn K, **Gupta R**, Buvanendran A, **Edwards D, Chont M**, Kingsley PJ, Marnett L, Stone A, Patel S. The association between endogenous opioid function and morphine responsiveness: a moderating role for endocannabinoids. *Pain*. 2018 Nov 19. doi: 10.1097/j.pain.0000000000001447. [Epub ahead of print] PubMed PMID: 30562268.

Bruehl S, Stone AL, Palmer C, Edwards DA, Buvanendran A, **Gupta R, Chont M**, Kennedy M, Burns JW. Self-reported cumulative medical opioid exposure and subjective responses on first use of opioids predict analgesic and subjective responses to placebo-controlled opioid administration. *Reg Anesth Pain Med*. 2019 Jan;44(1):92-99. doi: 10.1136/rapm-2018-000008. PubMed PMID: 30640659.

Burgess HJ, Burns JW, Buvanendran A, **Gupta R, Chont M**, Kennedy M, **Bruehl S**. Associations Between Sleep Disturbance and Chronic Pain Intensity and Function: A Test of Direct and Indirect Pathways. *Clin J Pain*. 2019 Mar 25. doi: 10.1097/AJP.0000000000000711. [Epub ahead of print] PubMed PMID: 30913041.

Byrne DA, **Sobey CM, Trahan J 3rd**, Bagai K, Walters A. Spinal Cord Stimulation in Patients With Chronic Pain and Restless Legs Syndrome: A Case Report. *AA Pract*. 2019 Mar 27. doi: 10.1213/XAA.0000000000001007. [Epub ahead of print] PubMed PMID: 30933049.

Carrington SJ, Hernandez CC, Swale DR, Aluko OA, **Denton JS**, Cone RD. G protein-coupled receptors differentially regulate glycosylation and activity of the inwardly rectifying potassium channel Kir7.1. *J Biol Chem*. 2018 Nov 16;293(46):17739-17753. doi: 10.1074/jbc.RA118.003238. Epub 2018 Sep 26. PubMed PMID: 30257863; PubMed Central PMCID: PMC6240878.

Clark CL, Weavind LM, Nelson SE, Wilkie JL, Conway JT, **Freundlich RE**. Nursing attitudes towards continuous capnographic monitoring of floor patients. *BMJ Open Qual*. 2018 Sep 15;7(3):e000416. doi: 10.1136/bmjopen-2018-000416. eCollection 2018. PubMed PMID: 30246157; PubMed Central PMCID: PMC6144903.

Coonan TJ, Perndt H, **McQueen KA**. Global Anesthesia. *Anesth Analg*. 2018 Nov;127(5):e85-e86. doi: 10.1213/ANE.0000000000003725. PubMed PMID: 30169417.

Cummings JJ, Shaw AD, Shi J, **Lopez MG**, O'Neal JB, **Billings FT 4th**. Intraoperative prediction of cardiac surgery-associated acute kidney injury using urinary biomarkers of cell cycle arrest. *J Thorac Cardiovasc Surg*. 2018 Sep 26. pii: S0022-5223(18)32484-X. doi: 10.1016/j.jtcvs.2018.08.090. [Epub ahead of print] PubMed PMID: 30389130.

de la Coba P, **Bruehl S**, Duschek S, Reyes Del Paso GA. Blood pressure-related pain modulation in fibromyalgia: Differentiating between static versus dynamic pain indicators. *Int J Psychophysiol*. 2018 Dec;134:79-85. doi: 10.1016/j.ijpsycho.2018.10.006. Epub 2018 Oct 12. PubMed PMID: 30321563.

Delpire E, Gagnon KB. Elusive role of the Na-K-2Cl cotransporter in the choroid plexus. *Am J Physiol Cell Physiol*. 2018 Dec 21. doi: 10.1152/ajpcell.00490.2018. [Epub ahead of print] PubMed PMID: 30576234.

Delpire E, Gagnon KB. Water Homeostasis and Cell Volume Maintenance and Regulation. *Curr Top Membr*. 2018;81:3-52. doi: 10.1016/bs.ctm.2018.08.001. Epub 2018 Aug 27. PubMed PMID: 30243436.

Devlin JW, Skrobik Y, Gélinas C, Needham DM, Slooter AJC, **Pandharipande PP**, Watson PL, Weinhouse GL, Nunnally ME, Rochweg B, Balas MC, van den Boogaard M, Bosma KJ, Brummel NE, Chanques G, Denehy L, Drouot X, Fraser GL, Harris JE, Joffe AM, Kho ME, Kress JP, Lanphere JA, McKinley S, Neufeld KJ, Pisani MA, Payen JF, Pun BT, Puntillo KA, Riker RR, Robinson BRH, Shehabi Y, Szumita PM, Winkelman C, Centofanti JE, Price C, Nikayin S, Misak CJ, Flood PD, Kiedrowski K, Alhazzani W. Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU. *Crit Care Med*. 2018 Sep;46(9):e825-e873. doi: 10.1097/CCM.0000000000003299. PubMed PMID: 30113379.

Devlin JW, Skrobik Y, Gélinas C, Needham DM, Slooter AJC, **Pandharipande PP**, Watson PL, Weinhouse GL, Nunnally ME, Rochweg B, Balas MC, van den Boogaard M, Bosma KJ, Brummel NE, Chanques G, Denehy L, Drouot X, Fraser GL, Harris JE, Joffe AM, Kho ME, Kress JP, Lanphere JA, McKinley S, Neufeld

KJ, Pisani MA, Payen JF, Pun BT, Puntillo KA, Riker RR, Robinson BRH, Shehabi Y, Szumita PM, Winkelman C, Centofanti JE, Price C, Nikayin S, Misak CJ, Flood PD, Kiedrowski K, Alhazzani W. Executive Summary: Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU. *Crit Care Med*. 2018 Sep;46(9):1532-1548. doi: 10.1097/CCM.0000000000003259. PubMed PMID: 30113371.

Edwards DA, Hedrick TL, Jayaram J, Argoff C, Gulur P, Holubar SD, Gan TJ, Mythen MG, Miller TE, Shaw AD, Thacker JKM, McEvoy MD. American Society for Enhanced Recovery and Perioperative Quality Initiative Joint Consensus Statement on Perioperative Management of Patients on Preoperative Opioid Therapy. *Anesth Analg*. 2019 Feb 12. doi: 10.1213/ANE.0000000000004018. [Epub ahead of print] PubMed PMID: 30768461.

Fernandez AM, **Reddy SK**, Gordish-Dressman H, Muldowney BL, Martinez JL, Chiao F, Stricker PA, Abruzzese C, Apuya J, Beethe A, Benzon H, Binstock W, Brzenski A, Budac S, Busso V, Chhabada S, Cladis F, Claypool D, Collins M, Dabek R, Dalesio N, Falcon R, Fernandez P, Fiadjoe J, Gangadharan M, Gentry K, Glover C, Goobie SM, Gosman A, Grap S, Gries H, Griffin A, Haberkern C, Hajduk J, Hall R, Hansen J, Hetmaniuk M, Hsieh V, Huang H, Ingelmo P, Ivanova I, Jain R, Kars M, Kowalczyk-Derderian C, Kugler J, Labovsky K, Lakheeram I, Lee A, Martinez JL, Masel B, Medellin E, Meier P, Mitzel Levy H, Muhly WT, Nelson J, Nicholson J, Nguyen KP, Nguyen T, Olutuye O, Owens-Stubblefield M, Ramesh Parekh U, Petersen T, Pohl V, Post J, Poteet-Schwartz K, Prozesky J, Reid R, Ricketts K, Rubens D, Ryan L, Skitt R, Soneru C, Spitznagel R, Singh D, Singhal NR, Sorial E, Staudt S, Stubbeman B, Sung W, Syed T, Szmuk P, Taicher BM, Thompson D, Tretault L, Ungar-Kastner G, Watts R, Wieser J, Wong K, Zamora AL; Pediatric Craniofacial Collaborative Group. Perioperative Outcomes and Surgical Case Volume in Pediatric Complex Cranial Vault Reconstruction: A Multicenter Observational Study From the Pediatric Craniofacial Collaborative Group. *Anesth Analg*. 2018 Sep 12. doi: 10.1213/ANE.0000000000003515. [Epub ahead of print] PubMed PMID: 30222655.

France DJ, Slagle J, Schremp E, Moroz S, Hatch LD, Grubb P, **Lorinc A**, Lehmann CU, Robinson J, Crankshaw M, Sullivan M, **Newman T**, Wallace T, **Weinger MB**, Blakely ML. Impact of patient handover structure on neonatal perioperative safety. *J Perinatol*. 2019 Jan 17. doi: 10.1038/s41372-018-0305-6. [Epub ahead of print] PubMed PMID: 30655594.

Franklin AD, Sobey JH, Stickles ET. Pediatric Electroconvulsive Therapy: An Anesthesiologist's Perspective. *Child Adolesc Psychiatr Clin N Am*. 2019 Jan;28(1):21-32. doi: 10.1016/j.chc.2018.07.002. Epub 2018 Sep 11. Review. PubMed PMID: 30389073.

Freeman R, Edwards R, Baron R, **Bruehl S**, Cruccu G, Dworkin RH, Haroutounian S. AAPT Diagnostic Criteria for Peripheral Neuropathic Pain: Focal and Segmental Disorders. *J Pain*. 2018 Dec 4. pii: S1526-5900(18)30722-3. doi: 10.1016/j.jpain.2018.10.002. [Epub ahead of print] PubMed PMID: 30527971.

Freundlich RE, Boncyk CS. Clearly-defined outcomes improve the quality of health outcomes research. *Br J Anaesth*. 2019 Jan;122(1):14-16. doi: 10.1016/j.bja.2018.11.009. Epub 2018 Nov 30. PubMed PMID: 30579392.

Freundlich RE, Bulka CM, **Wanderer JP, Rothman BS, Sandberg WS, Ehrenfeld JM**. Prospective Investigation of the Operating Room Time-Out Process. *Anesth Analg*. 2019 Mar 14. doi: 10.1213/ANE.0000000000004126. [Epub ahead of print] PubMed PMID: 30896592.

Freundlich RE, Nelson SE, Qiu Y, **Ehrenfeld JM, Sandberg WS, Wanderer JP**. A retrospective evaluation of the risk of bias in perioperative temperature metrics. *J Clin Monit Comput*. 2018 Dec 8. doi: 10.1007/s10877-018-0233-1. [Epub ahead of print] PubMed PMID: 30536125.

- Freundlich RE, Walco JP, Mueller DM, Wanderer JP, Rothman BS, Shotwell MS, Sandberg WS, Pandharipande PP, Weavind LM.** Prospective randomised trial of the Integrated Pulmonary Index™ in low-acuity inpatients. *Br J Anaesth.* 2018 Dec;121(6):1375-1377. doi: 10.1016/j.bja.2018.08.019. Epub 2018 Oct 9. PubMed PMID: 30442270.
- Gaffey AE, Aranda F, Burns JW, Purim-Shem-Tov YA, Burgess HJ, Beckham JC, **Bruehl S**, Hobfoll SE. Race, psychosocial vulnerability and social support differences in inner-city women's symptoms of posttraumatic stress disorder. *Anxiety Stress Coping.* 2019 Jan;32(1):18-31. doi: 10.1080/10615806.2018.1532078. Epub 2018 Oct 11. PubMed PMID: 30306795; PubMed Central PMCID: PMC6269211.
- Gaffey AE, Burns JW, Aranda F, Purim-Shem-Tov YA, Burgess HJ, Beckham JC, **Bruehl S**, Hobfoll SE. Social support, social undermining, and acute clinical pain in women: Mediation pathways of negative cognitive appraisal and emotion. *J Health Psychol.* 2018 Aug 27:1359105318796189. doi: 10.1177/1359105318796189. [Epub ahead of print] PubMed PMID: 30146929.
- Girard TD, Exline MC, Carson SS, Hough CL, Rock P, Gong MN, Douglas IS, Malhotra A, Owens RL, Feinstein DJ, Khan B, Pisani MA, Hyzy RC, Schmidt GA, Schweickert WD, Hite RD, Bowton DL, Masica AL, Thompson JL, Chandrasekhar R, Pun BT, Strength C, Boehm LM, Jackson JC, **Pandharipande PP**, Brummel NE, **Hughes CG**, Patel MB, Stollings JL, Bernard GR, Dittus RS, Ely EW; MIND-USA Investigators. Haloperidol and Ziprasidone for Treatment of Delirium in Critical Illness. *N Engl J Med.* 2018 Dec 27;379(26):2506-2516. doi: 10.1056/NEJMoa1808217. Epub 2018 Oct 22. PubMed PMID: 30346242.
- Gliatto P, Colbert-Getz JM, **Bhutiani M**, Cutrer WB, Edwards S, Fleming A, Keeley M, Osterberg L, **Pilla MA**, Moynahan K. Too Many Hats? Conflicts of Interest in Learning Community Faculty Roles. *J Med Educ Curric Dev.* 2019 Mar 22;6:2382120519827890. doi: 10.1177/2382120519827890. eCollection 2019 Jan-Dec. PubMed PMID: 30923748; PubMed Central PMCID: PMC6431764.
- Grahl JJ, Stollings JL, Rakhit S, Person AK, Wang L, Thompson JL, **Pandharipande PP**, Ely EW, Patel MB. Antimicrobial exposure and the risk of delirium in critically ill patients. *Crit Care.* 2018 Dec 12;22(1):337. doi: 10.1186/s13054-018-2262-z. PubMed PMID: 30541600; PubMed Central PMCID: PMC6291937.
- Grant MC, Gibbons MM, Ko CY, Wick EC, Cannesson M, Scott MJ, **McEvoy MD**, King AB, Wu CL. Evidence Review Conducted for the Agency for Healthcare Research and Quality Safety Program for Improving Surgical Care and Recovery: Focus on Anesthesiology for Bariatric Surgery. *Anesth Analg.* 2018 Aug 14. doi: 10.1213/ANE.0000000000003696. [Epub ahead of print] PubMed PMID: 30113392.
- Habib AS, **Kertai MD**, Cooter M, Greenup RA, Hwang S. Risk factors for severe acute pain and persistent pain after surgery for breast cancer: a prospective observational study. *Reg Anesth Pain Med.* 2019 Feb;44(2):192-199. doi: 10.1136/rapm-2018-000040. Epub 2019 Jan 5. PubMed PMID: 30700614.
- Hagaman D, **Pilla MA**, **Ehrenfeld JM**. Intraoperative Transfusion Guidelines: Promoting Clinician Adherence in the Operating Room. *Anesth Analg.* 2018 Sep;127(3):596-597. doi: 10.1213/ANE.0000000000003472. PubMed PMID: 30113974.
- Hagaman DH, **Ehrenfeld JM**, Terekhov M, **Kla KM**, Hamm J, Brumley M, **Wanderer JP**. Compliance Is Contagious: Using Informatics Methods to Measure the Spread of a Documentation Standard From a Preoperative Clinic. *J Perianesth Nurs.* 2018 Aug;33(4):436-443. doi: 10.1016/j.jopan.2016.08.016. Epub 2017 May 13. PubMed PMID: 30077286.
- Harle CA, Apathy NC, Cook RL, Danielson EC, Dilulio J, Downs SM, Hurley RW, Mamlin BW, Militello LG, **Anders S**. Information Needs and Requirements for Decision Support in Primary Care: An Analysis of Chronic Pain Care. *AMIA Annu Symp Proc.* 2018 Dec 5;2018:527-534. eCollection 2018. PubMed PMID: 30815093.

- Hawkins AT, Geiger TM, King AB, **Wanderer JP, Tiwari V**, Muldoon RL, Ford MM, Dmochowski RR, **Sandberg WS**, Martin B, Hopkins MB, **McEvoy MD**. An enhanced recovery program in colorectal surgery is associated with decreased organ level rates of complications: a difference-in-differences analysis. *Surg Endosc*. 2018 Oct 17. doi: 10.1007/s00464-018-6508-2. [Epub ahead of print] PubMed PMID: 30334161.
- Hawkins AT, **McEvoy MD, Wanderer JP**, Ford MM, Hopkins MB, Muldoon RL, Martin BJ, King AB, Geiger TM. Ketorolac Use and Anastomotic Leak in Elective Colorectal Surgery: A Detailed Analysis. *Dis Colon Rectum*. 2018 Dec;61(12):1426-1434. doi: 10.1097/DCR.0000000000001244. PubMed PMID: 30371548.
- Hayhurst CJ, Farrin E, Hughes CG**. The effect of ketamine on delirium and opioid-induced hyperalgesia in the Intensive Care Unit. *Anaesth Crit Care Pain Med*. 2018 Dec;37(6):525-527. doi: 10.1016/j.accpm.2018.11.001. PubMed PMID: 30573208.
- Hendel S, Banguti P, Workneh RS, Pinto E, Coonan T, Neighbour R, Perndt H, Froese A, **McQueen K**. In Reply: Comment on "Encouraging a bare minimum while striving for the gold standard: a response to the updated WHO-WFSA guidelines". *Can J Anaesth*. 2018 Dec 14. doi: 10.1007/s12630-018-01272-w. [Epub ahead of print] PubMed PMID: 30552640.
- Hendel S, Banguti P, Workneh RS, Pinto E, Coonan T, Neighbour R, Perndt H, Froese A, **McQueen K**. Encouraging a bare minimum while striving for the gold standard: a response to the updated WHO-WFSA guidelines. *Can J Anaesth*. 2019 Jan;66(1):127-128. doi: 10.1007/s12630-018-1209-9. Epub 2018 Aug 29. PubMed PMID: 30159713.
- Hofer IS, Levin MA, Simpao AF, McCormick PJ, **Rothman B**. In Response. *Anesth Analg*. 2019 Feb;128(2):e31-e32. doi: 10.1213/ANE.0000000000003952. PubMed PMID: 30507839.
- Holndonner-Kirst E, Nagy A, Czobor NR, Fazekas L, Dohan O, **Kertai MD**, Lex DJ, Sax B, Hartyanszky I, Merkely B, Gal J, Szekely A. The Impact of L-Thyroxine Treatment of Donors and Recipients on Postoperative Outcomes After Heart Transplantation. *J Cardiothorac Vasc Anesth*. 2018 Oct 25. pii: S1053-0770(18)30950-9. doi: 10.1053/j.jvca.2018.10.024. [Epub ahead of print] PubMed PMID: 30467031.
- Horazek C, **Crockett CJ**. Saved by the Massive Transfusion Protocol: A Case Report of an Obstetric Patient With Hemolysis, Elevated Liver Enzymes, and Low Platelet Count (HELLP) Syndrome and Glisson Capsule Rupture. *AA Pract*. 2018 Dec 19. doi: 10.1213/XAA.0000000000000949. [Epub ahead of print] PubMed PMID: 30575613.
- Huerta LE, **Wanderer JP, Ehrenfeld JM, Freundlich RE**, Rice TW, Semler MW; SMART Investigators and the Pragmatic Critical Care Research Group. Validation of a Sequential Organ Failure Assessment Score using Electronic Health Record Data. *J Med Syst*. 2018 Sep 14;42(10):199. doi: 10.1007/s10916-018-1060-0. PubMed PMID: 30218383; PubMed Central PMCID: PMC6261278.
- Jackson HJ**, Lopez CM. Utilization of the nurse practitioner role to combat the opioid crisis. *J Nurse Pract*. 2018;14(10):e213 - e216.
- Jayawardena A, Lowery AS, Wootten C, Dion GR, Summitt JB, **McGrane S**, Gelbard A. Early Surgical Management of Thermal Airway Injury: A case series. *J Burn Care Res*. 2018 Nov 15. doi: 10.1093/jbcr/iry059. [Epub ahead of print] PubMed PMID: 30445620.
- Jooste EH, Scholl R, Wu YH, Jaquiss RDB, Lodge AJ, Ames WA, Homi HM, Machovec KA, Greene NH, **Donahue BS**, Shah N, Benkowitz C. Double-Blind, Randomized, Placebo-Controlled Trial Comparing the Effects of Antithrombin Versus Placebo on the Coagulation System in Infants with Low Antithrombin Undergoing Congenital Cardiac Surgery. *J Cardiothorac Vasc Anesth*. 2019 Feb;33(2):396-402. doi: 10.1053/j.jvca.2018.05.052. Epub 2018 Jun 5. PubMed PMID: 30072263.

Karhausen JA, Qi W, Smeltz AM, Li YJ, Shah SH, Kraus WE, Mathew JP, Podgoreanu MV, **Kertai MD**; Duke Perioperative Genetics Safety Outcomes (PEGASUS) Investigative Team. Genome-Wide Association Study Links Receptor Tyrosine Kinase Inhibitor Sprouty 2 to Thrombocytopenia after Coronary Artery Bypass Surgery. *Thromb Haemost.* 2018 Sep;118(9):1572-1585. doi: 10.1055/s-0038-1667199. Epub 2018 Aug 13. PubMed PMID: 30103242.

Kazior MR, King AB, **Lopez MG, Billings FT 4th, Costello WT.** Serratus anterior plane block for minimally invasive valve surgery thoracotomy pain. *J Clin Anesth.* 2019 Jan 24;56:48-49. doi: 10.1016/j.jclinane.2019.01.019. [Epub ahead of print] PubMed PMID: 30685695.

Kent ML, Hurley RW, Oderda GM, Gordon DB, Sun E, Mythen M, Miller TE, Shaw AD, Gan TJ, Thacker JKM, **McEvoy MD**; POQI-4 Working Group. American Society for Enhanced Recovery and Perioperative Quality Initiative-4 Joint Consensus Statement on Persistent Postoperative Opioid Use: Definition, Incidence, Risk Factors, and Health Care System Initiatives. *Anesth Analg.* 2019 Mar 14. doi: 10.1213/ANE.0000000000003941. [Epub ahead of print] PubMed PMID: 30897590.

Kent ML, Tighe PJ, **Bruehl S**, Turk DC, Dworkin RH. The ACTION-APS-AAPM Pain Taxonomy (AAAPT) Diagnostic Criteria for Acute Pain Conditions: An Introduction. *J Pain.* 2019 Jan 10. pii: S1526-5900(18)31016-2. doi: 10.1016/j.jpain.2018.12.002. [Epub ahead of print] PubMed PMID: 30639193.

Kertai MD, Cooter M, Pollard RJ, Stafford-Smith M. In Response. *Anesth Analg.* 2018 Dec;127(6):e108-e109. doi: 10.1213/ANE.0000000000003813. PubMed PMID: 30252702.

Kingeter AJ, **Pandharipande PP.** In Response. *Anesth Analg.* 2018 Oct 8. doi: 10.1213/ANE.0000000000003855. [Epub ahead of print] PubMed PMID: 30300183.

Klonoff DC, Umpierrez GE, Rice MJ. A Milestone in Point of Care Capillary Blood Glucose Monitoring of Critically Ill Hospitalized Patients. *J Diabetes Sci Technol.* 2018 Nov;12(6):1095-1100. doi: 10.1177/1932296818801607. Epub 2018 Sep 23. PubMed PMID: 30246543; PubMed Central PMCID: PMC6232725.

Koumangoye R, Omer S, Delpire E. A Dileucine Motif in the C-Terminal Domain of NKCC1 targets the cotransporter to the plasma membrane. *Am J Physiol Cell Physiol.* 2019 Mar 13. doi: 10.1152/ajpcell.00023.2019. [Epub ahead of print] PubMed PMID: 30865516.

Kozek KA, Du Y, Sharma S, Prael FJ 3rd, Spitznagel BD, **Kharade SV, Denton JS**, Hopkins CR, Weaver CD. Discovery and Characterization of VU0529331, a Synthetic Small-Molecule Activator of Homomeric G Protein-Gated, Inwardly Rectifying, Potassium (GIRK) Channels. *ACS Chem Neurosci.* 2018 Sep 13. doi: 10.1021/acscchemneuro.8b00287. [Epub ahead of print] PubMed PMID: 30136838.

Kynes JM, Blakely M, Furman K, Burnette WB, **Modes KB.** Multidisciplinary Perioperative Care for Children with Neuromuscular Disorders. *Children (Basel).* 2018 Sep 12;5(9). pii: E126. doi: 10.3390/children5090126. Review. PubMed PMID: 30213079; PubMed Central PMCID: PMC6162674.

Larach MG, Klumpner TT, Brandom BW, Vaughn MT, Belani KG, Herlich A, Kim TW, Limoncelli J, Riazi S, Sivak EL, Capacchione J, Mashman D, Kheterpal S, Kooij F, Wilczak J, Soto R, Berris J, Price Z, Lins S, Coles P, Harris JM, Cummings KC 3rd, Berman MF, Nanamori M, Adelman BT, Wedeven C, LaGorio J, McCormick PJ, Tom S, Aziz MF, Coffman T, Ellis TA 2nd, Molina S, Peterson W, Mackey SC, van Klei WA, Ginde AA, Biggs DA, Neuman MD, Craft RM, Pace NL, Paganelli WC, Durieux ME, Nair BJ, **Wanderer JP**, Miller SA, Helsten DL, Turnbull ZA, Schonberger RB; Multicenter Perioperative Outcomes Group. Succinylcholine Use and Dantrolene Availability for Malignant Hyperthermia Treatment: Database Analyses and Systematic Review. *Anesthesiology.* 2019 Jan;130(1):41-54. doi: 10.1097/ALN.0000000000002490. PubMed PMID: 30550426.

LeCompte M, Stewart M, Harris T, Rives G, Guth C, **Ehrenfeld J**, Sexton K, Terhune K. See one, do one, teach one: A randomized controlled study evaluating the benefit of autonomy in surgical education. *Am J Surg*. 2019 Feb;217(2):281-287. doi: 10.1016/j.amjsurg.2018.10.037. Epub 2018 Nov 1. PubMed PMID: 30420092.

Lee DJ, Cronin R, Robinson J, **Anders S**, Unertl K, Kelly K, Hankins H, Skeens R, Jackson GP. Common Consumer Health-Related Needs in the Pediatric Hospital Setting: Lessons from an Engagement Consultation Service. *Appl Clin Inform*. 2018 Jul;9(3):595-603. doi: 10.1055/s-0038-1667205. Epub 2018 Aug 8. PubMed PMID: 30089333; PubMed Central PMCID: PMC6082659.

Liberman JS, Samuels LR, Goggins K, Kripalani S, Roumie CL; VICS (Vanderbilt Inpatient Cohort Study). Opioid Prescriptions at Hospital Discharge Are Associated With More Postdischarge Healthcare Utilization. *J Am Heart Assoc*. 2019 Feb 5;8(3):e010664. doi: 10.1161/JAHA.118.010664. PubMed PMID: 30689500.

Lombard FW, Liang Y. Perioperative Risk Factors for Mitral Valve Surgery: Atrial Fibrillation and Pulmonary Hypertension. *Semin Cardiothorac Vasc Anesth*. 2019 Jan 4:1089253218821694. doi: 10.1177/1089253218821694. [Epub ahead of print] PubMed PMID: 30608218.

Long MT, Coursin DB, **Rice MJ**. Perioperative Considerations for Evolving Artificial Pancreas Devices. *Anesth Analg*. 2018 Sep 6. doi: 10.1213/ANE.0000000000003779. [Epub ahead of print] PubMed PMID: 30198923.

Magarik M, **Fowler LC**, **Robertson A**, **Ehrenfeld JM**, **McEvoy MD**, Deitte LA. There's an App for That: A Case Study on the Impact of Spaced Education on Ordering CT Examinations. *J Am Coll Radiol*. 2018 Dec 29. pii: S1546-1440(18)31409-1. doi: 10.1016/j.jacr.2018.10.024. [Epub ahead of print] PubMed PMID: 30600161.

Marra A, Kotfis K, Hosie A, MacLulich AMJ, **Pandharipande PP**, Ely EW, Pun BT. Delirium Monitoring: Yes or No? That Is The Question. *Am J Crit Care*. 2019 Mar;28(2):127-135. doi: 10.4037/ajcc2019874. Review. PubMed PMID: 30824517.

Marra A, **McGrane TJ**, **Henson CP**, **Pandharipande PP**. Melatonin in Critical Care. *Crit Care Clin*. 2019 Apr;35(2):329-340. doi: 10.1016/j.ccc.2018.11.008. Epub 2019 Jan 30. Review. PubMed PMID: 30784613.

McEvoy MD, **Gupta R**, Koepke EJ, Feldheiser A, Michard F, Levett D, Thacker JKM, Hamilton M, Grocott MPW, Mythen MG, Miller TE, Edwards MR; POQI-3 workgroup; POQI chairs, Miller TE, Mythen MG, Grocott MP, Edwards MR; Physiology group; Preoperative blood pressure group; Intraoperative blood pressure group; Postoperative blood pressure group. Perioperative Quality Initiative consensus statement on postoperative blood pressure, risk and outcomes for elective surgery. *Br J Anaesth*. 2019 Mar 2. pii: S0007-0912(19)30059-5. doi: 10.1016/j.bja.2019.01.019. [Epub ahead of print] PubMed PMID: 30916008.

McIlroy DR, Bellomo R, **Billings FT 4th**, Karkouti K, Prowle JR, Shaw AD, Myles PS. Systematic review and consensus definitions for the Standardised Endpoints in Perioperative Medicine (StEP) initiative: renal endpoints. *Br J Anaesth*. 2018 Nov;121(5):1013-1024. doi: 10.1016/j.bja.2018.08.010. Epub 2018 Sep 21. PubMed PMID: 30336845.

McKernan LC, Johnson BN, Crofford LJ, Lumley MA, **Bruehl S**, Cheavens JS. Posttraumatic Stress Symptoms Mediate the Effects of Trauma Exposure on Clinical Indicators of Central Sensitization in Patients With Chronic Pain. *Clin J Pain*. 2019 Feb 5. doi: 10.1097/AJP.0000000000000689. [Epub ahead of print] PubMed PMID: 30730446.

Militello LG, **Anders S**, Downs SM, DiIulio J, Danielson EC, Hurley RW, Harle CA. UNDERSTANDING HOW PRIMARY CARE CLINICIANS MAKE SENSE OF CHRONIC PAIN. *Cogn Technol Work*. 2018 Nov;20(4):575-584. doi: 10.1007/s10111-018-0491-1. Epub 2018 May 30. PubMed PMID: 30842708; PubMed Central PMCID: PMC6398613.

Moran KR, Schell RM, Smith KA, Abdel-Rasoul M, Lekowski RW Jr, Rankin DD, DiLorenzo A, **McEvoy MD**. Do You Really Mean It? Assessing the Strength, Frequency, and Reliability of Applicant Commitment Statements During the Anesthesiology Residency Match. *Anesth Analg*. 2019 Mar 27. doi: 10.1213/ANE.0000000000004136. [Epub ahead of print] PubMed PMID: 30925553.

Musee J, **Kumar AB**. Cerebral Venous Sinus Thrombosis in Mid-South USA. *Can J Neurol Sci*. 2019 Mar;46(2):264. doi: 10.1017/cjn.2018.392. Epub 2019 Mar 4. PubMed PMID: 30829186.

Nelson SE, **Li G**, Shi H, Terekhov M, **Ehrenfeld JM**, **Wanderer JP**. The impact of reduction of testing at a Pre-operative Evaluation Clinic for elective cases: Value added without adverse outcomes. *J Clin Anesth*. 2018 Dec 29;55:92-99. doi: 10.1016/j.jclinane.2018.12.027. [Epub ahead of print] PubMed PMID: 30599426.

Niconchuk JA, **Richardson MG**. Complete relief of CRPS-associated pain during magnesium infusion in a patient with postpartum preeclampsia. *Reg Anesth Pain Med*. 2019 Jan 11. pii: rapm-2018-100142. doi: 10.1136/rapm-2018-100142. [Epub ahead of print] PubMed PMID: 30635501.

Oleksy AJ, **Schlesinger JJ**. What's all that noise-Improving the hospital soundscape. *J Clin Monit Comput*. 2018 Nov 2. doi: 10.1007/s10877-018-0215-3. [Epub ahead of print] Review. PubMed PMID: 30390171.

Osmundson SS, **Raymond BL**, Kook BT, Lam L, Thompson EB, Schornack LA, Voorhees CE, **Richardson MG**. Individualized Compared With Standard Postdischarge Oxycodone Prescribing After Cesarean Birth: A Randomized Controlled Trial. *Obstet Gynecol*. 2018 Sep;132(3):624-630. doi: 10.1097/AOG.0000000000002782. PubMed PMID: 30095773; PubMed Central PMCID: PMC6105453.

Pal N, Weitzel N, **Kertai MD**. Repair, Replace, or Watchful Waiting: A Contemporary Management of Mitral Valve Disease and Its Related Conditions. *Semin Cardiothorac Vasc Anesth*. 2019 Mar;23(1):5-10. doi: 10.1177/1089253218817856. PubMed PMID: 30791858.

Palmer CM, **Baysinger CL**. Spinal Cord Trauma During Subarachnoid Anesthesia for Cesarean Delivery: A Case Report. *AA Pract*. 2019 Jan 10. doi: 10.1213/XAA.0000000000000966. [Epub ahead of print] PubMed PMID: 30640276.

Patel MB, Bednarik J, Lee P, Shehabi Y, Salluh JI, Slooter AJ, Klein KE, Skrobik Y, Morandi A, Spronk PE, Naidech AM, Pun BT, Bozza FA, Marra A, John S, **Pandharipande PP**, Ely EW. Delirium Monitoring in Neurocritically Ill Patients: A Systematic Review. *Crit Care Med*. 2018 Nov;46(11):1832-1841. doi: 10.1097/CCM.0000000000003349. PubMed PMID: 30142098; PubMed Central PMCID: PMC6185789.

Patil NK, **Bohannon JK**, **Hernandez A**, Patil TK, **Sherwood ER**. Regulation of leukocyte function by citric acid cycle intermediates. *J Leukoc Biol*. 2019 Feb 21. doi: 10.1002/JLB.3MIR1118-415R. [Epub ahead of print] Review. PubMed PMID: 30791134.

Patil NK, **Bohannon JK**, **Sherwood ER**. Metabolism drives monocytes during inflammation: What we do and do not know. *J Leukoc Biol*. 2019 Feb;105(2):211-213. doi: 10.1002/JLB.3CE1118-448R. Epub 2019 Jan 7. PubMed PMID: 30618209.

Piermarini PM, Inocente EA, Acosta N, Hopkins CR, **Denton JS**, Michel AP. Inward rectifier potassium (Kir) channels in the soybean aphid *Aphis glycines*: Functional characterization, pharmacology, and toxicology. *J Insect Physiol*. 2018 Oct;110:57-65. doi: 10.1016/j.jinsphys.2018.09.001. Epub 2018 Sep 6. PubMed PMID: 30196125; PubMed Central PMCID: PMC6173977.

Pirtle C, **Ehrenfeld J**. Blockchain for Healthcare: The Next Generation of Medical Records? *J Med Syst*. 2018 Aug 10;42(9):172. doi: 10.1007/s10916-018-1025-3. PubMed PMID: 30097733.

Poe LM, Sobey CM. Spinal Cord Stimulation as Treatment for Truncal Chronic Regional Pain Syndrome After Cardiac Surgery: A Case Report. *AA Pract*. 2019 Jan 15;12(2):51-53. doi: 10.1213/XAA.0000000000000843. PubMed PMID: 30085934.

Prada G, Vieillard-Baron A, Martin AK, **Hernandez A**, Mookadam F, Ramakrishna H, Diaz-Gomez JL. Echocardiographic Applications of M-Mode Ultrasonography in Anesthesiology and Critical Care. *J Cardiothorac Vasc Anesth*. 2018 Jun 30. pii: S1053-0770(18)30411-7. doi: 10.1053/j.jvca.2018.06.019. [Epub ahead of print] Review. PubMed PMID: 30077562.

Raymond BL, Wanderer JP, Hawkins AT, Geiger TM, **Ehrenfeld JM**, Stokes JW, **McEvoy MD**. Use of the American College of Surgeons National Surgical Quality Improvement Program Surgical Risk Calculator During Preoperative Risk Discussion: The Patient Perspective. *Anesth Analg*. 2018 Aug 29. doi: 10.1213/ANE.0000000000003718. [Epub ahead of print] PubMed PMID: 30169413.

Rebel A, DiLorenzo A, Nguyen D, Horvath I, **McEvoy MD**, Fragneto RY, Dority JS, Rose GL, Schell RM. Should Objective Structured Clinical Examinations Assist the Clinical Competency Committee in Assigning Anesthesiology Milestones Competency? *Anesth Analg*. 2019 Mar 27. doi: 10.1213/ANE.0000000000004120. [Epub ahead of print] PubMed PMID: 30925556.

Reddy SK, Patel RS, Rogers GF, Gordish-Dressman H, Keating RF, Pestieau SR. Intraoperative Management by a Craniofacial Team Anesthesiologist is Associated With Improved Outcomes for Children Undergoing Major Craniofacial Reconstructive Surgery. *J Craniofac Surg*. 2018 Dec 29. doi: 10.1097/SCS.0000000000005086. [Epub ahead of print] PubMed PMID: 30614991.

Rengel KF, Hayhurst CJ, Pandharipande PP, Hughes CG. Long-term Cognitive and Functional Impairments After Critical Illness. *Anesth Analg*. 2019 Apr;128(4):772-780. doi: 10.1213/ANE.0000000000004066. PubMed PMID: 30883422.

Rio JMD, Weitzel N, **Kertai MD**. Adding Value by Going Beyond. *Semin Cardiothorac Vasc Anesth*. 2018 Dec;22(4):341-344. doi: 10.1177/1089253218807796. PubMed PMID: 30764734.

Robinson JR, **Anders SH**, Novak LL, Simpson CL, Holroyd LE, Bennett KA, Jackson GP. Consumer health-related needs of pregnant women and their caregivers. *JAMIA Open*. 2018 Jul;1(1):57-66. doi: 10.1093/jamiaopen/ooy018. Epub 2018 Jun 18. PubMed PMID: 30474071; PubMed Central PMCID: PMC6241505.

Rowland MJ, Urman RD, Xu X, **Ehrenfeld JM**, Preiss DA, Vacanti JC. The Impact of Airway Technique on Anesthesia Control Time. *J Med Syst*. 2019 Feb 11;43(3):72. doi: 10.1007/s10916-019-1191-y. PubMed PMID: 30746553.

Rusconi Trigueros R, Hopkins CR, **Denton JS**, Piermarini PM. Pharmacological Inhibition of Inward Rectifier Potassium Channels Induces Lethality in Larval *Aedes aegypti*. *Insects*. 2018 Nov 15;9(4). pii: E163. doi: 10.3390/insects9040163. PubMed PMID: 30445675.

Sabouri AS, **Crawford L**, Bick SK, Nozari A, Anderson TA. Is a Retrolaminar Approach to the Thoracic Paravertebral Space Possible? A Human Cadaveric Study. *Reg Anesth Pain Med*. 2018 Nov;43(8):864-868. doi: 10.1097/AAP.0000000000000828. PubMed PMID: 29923954.

Sandberg WS, Brull SJ. Workflow Eats Optimum Care for Lunch. *Anesthesiology*. 2018 Nov;129(5):864-866. doi: 10.1097/ALN.0000000000002437. PubMed PMID: 30204595.

Sharma D, Day ME, Stimpson SJ, Rodeghier M, Ghafuri D, Callaghan M, Zaidi AU, Hannan B, Kassim A, Zempsky W, Wellons M, James A, **Bruehl S**, DeBaun MR. Acute Vaso-Occlusive Pain is Temporally Associated with the Onset of Menstruation in Women with Sickle Cell Disease. *J Womens Health (Larchmt)*. 2019 Jan 16. doi: 10.1089/jwh.2018.7147. [Epub ahead of print] PubMed PMID: 30648915.

Sharma D, **Easdown LJ**, Zolyomi A, Ayrian E, Wheeler PJ, Edelman G, Mahla ME; Society for Neuroscience in Anesthesiology & Critical Care (SNACC) Neuroanesthesiology Milestones Task Force. Society for Neuroscience in Anesthesiology & Critical Care (SNACC) Neuroanesthesiology Education Milestones for Resident Education. *J Neurosurg Anesthesiol*. 2019 Feb 12. doi: 10.1097/ANA.0000000000000586. [Epub ahead of print] PubMed PMID: 30762721.

Shroder M, **Anders SH**, Dorst M, Jackson GP. Communication Technology Use and Preferences for Pregnant Women and Their Caregivers. *AMIA Annu Symp Proc*. 2018 Dec 5;2018:1515-1523. eCollection 2018. PubMed PMID: 30815197.

Smith LE, Heath DR, Riess ML. Sounds Impossible, but It's Knot. *Anesthesiology*. 2019 Jan 8. doi: 10.1097/ALN.0000000000002585. [Epub ahead of print] PubMed PMID: 30632983.

Staudt GE, Eagle SS, Hughes AK, Donahue BS. Evaluation of Dynamic Ultrasound for Arterial Access in Children Undergoing Cardiac Surgery. *J Cardiothorac Vasc Anesth*. 2018 Dec 1. pii: S1053-0770(18)31102-9. doi: 10.1053/j.jvca.2018.11.050. [Epub ahead of print] PubMed PMID: 30642679.

Staudt GE, Reddy SK, Moore AD. Apneic oxygenation via nasal cannula for intubation of a premature neonate with multiple airway anomalies. *BMJ Case Rep*. 2019 Mar 5;12(3). pii: e227494. doi: 10.1136/bcr-2018-227494. PubMed PMID: 30842134.

Staudt GE, Watkins SC. Anesthetic Considerations for Pediatric Patients With Congenital Long QT Syndrome. *J Cardiothorac Vasc Anesth*. 2018 Nov 12. pii: S1053-0770(18)31021-8. doi: 10.1053/j.jvca.2018.11.005. [Epub ahead of print] Review. PubMed PMID: 30553610.

Stothers CL, **Luan L**, Fensterheim BA, **Bohannon JK**. Hypoxia-inducible factor-1 α regulation of myeloid cells. *J Mol Med (Berl)*. 2018 Dec;96(12):1293-1306. doi: 10.1007/s00109-018-1710-1. Epub 2018 Nov 1. Review. PubMed PMID: 30386909; PubMed Central PMCID: PMC6292431.

Strange K, Yamada T, Denton JS. A 30-year journey from volume-regulated anion currents to molecular structure of the LRRC8 channel. *J Gen Physiol*. 2019 Jan 16. pii: jgp.201812138. doi: 10.1085/jgp.201812138. [Epub ahead of print] Review. PubMed PMID: 30651298.

Tiwari V, Quinlan JJ, Levine WC. Scaling Perioperative Services Across Health Care Systems. *Int Anesthesiol Clin*. 2019 Winter;57(1):1-17. doi: 10.1097/AIA.0000000000000218. PubMed PMID: 30520745.

Tuwatananurak JP, Zadeh S, Xu X, Vacanti JA, Fulton WR, **Ehrenfeld JM**, Urman RD. Machine Learning Can Improve Estimation of Surgical Case Duration: A Pilot Study. *J Med Syst*. 2019 Jan 17;43(3):44. doi: 10.1007/s10916-019-1160-5. PubMed PMID: 30656433.

Vasilevskis EE, Chandrasekhar R, Holtze CH, Graves J, Speroff T, Girard TD, Patel MB, **Hughes CG**, Cao A, **Pandharipande PP**, Ely EW. The Cost of ICU Delirium and Coma in the Intensive Care Unit Patient. *Med Care*. 2018 Oct;56(10):890-897. doi: 10.1097/MLR.0000000000000975. PubMed PMID: 30179988; PubMed Central PMCID: PMC6200340.

Waataja JJ, Peterson CD, Verma H, Goracke-Postle CJ, Séguéla P, **Delpire E**, Wilcox GL, Fairbanks CA. Agmatine Preferentially Antagonizes GluN2B-Containing N-Methyl-D-Aspartate Receptors in Spinal Cord. *J Neurophysiol*. 2018 Nov 14. doi: 10.1152/jn.00172.2018. [Epub ahead of print] PubMed PMID: 30427758.

Waberski AT, Espinel AG, **Reddy SK**. Anesthesia Safety in Otolaryngology. *Otolaryngol Clin North Am*. 2019 Feb;52(1):63-73. doi: 10.1016/j.otc.2018.08.012. Epub 2018 Sep 22. Review. PubMed PMID: 30249444.

Walker BJ, Long JB, Sathyamoorthy M, Birstler J, Wolf C, Bosenberg AT, Flack SH, Krane EJ, Sethna NF, Suresh S, Taenzer AH, Polaner DM, Martin L, Anderson C, Sunder R, Adams T, Martin L, Pankovich M, Sawardekar A, Birmingham P, Marcelino R, Ramarmurthi RJ, Szmuk P, Ungar GK, Lozano S, Boretsky K, Jain R, Matuszczak M, Petersen TR, Dillow J, Power R, Nguyen K, Lee BH, Chan L, Pineda J, Hutchins J, Mendoza K, Spisak K, Shah A, DelPizzo K, Dong N, Yalamanchili V, Venable C, Williams CA, Chaudahari R, Ohkawa S, Usljebrka H, Bhalla T, Vanzillotta PP, Apiliogullari S, **Franklin AD**, Ando A, Pestieau SR, Wright C, Rosenbloom J, Anderson T; Pediatric Regional Anesthesia Network Investigators. Complications in Pediatric Regional Anesthesia: An Analysis of More than 100,000 Blocks from the Pediatric Regional Anesthesia Network. *Anesthesiology*. 2018 Oct;129(4):721-732. doi: 10.1097/ALN.0000000000002372. PubMed PMID: 30074928.

Walters CB, Kynes JM, Sobey J, Chimhundu-Sithole T, **McQueen KAK**. Chronic Pediatric Pain in Low- and Middle-Income Countries. *Children (Basel)*. 2018 Aug 27;5(9). pii: E113. doi: 10.3390/children5090113. Review. PubMed PMID: 30150600; PubMed Central PMCID: PMC6162626.

Wanderer JP, Nathan N. A Bloodless Surgical Journey: Alternatives to Transfusion. *Anesth Analg*. 2019 Jan;128(1):1. doi: 10.1213/ANE.0000000000003939. PubMed PMID: 30550464.

Wanderer JP, Nathan N. A Conical Cuff and Other Stuff: Blood Pressure Monitoring in the Obese is Tough. *Anesth Analg*. 2019 Mar;128(3):390. doi: 10.1213/ANE.0000000000004041. PubMed PMID: 30789405.

Wanderer JP, Nathan N. Critically Ill, Then Chronically Painful: Pain and Interference With Everyday Life. *Anesth Analg*. 2018 Sep;127(3):590. doi: 10.1213/ANE.0000000000003688. PubMed PMID: 30113971.

Wanderer JP, Nathan N. Poor Sleep, Worse Outcomes: Obstructive Sleep Apnea and Perioperative Care. *Anesth Analg*. 2018 Oct;127(4):804. doi: 10.1213/ANE.0000000000003745. PubMed PMID: 30216279.

Wanderer JP, Nathan N. Protecting the Beans: Perioperative Acute Kidney injury. *Anesth Analg*. 2018 Nov;127(5):1098. doi: 10.1213/ANE.0000000000003835. PubMed PMID: 30335653.

Wanderer JP, Nathan N. Sad News for Length of Stay: The Impact of Anxiety and Depression. *Anesth Analg*. 2019 Feb;128(2):198. doi: 10.1213/ANE.0000000000003997. PubMed PMID: 30649039.

Wanderer JP, Rathmell JP. A Calculated Risk: Comparing Perioperative Assessment Tools. *Anesthesiology*. 2018 Nov;129(5):A17. doi: 10.1097/ALN.0000000000002479. PubMed PMID: 30325801.

Wanderer JP, Rathmell JP. Bypassing Poor Outcomes: Cardiac Surgery and Intraoperative Hypotension. *Anesthesiology*. 2018 Sep;129(3):A19. doi: 10.1097/ALN.0000000000002407. PubMed PMID: 30106775.

Wanderer JP, Rathmell JP. From Two Lungs to One: Optimizing Ventilation. *Anesthesiology*. 2019 Mar;130(3):A19. doi: 10.1097/ALN.0000000000002643. PubMed PMID: 30762631.

Wanderer JP, Rathmell JP. Machine Learning for Anesthesiologists: A Primer. *Anesthesiology*. 2018 Oct;129(4):A29. doi: 10.1097/ALN.0000000000002444. PubMed PMID: 30234585.

Wanderer JP, Rathmell JP. Obstructive Sleep Apnea and Opioid-Induced Respiratory Depression: What do we know? *Anesthesiology*. 2019 Feb;130(2):A19. doi: 10.1097/ALN.0000000000002621. PubMed PMID: 30688779.

Wanderer JP, Rathmell JP. Operation Cancer Resection: Does Anesthetic Approach Matter? *Anesthesiology*. 2019 Jan;130(1):A17. doi: 10.1097/ALN.0000000000002553. PubMed PMID: 30550422.

Wanderer JP, Rathmell JP. Personalized PEEP: Options for Getting It Just Right. *Anesthesiology*. 2018 Dec;129(6):A21. doi: 10.1097/ALN.0000000000002513. PubMed PMID: 30422850.

Wanderer JP, Rathmell JP. Stop Interfering! Intraoperative Management of ICDs. *Anesthesiology*. 2019 Apr;130(4):A15. doi: 10.1097/ALN.0000000000002680. PubMed PMID: 30870208.

Watts BA 3rd, George T, **Sherwood ER**, Good DW. Monophosphoryl lipid A prevents impairment of medullary thick ascending limb [Formula: see text] absorption and improves plasma [Formula: see text] concentration in septic mice. *Am J Physiol Renal Physiol*. 2018 Sep 1;315(3):F711-F725. doi: 10.1152/ajprenal.00033.2018. Epub 2018 May 9. PubMed PMID: 29741098; PubMed Central PMCID: PMC6172583.

Xu J, **Slagle JM, Banerjee A**, Bracken B, **Weinger MB**. Use of a Portable Functional Near-Infrared Spectroscopy (fNIRS) System to Examine Team Experience During Crisis Event Management in Clinical Simulations. *Front Hum Neurosci*. 2019 Mar 5;13:85. doi: 10.3389/fnhum.2019.00085. eCollection 2019. PubMed PMID: 30890926; PubMed Central PMCID: PMC6412154.

Young EM, Greene CR, Austin TM, Miller MS, **Sobey CM**. Follow-up after implementing a web-based support tool for intrathecal pump drug management. *Reg Anesth Pain Med*. 2019 Jan;44(1):135. doi: 10.1136/rapm-2018-000034. PubMed PMID: 30640668.

Department Leadership



Warren S. Sandberg, MD, PhD
Chair, Department of Anesthesiology
Vanderbilt University Medical Center

We provide uncompromising quality in clinical care, research and education. We are:

Compassionate: Offering exceptional perioperative care and pain management to a complex population.

Creative: Advancing the frontiers of science, healthcare and technology.

Committed: Equipping future leaders with solid education and training, both here and abroad.

Collaborative: Working across Vanderbilt University Medical Center and beyond to achieve measurable outcomes.

Executive Committee



Brian J. Gelfand, MD
Associate Vice Chair,
Educational Affairs



Matthew McEvoy, MD
Vice Chair,
Educational Affairs



Pratik Pandharipande,
MD, MSCI
Associate Vice Chair,
Faculty Affairs
Chief, Anesthesiology-
Critical Care Medicine



Mark Rice, MD
Executive Vice Chair
Anesthesiology



Amy Robertson, MD
Vice Chair
Clinical Affairs



Edward Sherwood,
MD, PhD
Vice Chair, Research



Matthew Weinger, MD
Vice Chair,
Faculty Affairs



Stephen Doherty, MMHC
Department Administrator

Division Chiefs



Jeanette Bauchat, MD
Chief, Obstetric
Anesthesiology



Eric Delpire, PhD
Director, Basic Science
Research



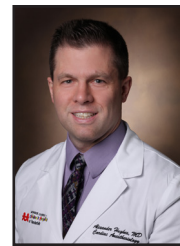
Christopher Canlas, MD
Interim Chief,
Ambulatory
Anesthesiology



Brent Dunworth,
DNP, MBA, APRN,
CRNA
Chief CRNA



David Edwards, MD, PhD
Chief,
Pain Medicine



Alexander Hughes, MD
Interim Chief, Pediatric
Cardiac Anesthesiology



Jill Kilkelly, MD
Chief,
Pediatric Anesthesiology



Letha Mathews, MBBS
Chief,
Neuroanesthesiology



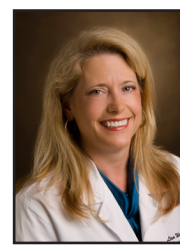
Michael Pilla, MD
Chief,
Multispecialty
Adult Anesthesiology



Mias Pretorius, MBChB,
MSCI
Chief, Cardiothoracic
Anesthesiology



Ann Walia, MBBS
Chief, Veterans Affairs
Anesthesiology Service



Liza Weavind, MBChB, MMHC
Associate Chief,
Anesthesiology Critical Care Medicine