213 Waiting, Here Or There: The Relationship Between Primary Care Access and Emergency Department Wait Times in New Jersey

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Background: Wait times for uncomplicated care in EDs have been rising dramatically for more than a decade. A lack of access to primary care is often cited as a primary driver of ED crowding, which has been linked to adverse outcomes including mortality, but little data has been available to directly study this relationship.

Objectives: In this study, we examine the association between ED wait-times and new patient appointment availability in nearby primary care practices in New Jersey.

Methods: Primary care appointment availability was measured in 1,115 practices through audit methodology in 2012/2013 and modeled separately for private insurance and Medicaid. We used a spatial bivariate generalized additive model to define the average availability of primary care in the area surrounding each ED and patient's township. We developed a dataset of ED wait-times using the Supervised Learning Outputting Waittimes algorithm, which allowed for imputation of each visit's wait time in 73 New Jersey EDs in the HCUP State Emergency Department Database. The association between ED wait times and appointment availability is assessed using robust linear regression models adjusted for county income and uninsured rate.

Results: The spatially-smoothed appointment availability is shown in the Figure 213. For privately insured patients, a 10 percentage-point (one quartile) increase in primary care appointment availability surrounding EDs was significantly associated with 1.2 minute lower ED wait times (59,890 hours across approximately 3 million annual visits in New Jersey), compared to a historical national annual increase of 0.75 minutes. Appointment availability surrounding patients' homes was less influential– a 0.6 minute decrease in ED wait-times per 10 percentage point increase in appointment availability. We did not find any association between ED wait-times and Medicaid appointment availability in either specification.

Conclusion: Primary care access and ED crowding are strongly associated for privately-insured patients, who may have more choice in their location of care, but are not associated for patients with Medicaid, who may have more limited choices.

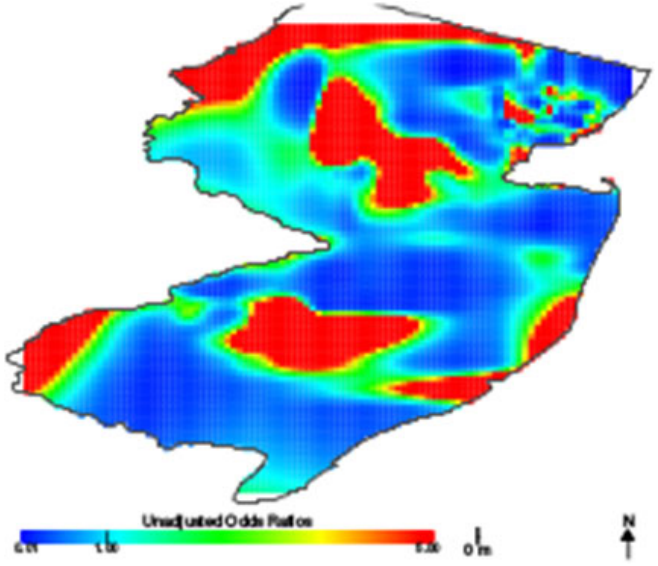

Figure 213 – Friedman.

214 Emergency Department-Triggered Palliative Care in Patients with Metastatic Solid Tumors

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Background: The delivery of palliative care is not standard of care in most EDs. Preliminary data suggest that early palliative care consultation can decrease hospital length of stay and costs for select patients with advanced illness, and may extend life.

Objectives: To compare quality of life, health care utilization, and survival for ED patients with advanced cancer randomized to ED-initiated palliative care consultation versus care as usual.

Methods: DESIGN - Single-blind randomized controlled trial of ED-initiated palliative care consultation for patients with solid metastatic tumors versus usual care. SETTING - Urban, academic ED at a tertiary care referral center. PARTICIPANTS - Adult patients with solid metastatic tumors who were able to pass a cognitive screen, had never been seen by palliative care, spoke English or Spanish, and presented to the ED from June 2011-March 2014 met eligibility criteria; eligible patients were approached and enrolled in the ED and randomized via balanced block randomization. INTERVENTION- Intervention patients received a comprehensive palliative care consultation by the inpatient team, including an assessment of symptoms, spiritual/social needs, and goals of care. Outcomes include quality of life as measured by the change in FACT-G score at 12 weeks, health care utilization at 180 days, and survival.

Results: 136 patients were enrolled and randomized. Quality of life, as measured by a change in FACT-G score from enrollment to 12 weeks, was significantly higher in patients randomized to the intervention group, who demonstrated an increase of 5.9 points as compared to only 1.1 in controls ($p<0.05$ using the nonparametric Wilcoxon test). Median survival was longer in the intervention group, 280 days versus 114 days in controls although this did not reach statistical significance in the Kaplan-Meier analysis. The number of ICU stays at 180 days was 0.10 in the intervention group as compared to 0.08 in controls; discharge to hospice within 180 days occurred in 24% of intervention patients as compared to 20% of controls.

Conclusion: ED-initiated palliative care consultation in advanced cancer improves quality of life in patients with advanced cancer; the effect on health care utilization and survival is less clear.

215 The Salivary Metabolome in Community-Acquired Pneumonia: Vitamin C Metabolism as a Potential Marker of Illness Severity

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Background: When treating community-acquired pneumonia (CAP), understanding a patient's risk for clinical deterioration is essential for optimal management. Saliva is readily accessible, but has been under-utilized in biomarker development.

Objectives: To conduct a global metabolic profiling study on human saliva to explore the metabolic differences between ED CAP patients who clinically deteriorated and those who rapidly recovered.

Methods: We evaluated 15 case-control pairs matched by sex, age (+/- 10 yrs), and acute illness (CAP) (Table 215). Severe CAP cases developed septic shock or respiratory failure within 3 days. Non-severe CAP controls recovered without shock or respiratory failure and were

Table 215
Self: Patient Characteristics and Outcomes

Characteristic / Outcome	Severe CAP Cases (n=15)	Non-severe CAP Controls (n=15)
Median Age, years (IQR)	54 (44, 65)	52 (45,64)
Female, n (%)	6 (40%)	6 (40%)
Median Pneumonia Severity Index, score (IQR)	114 (81, 146)	84 (47, 104)
Median Hospital Length of Stay, days (IQR)	9 (6, 14)	3 (2, 4)
Septic Shock, n (%)	8 (53%)	0
Respiratory Failure, n (%)	9 (60%)	0
In-hospital Death, n (%)	3 (20%)	0

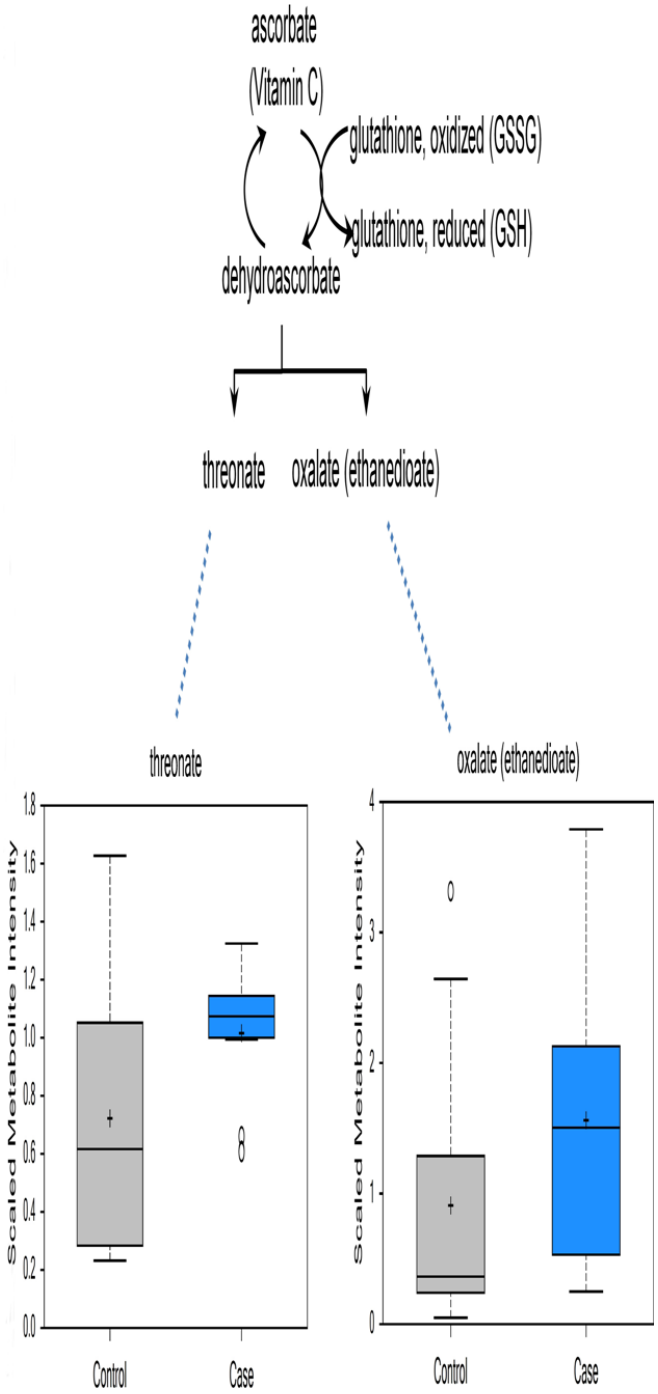

Figure 215 – Self.

discharged within 5 days. Saliva samples collected in the ED were evaluated for 1038 metabolites using non-targeted liquid- and gas-chromatography mass spectroscopy. Concentrations of each metabolite were compared between cases and controls, with a type-one error < 0.05 and a false discovery rate < 0.10 considered significant. Random forest classification was used to estimate the accuracy of using metabolic differences for distinguishing between cases and controls, and to identify which metabolites had the largest contribution to these differences.

Results: Concentrations of 216 (20.8%) metabolites were significantly different in cases compared to controls. Random forest classification resulted in 70% accuracy for distinguishing between cases and controls. Compared to controls, significant differences in the cases included: 1. elevated branched-chain amino acid catabolites, suggesting increased energy demands; 2. elevated fatty acid dicarboxylates, suggesting alterations in B-oxidation and mitochondrial function; and 3. elevated metabolic products of vitamin C (threonate and oxalate), suggesting increased utilization of vitamin C as an antioxidant (Figure 215).

Conclusion: The salivary metabolome of CAP patients who deteriorated into critical illness was significantly different from those who rapidly recovered. These differences may have utility for measuring pneumonia severity, understanding the physiology of critical illness, and targeting therapies at specific metabolic pathways. Our results suggest extremely active vitamin C metabolism in CAP patients who developed critical illness, which supports the concept of vitamin C having therapeutic potential.

216 Is CYP2C19 Genotyping Useful Prior to New Drug Administration in an ED Population?

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Background: CP450 polymorphisms result in variable rates of drug metabolism from patient to patient. This has important implications for drug effectiveness and safety. The prevalence of CYP2C19 polymorphisms in a population of ED patients is currently unknown.

Objectives: The objective of this study is to determine the percentage of ED patients on CYP2C19-dependent drugs and to determine the prevalence of CYP2C19 polymorphisms in an ED population.

Methods: We conducted a prospective observational study in a large urban academic ED with 80,000 annual visits. Subjects were included if they had self-reported pain or nausea and were excluded if they were non-English speaking, <18 years old, had liver or renal failure, or had chronic pain or cyclic vomiting. Detailed drug ingestion histories for the 48 hours preceding ED visit were obtained; each drug was coded as: not CYP2C19 dependent, CYP2C19 substrate, CYP2C19 inhibitor, or CYP2C19 inducer. 10% of patients were then randomized to undergo CYP2D19 genotyping via whole blood assay using the Roche Amplichip.

Results: 502 patients were included; 61% were female, 65% were Caucasian, and median age was 39 years (IQR 22-53). The median number of drugs taken in the 48 hours preceding ED visit was 3 (IQR 1-6). 26% of patients were taking a CYP2C19 dependent drug, with 23% and 4% of patients taking a CYP2C19 substrate and inhibitor, respectively; no patients had taken a CYP2C19 inducer. Four patients already taking a CYP2C19 dependent drug were either given or prescribed a CYP2C19 dependent drug (omeprazole, n=3; diazepam, n=1). Among 53 patients genotyped, 98% were normal metabolizers and 2% were poor metabolizers. There were no ultra-rapid metabolizers.

Conclusion: In a population of ED patients presenting with pain or nausea, approximately ¼ of patients reported taking a CYP2C19 dependent drug in the preceding 48 hours. On genotyping analysis, the prevalence of CYP2C19 polymorphisms was rare. We conclude that CYP2C19 genotyping is unlikely to be useful in an ED population, given

2015 SAEM ABSTRACTS

The editors of *Academic Emergency Medicine* (*AEM*) are honored to present these abstracts accepted for presentation at the 2015 annual meeting of the Society for Academic Emergency Medicine (SAEM), May 12 to 15 in San Diego, California. These abstracts represent countless hours of labor, exciting intellectual discovery, and unending dedication by our specialty's academicians. We are grateful for their consistent enthusiasm, and are privileged to publish these brief summaries of their research.

This year, SAEM received 1319 abstracts for consideration, and accepted 984 (75%). Each abstract was independently reviewed by three qualified reviewers blinded to the identities of the authors. Final determinations for scientific presentation were made by the SAEM Program Scientific Subcommittee co-chaired by Daniel Pallin, MD, MPH and Chris Ghaemmaghami, MD and the SAEM Program Committee, chaired by Ali S. Raja, MD, MBA, MPH. Their decisions were based on the final review scores and the time and space available at the annual meeting for oral and poster presentations. There were also 86 Innovations abstracts submitted, of which 60 were accepted. The Innovations Subcommittee was co-chaired by JoAnna Leuck, MD and Laurie Thibodeau, MD.

We present these abstracts as they were received, with minimal proofreading and copy editing. Any questions related to the content of the abstracts should be directed to the authors. All authors attested to appropriate institutional review board or animal care committee approval at the time of submission, and alpha is always set at 0.05 unless otherwise indicated. The numbers that precede the abstract titles match the abstract numbers (not page numbers) shown in the key word and author indexes at the end of this supplement. Note that table and figure numbers match the abstract numbers. Also note that the abstract numbers listed here do not match the presentation numbers at the annual meeting. Attendees should consult the on-site program and online conference app for abstract session content, dates, times, and locations.

On behalf of the editors of *AEM*, the membership of SAEM, and the leadership of our specialty, we sincerely thank our research colleagues for these contributions, and their continuing efforts to expand our knowledge base and allow us to better treat our patients.

David C. Cone, MD
Editor-in-Chief

The following standard acronyms are used in the abstracts:

95% CI	95% confidence interval
AAAEM	Academy of Administrators in Academic Emergency Medicine
AAEM	American Academy of Emergency Medicine
ACEP	American College of Emergency Physicians
ACGME	Accreditation Council for Graduate Medical Education
ADIEM	Academy for Diversity & Inclusion in Emergency Medicine
AEUS	Academy of Emergency Ultrasound
AGEM	Academy of Geriatric Emergency Medicine
AIDS	acquired immune deficiency syndrome
ASA	aspirin
AUC	area under the curve
AWAEM	Academy for Women in Academic Emergency Medicine
BP	blood pressure
bpm	beats per minute
CBC	complete blood count
CDEM	Clerkship Directors in Emergency Medicine
CORD	Council of Emergency Medicine Residency Directors
CPR	cardiopulmonary resuscitation
CT	computed tomography
CXR	chest x-ray
CVA	cerebrovascular accident
dBP	diastolic blood pressure
ECG	electrocardiogram

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