

**Foreword**

August 2013

EMRU Précis goes online!

You can now find the present and past précis articles courtesy of Dr Andrew Coggins @ <http://emergencypedia.com/westmead-emru/>

All ALS trained nursing and medical staff are invited to participate in an ALS refresher simulation course being held on 11<sup>th</sup> September at the SIM centre. You will also get hands-on training on the application of mechanical CPR device on that day!

Feel free to send your articles, topics or suggestions to [samit36@hotmail.com](mailto:samit36@hotmail.com) or [Jennifer.Johnson@swahs.health.nsw.gov.au](mailto:Jennifer.Johnson@swahs.health.nsw.gov.au) or [margaret.murphy@swahs.health.nsw.gov.au](mailto:margaret.murphy@swahs.health.nsw.gov.au)

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WESTMEAD EMRU PRÉCIS

In this month's Précis menstrua, I start with two identical studies published in Resuscitation. Interestingly one article has suggested exactly the opposite view to the other. The two studies focus on patient presenting with **out of hospital cardiac arrest and the role of cardiac catheterisation** in these patients. Read on and make up your mind, I know what I would be choosing for my patients, unfortunately, the final decision does not lie in our hands and we as advocates of acute patient care need to be up to date on our knowledge.

An interesting article in Journal of Hospital Medicine has looked into the **presence or lack of advanced care directives in patients with end-stage metastatic disease and the effect thereof on the end-of-life care.**

An interesting article in Circulation looks at the **reversal of warfarin** and use of newer products versus older methods. An article in Resuscitation this month reflects on the **occurrence of cardiac arrest during intubation** – maybe preloading, preoxygenation and use of Metaraminol during this period needs to be given a second look.

An article in Stroke this month probably will not settle the nerves for the antagonists of thrombolysis in stroke but seems to shed some positive light on this practice. And this research is not funded and from Scandinavia! **Ultra-early thrombolysis for stroke!**

In this month's **Disputatio**, we look into the chines folklore about keeping warm to keep away the dreaded COLD!

In **Nostos Algos**, précis features a speech given by **ED stalwart A Kellerman** and includes an interesting story which is very touching and also timely reminder for all of us to reflect into our practices and refocus our moral compass from time to time. Maybe it's time to have the phone numbers of all family members of the specialty teams at the switch board!

This month's special article is an interesting piece of work down on **designated drivers** – maybe plan B should be public transport especially if your designated driver likes his spirits!

Lastly please take your time to contribute by raising questions, reflecting and applying what you gain from here!

**DUBIUS**

- **Don't place, or leave in place, urinary catheters for incontinence or convenience or monitoring of output for non-critically ill patients** (acceptable indications: critical illness, obstruction, hospice, perioperatively for <2 days for urologic procedures)
  - Catheter Associated Urinary Tract Infections (CAUTIs) are the most frequently occurring health care acquired infection (HAI). Use of urinary catheters for incontinence or convenience without proper indication or specified optimal duration of use increases the likelihood of infection and is commonly associated with greater morbidity, mortality and health care costs. *Published guidelines suggest that hospitals and long-term care facilities should develop, maintain and promulgate policies and procedures for recommended catheter insertion indications, insertion and maintenance techniques, discontinuation strategies and replacement indications.*
- **Don't prescribe medications for stress ulcer prophylaxis to medical inpatients unless at high risk for GI complications.**
  - According to published guidelines, medications for stress ulcer prophylaxis are not recommended for adult patients in non-ICU settings. Histamine-2 receptor antagonists (H2RAs) and proton-pump inhibitors (PPIs), commonly used to treat stress ulcers, are associated with adverse drug events and increased medication costs, and commonly enhance susceptibility to community-acquired nosocomial pneumonia and Clostridium difficile.
- **Avoid transfusions of red blood cells for arbitrary hemoglobin or hematocrit thresholds and in the absence of symptoms of active coronary disease, heart failure or stroke.**
  - The AABB recommends adhering to a restrictive transfusion strategy (7 to 8 g/dL) in hospitalized, stable patients. According to a National Institutes of Health Consensus Conference, no single criterion should be used as an indication for red cell component therapy. Instead, multiple factors related to the patient's clinical status and oxygen delivery should be considered.
- **Don't order continuous telemetry monitoring outside of the ICU without using a protocol that governs continuation.**
  - Telemetric monitoring is of limited utility or measurable benefit in low risk cardiac chest pain patients with normal electrocardiogram. Inappropriate use of telemetric monitoring is likely to increase cost of care and produce false positives potentially resulting in errors in patient management.
- **Don't perform repetitive CBC and chemistry testing in the face of clinical and lab stability.<sup>1</sup>**

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<sup>1</sup> Adapted from Choosing wisely.org an initiative of American Board of Internal Medicine and involving relevant other medical specialty groups

## **NOSTOS ALGOS - Blast from the past**

### **Mama's Rule**

**Arthur L. Kellermann, MD, MPH, Office of the Dean, School of Medicine Building, Emory University  
[Ann Emerg Med. 2009;53:688-689.]**

*These remarks were given at the Emory School of Medicine's 2008 commencement ceremony.*

Class of 2008, you are one of the last to graduate under the Emory School of Medicine's traditional (some might say "old") curriculum. It followed the same general structure as mine, except you had 28 years of additional scientific and clinical discoveries to learn. It challenged you, like NPR radio detective Guy Noir, "to find answers to life's persistent questions." But you didn't have to answer them all at once.

During your first 2 years of medical school, you spent most of your time pondering *what* and *where*. *What* molecule, hormone, physiologic function, pathological process, bone or nerve causes *what* effect? And *where* is the dad-gum thing located in the body?

After mastering *what* and *where*, you spent the last 2 years of med school seeking answers to *how* and *when*. *How* to perform an efficient history and physical, *how* to do all sorts of clinical procedures, *how* to present patients on rounds. And *when* to order a test or treatment, *when* not to; *when* to dazzle your attending with your brilliance, and *when* to avert your gaze and hope she or he would call on someone else. ...

But before we turn you loose, I want you to spend a few moments pondering the most important question of all: *why*.

Let me explain why this is necessary. When you start your residency a few weeks from now, life's persistent questions will no longer march up, 2 by 2. They'll come in a howling mob, often at the most unexpected times. And if you aren't careful, you'll become so focused on *what*, *where*, *how*, and *when* that you'll lose sight of *why*.

**The following story illustrates my point.**

Before I begin, I need to explain one thing: the specifics of this story require me to identify the resident's specialty. But make no mistake: all of us, regardless of specialty, are prone to the mindset this resident displayed.

The incident was sparked by disagreement over who would admit a patient. The individual in question, a homeless man, literally dragged himself into the Grady ED. **Recently discharged from the hospital after surgery for bilateral tibia fractures, he had external fixators on both legs. Unable to care for himself on the streets, he'd come back.** The skin around his hardware showed early signs of infection.

The ortho resident was called. After completing his assessment, he refused to admit the patient.

**"This guy's no longer our problem." He declared, "His fractures are fixed. All he needs are antibiotics and a care home. Admit him to Medicine if you want. We only admit patients who need surgery."**

Needless to say, this decision didn't sit well with the emergency medicine resident (or a nearby internal medicine resident). Tempers flared, and voices were quickly raised. On-looking patients, including the man with 2 broken legs, heard it all as 3 young, gifted, and highly educated doctors argued bitterly over who "had" to take care of the patient.

That's when a faculty colleague, Dr. Ric Martinez, stepped in. Like many attending physicians at Grady, Ric has a distinguished pedigree. A member of the Institute of Medicine, Ric directed a major federal agency during the Clinton Administration. Today, he's back at Emory doing what he loves most: teaching, and caring for patients.

"What seems to be the problem?" Ric asked.

The ortho resident, red-faced, described "the problem."

Ric answered, "It's clear that this guy can't make it on the street. Since he was so recently discharged from your service, don't you think you should take him back, and make better arrangements for his care?"

"I am *not* admitting this patient!" The resident boomed. "We only admit patients who need surgery!"

"Look," Ric said, "I'm not going to argue with you. Pick up the phone."

"You want to talk to my attending?" The resident glared as he reached for the phone.

"No," Ric replied. "I want to talk to your mother. It's 9 pm. I know she's awake. If you can convince her that you're doing the right thing, I'll accept her decision and make other arrangements for the patient. Do you think she'll agree with you?"

The resident stared at Ric, his jaw clenched. Then, the lines on his face relaxed. He smiled, hung up the phone, and began writing admission orders for the patient.

**Mama's rules.**

Class of 2008, nothing you've learned in the last 4 years, and nothing you'll learn in the next 4, is as important as what your family and friends taught you *before* you came medical school. They, and others who could not be here, gave you the answers to *why*. *Why* you chose to become a physician. *Why* you spent all those hours studying in college. *Why* you worked like a dog for the last 4 years. And *why*, in a few minutes, you will recite the Hippocratic Oath.

A few weeks from now, you'll walk into a hospital or clinic. Before you know it, you will be challenged to balance the pressures of modern health care, the expectations of your peers, and your own pride against the best interests of your patients. When you are unsure what to do, place an imaginary phone call to Mama, or whoever serves as *your* inner guide. She'll know what to do.

To demonstrate the power of this technique, I want to walk you through a hypothetical scenario:

This is your last exam. It's pass/fail. During work rounds, a utilization review nurse pokes her head in the door and informs you that one of your patients has used up his days of insurance coverage and must be discharged. You know that this particular patient isn't stable enough to be released, but the look on your attending's face offers no support.

Do you tell the nurse and your attending that your patient isn't ready to go home and forcefully explain why or accept the decision as "the way things are" and discharge the patient?

Show of hands: How many for option A? Option B? Good! See how easy this is?

Class of 2008, I bid you farewell. Go forth with my best wishes and my respect. And don't forget:

**when the going gets tough, and you aren't sure what to do, remember "Mama's rules." For if you do, the answer will come, clear as a sounding bell.**

## **DISPUTATIO**

In this month's Disputatio, we discuss an interesting question raised about the **significance of weather patterns and its effects on respiratory presentations to emergency departments**. Dr Kevin Lai raised this gauntlet about an age-old adage in Chinese folklore and we explore this further to see if this association is evidence based. There is **even a study by K Lai (relation to Kevin unknown) in China on this topic!!!**

Medline searches were made to look for links between weather patterns and asthma, respiratory tract infections, CCF and the influenza. Excerpts of the search, abstracts a discussion on this topic follow. If you thought it was as easy as falling temperatures and increased illness, you need to read this!

### **Weather patterns and respiratory tract infections**

*Environmental Pollution. 170:217-21, 2012 Nov.*

#### **The effect of airborne particles and weather conditions on pediatric respiratory infections in Cordoba, Argentina.**

Amarillo AC, Carreras HA.

We also examined community-specific parameters and differences in susceptibility by sex. We found a **significant association between particles and respiratory infections. This relationship was affected by mean temperature, atmospheric pressure and wind speed. These effects were stronger in fall, winter and spring for upper respiratory infections while for lower respiratory infections the association was significant only during spring.** Low socio-economic conditions and low education levels increased the risk of respiratory infections. These findings add useful information to understand the influence of airborne particles on children health in developing countries.

*Respiratory Medicine. 102(5):733-7, 2008 May.*

#### **Effect of meteorological variables on the incidence of respiratory tract infections.**

Falagas ME, Theocharis G et al.

**OBJECTIVE:** The possible effect of the various meteorological variables on the incidence of upper and lower respiratory tract infections (RTIs) has intrigued the scientific community for decades.

**METHODS:** We performed a retrospective analysis regarding the association between meteorological variables and clinical data for upper and lower RTIs in the area of Attica, Greece.

**RESULTS:** There was a **statistically significant ( $P < 0.001$ ) negative correlation between weekly average temperature with the proportion of weekly house call visits resulting in a diagnosis of upper or lower RTIs 4 days later ( $R = -0.56$  and  $-0.71$  for upper and lower RTIs, respectively) as well as 7 days later ( $R = -0.57$  and  $-0.71$  for upper and lower RTIs, respectively) and during the same day ( $R = -0.55$  and  $-0.68$  for upper and lower RTIs, respectively). In addition, there was a negative correlation between weekly wind chill average (and minimum) temperature as well as a positive correlation of relative humidity with upper and lower RTIs. In contrast, there was no significant correlation between wind speed and upper or lower RTIs. **CONCLUSIONS:** The findings suggest that house call visits due to upper and lower RTIs increased as the average temperature in the area of Attica decreased.**

*Chest. 103(5):1369-74, 1993 May.*

#### **The influence of spring and summer New England meteorologic conditions on the respiratory status of patients with chronic lung disease.**

Mann M, Patel K et al

To determine whether meteorologic conditions affect the respiratory status of individuals with chronic lung disease, we asked 14 patients who had completed outpatient pulmonary rehabilitation



to record the following information daily during the spring and summer of 1991: (1) dyspnea on arising (morning dyspnea); (2) dyspnea throughout the day (daytime dyspnea); (3) peak expiratory flow rate (PEFR); (4) mood; and (5) the presence of lower respiratory tract infection (LRI). The effect of local meteorologic conditions and LRI frequency on morning and daytime dyspnea, PEFR, and mood were analyzed for spring and summer seasons using a linear regression technique that controlled for first-order autocorrelation. **The LRI frequency and the preceding day's respiratory status were the most significant predictors of either season's daily variation in respiratory status. During spring, the only meteorologic condition associated with respiratory status was precipitation:** rainfall was directly related to increased morning and daytime dyspnea. Meteorologic conditions were not related to changes in PEFR or mood. **During summer, the combination of higher temperature, rise in barometric pressure, and increased LRI frequency best predicted increased morning dyspnea, while the combination of higher temperature and rise in barometric pressure best predicted reduced PEFR.** Meteorologic conditions were not related to changes in daytime dyspnea or mood. **Precipitation in spring and a combination of high temperature and rise in barometric pressure in summer best predicted deterioration in the respiratory status of this group of patients with chronic lung disease.**

#### Weather patterns and Asthma

*Environmental Health Perspectives. 120(10):1385-90, 2012 Oct.*

#### **Winter temperature inversions and emergency department visits for asthma in Salt Lake County, Utah, 2003-2008.**

Beard JD, Beck C et al.

**BACKGROUND: Winter temperature inversions—layers of air in which temperature increases with altitude—trap air pollutants and lead to higher pollutant concentrations.** Previous studies have evaluated associations between pollutants and emergency department (ED) visits for asthma, but none have considered inversions as independent risk factors for ED visits for asthma. **OBJECTIVE:** We aimed to assess associations between winter inversions and ED visits for asthma in Salt Lake County, Utah. **METHODS:** We obtained electronic records of ED visits for asthma and data on inversions, weather, and air pollutants for Salt Lake County, Utah, during the winters of 2003 through 2004 to 2007 through 2008. We identified 3,425 ED visits using a primary diagnosis of asthma. We used a time-stratified case-crossover design, and conditional logistic regression models to calculate odds ratios (ORs) and 95% confidence intervals (CIs) to **estimate rate ratios of ED visits for asthma in relation to inversions during a 4-day lag period and prolonged inversions.** We evaluated interactions between inversions and weather and pollutants. **RESULTS: After adjusting for dew point and mean temperatures, the OR for ED visits for asthma associated with inversions 0-3 days before the visit compared with no inversions during the lag period was 1.14 (95% CI: 1.00, 1.30). The OR for each 1-day increase in the number of inversion days during the lag period was 1.03 (95% CI: 1.00, 1.07). Associations were only apparent when PM10 and maximum and mean temperatures were above median levels. CONCLUSIONS:** Our results provide evidence that winter inversions are associated with increased rates of ED visits for asthma.

*Allergy & Asthma Proceedings. 34(1):e1-8, 2013 Jan-Feb.*

#### **Prediction of asthma exacerbations among children through integrating air pollution, upper atmosphere, and school health surveillances.**

Jayawardene WP, Youssefagha AH et al.

Climatic factors and air pollution are important in predicting asthma exacerbations among children. This study was designed to determine if a relationship exists between asthma exacerbations among elementary school children and the **combined effect of daily upper atmosphere observations (temperature, relative humidity, dew point, and mixing ratio) and daily air pollution (particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, and ozone)** and, if so, to predict asthma



exacerbations among children using a mathematical model. Using an ecological study design, school health records of 168,825 students in elementary schools enrolled in "Health eTools for Schools" within 49 Pennsylvania counties were analyzed. Data representing asthma exacerbations were originally recorded by school nurses as the type of treatment given to a student during a clinic visit on a particular day. Daily upper atmosphere measurements from ground level to the 850-mb pressure level and air pollution measurements were obtained. A generalized estimating equation model was used to predict the occurrence of >48 asthma exacerbations, the daily mean for 2008-2010. **The greatest occurrence of asthma among school children was in the fall, followed by summer, spring, and winter. Upper atmosphere temperature, dew point, mixing ratio, and six air pollutants as well as their interactions predicted the probability of asthma exacerbations occurring among children.** Monitoring of upper atmosphere observation data and air pollutants over time can be a reliable means for predicting increases of asthma exacerbations among elementary school children. Such predictions could help parents and school officials implement effective precautionary measures.

And this one from CHINA!

*Chest. 143(3):613-20, 2013 Mar.*

**A prospective, multicenter survey on causes of chronic cough in China.**

Lai K, Chen R et al.

AB BACKGROUND: The causes of chronic cough in China and its relations with geography, seasonality, age, and sex are largely uncertain. METHODS: A prospective, multicenter survey was conducted to evaluate patients with chronic cough across five regions in China by using a modified diagnostic algorithm. The effects of geography, seasonality, age, and sex on spectrum of chronic cough were also investigated. RESULTS: The current study evaluated 704 adult patients, including 315 men (44.7%) and 389 women (55.3%). **The causes of chronic cough were determined in 640 subjects (90.9%). Common causes included cough variant asthma (CVA) (32.6%), upper airway cough syndrome (UACS) (18.6%), eosinophilic bronchitis (EB) (17.2%), and atopic cough (AC) (13.2%).** Collectively, these four causes accounted for 75.2% to 87.6% across five different regions without significant difference ( $P > .05$ ), although there was variation on single causes. Gastroesophageal reflux-related cough was identified in 4.6% of causes. Seasonality, sex, and age were not associated with the spectrum of chronic cough (all  $P > .05$ ). CONCLUSION: CVA, UACS, EB, and AC were common causes of chronic cough in China. **Geography, seasonality, age, and sex were not associated with the spectrum of chronic cough.**

**Weather patterns and Influenza**

*PLoS ONE [Electronic Resource]. 7(11):e48695, 2012.*

**A nice day for an infection? Weather conditions and social contact patterns relevant to influenza transmission.**

Van Kerckhove KWL, Chao DL et al.

AB Although there is no doubt that significant morbidity and mortality occur during annual influenza epidemics, the role of contextual circumstances, which catalyze seasonal influenza transmission, remains unclear. **Weather conditions are believed to affect virus survival, efficiency of transmission and host immunity, but seasonality may also be driven by a tendency of people to congregate indoors during periods of bad weather.** To test this hypothesis, we combined data from a social contact survey in Belgium with local weather data. In the absence of a previous in-depth weather impact analysis of social contact patterns, we explored the possibilities and identified pitfalls. We found **general dominance of day-type (weekend, holiday, working day) over weather conditions, but nonetheless observed an increase in long duration contacts on regular workdays with low temperatures, almost no precipitation and low absolute humidity of the air.** Interestingly, these conditions are often assumed to be beneficial for virus survival and transmission. Further

research is needed to establish the impact of the weather on social contacts. We recommend that future studies sample over a broad spectrum of weather conditions and day types and include a sufficiently large proportion of holiday periods and weekends.

*Environment International. 45:39-43, 2012 Sep 15.*

**Did socio-ecological factors drive the spatiotemporal patterns of pandemic influenza A (H1N1)?**

Hu W, Williams G et al

BACKGROUND: Pandemic influenza A (H1N1) has a significant public health impact. This study aimed to examine the effect of socio-ecological factors on the transmission of H1N1 in Brisbane, Australia.

RESULTS: Our results show that **average increase in weekly H1N1 cases were 45.04% (95% credible interval (CrI): 42.63-47.43%) and 23.20% (95% CrI: 16.10-32.67%), for a 1 C decrease in average weekly maximum temperature at a lag of one week and a 10mm decrease in average weekly rainfall at a lag of one week, respectively. An interactive effect between temperature and rainfall on H1N1 incidence was found (changes: 0.71%; 95% CrI: 0.48-0.98%).** The auto-regression term was significantly associated with H1N1 transmission (changes: 2.5%; 95% CrI: 1.39-3.72). No significant association between socio-economic indexes for areas (SEIFA) and H1N1 was observed at SLA level. CONCLUSIONS: **Our results demonstrate that average weekly temperature at lag of one week and rainfall at lag of one week was substantially associated with H1N1 incidence at a SLA level.** The ecological factors seemed to have played an important role in H1N1 transmission cycles in Brisbane, Australia.

**Discussion**

Presentations to ED with respiratory symptoms can have a myriad of causes. Whilst a majority of them may have a respiratory etiology and sizeable proportion could have CVS causes for same.

When looking at evidence, it seems that whilst there is a **general trend toward increasing respiratory illness in winter months and this may be due to association with the influenza cycles; the relationship between day-time temperatures and disease is more complex.**

**In the case of asthma the association is stronger with air-pollution (AP) levels and the relationships between temperature and AP is more complex and at time even paradoxical. Whilst in chronic diseases the relationship between weather pattern and presentations is very weak.**

So what does it mean for us ED folk – while chines folklore may have some bearing, these are things beyond anyone's control so just get on with it!

**PRIMUS**

**Multicentre trials currently underway at Westmead ED**

**Microchemirism Study** – for patients who may need major transfusions after trauma

**All patients meeting Trauma Category 1 criteria collect 2 tubes of**



Fill in the label and send to ICPMR with usual samples - no orders on Firstnet

**BLISS Study** – to correlate loads of bacterial DNA in blood versus outcomes in patients presenting to ED with sepsis.

**All patients meeting Triage category 2 for SEPSIS collect 1 tube of**



Order Bacterial load test on power orders and send sample with all the blood samples to ICPMR - PAXGENE sticker

**BIN REIECTIS**

**Recommended blog roll and social media update by A/Prof Fenton O'Leary (NCH)**  
**Social Media**

ALS: Airway, Breathing, Capnography???

<http://stemlynsblog.org/2012/10/als-airway-breathing-c02/>

Pediatric febrile seizures: When do I need to do a lumbar puncture?

<http://academiclifeinem.com/pediatric-febrile-seizures-when-do-i-need-to-do-a-lumbar-puncture/>

Anatomy of Resuscitation

<http://embasic.org/2013/08/07/anatomy-of-a-resuscitation/>

More knackered neonates...

<http://theblundissection.org/2013/08/more-knackered-neonates/>

FentaNYL patch fatalities linked to "bystander apathy"

<http://www.ismp.org/newsletters/acutecare/showarticle.asp?id=55>

Resuscitation of patients with septic shock: please "mind the gap"!

<http://link.springer.com/article/10.1007/s00134-013-2998-5/fulltext.html>

Hypertonic Saline for Bronchiolitis.

<http://stemlynsblog.org/2013/08/hypertonic-saline-for-bronchiolitis-st-emlyns/>

Are trampolines safe for children?

[http://www.theguardian.com/lifeandstyle/2013/aug/11/are-trampolines-safe-children-play?CMP=tw\\_tfd](http://www.theguardian.com/lifeandstyle/2013/aug/11/are-trampolines-safe-children-play?CMP=tw_tfd)

SMART Thrombolytics for Stroke: Update

<http://www.smartem.org/podcasts/smart-thrombolytics-stroke-update>

Trick of the Trade: Hair tourniquet release

<http://academiclifeinem.com/trick-of-the-trade-hair-tourniquet-release/>

Sars: The people who risked their lives to stop the virus

<http://www.bbc.co.uk/news/magazine-23710697>

Crisis Resource Management

<http://academiclifeinem.com/crisis-resource-management/>

Wisdom of the Cloud

<http://jinnan.com/2009/11/09/my-experience-of-innovation/>

Junior doctors: Your life in their newly qualified hands

<http://www.independent.co.uk/life-style/health-and-families/health-news/junior-doctors-your-life-in-their-newly-qualified-hands-8772718.html>

Berwick review into patient safety

<https://www.gov.uk/government/publications/berwick-review-into-patient-safety>

## **PRÉCIS MENSTRUA**

Resuscitation Volume 84, Issue 9, Pages 1250-1254, September 2013

### **Predictive value of electrocardiogram in diagnosing acute coronary artery lesions among patients with out-of-hospital-cardiac-arrest**

Zanuttini D, Armellini I et al

#### **Aims**

Acute coronary lesions are known to be the most common trigger of out of hospital cardiac arrest (OHCA). Aim of the present study was to assess the predictive value of ST-segment changes in diagnosing the presence of acute coronary lesions among OHCA patients

#### **Methods**

Findings of coronary angiography (CA) performed in patients resuscitated from OHCA were retrospectively reviewed and related to ST-segment changes on post-ROSC electrocardiogram (ECG)

#### **Results**

**Ninety-one patients underwent CA after OHCA; 44% of patients had ST-segment elevation and 56% of patients had other ECG patterns on post-ROSC ECG. Significant coronary artery disease (CAD) was found in 86% of patients; CAD was observed in 98% of patients with ST-segment elevation and in 77% of patients with other ECG patterns on post-ROSC ECG ( $p = 0.004$ ). Acute or presumed recent coronary artery lesions were diagnosed in 56% of patients, respectively in 85% of patients with ST-segment elevation and in 33% of patients with other ECG patterns ( $p < 0.001$ ). ST-segment analysis on post-ROSC ECG has a good positive predictive value but a low negative predictive value in diagnosing the presence of acute or presumed recent coronary artery lesions (85% and 67%, respectively)**

#### **Conclusions**

**Electrocardiographic findings after OHCA should not be considered as strict selection criteria for performing emergent CA in patients resuscitated from OHCA without obvious extra-cardiac cause; even in the absence of ST-segment elevation on post-ROSC ECG, acute culprit coronary lesions may be present and considered the trigger of cardiac arrest**

### **Resuscitation Article in Press**

Early cardiac catheterization is associated with improved survival in comatose survivors of cardiac arrest without STEMI

Hollenbeck RD, McPherson JA et al.

#### **Aim**

To determine if early cardiac catheterization (CC) is associated with improved survival in comatose patients who are resuscitated after cardiac arrest when electrocardiographic evidence of ST-elevation myocardial infarction (STEMI) is absent.

#### **Methods**

We conducted a retrospective observational study of a prospective cohort of 754 consecutive comatose patients treated with therapeutic hypothermia (TH) following cardiac arrest.

#### **Results**

**A total of 269 (35.7%) patients had cardiac arrest due to a ventricular arrhythmia without STEMI and were treated with TH. Of these, 122 (45.4%) received CC while comatose (early CC). Acute coronary occlusion was discovered in 26.6% of patients treated with early CC compared to 29.3% of patients treated with late CC ( $p = 0.381$ ). Patients treated with early CC were more likely to survive to hospital discharge compared to those not treated with CC (65.6% vs. 48.6%;  $p = 0.017$ ). In a multivariate regression model that included study site, age, bystander CPR, shock on admission, comorbid medical conditions, witnessed arrest, and time to return of spontaneous circulation, early CC was independently associated with a significant reduction in the risk of death (OR 0.35, 95% CI 0.18–0.70,  $p = 0.003$ ).**

## Conclusions

In comatose survivors of cardiac arrest without STEMI who are treated with TH, early CC is associated with significantly decreased mortality. The incidence of acute coronary occlusion is high, even when STEMI is not present on the post resuscitation electrocardiogram.

Resuscitation Volume 84, Issue 9, Pages 1279-1284, September 2013

### **A 10-s rest improves chest compression quality during hands-only cardiopulmonary resuscitation: A prospective, randomized crossover study using a manikin model**

Min MK, Yeom RS et al

#### Methods

The present prospective, randomized crossover study involved 63 emergency medical technician trainees. The subjects performed three different CCC-CPR methods on a manikin model. The first method was **general CCC-CPR without a break (CCC)**, the second included a **10-s break after 200 chest compressions (10/200)**, and the third included a **10-s break after 100 chest compressions (10/100)**. **All methods were performed for 10 min.** We counted the total number of compressions and those with appropriate depth every 1 min during the 10 min and measured mean compression depth from the start of chest compressions to 10 min.

#### Results

The 10/100 method showed the deepest compression depth, followed by the 10/200 and CCC methods. The mean compression depth showed a significant difference after 5 min had elapsed. The percentage of adequate compressions per min was calculated as the proportion of compressions with appropriate depth among total chest compressions. The percentage of adequate compressions declined over time for all methods. The 10/100 method showed the highest percentage of adequate compressions, followed by the 10/200 and CCC methods.

#### Conclusion

**When rescuers were provided a rest at a particular time during CCC-CPR, chest compression quality increased compared with CCC without rest. Therefore, we propose that a rescuer should be provided a rest during CCC-CPR, and specifically, we recommend a 10-s rest after 100 chest compressions.**

Acta Anaesthesiologica Taiwanica Volume 51, Issue 2, Pages 58-62, June 2013

### **A combination of the modified Mallampati score, thyromental distance, anatomical abnormality, and cervical mobility (M-TAC) predicts difficult laryngoscopy better than Mallampati classification**

Ambesh SP, Singh N et al

#### Methods

We **prospectively analyzed 500 adult patients of the American Society of Anesthesiologists (ASA) class I or II, scheduled for elective surgery under general anesthesia.** Preoperative airway assessments using M-TAC were performed, all of which were given a score. Anesthesiologists, blinded to the pre-anesthetic airway assessment, performed laryngoscopy and graded the laryngoscope view as per Cormack and Lehane's classification. For the study purpose, **difficult laryngoscopy was defined as Cormack and Lehane Grade 3 or 4 of laryngoscopic view.**

#### Results

An **M-TAC score  $\geq 4$  had a significantly higher sensitivity (96% vs. 72%) and specificity (86% vs. 78%) with a high positive predictive value (44% vs. 28%) and a very low false negative value (2% vs. 15%) in comparison with Mallampati scoring ( $p < 0.05$ ).** Analysis of the receiver operating characteristic (ROC) curve for predicting difficult laryngoscopy revealed an area under the curve of 0.83 (95% CI = 0.78–0.88) for Mallampati scoring and 0.94 (95% CI = 0.92–0.96) for M-TAC scoring system.

#### Conclusion



The M-TAC scoring system has provided a higher sensitivity and specificity in predicting difficult laryngoscopy in comparison with Mallampati classification.

JAMA. 2013 Jul 17;310(3):280-8. doi: 10.1001/jama.2013.7833.

**Association between duration of overall and abdominal obesity beginning in young adulthood and coronary artery calcification in middle age.**

Reis JP, Loria CM et al.

**OBJECTIVE:**

To examine whether the **duration of overall and abdominal obesity was associated with the presence and 10-year progression of coronary artery calcification (CAC), a subclinical predictor of coronary heart disease.**

**DESIGN, SETTING, AND PARTICIPANTS:**

Prospective study of 3275 white and black adults aged 18 to 30 years at baseline in 1985-1986 who did not initially have overall obesity (body mass index [BMI]  $\geq 30$ ) or abdominal obesity (men: waist circumference [WC]  $>102$  cm; women:  $>88$  cm) in the multicenter, community-based **Coronary Artery Risk Development in Young Adults (CARDIA) study**. Participants completed computed tomography scanning for the presence of CAC during the 15-, 20-, or 25-year follow-up examinations. Duration of overall and abdominal obesity was calculated using repeat measurements of BMI and WC, respectively, performed 2, 5, 7, 10, 15, 20, and 25 years after baseline.

**MAIN OUTCOMES AND MEASURES:**

**Presence of CAC was measured by computed tomography at the year 15 (2000-2001), year 20 (2005-2006), or year 25 (2010-2011) follow-up examinations.** Ten-year progression of CAC (2000-2001 to 2010-2011) was defined as incident CAC in 2010-2011 or an increase in CAC score of 20 Agatston units or greater.

**RESULTS:**

During follow-up, **40.4% and 41.0% developed overall and abdominal obesity**, respectively. Rates of CAC per 1000 person-years were higher for those who experienced more than 20 years vs 0 years of overall obesity (16.0 vs 11.0, respectively) and abdominal obesity (16.7 vs 11.0). Approximately 25.2% and 27.7% of those with more than 20 years of overall and abdominal obesity, respectively, experienced progression of CAC vs 20.2% and 19.5% of those with 0 years. **After adjustment for BMI or WC and potential confounders, the hazard ratios for CAC for each additional year of overall or abdominal obesity were 1.02 (95% CI, 1.01-1.03) and 1.03 (95% CI, 1.02-1.05), respectively.** The adjusted odds ratios for CAC progression were 1.04 (95% CI, 1.01-1.06) and 1.04 (95% CI, 1.01-1.07), respectively. Associations were attenuated but largely persisted following additional adjustment for potential intermediate metabolic factors during follow-up.

**CONCLUSIONS AND RELEVANCE:**

**Longer duration of overall and abdominal obesity was associated with subclinical coronary heart disease and its progression through midlife independent of the degree of adiposity. Preventing or at least delaying the onset of obesity in young adulthood may lower the risk of developing atherosclerosis through middle age.**

Circulation.2013; 128: 360-364 print June 14, 2013,doi: 10.1161/CIRCULATIONAHA.113.001875

**Outcomes of Urgent Warfarin Reversal With Frozen Plasma Versus Prothrombin Complex Concentrate in the Emergency Department**

Michael Hickey, Mathieu Gatién et al

**Abstract**

**Background— Our objective was to determine adverse event frequency after urgent reversal with frozen plasma versus the prothrombin complex concentrate Octaplex.**

**Methods and Results—**This natural before-after retrospective cohort study in 2 tertiary care emergency departments **compared anticoagulation reversal with frozen plasma (September 2006–August 2008) and with Octaplex (September 2008–August 2010), without other system changes.**



We included adult patients on warfarin with an international normalized ratio  $\geq 1.5$  who received frozen plasma or Octaplex. **Our primary outcome was serious adverse events (death, ischemic stroke, myocardial infarction, heart failure, venous thromboembolism, or peripheral arterial thromboembolism) within 7 days. Secondary outcomes included time to international normalized ratio reversal, hospital length of stay, and red blood cells transfused within 48 hours.** We included 149 patients receiving frozen plasma and 165 receiving Octaplex. **The incidence of serious adverse events for the frozen plasma group was 19.5% compared with 9.7% for the Octaplex group ( $P=0.014$ ; relative risk, 2.0; 95% confidence interval, 1.1–3.5).** This remained significant after adjustment for baseline history and reason for treatment ( $P=0.038$ ; adjusted relative risk, 1.85; 95% confidence interval, 1.03–3.3) in multivariable regression analysis. **Median international normalized ratio reversal was 11.8 hours with frozen plasma and 5.7 hours with Octaplex ( $P<0.0001$ ). Mean red cell transfusion was 3.2 with frozen plasma and 1.4 with Octaplex ( $P<0.0001$ ).** **Conclusions—Octaplex for urgent reversal of warfarin resulted in faster reversal and lower red cell transfusion requirement with fewer adverse events than frozen plasma.**

BMJ 2013;347:f4249 (Published 17 July 2013)

#### **Effectiveness of pertussis vaccines for adolescents and adults: case-control study**

Baxter R, Bartlett J et al

##### **Abstract**

**Objective** To assess the effectiveness of reduced acellular pertussis (Tdap) vaccines in adolescents and adults.

**Participants** All polymerase chain reaction (PCR) confirmed cases of pertussis in members aged 11 years and older from January 2006 to December 2011. We compared the Tdap vaccination status of PCR positive cases with two control groups: people testing negative for pertussis by PCR and closely matched people from the general Kaiser Permanente Northern California population.

**Main outcome measure** PCR confirmed pertussis. The association of Tdap vaccination with the odds of pertussis infection was estimated by conditional logistic regression, with adjustment for calendar time, pertussis vaccine type received in early childhood, age, sex, race or ethnic group, and medical clinic. We calculated Tdap vaccine effectiveness as 1 minus the adjusted odds ratio.

**Results** The study population included 668 PCR positive cases, 10 098 PCR negative controls, and 21 599 Kaiser Permanente Northern California matched controls. Tdap vaccination rates were 24.0% in PCR positive cases and 31.9% in PCR negative controls ( $P<0.001$ ). The adjusted estimate of effectiveness of Tdap vaccination against pertussis was 53.0% (95% confidence interval 41.9% to 62.0%) in the comparison with PCR controls, and 64.0% (55.5% to 70.9%) in the comparison with Kaiser Permanente Northern California controls.

**Conclusion** Tdap vaccination was moderately effective at preventing PCR confirmed pertussis among adolescents and adults.

The Lancet Respiratory Medicine, Early Online Publication, 21 August 2013 doi:10.1016/S2213-2600(13)70166-8

#### **Effect of intravenous haloperidol on the duration of delirium and coma in critically ill patients (Hope-ICU): a randomised, double-blind, placebo-controlled trial**

Page VJ, Wesley EE et al

##### **Background**

The aim of this study was to establish whether early treatment with haloperidol would decrease the time that survivors of critical illness spent in delirium or coma.

##### **Methods**

We did this double-blind, placebo-controlled randomised trial in a general adult intensive care unit (ICU). Critically ill patients ( $\geq 18$  years) needing mechanical ventilation within 72 h of admission were enrolled. **Patients were randomised (by an independent nurse, in 1:1 ratio, with permuted block size of four and six, using a centralised, secure web-based randomisation service) to receive**

**haloperidol 2.5 mg or 0.9% saline placebo intravenously every 8 h, irrespective of coma or delirium status.** The primary outcome was delirium-free and coma-free days, defined as the number of days in the first 14 days after randomisation during which the patient was alive without delirium and not in coma from any cause. Patients who died within the 14 day study period were recorded as having 0 days free of delirium and coma.

#### **Findings**

142 patients were randomised, **141 were included in the final analysis (71 haloperidol, 70 placebo).** Patients in the haloperidol group spent about the same number of days alive, without delirium, and without coma as did patients in the placebo group (median 5 days [IQR 0–10] vs 6 days [0–11] days;  $p=0.53$ ). **The most common adverse events were over sedation (11 patients in the haloperidol group vs six in the placebo group) and QTc prolongation (seven patients in the haloperidol group vs six in the placebo group).** No patient had a serious adverse event related to the study drug.

#### **Interpretation**

These results do not support the hypothesis that haloperidol modifies duration of delirium in critically ill patients. Although haloperidol can be used safely in this population of patients, pending the results of trials in progress, **the use of intravenous haloperidol should be reserved for short-term management of acute agitation.**

J Hosp Med. 2013 Jun;8(6):334-40. doi: 10.1002/jhm.1989. Epub 2012 Nov 20.

#### **Opportunity lost: End-of-life discussions in cancer patients who die in the hospital.**

Zaros MC, Curtis JR et al.

#### **BACKGROUND:**

End-of-life discussions are associated with decreased use of life-sustaining treatments in patients dying of cancer in the outpatient setting, but little is known about discussions that take place during terminal hospitalizations.

#### **OBJECTIVES:**

To determine the proportion of patients assessed by the clinical team to have decisional capacity on admission, how many of these patients participated or had a surrogate participate in a discussion about end-of-life care, and whether patient participation was associated with treatments received. Adult patients with advanced cancer who died in the hospital between January 1, 2004 and December 31, 2007.

#### **RESULTS:**

Of the 145 inpatients meeting inclusion criteria, **115 patients (79%) were documented to have decisional capacity on admission. Among these patients, 46 (40%) were documented to lose decisional capacity prior to an end-of-life discussion and had the discussion held instead by a surrogate. Patients who had surrogate participation in the end-of-life discussions were more likely to receive mechanical ventilation (56.5% vs 23.2%,  $P < 0.01$ ), artificial nutrition (45.7% vs 25.0%,  $P = 0.03$ ), chemotherapy (39.1% vs 5.4%,  $P < 0.01$ ), and intensive care unit (ICU) treatment (56.5% vs 23.2%,  $P < 0.01$ ) compared to patients who participated in discussions.** There was no difference between palliative treatments received.

#### **CONCLUSION:**

**The majority of patients with advanced cancer are considered to have decisional capacity at the time of their terminal hospitalization. Many lose decisional capacity before having an end-of-life discussion and have surrogate decision-makers participate in these discussions. These patients received more aggressive life-sustaining treatments prior to death and represent a missed opportunity to improve end-of-life care.**

#### **Resuscitation Article in press**

#### **Incidence and factors associated with cardiac arrest complicating emergency airway management**

Heffner AC, Swords DS et al

## Objective

Cardiac arrest (CA) is a rare but recognized complication of emergency airway management. Our aim was to measure the incidence of peri-intubation CA during emergency intubation and identify factors associated with this complication.

## Methods

Retrospective cohort study of emergency endotracheal intubations performed in a large, urban emergency department over a one-year period. Patients were included if they were >18 years old and not in CA prior to intubation. Multiple logistic regression modelling was used to define factors independently associated with CA.

## Results

A total 542 patients underwent emergency intubation during the study period and 410 met inclusion criteria for this study. CA occurred in 17/410 (4.2%) at a median of 6 min post-intubation. Nearly **two-thirds of CA events occurred within 10 min of drug induction**; early peri-intubation CA rate 2.4% (95% CI: 1.3–4.5%). **Pulseless electrical activity was the initial rhythm in the majority of cases**. More than half of CA events were successfully resuscitated but CA was associated with increased odds of hospital death (OR 14.8; 95% CI: 4.2–52). **Pre-intubation hemodynamic and oximetry variables were associated with CA. CA was more common in patients experiencing pre intubation hypotension (12% vs 3%;  $p < 0.002$ )**. Pre RSI shock index (SI) and weight were independently associated with CA.

## Conclusions

In this series, **1 in 25 emergency intubations was associated with the complication of CA. Peri-intubation CA is associated with increased mortality. Pre-intubation patient characteristics are associated with this complication.**

PEDIATRICS Vol. 132 No. 2 August 1, 2013 pp. 237 -244 (doi: 10.1542/peds.2013-0179)**Variation in Emergency Department Diagnostic Testing and Disposition Outcomes in Pneumonia**

Florin TA, French B et al

**METHODS:** We conducted a retrospective cohort study of children aged 2 months to 18 years with ED visits resulting in CAP diagnoses from 2007 to 2010 who were seen at 36 hospitals contributing data to the Pediatric Health Information System. Children with complex chronic conditions, recent hospitalization, trauma, aspiration, or perinatal infection were excluded. Primary outcomes included diagnostic testing, hospitalization, and 3-day ED revisit rates across hospitals. We examined variation in diagnostic testing among hospitals by using multivariable mixed-effects logistic regression.

**RESULTS:** **A total of 100 615 ED visits were analyzed. Complete blood count (median: 28.7%), blood culture (27.9%), and chest radiograph (75.7%) were the most commonly ordered ED diagnostic tests.** After adjustment for patient characteristics, significant variation ( $P < .001$ ) was found for each test examined across hospitals. **High test-utilizing hospitals had increased odds of hospitalization compared with low-utilizing hospitals (odds ratio: 1.86 [95% confidence interval: 1.17–2.94];  $P = .008$ ). However, differences in the odds of ED revisit between the low- and high-utilizing hospitals were not significant (odds ratio: 1.21 [95% confidence interval: 0.97–1.51];  $P = .09$ ).**

**CONCLUSIONS:** Emergency departments that use more testing in diagnosing CAP have higher hospitalization rates than lower-utilizing EDs. However, ED revisit rates were not significantly different between high- and low-utilizing EDs. These results suggest an **opportunity to reduce diagnostic testing for CAP without negatively affecting outcomes.**

Annals of Emergency Medicine article in press

**Diagnosing Delirium in Older Emergency Department Patients: Validity and Reliability of the Delirium Triage Screen and the Brief Confusion Assessment Method**

Han JH, Wilson A et al

Methods

This prospective observational study was conducted at an academic ED in patients aged 65 years or older. A research assistant and physician **performed the Delirium Triage Screen (DTS), designed to be a highly sensitive rule-out test, and the Brief Confusion Assessment Method (bCAM), designed to be a highly specific rule-in test for delirium.** All assessments were independently conducted within 3 hours of one another.

#### Results

Of 406 enrolled patients, **50 (12.3%) had delirium diagnosed by the psychiatrist reference standard. The DTS was 98.0% sensitive (95% CI 89.5% to 99.5%), with an expected specificity of approximately 55% for both raters. The DTS's negative likelihood ratio was 0.04 (95% CI 0.01 to 0.25) for both raters. As the complement, the bCAM had a specificity of 95.8% (95% CI 93.2% to 97.4%) and 96.9% (95% CI 94.6% to 98.3%) and a sensitivity of 84.0% (95% CI 71.5% to 91.7%) and 78.0% (95% CI 64.8% to 87.2%) when performed by the physician and research assistant, respectively.** The positive likelihood ratios for the bCAM were 19.9 (95% CI 12.0 to 33.2) and 25.2 (95% CI 13.9 to 46.0), respectively. If the research assistant DTS was followed by the physician bCAM, the sensitivity of this combination was 84.0% (95% CI 71.5% to 91.7%) and specificity was 95.8% (95% CI 93.2% to 97.4%). **If the research assistant performed both the DTS and bCAM, this combination was 78.0% sensitive (95% CI 64.8% to 87.2%) and 97.2% specific (95% CI 94.9% to 98.5%). If the physician performed both the DTS and bCAM, this combination was 82.0% sensitive (95% CI 69.2% to 90.2%) and 95.8% specific (95% CI 93.2% to 97.4%).**

#### Conclusion

In older ED patients, **this 2-step approach (highly sensitive DTS followed by highly specific bCAM) may enable health care professionals, regardless of clinical background, to efficiently screen for delirium.** Larger, multicenter trials are needed to confirm these findings and to determine the effect of these assessments on delirium recognition in the ED.

J Hosp Med. 2013 Jun;8(6):341-5. doi: 10.1002/jhm.2036. Epub 2013 Apr 3.

#### **The impact of penicillin skin testing on clinical practice and antimicrobial stewardship.**

Rimawi RH, Cook PP et al

#### **Abstract**

##### **METHODS:**

We introduced a quality improvement process at our 861-bed tertiary care hospital that used PST to guide antibiotic usage in patients with a history consistent with an immunoglobulin E (IgE)-mediated reaction to penicillin. Subjects with a negative PST were then transitioned to a  $\beta$ -lactam agent for the remainder of their therapy. NPV of skin testing was established at 24-hour follow-up. We are reporting the **result of 146 patients tested between March 2012 and July 2012.**

##### **RESULTS:**

**A total of 146 patients with a history of penicillin allergy and negative PST were treated with  $\beta$ -lactam antibiotics. Of these, only 1 subject experienced an allergic reaction to the PST. The remaining 145 patients tolerated a full course of  $\beta$ -lactam therapy without an allergic response, giving the PST a 100% NPV. We estimated that PST-guided antibiotic alteration for these patients resulted in an estimated annual savings of \$82,000.**

##### **CONCLUSION:**

**Patients with a history of penicillin allergy who have a negative PST result are at a low risk of developing an immediate-type hypersensitivity reaction to  $\beta$ -lactam antibiotics. The increased use of PST may help improve antibiotic stewardship in the hospital setting.**

STROKE Published online before print August 22, 2013,doi: 10.1161/STROKEAHA.111.000819

#### **Ultra-Early Intravenous Stroke Thrombolysis. Do All Patients Benefit Similarly?**

Strbian D, Ringleb P et al

**Background and Purpose—**We previously reported increased benefit and reduced mortality after ultra-early stroke thrombolysis in a single center. We now explored in a large multicenter cohort

whether extra benefit of treatment within 90 minutes from symptom onset is uniform across predefined stroke severity subgroups, as compared with later thrombolysis.

**Methods—**Prospectively collected data of consecutive ischemic stroke patients who received IV thrombolysis in 10 European stroke centers were merged. Logistic regression tested association between treatment delays, as well as excellent 3-month outcome (modified Rankin scale, 0–1), and mortality. The association was tested separately in tertiles of baseline National Institutes of Health Stroke Scale.

**Results—**In the whole cohort (n=6856), shorter onset-to-treatment time as a continuous variable was significantly associated with excellent outcome ( $P<0.001$ ). Every fifth patient had onset-to-treatment time  $\leq 90$  minutes, and these patients had lower frequency of intracranial hemorrhage. After adjusting for age, sex, admission glucose level, and year of treatment, onset-to-treatment time  $\leq 90$  minutes was associated with excellent outcome in patients with National Institutes of Health Stroke Scale 7 to 12 (odds ratio, 1.37; 95% confidence interval, 1.11–1.70;  $P=0.004$ ), but not in patients with baseline National Institutes of Health Stroke Scale  $>12$  (odds ratio, 1.00; 95% confidence interval, 0.76–1.32;  $P=0.99$ ) and baseline National Institutes of Health Stroke Scale 0 to 6 (odds ratio, 1.04; 95% confidence interval, 0.78–1.39;  $P=0.80$ ). In the latter, however, an independent association (odds ratio, 1.51; 95% confidence interval, 1.14–2.01;  $P<0.01$ ) was found when considering modified Rankin scale 0 as outcome (to overcome the possible ceiling effect from spontaneous better prognosis of patients with mild symptoms). Ultra-early treatment was not associated with mortality.

**Conclusions—**IV thrombolysis within 90 minutes is, compared with later thrombolysis, strongly and independently associated with excellent outcome in patients with moderate and mild stroke severity.

BMJ Open. 2013 Jul 18;3(7). pii: e002929. doi: 10.1136/bmjopen-2013-002929. Print 2013.

#### **The epidemiology of malpractice claims in primary care: a systematic review.**

Wallace E, Lowry J et al.

##### **PRIMARY OUTCOME:**

Malpractice claim (defined as a written demand for compensation for medical injury). We recorded: medical misadventure cited in claims, missed/delayed diagnoses cited in claims, outcome of claims, prevalence of claims and compensation awarded to claimants.

##### **RESULTS:**

Of the 7152 articles retrieved by electronic search, a total of 34 studies met the inclusion criteria and were included in the narrative analysis. Twenty-eight studies presented data from medical indemnity malpractice claims databases and six studies presented survey data. **Fifteen studies were based in the USA, nine in the UK, seven in Australia, one in Canada and two in France.** The commonest medical misadventure resulting in claims was failure to or delay in diagnosis, which represented 26-63% of all claims across included studies. Common missed or delayed diagnoses included cancer and myocardial infarction in adults and meningitis in children. Medication error represented the second commonest domain representing 5.6-20% of all claims across included studies. The prevalence of malpractice claims in primary care varied across countries. **In the USA and Australia when compared with other clinical disciplines, general practice ranked in the top five specialties accounting for the most claims, representing 7.6-20% of all claims. However, the majority of claims were successfully defended.**

##### **CONCLUSIONS:**

This review of malpractice claims in primary care highlights **diagnosis and medication error** as areas to be prioritised in developing educational strategies and risk management systems.

## **Special mention articles this month**



J Stud Alcohol Drugs. 2013 Jul;74(4):509-13.

**Breath alcohol concentrations of designated drivers.**

Barry AE, Chaney BH, Stellefson ML.

**Abstract**

**OBJECTIVE:**

This study established breath alcohol concentrations (BrACs) and alcohol-related behaviors of designated drivers (DDs) to determine (a) whether DDs are abstaining from drinking, (b) whether alcohol-related behaviors of non-DDs and DDs were different, and (c) whether the alcohol consumption of DDs resulted in BrAC levels that affected driving performance or caused psychomotor impairment.

**METHOD:**

We conducted **six anonymous field studies during a 3-month period in a south-eastern college community restaurant and bar district.** Intercept interviews were conducted with 1,071 bar patrons. Alcohol-related behaviors, BrAC, and whether one was serving as a DD were measured. The sample was primarily White (72.7%), male (62.4%) college students (64.7%). Descriptive statistics and an independent sample t test compared the BrACs of DDs versus non-DDs. A one-way analysis of variance examined the differences in the alcohol-related behaviors (**Alcohol Use Disorders Identification Test-consumption [AUDIT-C] score**) across DDs abstaining from drinking (BrAC = .00 g/210 L), drinking DDs (BrACs  $\geq$  .02 and  $<$  .05 g/210 L), and impaired DDs (BrACs  $\geq$  .05 g/210 L). A logistic regression assessed the impact of alcohol-related behaviors (AUDIT-C) on whether one was serving as a DD.

**RESULTS:**

**Of the 165 DDs, approximately 40% did not abstain from drinking. Approximately 17% of DDs had BrACs between .02 g/210 L and .049 g/210 L, whereas 18% recorded BrACs at .05 g/210 L or greater.** The mean AUDIT-C score for impaired DDs significantly differed from both abstaining DDs and drinking DDs. **Participants with greater AUDIT-C scores were more likely to serve as a DD and have a BrAC that significantly inhibited driving ability and psychomotor function.**

**CONCLUSIONS:**

These findings identify the need for consensus across researcher, layperson, and communication campaigns that a DD must be someone who has abstained from drinking entirely.

## **CONCLUSIO**

Journal club Summary for August by Dr Chamila De Alwis

Journal club was held in the tute room on the 13/8/13 and presented by Dr Khan Nguyen.

JAMA. 2004 Mar 17;291(11):1350-7.

### **Prehospital hypertonic saline resuscitation of patients with hypotension and severe traumatic brain injury: a randomized controlled trial.**

Cooper DJ, Myles PS et al HTS Study Investigators.

This month's topic was prehospital hypertonic saline resuscitation of patients with hypotension and severe traumatic brain injury. It was first published in JAMA March 2004 and the research was carried out by J. Cooper, PS Myles, F McDormett etc. from Melbourne.

The main objective was to determine if the use of hypertonic saline improves the neurological outcomes of the traumatic brain injury patients with hypotension compared to resuscitation with conventional fluids.

It was a double blind randomized control study carried out between 1998 and 2002 in the prehospital setting. The patients were randomly allocated to either receiving 250ml of 7.5% saline or Ringer's lactate 250ml in addition to the conventional fluids and resuscitation protocols of the paramedics.

The study showed that there was no significant neurological difference as measured by Extended Glasgow Outcome Score at 6months between the 2 study groups.

Even though the ICP was lower in the hypertonic saline group, it didn't reach statistical significance which they thought was due to selection bias as the people who died wouldn't have got their pressures measured. Even though one would have thought the hypertonic saline group would need less fluid in total, both groups surprisingly ended up getting equivalent amounts of total fluids.

Methodology and design could not be faulted, and the results were somewhat controversial as it is going against the current paramedic protocol of using hypertonic saline for head injuries. However, this study was not only concentrating on the head injuries they were multi trauma patients that could have had other life threatening injuries as well and were hypotensive.

The conclusion was that further studies delineating hypertonic saline efficacy in head injuries vs other trauma is needed. However, in day to day practise isolated head injuries are only a minority, and most of our patients are multi trauma patients, hence this study is clinically relevant to our day to day practise.

### **Westmead ED publications this month**

None noted or made aware of to Précis.