



Carolinas Medical Center

Emergency Medicine Residency Program





Carolinan Medical Center

Emergency Medicine Residency Program

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Carolinas Medical Center



Emergency Department

There are four treatment areas (55 beds total) within our emergency department:

- * **Major Treatment** – High acuity medical and trauma patients, 18 beds, open 24/7.
- * **Diagnostics** – Medium acuity, 15 beds, open 24/7.
- * **Ambulatory Emergency Center** – Lower acuity medical and ob-gyn, lacerations, abscesses, sprains, strains, simple fractures, 10 beds, open 9a-1a.
- * **Children’s Emergency Department** - Patients under 18 that do not meet requirements for a trauma code activation, 12 beds, open 24/7.



Children’s ED



Trauma Room



Physician Coverage

- Major Treatment: Single attending 24/7; double attending coverage from 11am-11pm.
 PGY3 from 7a-7a; PGY2 from 9a-5a; PGY1 from 1p-11p tiered learning and teaching
- Diagnostics: Single attending 24/7, PGY 2/3 from 9a-5a, ACP from 7a-3a, PGY1 from 1a-7a
- AEC: Single attending during all hours of operation
 PGY1 11a-9p, 3p-1a, 9p-1a, PGY3 teaching shift 5p-1a weekdays
- Children's ED: Single attending coverage 24 hours per day
 PGY1: 9a-7p, 7p-5a, PGY2/3 or Peds PGY2/3: 7a-7a, ACP 11a-9p
- Observation unit: Evaluation of suspected ACS, TIA, overnight stays, staffed by ACP 24 x 7

Ancillary Equipment:

- Radiology: 24/7 in-house interventional radiology, C-arm fluoroscopy in ED, bedside US (5 machines)
- Point of Care Testing: electrolytes, troponin, hemoglobin, cardiac BNP, d-dimer, INR, lactate
- Electronic Medical Record, Cerner FirstNet (patient tracking), PowerChart (EMR), computerized physician order entry, 100% electronic documentation via PowerNotes and Dragon voice recognition software.

Ancillary Support: Interpreters, Techs, Respiratory Therapists, MSW, Patient Rep, Child Life, Unit Secretaries

MD VS	Ref	Start	RT	Tech	RN	F Meds	LOS	N Name	Age	Aller	Reason for Visit	EP	FEL	2nd EP's RN	MD	C/PNED	Events	Lab	Rad	Dis	Bed #	Comment	Consult	PCP (STAR)	PCP (Triage)		
ED40							0:49	JONATHAN	2 year		1: Facial droop			Bronn	DAH										NORTH CHAR NORTH CHAR F		
ED41																											
ED42																											
ED43							1:53	NICH	15 year		1: Nose bleed			Cha	Ann	Sarah	Bill									CHARLOTTE, P	
ED44																											
ED45																											
ED46																											
ED47																											
ED48							5:12	BLAYD	2 man		1:D - Diarrhea, 2:Rectal			Bronn	Both										TONKOWICZ, I	ROCK HILL PEI	
ED49							3:47	JAYLA ELLA	4 year		1:Cough, 2:Cough			Cha	Bronn	Both										FREEMAN, KEV	FREEMAN, KEV
ED50																											
ED51							2:47	DEAISA LAND	9 year		1:Shortness of breath, 2:Cha			Ann	TD	Both										GRACE, PEDIA	GRACE, PEDIA

Figure 1: Cerner FirstNet Patient Tracking Board

90% Order Form

90% Orders | Favorites | 90% Newsflash

System	Order Type	Order Details
Respiratory	CPAP	2 L, 4 L
EKG	ECG	12 Lead
X-Rays	Chest X-Ray	AP, Lateral
Medications	Albuterol	2.5 mg, 5 mg
Medications	Ativan	4 mg
Medications	Aspirin	81 mg
Medications	Benadryl	25 mg
Medications	Clonidine	0.1 mg
Medications	Decadron	4 mg
Medications	Diazepam	5 mg
Medications	Dilaudid	1 mg
Medications	Dilaudid	1 mg
Medications	Geodon	10 mg
Medications	Haldol	5 mg
Medications	Hydroxyzine	25 mg
Medications	Insulin	1 unit
Medications	Lorazepam	1 mg
Medications	Morphine	2 mg
Medications	Morphine	2 mg
Medications	Motrin	600 mg
Medications	Peppod	20 mg
Medications	Phenergan	25 mg
Medications	Prednisone	40 mg
Medications	Reglan	10 mg
Medications	Solu-Medrol	80 mg
Medications	Tetanus/Dip	10 mg
Medications	Toradol	15 mg
Medications	Tussionex	325 mg
Medications	Valium	5 mg
Medications	Valium	5 mg
Medications	Zofran	4 mg
Medications	Zofran	4 mg
Medications	Zofran	4 mg
Medications	Zofran	4 mg

Figure 2: 90% Page created by CMC emergency physician, incorporated by Cerner



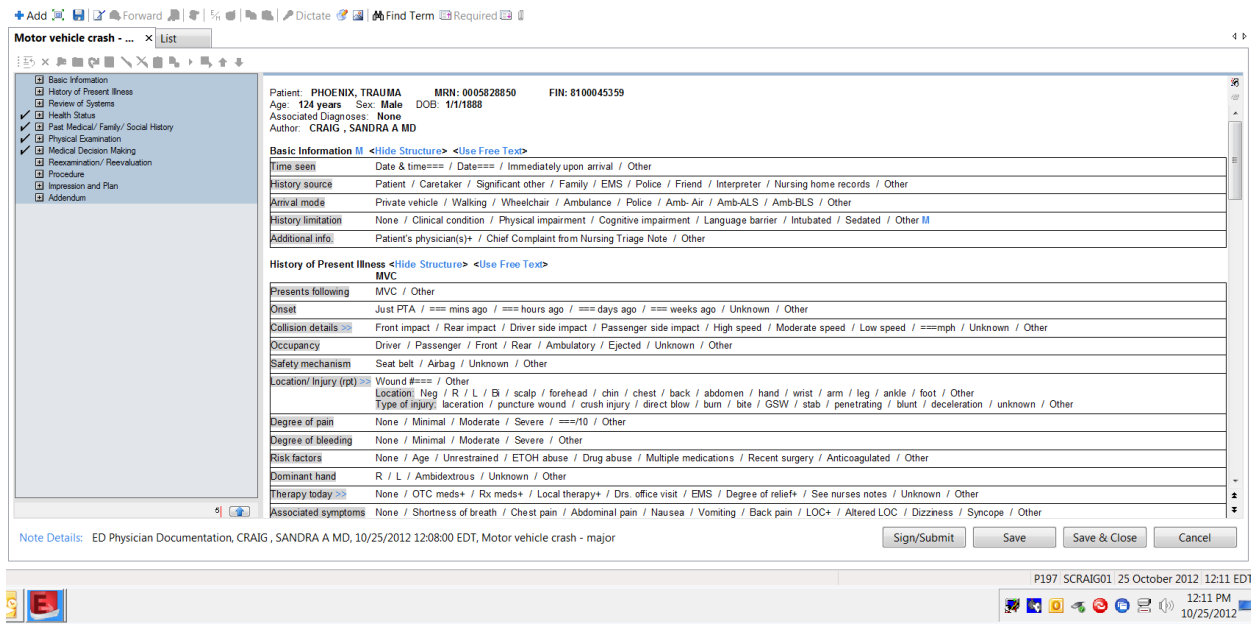


Figure 3 Cerner PowerNote Template



Figure 4: JB and his dragon

Scribes present in Major and Diagnostics, available to residents after 3rd ED month.

Carolinas Healthcare System



Seventh largest non-profit healthcare system in the country (based on number of hospitals in the system)

Owns, leases and manages 35 hospitals in North and South Carolina, 24 urgent care centers, nursing homes, physician practices, home health agencies, radiation therapy facilities, physical therapy facilities, managed care companies and other healthcare related operations, comprising more than 7,460 licensed beds and approximately 60,000 employees.

CMC-Main



Flagship hospital of the system with an annual budget of over \$2.4 billion

874-bed (including 234 LCH), community-based teaching hospital, Level 1 trauma center

8 ICU's: coronary, medical, surgical, trauma, neurosurgical, cardiovascular, pediatrics, and newborn

The Children's Emergency Department was a cornerstone to the launching of the 234-bed Levine Children's Hospital which was completed in October 2007. It is the first ED in the region open 24 hours a day and dedicated to the care of children in a family-centered environment. www.levinechildrenshospital.org

High Patient Volume

~115,000 annually or ~315/day (85,000 Adult and 30,000 Pediatric)

High Patient Acuity

27% are admitted, ~1/4 of these go to an ICU

• 70% from Major Treatment • 22% from Diagnostics • 8% from Children's ED

Unusually Diverse Payor Mix

Commercial 2%	Medicaid 23%	Other 2%
Managed Care 24%	Medicare 17%	Self Pay 32%

Patient Mix

Medical 28% Surgical/Trauma 24% Pediatrics 23% Ob/Gyn 22% Psych/Tox 3%

Annual Trauma Registry

4600 trauma code activations (89% blunt, 9% penetrating, 2% burns / hangings / drownings. Sixth highest trauma volume amongst level one trauma centers in the US.



EMS



CMC EM faculty member Dr. Doug Swanson serves as the **Medical Director** for EMS in Mecklenburg County: Ground services provided by Mecklenburg EMS Agency (MEDIC) ~ 128,772 responses; 101,101 patients transported for fiscal year ending June 2016

- Aeromedical services provided by MedCenter Air

The **Center for Prehospital Medicine** is a Division of the Department of Emergency Medicine, and serves as a regional center for prehospital medical oversight, paramedic/prehospital education, disaster and preparedness planning, mass gathering medical support, and other EMS-related activities.

CMC provides on-line medical control for Medic and MedCenter Air ground and flight services.

- **PGY1:** orientation, meet the providers, optional rides with Medic
- **PGY2:** dedicated EMS month includes on-line and direct medical control, shifts with MEDIC and MedCenter Air (voluntary), coverage at Bank of America Stadium (Carolina Panthers), Lowe's Motor Speedway (NASCAR), interaction with Charlotte Fire Department, EMS Dispatch, Operations Supervisors, EMS Fellow, and Medical Director, teaching opportunity for education courses at EMT and paramedic levels, including experience working with in a high-fidelity medical simulation and human gross anatomy labs
- **PGY3:** elective rotation can include experience with Carolinas MED-1 (as available), ride-along with MCA, on scene medical control, MedCenter Air as the second crew member

MedCenter Air Ground & Air Transport

- 4 rotor wing aircraft, EC135 helicopters (March 2010) provide latest in medical and aviation technology (collision avoidance, satellite tracking, environmental control, NVG's)
- 3 fixed wing aircraft (equipped with all current and proposed State / Federal safety recommendations)
- Multiple critical care ground trucks positioned throughout the region

Carolinas Med-1 - <http://www.carolinasmed-1.org/>

- Two 53 foot tractor trailers, one for patient care and one for support and storage
- Nearly 1,000 square feet of indoor treatment space, deployable tent system adds 250 additional beds
- Six critical care beds, seven general treatment beds, one dental/ENT chair
- Full pharmacy, point of care labs, radiology, ultrasound, environment HEPA filtered to 0.3 microns
- Mobile Level 1 trauma center capabilities, telemedicine uplinks



Education

PGY 1-2-3 program with 14 residents per year.

PGY 1

Curriculum

1 month ED orientation
3 months ED
1 month Orthopedics
1 month MICU
1 month Peds
1 month Trauma
1 month OB/Gyn
1 month Cardiology
1 month US/Anesthesia
1 month Surgery (EGS)

Responsibilities

20-21 10 hour shifts
ED consults only
5 nights (9p – 9a/month)
6 nights per month
9-10 nights/month (7p-9a)
5-7 night shifts per month
No call
No call
One week of night float/cross-cover

PGY 2

1 Presentation

Curriculum

6 months in ED
1 month Peds EM
1 month CCU
1 month MICU
1 month TICU
1 month Toxicology
1 month EMS

Responsibilities

19-20 10H shifts
16 8H shifts
No night calls. Leave everyday by 8-9pm.
Every 3-4th night call
Every 3-4th night call
15 home call nights, tox presentation
WS*, no call

PGY 3

1 Presentation

Curriculum

8 months in ED
1 month PICU

3 months electives

Responsibilities

Weekdays: alternating Long call (6a-7p);
Short call (6a-1p)
- 10x night shifts the entire month (7p-9a)
- 2 full weekends off
International, US, Critical Care, Med Student Teaching, Research,
Radiology, Forensics, Administration, Infectious Disease,
Simulation Medicine, Cardiology, Community EM (*WS, no call)

WS* = weekend shifts in the ED (one Saturday and Sunday)

ACLS, PALS and ATLS are offered during hospital wide intern orientation as well as other times throughout the year.

Resident Requirements

- * Submit one manuscript of publishable quality before graduation.
- * Take the yearly in-service exam in February.
- * Take USMLE part III during their intern year.
- * Complete an exit interview with the Program Director before graduation.



Educational Block Conferences

Through the utilization of a block format, 4 hours of educational conferences will provide optimal resident learning experience that will reinforce clinical education, encourage life-long-learning, accentuate residents as educators, and assist residents in becoming masterful emergency medicine physicians. These educational conferences will be patient centered, interactive, and innovative while steering away from traditional didactics and toward enlightened academic conversations.

General Topics

Core Content covered in varied and interactive ways
M&M weekly
Toxicology conference monthly
Peds – EM conferences 2/month
Orthopedic conferences given by Ortho Chiefs

Dedicated Symposia

Airway - twice yearly
Wound Care
ECG
How to Find a Job
Risk Management
Written Board Review
Oral Board Review

Simulation Education

(The only facility in the region to be both an [American College of Surgeons](#) accredited Level I Education Institute and a [Society for Simulation in Healthcare](#) accredited simulation center.)



Resident Learning Portal

Carolinas Electronic Compendium (www.cmcedmasters.com) provides high-yield full text educational materials organized by rotation month, and a centralized location for block schedules, shift schedules, schedule requests, journal club articles, patient care protocols such as Code Stroke, Code Sepsis, Code Cool criteria. Resident-run blogs on Orthopedics, Cardiology, Toxicology and Pediatric Emergency Medicine, allow all to benefit from educational pearls encountered as residents rotate on these services.



Journal Club

Monthly at faculty member's home, designed to identify an evidence based answer to a clinical vignette, 2-3 articles focusing on landmark EM papers



Fellowship Programs

- Research: Michael Runyon, MD
- Toxicology: Christine Murphy, MD
- EMS: Douglas Swanson, MD
- Ultrasound: Tony Weekes, MD
- Pediatric EM: Stacy Reynolds, MD
- Disaster Preparedness / Operational Medicine: Dave Callaway, MD

Graduate Statistics

The residency program began in 1976. As of June 30, 2015 CMC has graduated 360 emergency physicians. Of these 97 are in academic practice (~27%), and 263 are in private practice (~73%). Over the past 5 years, approximately 26% academic practice; 74% private practice.

ABEM Performance (past 5 years)

Written: 98.5% pass rate vs. 91% nationally
Oral: 98.3% pass rate vs. 96% nationally

Faculty (See separate biographical section)

All are board certified in Emergency Medicine, 14 are dual boarded (Pediatric EM/EM; CCM/EM; Tox/EM) and 1 is triple boarded (Pediatrics/Pediatric EM/EM).

38 Emergency Medicine residency-trained including 4 EM/Pediatric EM trained:

- 14 Carolinas Medical Center – Allen, Antoniazzi, Bullard, Cook, Craig, Garvey, Hawkins, Heffner, Noste, Runyon, Salzman, Swanson, Tayal, Wares
- 1 East Carolina – Scarboro
- 1 Denver Health Med Center – Pearson
- 1 Columbia University – Colucciello
- 1 Henry Ford Hospital – Asimos
- 1 George Washington – Georgetown University - Pelucio
- 3 Indianapolis – MacNeill, Cordle, Snow
- 1 Penn State - Kerns
- 1 North Shore – Beuhler
- 1 Jacobi Medical Center -Weekes
- 1 Maryland - Fox
- 2 Pittsburgh – Gibbs, Reynolds
- 1 Beth Israel – Callaway
- 1 MUSC – Lewis
- 1 Baystate Med Center/Tufts – Patel
- 2 Virginia Commonwealth – Christine Murphy, Geoff Murphy
- 1 Emory – Griggs
- 1 Washington St. Louis - Puchalski
- 1 Cincinnati – Vander Have
- 1 Einstein Philadelphia - Kopec
- 1 Texas A&M - Dragoo



"Can I get into academics if I go to a 3 year program?"

- **Jeff VanderMark** – 1992, Associate Professor, EM, UT Southwestern
- **Jeff Kline** – 1993, Vice Chair of Research Department of EM, Professor, Department of Cellular and Integrative Physiology Indiana University School of Medicine, past President, SAEM
- **Mike Harrigan** – 1996, Assistant Professor EM, UNC-Chapel Hill
- **Joel Moll** – 1997, Program Director, VCU
- **Dave Caro** – 1997, Program Director, University of Florida at Jacksonville
- **Joanna Oakes** – 1999, Associate Professor of EM, U Texas Houston
- **Andy Perron** – 1999, Program Director, Maine Medical Center
- **Manish Patel, MD, MSc** – 1999, Assistant Professor of EM, Emory University
- **Rawle 'Tony' Seupaul** – 2000, Chairman and Professor of EM, Univ Arkansas
- **Christopher Moore** – 2001, Associate Professor of EM; Director, Section of Emergency Ultrasound; Director, Emergency Ultrasound Fellowship
- **D. Mark Courtney** – 2001, Assistant Professor, Department of EM, Northwestern University, Feinberg School of Medicine
- **Alan Jones** – 2002, Chairman, University of Mississippi, President, SAEM
- **Steven Arze** – 2003, EM Chair, CMO, VP Medical Affairs, Baylor Medical Center at Garland TX
- **Alice Mitchell** - 2004, Associate Professor of Research, Indiana University
- **Bret Nicks** – 2004, Associate Dean, Office of Global Health, Associate Professor, EM, Wake Forest Med
- **Mike Fitch** – 2004, Associate Professor, EM, Wake Forest
- **Matt Neulander** – 2004, Assistant Professor, University of Connecticut
- **Jen Hannum** – 2005, Assistant Professor, EM, Wake Forest
- **Jim Fiechtl** – 2005, Associate Professor of EM, Vanderbilt University
- **Manoj Pariyadath** – 2005, Assistant Professor, EM, Wake Forest
- **Gregory Snead** – 2006, Ultrasound Director University of Arkansas
- **Ross 'Marty' Vander Noot** – 2008, Assistant Professor of EM, Director International EM Fellowship University of Alabama – Birmingham
- **Danielle Turner-Lawrence** – 2008, Associate Professor, Oakland University-William Beaumont School of Medicine
- **Michael Marchick** – 2008, Assistant Professor of EM, Assistant Clerkship Director
- **Harland Hayes** – 2009, Associate Professor, EM, University of Utah
- **Malika Fair** – 2009, Assistant Clinical Professor of EM, George Washington University
- **Anne Daul** – 2009, Assistant Professor of EM, Emory University
- **Bijal Shah** – 2009, Assistant Professor of EM, Emory University
- **Katherine Mayer** – 2009, critical care fellowship position, Cooper Hospital, Camden, NJ
- **Elizabeth Rosenman** – 2010, faculty member, Harborview Medical Center, Seattle WA
- **Michael Puskarich** – 2010, Assistant Professor, Associate Research Director Mississippi University
- **Shiloh Gilbert** – 2010, Associate Professor, EM, University of Utah
- **Dustin Calhoun** – 2011, Assistant Professor of EM, University of Cincinnati
- **Brittany Murray** – 2012, Pediatric Emergency Fellow Children's Hospital Boston, MA
- **Daren Beam** – 2012, Research Fellowship Indiana University Department of EM Indianapolis, IN
- **Angela Fusaro** – 2012, Assistant Professor of EM, Emory University
- **Dazhe James Cao** – 2013, Medical Toxicology Fellowship, Rocky Mountain Poison and Drug Center Denver, CO
- **Erin Noste** – 2013, EMS Fellowship CMC
- **Katharine Modisett** – 2014, Critical Care Fellowship Georgetown, DC
- **Peter McCahill** – 2014, Operational and Disaster Medicine Fellowship CMC
- **Jonathan Bronner** – 2014, Assistant Program Director at University of Kentucky
- **Revathi Jyothindran** – 2015, Administrative Fellow at Baylor Medical Center, Dallas TX
- **Lacey King** – 2015, Pediatric Emergency Medicine Fellow at Harbor UCLA, CA
- **Nicholas Sawyer** – 2016, faculty member UC Davis, CA

CMC grads are now research directors at Northwestern (Courtney), University of Mississippi (Puskarich), University of Florida (Marchick), Indiana (Kline), and CMC. EM chairs at Mississippi (Jones) and Arkansas (Seupaul)



Research and Scholarly Activity

Physical Plant:

Cannon Research Center

Opened in 1991

60,000 square ft. facility for small and large animal investigations

Close proximity to ED facilitates processing of clinical lab samples

Departmental Personnel:

4 full-time research coordinators

3 full-time research interns

1 full-time research nurse

Undergraduate research associate program



Research Summary

The Mission of the division of Emergency Medicine Research at Carolinas Medical Center is “to research ways to diagnose and treat life threatening illnesses.” As a result, the scope of interests ranges from social science to cell physiology. Clinicians in the department tend to research disease entities or organ systems relevant to acute care.

Areas of Interest

Michael Runyon, MD – Diagnosis and management of sepsis as well as utilization of diagnostic imaging and diagnosis and treatment of emergency conditions in resource-limited settings

Lee Garvey, MD – Diagnosis and treatment of acute coronary syndromes

Dave Pearson, MD – Cardiac arrest and post-cardiac arrest syndrome focused on the peri-arrest period

Alan Heffner, MD – Emergency airway management, sepsis, shock, cardiac arrest and therapeutic cooling

Mike Gibbs, MD - Airway management, trauma, medical errors

Andrew Asimos, MD – Stroke, seizures, and other neurological emergencies

Stacy Reynolds, MD – Diagnostic imaging of trauma patients

Emily MacNeill, MD – Pediatric Trauma

Tony Weekes, MD – Echocardiography, pulmonary embolism, emergency ultrasound

Chad Scarboro, MD – Pediatric head injury and diagnostic imaging

Mark Bullard, MD – Medical simulation

Christine Murphy, MD - Alternative therapies for calcium channel blocker toxicity, current trends in recreational drug abuse

Doug Swanson, MD – Prehospital care

Erin Noste, MD – Disaster medicine, EMS and global emergency medicine

Russ Kerns, MD – Cardiovascular toxins, snake envenomation and antidotal therapy

Vivek Tayal, MD – Ultrasound, Airway, Health Policy

Margaret Lewis, MD – Ultrasound education and applications

David Callaway, MD – Trauma, disaster medicine, tactical medicine

Kathryn Kopec, DO – Drugs of abuse, envenomation, global toxicology

Chris Griggs, MD – Opioid abuse, pain management in the ED, health policy

Cathy Wares, MD: Neuroprognostication in post-cardiac arrest and simulation education



CMC at SAEM 2016 - Schedule

Wednesday, May 11

Welcome and Award Ceremony – Napoleon Ballroom – 3rd Floor

The Awards Committee and the Board of Directors would like to congratulate the following recipients of the 2016 SAEM Awards. Every one of our winners showed impressive achievements in their categories, and displayed high potential for continuing to contribute to SAEM and emergency medicine in the future. Join us as we recognize the 2016 award winners.

John Marx Leadership

The John Marx Leadership Award honors an SAEM member who has made exceptional contributions to emergency medicine through leadership – locally, regionally, nationally or internationally – and within SAEM. Congratulations to Dr. Jeffrey A. Kline for winning this year's award!

Jeffrey A. Kline, MD

Professor and Vice Chair of Research
Department of Emergency Medicine
Indiana University

Excellence in Research Award

Alan E. Jones, MD

Chair
Department of Emergency Medicine
University of Mississippi Medical Center

Young Investigators Award

Michael Alexander Puskarich, MD

Assistant Professor
Department of Emergency Medicine
University of Mississippi Medical Center

- 1:00 – 2:30 pm **Lightning Oral** – Napoleon Ballroom D3 – 3rd Floor
(3rd abstract in session, estimated presentation time 1:20 pm)
Rapid Cooling to 34°C is Not Associated with Improved Neurological Outcome Among Post-Cardiac Arrest Patients
David A. Pearson
- 3:00 – 4:00 pm **Lightning Oral** – Napoleon Ballroom D3 – 3rd Floor
(6th abstract in session, estimated presentation time 3:50 pm)
Decreased Time from 911 Call to PCI Among Patients Experiencing a STEMI Results in a Decreased One Year Mortality
Patrick M. Jackson
- 3:00-4:00 pm **Lightning Oral** – Napoleon Ballroom D1 – 3rd Floor
(3rd abstract in session, estimated presentation time 3:20 pm)
Resident Education in 2015: National Trends in Clinical Rotation Curricula Among ACGME Accredited Emergency Medicine Residency Programs
Charlotte C. Lawson

Thursday, May 12

- 8:00 – 9:00 am **Lightning Oral** – Napoleon Ballroom D1 – 3rd Floor
(4th abstract in session, estimated presentation time 8:40 am)
Comparisons of Clinical Training in 2015: 3- and 4-Year Emergency Medicine Programs
Andrea Goode



8:00 - 10:00 am **E-poster** – Grand Chenier – 5th Floor
Monitor #8
Radiographic Image Utilization Trends in Children Across a Large Healthcare System
Jeremiah Duane Smith

9:00 – 10:00 am **Lightning Oral** – Napoleon Ballroom D3 – 3rd Floor
(5th abstract in session, estimated presentation time 9:40 am)
The Clinical Presentation, Resource Utilization, and Outcomes of Patients with Sickle Cell Disease Presenting to the ED of the Muhimbili National Hospital in Dar es Salaam, Tanzania
Hendry R. Sawe (Tanzanian Emergency Physician and CMC EM Adjunct Faculty)

4:00 pm – 6:00 pm **Dodgeball** – Hilton New Orleans Riverside Health Club
Take a break from the business of the Annual Meeting to have some fun as 8 residency program teams battle it out with dodge ball. CMC-EM Residents & Faculty

Friday, May 13

8:00 – 12:00 pm **5th Annual SonoGames®** – Napoleon Ballroom B1-C3
CMC-EM PGY-2 Team: Charlotte Lawson, Michael Mollo, and Andrew Puciaty

10:00 – 11:00 am **Oral Presentation** – Waterbury Ballroom – 2nd Floor
(3rd abstract in session, estimated presentation time 10:30 am)
Prescription Opioid and Benzodiazepine Overdose: Are Prescribers Being Informed?
Benjamin Graboyes

8:00 - 10:00 am **E-Poster** – Grand Couteau – 5th Floor
Monitor #6
Impact of a Standardized Post-Arrest Clinical Pathway and Quality Improvement Tool on Three Receiving Cardiac Resuscitation Centers within a Single Healthcare System
David A Pearson

11:00 – 12:00 pm **Lightning Oral** – Orpheus – 8th Floor
(4th abstract in session, estimated presentation time 11:30 am)
Outcomes Associated with Indeterminate and Negative Appendiceal Ultrasounds
Jeremiah Duane Smith



Published Resident Academic Projects

Michael Puskarich
(2010)

Sepsis-induced tissue hypoperfusion

One year mortality of patients treated with an emergency department based early goal directed therapy protocol for severe sepsis and septic shock: a before and after study.

Effect of glucose-insulin-potassium infusion on mortality in critical care settings: a systematic review and meta-analysis.

Patrick Burnside
(2011)

Indirect computed tomography venography: a report of vascular opacification

Systematic review of emergency physician-performed ultrasonography for lower-extremity deep vein thrombosis

Sanjay Iyer
(2011)

Utilizing geographic information systems to identify clusters of severe sepsis patients presenting in the out of hospital environment

Melanie R Artho
(2011)

The impact of emergency medical services on the care of severe sepsis

Alan Babcock
(2011)

Comparison of serial qualitative and quantitative assessments of caval index and left ventricular systolic function during early fluid resuscitation of hypotensive emergency department patients

Brent Lorenzen
(2011)

The significance of intermediate range blood lactate elevation in emergency department patients with infection: a systematic review

Andrew Albers
(2011)

Whole blood lactate kinetics in patients undergoing quantitative resuscitation for septic shock

Paul Musey
(2012)

Characteristics of STEMI patients who do not undergo PCI after prehospital cardiac catheterization lab activation

Daren Beam
(2012)

Detection of lipopolysaccharide in patients presenting to the emergency department in septic shock

Zachary Kahler
(2012)

Effect of weight based volume loading on the inferior vena cava in fasting subjects: A randomized, prospective double blinded trial

Eric Schenfeld
(2012)

Prehospital initiation of therapeutic hypothermia in adult patients after cardiac arrest does no improve time to target temperature

Abhiram Reddy
(2012)

E-Point Septal Separation Compared to Fractional Shortening Measurements of Systolic Function in ED Patients: Prospective Randomized Study

Chrystan Skefos
(2013)

A characterization of code STEMI activations by location type

Sam Montgomery
(2013)

Single nucleotide polymorphisms (SNPs) in emergency department patients with repeated admissions for sepsis



Jaclyn Davis (2013)	Prognostic value of peripheral venous oxygen tension to predict an abnormal initial central venous oxygen saturation in emergency department patients undergoing quantitative resuscitation for septic shock
James Cao (2013)	Perceptions of Basic, Advanced, and Pediatric Life Support Training In a United States Medical School
Samuel Chang (2014)	Evaluation of 8.0-cm Needle at the Fourth Anterior Axillary Line for Needle Chest Decompression of Tension Pneumothorax
Mike Keller (2014)	Central Vascular Catheter Placement Evaluation using Saline Flush and Bedside Echocardiography
Devin Bustin (2014)	A Simplified and Structured Teaching Tool for the Evaluation and Management of Pulseless Electrical Activity
Jonathan Bronner (2014)	Asynchronous eLearning Module in Orthopedics is an Effective Method of Knowledge Acquisition for Emergency Medicine Residents
Katharine Modisett (2014)	Incidence and Outcomes of Adult Cardiac Arrest Associated with Toxic Exposure Treated with Therapeutic Hypothermia (ToxiCool)
Bryant Allen (2015)	Association of inflammatory and endothelial cell activation biomarkers with acute kidney injury after sepsis
David Kiefer (2015)	Prospective evaluation of ultrasound-guided short catheter placement in internal jugular veins of difficult venous access patients.
Karina Reyner (2015)	Urinary obstruction is an important complicating factor in patients with septic shock due to urinary infection.
Daniel Troha (2015)	Diagnostic Accuracy of Right Ventricular Dysfunction Markers in Normotensive Emergency Department Patients With Acute Pulmonary Embolism
Jessica Goldonowicz (2016)	The electrocardiogram of chest and limb lead reversal
Angela Johnson (2016)	Interobserver and Intraobserver Agreement on Qualitative Assessments of Right Ventricular Dysfunction With Echocardiography in Patients With Pulmonary Embolism
Joshua Robertson (2016)	Law enforcement-applied tourniquets: a case series of life-saving interventions.



**Carolinas Medical Center
Department of Emergency Medicine
2015-2016 E-mail Address List**

PGY 1

**Meredith Binford
Benjamin Covell
Sean Fling
Zach Hedges
Stephen Jackson
Andrew Kitchen
Johanna Kreaflé
Kathryn Lupez
Maxwell Noe
Cornelius Powell
Kyle Roedersheimer
Russell Trigonis
Natalie Wood
Christina Zauner**

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Kathryn.lupez@carolinas.org
Maxwell.noe@carolinas.org
Cornelius.powell@carolinas.org
kyle.roedersheimer@carolinas.org
Russell.trigonis@carolinas.org
Natalie.wood@carolinas.org
Christina.zauner@carolinas.org**

PGY 2

**Carly Cox
Adeline Dozois
Andrew Godfrey
Aaren Hunt
Philipp Von Marschall
Enola Okonkwo
Stephen Pecevich
Jaron Raper
Matthew Reaven
Jacquelyn Simonis
Dean Tanner
Krystin Thomas
Mark Zeller
Stephanie Zeller**

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Andrew.godfrey@carolinas.org
Aaren.hunt@carolinas.org
Philipp.vonmarschall@carolinas.org
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