Hamilton Health Sciences
CENTRE FOR PARAMEDIC EDUCATION AND RESEARCH

Centre for Paramedic Education and Research

Patch Point

newsletter

SUMMER 2016 | ISSUE 5

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SUMMER ISSUE

Link with Lin

A survey of 3537 randomly selected Paramedics in the United States asked the following question:

The county jail calls 911 for a 36-year-old male inmate complaining of dizziness and abdominal pain. On arrival the patient is complaining of sudden onset of severe abdominal pain and cramping for 10 minutes prior to your arrival, accompanied by diarrhea, nausea, vomiting, and dizziness. A nurse in the jail states the patient has had several fainting episodes whenever he tries to stand, but wakes up immediately after being supine. The patient is diaphoretic, suddenly incontinent of stool, with a blood pressure of 86/50 mmHg, heart rate of 110, respiratory rate of 28, and oxygen saturation of 88%, pupils are big and reactive bilaterally, mucous membranes are dry, lung sounds are clear bilaterally. His skin is pale, and diaphoretic. His abdomen is soft and non-distended. He also appears to be confused at times. He reports no other past medical history, allergies to medications or similar episodes in the past. What do you think is wrong with the above patient?

List up to 3 of your most likely diagnoses, please be specific.
Check the next page.

(From: Prehospital Emergency Care 2012: 16(4): 527-535)

If you listed anaphylaxis in your top three, then you would join the 2.9% of survey paramedics who listed anaphylaxis as a possible diagnosis. In this summer edition of Link with Lin, we'll look at some common pitfalls in the management of Anaphylaxis

Pitfall one: Not considering anaphylaxis.
Many of the dramatic signs of anaphylaxis are not specific and easily can imitate other disease. Dyspnea, stridor, wheezing, confusion, syncope, change in consciousness, hypotension, dysrhythmia, abdominal pain, vomiting, uterine cramping or cardiac arrest - can be main presenting features of anaphylaxis. When presented with a patient with one of the above, it's common to forget anaphylaxis on the differential diagnosis. Skin symptoms, which are normally tremendously helpful in clinching the diagnosis, are absent in 20% of patients with anaphylaxis. In others cases, skin symptoms may be attenuated by a recent dose of an H1 antihistamine, or are missed under clothing or covers. In the box below, the diagnostic criteria for anaphylaxis are presented.

Anaphylaxis is highly likely when any ONE of the following three criteria is fulfilled:

1. Acute onset of an illness (minutes to several hours) with involvement of the skin, mucosal tissue, or both (eg, generalized hives, pruritus or flushing, swollen lips-tongue-uvula)
AND AT LEAST ONE OF THE FOLLOWING:
A. Respiratory compromise (eg, dyspnea, wheeze-bronchospasm, stridor, hypoxemia)
B. Reduced BP (<90mmHg in adults) or associated symptoms of end-organ dysfunction (eg, hypotonia, collapse, syncope, incontinence)

2. TWO OR MORE OF THE FOLLOWING that occur rapidly after exposure to a LIKELY allergen for that patient (minutes to several hours):
A. Involvement of the skin-mucosal tissue (eg, generalized hives, itch-flush, swollen lips-tongue-uvula)
B. Respiratory compromise (eg, dyspnea, wheeze-bronchospasm, stridor, hypoxemia)
C. Reduced BP* or associated symptoms (eg, hypotonia, collapse, syncope, incontinence)
D. Persistent gastrointestinal symptoms (eg, crampy abdominal pain, vomiting)

3. Reduced BP after exposure to a KNOWN allergen for that patient (minutes to several hours):
A. Infants and children - Age specific low systolic BP or greater than 30% decrease in systolic BP
B. Adults - Systolic BP of less than 90 mmHg or greater than 30% decrease from that person's baseline

J Allergy Clin Immunol 2006; 117:391.

It's important to note that in the 2007 BLS Standards, a paramedic is expected to "assume anaphylaxis" given a list of similar symptoms. The official criteria is meant to help you recognize all cases of anaphylaxis, but if you clinically suspect anaphylaxis just go ahead and treat as per the Moderate to Severe Medical Allergic Reaction Medical Directive

Pitfall two: Not giving epinephrine early enough.
Anaphylaxis is a broad syndrome that does not require hypotension to give epinephrine. The syndrome can progress rapidly, and epinephrine should be given immediately without delay in any case of anaphylaxis. It is difficult to predict how rapid anaphylaxis will progress; the median time to cardiac arrest in anaphylaxis fatalities is 5 minutes from time of exposure. Diphenhydramine does not relieve respiratory distress or hypotension. Salbutamol does not relieve upper airway edema or hypotension. The epinephrine needs to go in first.

Pitfall three: Not giving enough epinephrine
Epinephrine should be given at 0.01 mg/kg rounded to the nearest 0.05mg to a max of 0.5mg. In most adults, this means giving 0.5 mg IM of epinephrine as per the directive rather than 0.3 mg found in an epi pen as this may not be sufficient. Intramuscular injection in the anterolateral thigh, the vastus lateralis muscle, achieves the highest tissue concentration (seven-fold higher serum concentration than giving epinephrine in the deltoid). A needle long enough to reach the muscle is necessary because subcutaneous epinephrine peaks at 34 minutes compared to 8 minutes with the IM route.

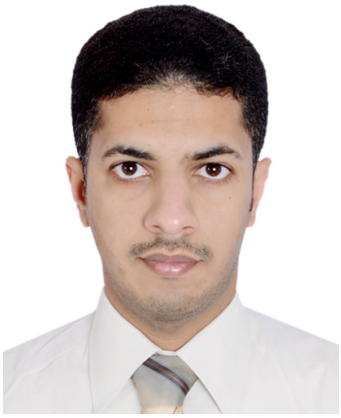
Pitfall four: Concern regarding myocardial side effects of epinephrine
There are no absolute contraindications to epinephrine. Anaphylaxis itself can cause coronary vasospasm, arrhythmias, and myocardial infarction. Epinephrine at the correct dose in a patient with anaphylaxis generally is not responsible for the MI. On a point of medical trivia, Kounis Syndrome is the term for acute coronary syndrome associated with anaphylaxis.

Pitfall five: Not recognizing refractory Anaphylaxis
Despite a dose of epinephrine, a fluid bolus, and supine positioning with legs raised to improve preload, some anaphylaxis patients can still continue to deteriorate. A second dose of epinephrine is warranted in these cases. At the hospital, intravenous epinephrine (or intravenous glucagon if the patient is on beta-blockers) would be the next step.

Conclusion
Epinephrine given too little or too late is the most common cause of death in anaphylaxis. Therefore, paramedics have a critical role in the immediate recognition and acute management of this disease. Thanks for reading, and until next time, base hospital out.

Welcome to Our New Staff

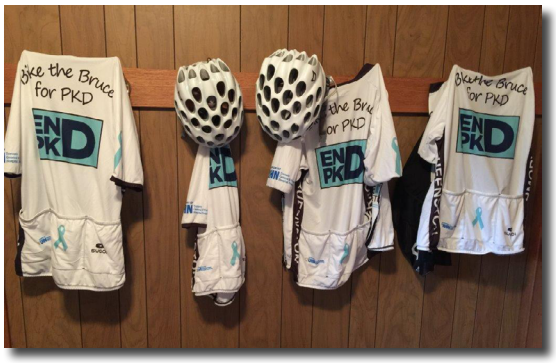
Prehospital Fellow



Dr. Abdulmunim Al Farsi (Abdul) is the newest Prehospital Fellow from McMaster to be working with CPER. You may get a chance to meet him in one of the emergency departments in Hamilton or when he is out on the road learning more about Paramedics care across the region. Abdul is a board-certified Emergency Physician from Oman whose main interests are EMS, Disaster Medicine, medical education and simulation. He is also a husband and father to two young children.

We are pleased to have Abdul with us and hope you will help us welcome him to CPER.

Bike the Bruce for PKD



Dr Munkley and a team of friends, biker buddies and family took up the challenge to raise money for PKD (Polycystic Kidney Disease) research and awareness. "Bike the Bruce for PKD" was a road bike challenge to ride the length of the Niagara escarpment / Bruce trail from Tobermory at the tip of the Bruce, to the Niagara river at Queenston, 480 km .... in 2 Days!!! They raised $12,000+ in this first annual event and yes Dr. Doug did all 480 km. Not bad for the old guy. We had a blast, lots of hugs, high 5's and an amazing ride on many levels.

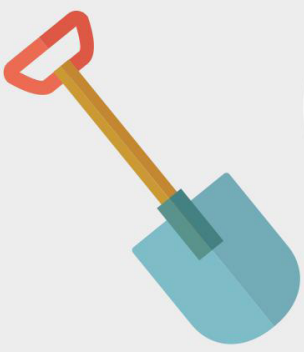
PKD is an inherited kidney disease that affects 70,000 Canadians and can lead to dialysis and transplant. Research funds raised go directly to Toronto Hospital PKD investigators who are on the forefront of research into new breakthrough medications and procedures to control this disease. With 70,000 Canadians having PKD. You probably know someone, or a family affected by it. Be aware and help "End PKD".

Free Open Access Medical Education (FOAM)

Dr. Teresa Chan presented on the topic of Free Open Access Medical Education (FOAM) at the June 2016 CPER DOC CME. FOAM utilizes social media as a means of distributing free continuing medical education to medical professionals. The infographic created by Dr. Chan on the following page explains the 4 "waves" of FOAM, from Founders to Participants.

Free Open Access Medical Education (FOAM)

FOAM



1st wave — Founders

This wave comprises of the group of people who decided to adopt new disruptive technologies in an attempt to reach and teach other clinicians. These innovators were the people who created FOAM before the term FOAM was even coined! This foundational group includes people like Mike Cadogan, Nick Genes, Michelle Lin, Simon Carley, Chris Nickson, and Scott Weingart who had the foresight to begin creating websites and podcasts to host freely accessible online educational resources (OERs), thereby providing a disruptive and innovative alternative to pay-for continuing medical education (CME).

2nd wave — Enthusiasts

The second wave of FOAM comprises many early adopters who saw the great work of the founders and sought to add their contributions. Enthusiasts include individuals like Salim Rezaie, Lauren Westafer, Jeremy Faust... and many more! They fully ascribe to the central values and tenets of FOAM set forth by the founding wave. Much like any community of practice, these "enthusiasts" often began as peripheral members (i.e. social media novices). Via peripheral participation (e.g.. starting a new FOAM site) and engagement with the central FOAM community, they learned and developed their craft. Most were heavily influenced and mentored by the first wave of founders.

3rd wave — Structuralists

The third wave of FOAM consists of those who both see the value of FOAM and the merits of incorporating formal structures that align FOAM to traditional measures. This wave includes FOAM educator-scholars who have begun conducting research about FOAM and disseminating their findings in peer-reviewed publications. These "structuralists" are interested in fueling the critique and critical appraisal as well as evaluating quality impact.

This wave has an interesting mixed citizenship. It includes FOAM new-comers, who provide a lateral-thinking, academic, perspective (e.g. Jonathan Sherbino, myself), as well as some first- and second-wavers. Many from this third wave may actually be FOAMites who started to do FOAM with a pioneering spirit, and later began creating structures that foster and reward those for their service within the world of FOAM (e.g. Michelle Lin, Brent Thoma). The converts from these waves have dealt with the behind-the-scenes issues of disenchantment of burnt-out volunteers and the critique of their resources. They have begun legitimizing FOAM by creating documents that define the scholarly merits of open educational resources (OER), such as the following from the 2014 International Conference on Residency Education's Social Media Summit.

This focus on structure and sustainability is the key facet that denotes a third-waver. It is characterized by discussions around sustainability and funding. For examples, check out this blog post series on the International Clinician Educator (ICE) blog written by Anthony Llewellyn and I, the Teaching Course's commitment to fuelling FOAM.

Papers from the International Conference on Residency Education Social Media Summit:

1. Hillman T, Sherbino J. Social media in medical education: a new pedagogical paradigm? Postgrad Med J. 2015 Oct;91(1080):544-5. PMID: 26338982. [Open access PDF]

2. Lin M, Thoma B, Trueger NS, Ankel F, Sherbino J, Chan T. Quality indicators for blogs and podcasts used in medical education: modified Delphi consensus recommendations by an international cohort of health professions educators. Postgrad Med J. 2015 Oct;91(1080):546-50. PMID: 26275428. [Open access PDF]

3. Sherbino J, Arora VM, Van Melle E, Rogers R, Frank JR, Holmboe ES. Criteria for social media-based scholarship in health professions education. Postgrad Med J. 2015 Oct;91(1080):551-5. PMID: 26275426. [Open access PDF]

4. Flynn L, Jalali A, Moreau KA. Learning theory and its application to the use of social media in medical education. Postgrad Med J. 2015 Oct;91(1080):556-60. PMID: 26275427. [Open access PDF]

5. Pereira I, Cunningham AM, Moreau K, Sherbino J, Jalali A. Thou shalt not tweet unprofessionally: an appreciative inquiry into the professional use of social media. Postgrad Med J. 2015 Oct;91(1080):561-4. PMID: 26294333. [Open access PDF]

4th wave — Participants

The work done by the structuralists is paving the way for a more participatory wave of FOAM. As opposed to the enthusiasts who got involved with FOAM earlier on and could be more directly mentored by the founders, this "participant" wave builds upon the structuralist's effort to provide guidance and structure learned through experience and scientific inquiry. The technological barriers that existed for first and second wave FOAMites have been lessened by those in the third wave who created open access how-to guides. The legitimizing actions of some of the third wavers may also have created a window for 'legitimized' participation by creating perceived value in the participants' local contexts.

Additionally, fourth wavers may find that the structural changes created by certain FOAM outlets have allowed them to more easily become a participant. Creations such as open and transparent submissions processes (e.g. ALiEM and CanadiEM), peer review processes (by experts or by coaches), FOAM-related fellowships (e.g. ALiEM's social media fellowships), online communities (like the ALiEM Chief Resident, Fellowship, and Faculty Incubators) are forms of sustaining innovations. In an effort to make the FOAM movement acceptable and adoptable in this largest group of FOAMites, discussions of critical appraisal have emerged from social media outlets which urge the community to consider quality more seriously.

Developed by Teresa Chan. Peer reviewed by Michelle Lin and Brent Thoma.

Annual Quality of Care Awards

The CPER Quality of Care Award is given to a selection of Paramedics from each of our Region's 9 Services. These Paramedics have been identified and nominated from either their peers or CPER's internal program staff including the Quality, Education, Management and Medical Council Teams. Nominees were identified for a variety of reasons such as outstanding patient care and documentation, continued medical education and presence in the classroom, community involvement of a clinical nature, or outwardly promoting the Paramedic profession.

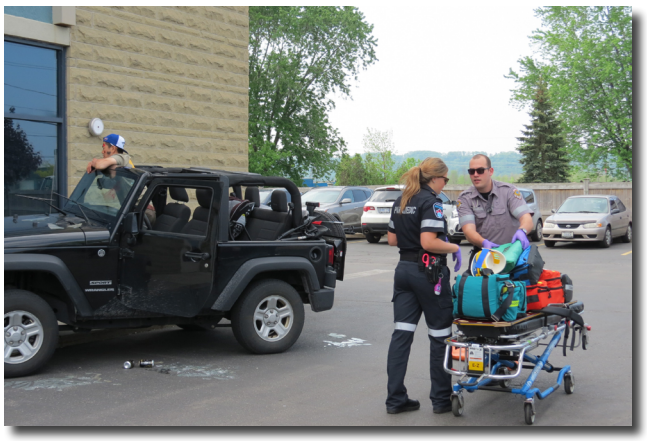
Each recipient received a Certificate of Recognition and a Quality of Care pin acknowledging their dedication. An award lunch was held on June 9th, 2015.

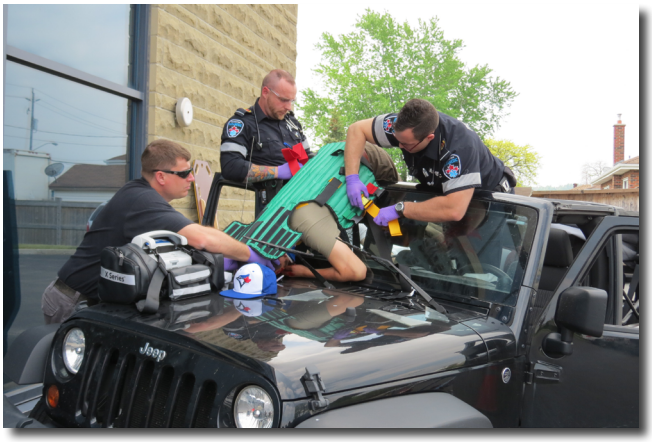
Adele Zantinge - Guelph-Wellington EMS
Chris Dill - Hamilton Pramedic Service
Chris Takacs - Norfolk County EMS
Dan Favero - Niagara EMS
Debra Eccles - Dufferin County Paramedic Service
Drew Crandall - Six Nations Paramedic Service
Jeff Bilyk - Region of Waterloo Paramedic Service
Joe Cruikshank - Dufferin County Paramedic Service
John Ellis - Haldimand County EMS
Kevin Bullen - Hamilton Paramedic Service
Lindsay Veilleux - Region of Waterloo Paramedic Service
Ray Rodgers - Haldimand County EMS
Robyn Banner - Six Nations Paramedic Service
Shayna Wright - County of Brant Ambulance Service
Simeon Ouellette - Dufferin County Paramedic Service
Stacy Dizig - Hamilton Paramedic Service
Steve Kawamura - Hamilton Paramedic Service
Stuart Burnett - Norfolk County EMS
Susan Snider - Niagara EMS
Vito Tuori - County of Brant Ambulance Service

The 2016 Simulation Competition

The 2nd Annual CPER Simulation Competition took place on Friday May 27, 2016 in Stoney Creek at the CPER Simulation Centre. On a humid, sunny day, participants took part in multiple simulation events that included an "in the streets" motor vehicle collision. The competition was outstanding and all teams demonstrated a high level of medical knowledge and prehospital skills. Teams worked well together and ultimately competition judges awarded the trophy to the mixed service team of Drew Crandall of Six Nations Paramedic Service and Vanessa Meulendyks of Hamilton Paramedic Service. Congratulations to all teams participating, including Andrew Newlands and Dave Parsons of Hamilton Paramedic Service, Stephane Bisson and Marc Poirier of Hamilton Paramedic Service, and Jordan Alaimo and Tracey Groszibl of Niagara EMS. This was also an educational event that used judges, actors and assistants from all levels of pre-hospital care and administration.

At multiple points, almost the entire CPER office was involved! We look forward to more simulation events and continued annual Simulation Competitions. This event is a great precursor for this year's upcoming Ontario Base Hospital Group Annual General Meeting.





Raffle Winners

During Paramedic Services Week CPER ran a fun initiative in our appreciation of Paramedics. A raffle with great prizes was drawn. We had 250 Paramedics place their names into the draw! Thank-you to our Paramedics for the great care you provide to the patients we serve!

Andrew Newlands – Hamilton Paramedic Service
Bernie Garcia – Norfolk County EMS
Drew Crandall – Six Nations Paramedic Service, Hamilton Paramedic Service
Deralyn MacKenzie – Niagara EMS
Francesca Arkley – Hamilton Paramedic Service
Grant Miller – Guleph – Wellington EMS
Jeffrey Bilyk – Region of Waterloo Paramedic Service
Kim Kilpatrick – Guelph-Wellington EMS
Leila Paugh – Niagara EMS
Mary Ann Eggleston – Region of Waterloo Paramedic Service
Mary Homoroden – Niagara EMS
Mike Kupfer – Dufferin County Paramedic Service
Randy Godelie – Norfolk County EMS
Ryan Richardson – Hamilton Paramedic Service
Steve Fryers – Niagara EMS

On The Horizon

STEMI Hospital Bypass Protocol

You may have heard that provincially there will now be a STEMI Hospital Bypass Protocol. This protocol has been released by the Emergency Health Services Branch and will be in place on February 1st 2017. The Cardiac Care Network is promoting consistent and evidenced based care throughout the province, by releasing these hospital and Paramedic protocols. Stay tuned for an eMedic module that will provide education around this important protocol.

Annual Practice Review 2016 - 2017

'Bringing out the Dead' a highly interactive day of education and simulation. We will be focusing on honing our resuscitative skills and integrating the evidence-based 2015 AHA Guidelines into our practice. BCLS and special circumstances will be the primary focus.

Let's raise the bar... Let's raise the dead!

@CPER_HHS

Have a question for Medical Council?

AskMED

Visit our website to submit a question or email AskMED@cper.ca

Watch live! on Periscope

We want this newsletter to bring you information you would like to see. We are asking you to please let us know what things would be appreciated for future topics. Drop us an email, tweet, or message on Facebook.

YOUR input is vital to the value of our seasonal newsletter!

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If you have any questions, comments or have a suggestion for a Patch Point article submission, please contact:

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