

# EMR Newsletter

Volume 1, Issue 2, 2010



To write it, it took three months; to conceive it  
—three minutes; to collect the data in it —all my life.

-Anonymous

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## What is CITI Training?

The CITI Program focuses on human subject protection and meets the research ethics training requirements for CHS investigators and research staff. All are required to complete the "Biomedical Research Basic Course" and "CITI Good Clinical Practice (GCP) Course" one time with a score of at least 75%. The "CITI Refresher Course" must be taken every three years.

### Required Modules

- Biomedical Research Basic Course
- CITI Good Clinical Practice (GCP) Basic Course

### Optional Modules

"Records Based Research," "IRB Regulations & Review Process," and "Informed Consent" are examples of suggested reading.

Go to [www.citiprogram.org](http://www.citiprogram.org) and register using your PeopleSoft User ID (JSmith01) and CHS as your participating institution. The program is free!

**"The Belmont Principles  
are discussed as the basis for  
the ethical standards for research  
that guide us today."**

## Study Highlight

**Studnek JR, Garvey L, Blackwell T, Vandeventer S, Ward S. The Association between Prehospital STEMI Benchmark Times and System Performance. *Circulation*. Tentative publication date October 12, 2010.**

The objective of this study was to determine if prehospital time intervals were associated with STEMI system performance, defined as first medical contact to PCI. Study patients presented with an acute STEMI diagnosed by prehospital ECG, between May 2007 and March 2009. Prehospital time intervals were; 911 call receipt to ambulance on scene  $\leq 10$  minutes, ambulance on scene to 12 lead ECG acquisition  $\leq 8$  minutes, on scene time  $\leq 15$  minutes, prehospital ECG acquisition to STEMI team notification 10 minutes, and scene departure to patient on cardiac catheterization lab (CCL) table  $\leq 30$  minutes. Logistic regression indicated that table time, response time, and on scene time were the benchmark time intervals with the greatest influence on the probability of achieving PCI in  $\leq 90$  minutes. In this patient population prehospital timing benchmarks were associated with system performance. While meeting all five benchmarks may be an ideal goal this model may be more useful for identifying areas for system improvement that will have the greatest clinical impact.

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## Departmental Scholarly Activity

### National Research Presentations

**Melanie Artho, MD**, "The Impact of Emergency Medical Services in the Care of Severe Sepsis," SAEM, June 2010.

**Ian Cole, MD**, "Ultrasound Measurements of the Saphenous Vein in the Pediatric Emergency Department Population with Comparison to IV Catheter Size," SAEM, June 2010.

**Gahan K, Studnek JR**, Vandeventer S, West D, **Blackwell T**. "King LT-D Use by Urban Basic Life Support First Responders as the Primary Airway Device for Out-of-Hospital Cardiac Arrest." Accepted for presentation at the National Association of EMS Physicians annual meeting, 2011.

**Alan Jones, MD**, "Cost-Effectiveness of an Emergency Department Based Early Sepsis Resuscitation Protocol: A Prospective Study" SAEM, June 2010.

**Brent Lorenzen, MD**, "The Significance of Intermediate Range Blood Lactate Elevation in Emergency Department Patients with Infection: A Systematic Review," SAEM, June 2010.

**Mike Marchick, MD**, "Systemic Inflammatory Response Syndrome Criteria to Identify Low Risk Emergency Department Patients with Suspected Infection," SAEM, June 2010.

**Mike Marchick, MD**, "Carbon Monoxide Administration Ameliorates Pulmonary Arterial Hypertension Following Acute Experimental PE," SAEM, June 2010.

**Alice Mitchell, MD**, "Contrast-Induced Nephropathy: Unrecognized Risk In Patients Discharged From the Emergency Department," SAEM, June 2010.

**Mike Puskarich, MD**, "Outcomes of Cryptic Septic Shock Compared with Overt Septic Shock," ACEP, September 2010.

**Rosalyn Reades, MD**, "Comparison of First Attempt Success between Tibial and Humeral Intraosseous Insertions During Out of Hospital Cardiac Arrest," SAEM, June 2010.

**Jon Studnek, PhD**, "Improving Pre-hospital Endotracheal Intubation Psychomotor Skills Using High Fidelity Human Patient Simulators," SAEM, June 2010.

**Jon Studnek, PhD**, "A Novel Approach to Evaluating the Implementation of a Prehospital Out of Hospital Cardiac Arrest Protocol Change," SAEM, June 2010.

**Studnek JR, Garvey L, Brown L, Blackwell T**. "Frequency of Prehospital Cardiac Catheterization Lab Activations Not Resulting in Interventional Treatment Due to a Protocol Violation." Accepted for presentation at the 2011 annual meeting of the National Association of EMS Physicians.

Vandeventer S and **Studnek JR**. "An unexpected change in system efficiency as a result of implementing a new cardiac arrest protocol." Accepted for presentation at the 2011 annual meeting of the National Association of EMS Physicians.

**Vivek Tayal , MD**, "Prospective Evaluation of Biplanar and 3D US Probe Technology in AAA Ultrasound by Emergency Physicians," SAEM, June 2010.

**Vivek Tayal, MD**, "Prospective Evaluation of Biplanar and 3D Probe Technology in Trauma Ultrasound Imaging in the ED," SAEM, June 2010

**John Watts, PhD**, "Pulmonary Vascular Endothelial Cell Dysfunction During Experimental Pulmonary Embolism," SAEM, June 2010. ~*Won Best Basic Science Presentation!*

Gruber HE, Hoelscher GL, **Watts J**, Ingram JA, Sun Y, Hanley EN. "Gene Expression Data Supporting Mitochondrial Dysfunction as an Underlying Cause of Intervertebral Disc Degeneration." International Society for the Study of the Lumbar Spine, April 2010.

**Joanna York, MD**, "Randomized Trial of the Collision Avoidance Training Program in Naive Teenage Drivers," SAEM, June 2010.

### Peer-Reviewed Publications

**AC Heffner, JM Horton, MR Marchick, AE Jones**. Etiology of Illness in Patients Admitted to the Hospital from the Emergency Department with Severe Sepsis. *Clinical Infectious Diseases*. 50:814-820, 2010. PMID: 20144044.

S Trzeciak, **AE Jones**, NI Shapiro, AE Pusateri, RC Arnold, M Rizzuto, T Arora, JE Parrillo, RP Dellinger. A Prospective Multi-center Cohort Study of the Association between Global Tissue Hypoxia and Coagulation Activation during Early Sepsis Resuscitation. *Critical Care Medicine*. 38:1092-1100, 2010. (Accompanying editorial) PMID: 20124888.

JG Younger, DO Bracho, H Chung, M Lee, GK Rana, A Sen, **AE Jones**. Complement Activation in Emergency Department Patients with Severe Sepsis. *Academic Emergency Medicine*. 17:353-359, 2010. PMID: 20370773.

**AE Jones**, NI Shapiro, S Trzeciak, RC Arnold, **HA Claremont, JA Kline**. Lactate Clearance versus Central Venous Oxygen Saturation as Endpoints of Early Sepsis Therapy: A Randomized Clinical Trial. *JAMA*, 303:739-746, 2010. (Accompanying editorial, accompanying patient page) PMID: 20179283.

JH Kilgannon, **AE Jones**, NI Shapiro, MG Angelos, B Milcarek, K Hunter, JE Parrillo, S Trzeciak. Hyperoxia after Resuscitation from Cardiac Arrest and Association with Outcome. *JAMA*, 303:2165-71, 2010. (Accompanying editorial) PMID: 20516417.

**Burnside PB, Kline JA.** Indirect computed tomography venography: Quality of vascular opacification and diagnostic implications. *Emergency Radiology* 17:195-202, 2010. PMID: Courtney DM, Miller CD, Smithline HA, Klekowski N, **Hogg M, Kline JA.** Prospective multi-center assessment of interobserver agreement for radiologist interpretation of multidetector CT angiography for pulmonary embolism. *J Thromb Haemost.* 8: 533-539, 2010. PMID: 20015156.

Kabrhel C, Courtney DM, Richman PB, Moore CA, Nordenholz KE, Camargo CA, **Kline JA.** Factors associated with positive D-dimer results in patients evaluated for pulmonary embolism. *Acad Emerg Med.* 17:589-597, 2010. PMID: 20624138.

Courtney DM, **Kline JA,** Kabrhel C, Moore CL, Smithline HA, Nordenholz KE, Richman PB, Plewa MC. Clinical features from the history and physical examination that predict the presence or absence of pulmonary embolism in symptomatic emergency department patients: results of a prospective, multicenter study. *Ann Emerg Med.* 55:305-315, 2010 PMID: 20045580.

**Kline JA,** Courtney DM, Than MP, Hogg KE, Miller CD, Smithline HA. Accuracy of very low pretest probability estimates for pulmonary embolism using the method of attribute matching compared with the Wells score. *Acad Emerg Med.* 17:133-141, 2010. PMID: 20370742.

Marchick MR, Courtney DM, Kabrhel C, Nordenholz KE, Plewa MC, Richman PB, Smithline HA, **Kline JA.** 12-Lead electrocardiogram findings of pulmonary hypertension occur more frequently in emergency department patients with pulmonary embolism than in patients without pulmonary embolism. *Ann Emerg Med.* 55:331-335, 2010. PMID: 19766353.

Marchick M, **Watts JA, Gellar M, Kline JA.** Carbon monoxide administration ameliorates pulmonary arterial hypertension following acute experimental PE. *Acad. Emerg. Med.* 2010;17(5, Suppl. 1): S148.

Pierce MA, Hess EP, **Kline JA,** Shah ND, Breslin M, Branda ME, Pencille LJ, Asplin BR, Nestler DM, Sadosty AT, Stiell IG, Ting HH and Montori VM. The Chest Pain Choice trial: A pilot randomized trial of a decision aid for patients with chest pain in the emergency department. *Trials* 2010. 2010 May 17;11(1):57. PMID: 20478056.

Zagorski J, Marchick MR, **Kline JA.** Rapid clearance of circulating haptoglobin from plasma during acute pulmonary embolism in rats results in HMOX1 up-regulation in peripheral blood leukocytes. *J Thromb Haemost.* 8: 289-296, 2010. PMID: 19943874.

Cullen L, Than MG, Brown AFT, Richards M, Parsonage W, Flaws D, Hollander JE, Christenson RH, **Kline JA,** Goodacre S, Jaffe AS. Comprehensive standardized data definitions for acute coronary syndrome research in emergency departments in Australasia. *Emergency Medicine Australasia.* 22:35-55, 2010. PMID: 20136639.

**Mitchell AM, Kline JA.** Save the Beans. *Ann Emerg Med.* 2010;56:62-3. PMID: 20382447.

**Reades R, Studnek JR,** Garrett, JS, Vandeventer S, **Blackwell T.** Comparison of First Attempt Success between Tibial and Humeral Intraosseous Insertions During Out of Hospital Cardiac Arrest. *Prehospital Emergency Care.*

**Runyon MS, Gellar M, Sanapareddy N, Watts JA, Kline JA.** Development and comparison of a minimally-invasive model of autologous clot pulmonary embolism in Sprague-Dawley and Copenhagen rats. *Thrombosis Journal.* 2010, 8:3. PMID: 20181228.

**Studnek JR, Thestrup L,** Vandeventer S, Ward S, Staley K, **Garvey L, Blackwell T.** The Association between Prehospital Endotracheal Intubation Attempts and Survival to Hospital Discharge among Out-of-Hospital Cardiac Arrest Patients. *Academic Emergency Medicine.* Tentative publication date September 2010.

**Studnek JR, Garvey L, Blackwell T,** Vandeventer S, Ward S. The Association between Prehospital STEMI Benchmark Times and System Performance. *Circulation.* Tentative publication date October 12, 2010.

**Watts JA,** Marchick MR, **Kline JA.** Right ventricular heart failure from pulmonary embolism: key distinctions from chronic pulmonary hypertension. *J Card Failure.* 16:250-259, 2010. Impact Factor 3.691. PMID: 20206901.

**Watts, JA,** Marchick, M, **Gellar, M, Kline JA.** Pulmonary vascular endothelial cell dysfunction during experimental pulmonary embolism. *Acad. Emerg. Med.* 2010;17(5, Suppl. 1): S148-S149.

### **Grant Funding**

**Mike Puskarich, MD,** Principal Investigator, "L-carnitine Administration in Early Sepsis," AHA Post-doctoral Fellowship Grant, Mentor: Alan Jones, MD.

**Mike Puskarich, MD,** Principal Investigator, "L-carnitine Administration in Early Sepsis," Cannon Research Grant, Mentor: Alan Jones, MD.

## National & International Meetings and Submission Deadlines

<b>Pediatric Academic Society (PAS)</b> Denver, Colorado April 30-May 3, 2011 .....	<b>Abstract Submission Deadline:</b> November 17, 2010
<b>Council of Residency Directors (CORD)</b> San Diego, California March 2-5, 2011 .....	TBA, 2010
<b>American College of Emergency Physicians (ACEP)</b> Las Vegas, Nevada September 28-29, 2010 .....	April 30, 2010
<b>Society of Academic Emergency Medicine (SAEM)</b> Boston, Massachusetts June 1-5, 2011 .....	December 1, 2010
<b>The National Association of EMS Physicians (NAEMSP)</b> Bonita Springs, Florida January 13-15, 2011 .....	August 20, 2010
<b>Society of Critical Care Medicine (SCCM)</b> San Diego, California January 15-19, 2011 .....	September 1, 2010
<b>International Symposium on Intensive Care &amp; Emergency Medicine (ISICEM)</b> Brussels, Belgium March 22-25, 2011 .....	December 15, 2010

## RRC, IRB and Cannon Research Grants Program Deadlines

### ■ Research Review Committee (RRC)

<b>Submission Deadlines</b>	<b>Meeting Dates</b>
September 27, 2010 .....	Off-Committee Review
November 1, 2010 .....	November 12, 2010
November 29, 2010 .....	Off-Committee Review

Obtain a copy of the RRC packet and schedule on synapse:  
[http://synapse.carolinas.org/reference/forms/research\\_forms.cfm](http://synapse.carolinas.org/reference/forms/research_forms.cfm)

For questions regarding the procedure for submitting a protocol, contact the Office of Clinical and Translational Research at (704) 355-0642.

### ■ CHS Institutional Review Board (IRB)

<b>Meeting Date</b>	<b>Deadline for Initial Application</b>	<b>Deadline for Additional Copies</b>
<i>Committee A</i>		
October 6 .....	September 3 .....	September 24
November 3 .....	October 1 .....	October 22
December 1 .....	October 29 .....	November 19
<i>Committee B</i>		
October 20 .....	September 17 .....	October 8
November 17 .....	October 15 .....	November 5
December 15 .....	November 12 .....	December 3

### ■ Cannon Research Grants Program

<b>Deadlines for Submission</b>	<b>Earliest Dates for Funding</b>
October 15 .....	December 1

Applications must be submitted online as MS Word or PDF documents to Caren Anderson, Research Administration Office, (704) 355-9645 or [caren.anderson@carolinashealthcare.org](mailto:caren.anderson@carolinashealthcare.org). The requisite cover sheet is attached and is available on Synapse: Reference/Forms/Research Forms/Cannon Research Grants Program. There you will also find the document, "Tips for Preparing a Grant Application."

The general requirements for applications are as for PHS Form 398 (<http://grants1.nih.gov/grants/funding/phs398/phs398.html>).

Contact Dr. Farah Bahrani-Mougeot for assistance with grant writing or preparation, (704) 355-8132 or [farah.bahrani-mougeot@carolinashealthcare.org](mailto:farah.bahrani-mougeot@carolinashealthcare.org).

## Study Highlight

**Courtney DM, Miller CD, Smithline HA, Klekowski N, Hogg M, Kline JA.**  
**Prospective multi-center assessment of interobserver agreement for radiologist interpretation of multidetector CT angiography for pulmonary embolism.**  
*J Thromb Haemost.* 8: 533-539, 2010. PMID: 20015156.

This is a first paper from a multi-center study that we finished about 1.5 years ago. In this study, we used a central reading radiology laboratory and compared the reads of those board certified body readers to the reads of the local radiologists at 4 different hospitals (Carolinas Medical Center, Wake Forest, Northwestern, and BayState). We found remarkably low inter-observer agreement, and most concerning the central radiologists interpreted 10% of the scans as technically inadequate. Moreover, for 10% of the patients in this study were diagnosed with PE on the basis of CTPA scans that the central reader said "No PE present." We found the worst agreement for sub-segmental pulmonary emboli. In fact, the agreement for sub-segmental pulmonary emboli was so bad that it raises the question about whether we should ever start anticoagulant therapy on any patient with a "sub-segmental PE."

## EMR Investigators & Staff Spotlight



### **Pilar Perez Tochiki**

I am married and the mother of two sons. I was born in Peru, South America but I've lived in Charlotte for a long time. I have been working for CHS for 12 years, but only the last 5 with research. I am currently working as a Research Associate for the TNK and QUADRICs studies. I am a Certified Clinical Research Professional through the Society of Clinical Research Associates. I enjoy working in research because every day I am doing something different and even though I am just one piece of the puzzle, I feel good working towards making this world a little bit better.



### **Stacy Reynolds, MD**

I completed residency in pediatrics and a fellowship in pediatric emergency medicine at Children's Hospital of Pittsburgh. I subsequently completed emergency medicine residency at the University of Pittsburgh Affiliated Residency in Emergency Medicine before joining CMC in 2008. I practice half time in both the Children's ED and CMC Main ED. I currently study risk factors for intra-abdominal injury in pediatric blunt abdominal trauma with a goal of reducing unnecessary imaging and radiation exposure for low risk pediatric patients.

Our current studies include the following: Reducing the Overuse of Abdominal CT Scans: Utility of Clinical Assessment in Low Risk Pediatric Blunt Trauma Patients, The Utility of Pelvic CT Imaging in Low Risk Pediatric Blunt Trauma Patients, and Prospective Validation of the PECARN Intra-Abdominal Injury Rule in Pediatric Blunt Trauma Patients.

## Upcoming Workshop

**Grant Writing for the Healthcare Professional** Charlotte AHEC, (704) 512-6528  
11/09/2010, 8:30a-12:45p

In this course, healthcare professionals interested in grant funding to support their programs will learn the techniques they need to research grant opportunities and write a winning proposal.

## From the Cannon Research Laboratories

### Welcome!

**Mary-Beth Fulkerson** joins us as a Research Tech II. She comes from Battelle National Biodefense Institute, Fredrich, MD, where she was a Molecular Biology Specialist and Laboratory Operations Project Lead. She has an MS Degree from Johns Hopkins University with a concentration in Biodefense, and a BS degree from James Madison University, with dual concentration in Biotechnology and Health Sciences.

**Sudeep Das** is a Cannon Scholars Summer Student and is a rising Junior at Vanderbilt University in Nashville, TN, where he will double major in Economics and Neurosciences. So, he should have a pretty good idea of how much it will cost to straighten us all out by the time he graduates.

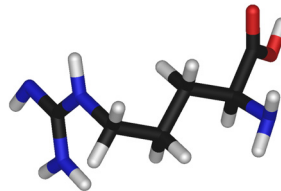


### Congratulations!

**John Watts, PhD**, Best Basic Science Presentation, SAEM Annual Meeting 2010.

### Current Focus

We are addressing the hypothesis that depletion of the amino acid, L-arginine, by upregulation of arginase enzyme activity, or release of arginase during hemolysis, limits the availability of this substrate for the production of nitric oxide by the pulmonary vascular endothelial cells during pulmonary embolism. Limited nitric oxide formation may contribute to the increased resistance from vasoconstriction in addition to the physical blockage produced by the clot material. We are collecting preliminary data for a collaborative translational grant application to the NIH to address this hypothesis.



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