

**Division of Emergency Medicine,
Section of Critical Care Medicine**

From: Brian Wessman, MD FACEP

Re: 2015 Annual Section Update (April 8, 2016: Center for Advanced Medicine)

The Emergency Medicine Critical Care Medicine (EM/CCM) Section under the Division of Emergency Medicine continued to thrive during its fifth year of existence in 2015. The section held regularly scheduled quarterly meetings and the minutes from those proceedings can be found in the Division's records. In conjunction with the School of Medicine's initiative to define direction for clinical and educational programs, we have focused on the following three aims: Clinical, Research, and Education. A summary of activities for the previous calendar year is submitted:

Aim One: Clinical

Our Trauma and Critical Care Medicine Unit (TCC) continues to see an increase in growth and acuity of patients. The TCC took care of 11,859 patients (11.2% of all seen ED patients). We boasted a total of 3,371 ICU patient admissions across all units during 2015 (3.2% of all seen ED pts; 28.4% of TCC patients). The approximate breakdown was as follows:

MICU admits (39.4%) = 1,328 pts	SICU admits (32.5%) = 1,095 pts
BMT admits (0.9%) = 29 pts	CTICU admits (1.8%) = 60 pts
CCU admits (8.8%) = 295 pts	NeuroICU admits (14.3%) = 483 pts
OSH ICU transfers (2.4%) = 81pts	

Relative acuity of our TCC patient population:

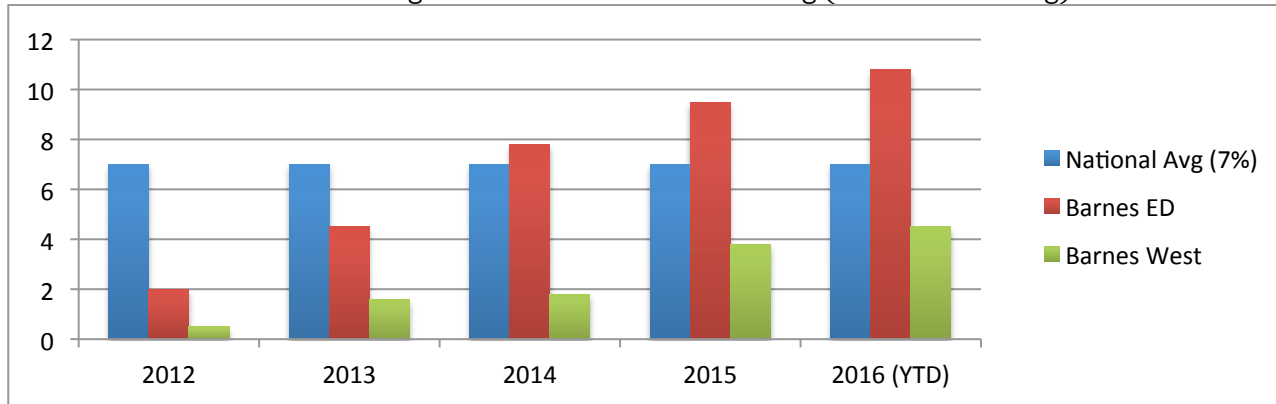
Vasopressors (3.7%): 440 pts	
Intubated: (6.6%): 782 pts	
Level 1 Trauma Activations (9.1%): 1081 pts	Level 2a Trauma Activations: 1151
Stroke Activations (8.4%): 995 pts	tPA administered: 104 pts (+10 research); Endovascular: 68 pts
Length of Stay: variable	

Our physical plant is running at maximum capacity for the majority of the day with our TCC rooms being double and even triple loaded with patients. Due to lack of BJC resources, we are forced to transfer out just under 2 ICU patient admissions/week (and many others get "turned around" under our ED care and ultimately end up on the hospital floor). Our Emergency Department TCC average length of stay for an ICU admitted patient remains in the approximate 6-8 hour range.

We continue to see improvements from our ongoing critical-care billing initiative (focus presentation at last year's retreat). We've improved our CCM billing rate to 9.5% of our total 2015 ED billing (from our 2014 rate of 7.8%). Our critical-care billing rate at Barnes West County has also remarkably improved; up to 3.8% for 2015 (compared to our 2014 rate of 1.8%). Our "subsequent" critical care billing (99292) remains stagnant at 0.7% (our 2014 rate was 0.6%). These numbers are still likely indicative of our "under" billing for the services we provide, and this topic will continue to remain a focal point for faculty meetings and directed education groups. However, recent *academic center* data does show our national leadership in this focus area.

We continue to track individual critical care billing practices (per scheduled TCC hours and per overall scheduled ED hours). If interested in individual numbers, please let me know (there are plans to add to your personal dashboard). Our current "benchmark faculty goal" is 15-20min of critical-care time billed per hour scheduled of TCC time and 4-5min of critical-care time billed per hour of all ED scheduled time. These goals will continue to be evaluated and modified quarterly as we strive for improvement.

Annual Percentage of 99291 Critical-Care Billing (of total ED Billing)



Current clinical initiatives that are being improved/explored:

- 1) Best practice model for initiation of mechanical ventilation (elevation of head of bed, low tidal volume ventilation strategy, etc); *research focus of B Fuller*
- 2) Mechanical ventilation and acute respiratory distress syndrome in the Emergency Department; *research focus of B Fuller*
- 3) Sepsis: ongoing efforts in the ED and Hospital to lower mortality via enhanced screening/identification, order set standardization, and securing resources for team-based initiatives and QI programs; ED Sepsis Committee; nursing response team; (*Holthaus Co-Director of ED Sepsis Committee*), *research focus of T Osborn, C Holthaus, S Liang*
- 4) Best practice model for initiation of Continuous sedation protocol for mechanically ventilated patients: evaluation of program; *research focus of B Wessman*
- 5) Improvements/education for Residents and Faculty regarding ED critical care billing (*B Wessman*)
- 6) Development of an eICU program in conjunction with Barnes-Jewish Hospital for management of all critical care patients (*leadership team includes C Palmer as medical co-Director*)
- 7) Improvements/education for Residents and Faculty regarding ED critical care billing
- 8) Central line placement confirmation under ultrasound guidance; *research focus of E Ablordeppey*
- 9) Planned future directions: REBOA and ED ECMO; *C Holthaus, C Palmer, J Wagner, B Wessman*

We are also looking forward to Diego Casali, MD who will be joining our faculty section as an adjunct member in July 2016. Diego completed his CCM Fellowship in our training program in June 2015 and has been completing additional fellowship training in an advanced tract of cardiovascular physiology and support devices. He will be returning to Washington University to work full clinical time in the critical care realm: split between the CTICU and the SICU.

Our clinical mantra remains: “Critical care medicine is not a physical location, but rather a mindset of providing optimal care to the critically ill patient...”

Aim Two: Research

Critical care medicine continues to provide ample opportunity for research growth. This past year provided the EM/CCM group the opportunity to collaborate on projects with other departments and various in-patient ICUs. Our faculty boasted landmark research publications in journals such as *Shock*, *Critical Care Medicine*, and *Chest*. Ongoing research focus goals include (please see addendum for full list of publications, abstracts, and grants):

- 1) Sepsis response team initiative study. Ongoing evaluation to determine the effects on care-paths and outcomes with and without a response team. (*Holthaus, Liang, Osborn*)
- 2) Surviving Sepsis Campaign: guidelines for management of severe sepsis and septic shock as well as the use of steroids in septic shock. (*Osborn*)

- 3) Development of a critical care medicine ultrasound curriculum and integration into existing fellowship programs. (*Ablordeppey*)
- 4) Clinical applications of ultrasound technology in central line placement for the ED/ICU (*Ablordeppey*)
- 5) Mechanical ventilation and acute respiratory distress syndrome in the emergency department: a multi-center prospective, cross sectional study. (*Fuller*)
- 6) The impact of cardiac dysfunction on acute respiratory distress syndrome and mortality in mechanically ventilated patients with severe sepsis and septic shock: an observational study. (*Fuller*)
- 7) Integrating an eICU critical care medicine patient care program into an existing academic medical center ICU system (*Palmer*)
- 8) Improving end of life care in the critical care setting through education, computer order entry sets, and patient/family communication. (*Wessman*)
- 9) Development of a multidisciplinary EM/CC Fellowship training curriculum and how it compares to established ACGME CCM programs; goal of creating available tracts to formal certification in CCM for EM trainees. (*Wessman*)

Aim Three: Education

Our scholar track, under directorship by C. Holthaus, continues to provide monthly education sessions for the residents (please see below for curriculum and awards). This unique EM/CCM scholar tract format was previously highlighted as a “successful role model tract” in EMRA publications. Lectures came from the Residents, EM/CCM Faculty, and EM/CCM Fellows. Our EM/CCM faculty group remained involved with the core EM residency program as presenters for the “EM Experts Lecture” series. Our EM/CCM Faculty also provided numerous local, regional, national, and international lectures. Highlights included lectures at ACEP, SCCM, and SOCCA.

A decision was made in conjunction with the EM residency leadership to replace the current intern floor general surgery rotation with an additional intern-level SICU rotation starting in July 2014. This rotation schedule change was well received by the Residents and was continued during the current academic cycle. The SICU and MICU core-ICU rotations provide graduated experience in accordance with their PGY level. Our EM Residents receive a robust total of six months of clinical ICU experience (SICU x 2, MICU, CTICU, NeuroICU, PedsICU) during the Wash U EM residency training.

Our EM/CCM Fellowship continues to grow its reputation both locally and nationally. Our current multidisciplinary curriculum is a 24-month novel training tract that meets the ACGME requirements of Medicine, Surgery, and Anesthesiology. EM/CCM fellows are placed in approved ACGME Medicine CCM slots or Anesthesiology CCM slots. We again received numerous applications from all over the country for our upcoming fellowship class. Updates from the fellowship training program:

- 2015 Graduated Fellow (1 Fellow): Diego Casali, MD (Brigham for CV Fellowship)
- 2015-16 Current Fellows (8 total for academic year):
 - 2nd year fellows: Robert Cambridge, DO; James Hall, MD; Jesse Mecham, MD; Matthew Mitchell, MD; Trenton Wray, MD
 - 1st year fellows: Ann Tsung, MD; Aimee Wendelsdorf, MD, Julianne Dean, DO
- 2016-17 Incoming Fellows (8 total for academic year):
 - 3 second year fellows (names above)
 - 5 incoming first years: Kate Pollard, MD (Indiana Univ); David Page, MD (Univ of Alabama); Keith Azevedo, MD (Univ of New Mexico); Matthew Greer, MD (Kern Medical Center), Thomas Lynch V, MD (Hackensack Univ)
- Graduating Fellows (June 2016): Cambridge (Military, Baltimore Shock Trauma Center); Hall (undecided); Mecham (Missouri Baptist in St. Louis); Mitchell (?Indiana Univ); Wray (Univ of New Mexico)

With our current expansion and continued growth, at any one time there are Residents, Fellows, and/or Faculty with an Emergency Medicine background in all of the major Critical Care Units (SICU, MICUx2, CTICUx2, NeuroICU) at Barnes Hospital.

National Awards/Recognition

- Early Career Reviewer (ECR), Center for Scientific Review, National Institutes of Health, 2015: **B. Fuller**
- Reviewer Committee, BJHF/ICTS Clinical and Translational Research Funding Program, 2015: **B. Fuller**
- SCCM EM/CCM Section President: **B. Wessman**
- Assigned SCCM Presidential Task Force Member, Critical Care as a Specialty: **B Wessman**

Scholar Track Updates

WUEM-CC Scholar Track Lectures 2015-2016		
1/20/15	"Cardiac Ultrasound"	Ablordeppey
2/17/15	Endocrine Emergencies	Manning
3/17/15	<i>Cancelled</i>	
4/21/15	Post-Arrest Management	Trent Wray
5/19/15	<i>Cancelled for Combined SLU Conference</i>	
6/16/15	Airway Cases	Wagner
7/21/15	Delirium	Wessman
8/18/15	TCC Cases	Holthaus
9/15/15	Inhalation Injury & CN	Manning
10/20/15	<i>Cancelled d/t Klippel Lecture</i>	
11/17/15	Critical Care in the Obese Patient	Kolinsky
12/15/15	<i>Cancelled d/t DKA Lecture</i>	
1/19/16	Psychology of Leading a Resuscitation	Trent Wray
2/16/16	Toxicology in Critical Care	Ann Tsung
3/15/16	Sepsis-3 & SOFA	Holthaus
4/19/16	Applying to CCM Fellowships	Wray, Cambridge, Tsung, Wessman

WUEM Residency & Critical Care Fellowships				
Graduation Year	Resident	Fellowship Location	Fellowship Type	Fellowship Years
2016	-	-	-	-
2015	Julianne Dean	Washington University	CCM	2015-2017
2014	Matthew Dettmer	Cooper University	CCM	2014-2016
	Jesse Mecham	Washington University	CCM	2014-2016
2013	-	-	-	-
2012	Robert Alunday	Washington University	Neuro-Critical Care	2012-2014
2011	Enyo Ablordeppey	Washington University	CCM & Ultrasound	2011-2013
2010	Jacob Keeperman	Washington University	CCM & EMS	2010-2012
2009	Brian Wessman	Washington University	CCM	2009-2011

WUEM Residency Critical Care Award	
Year	Recipient
2016	TBD
2015	Julianne Dean
2014	Matt Dettmer
2013	Matt Dettmer
2012	Rob Alunday