



Centre for Paramedic Education and Research



# Patch Point

newsletter

SPRING 2016 | ISSUE 4

INSIDE

THIS ISSUE

## SPRING ISSUE

### The History of the Ontario Ambulance Program Part 2

*(find Part 1 in the Fall 2015 edition on [www.cper.ca](http://www.cper.ca))*

In the early eighties, we saw the most significant occurrence in emergency care over the previous two decades; the recognition of the emergency physician as a medical specialist. The advent of this new specialist designation brought about a heightened awareness of emergency patient care. In 1981, the Canadian Medical Association (C.M.A.) published its competency requirements for paramedic educational programs seeking accreditation at EMA levels I, II, and III.

The Ministry of Health (M.O.H.) was sensitive to the growing interest in emergency patient care and the Emergency Health Services (E.H.S.) group was subsequently formed in 1981.... with an Emergency Physician from Hamilton, Dr. Dennis Psutka as its Executive Director.

This dynamic new group immediately began to review the overall Ontario Ambulance Program. E.H.S. committees of local District Health Councils (D.H.C.) were formed to provide a forum for discussion of issues related to E.H.S. activity at a Regional level.

Of the many and varied issues facing the new E.H.S. group was the challenge to pilot an A.L.S. Paramedic land based program.

Shortly after its introduction, a small group of senior staff at E.H.S. and interested parties in medicine and nursing conducted a tour of several paramedic programs in the U.S. This visit consolidated opinion on the role of the paramedic and the framework under which they should work.

Extensive visits to local communities across Ontario were undertaken by Dr.Psutka and senior E.H.S. staff with the principle message being that community development and preparedness for a local paramedic program must follow the 15 Points as per the American E.M.S.S. Act. This included a local 911 system, trained ED staff in ACLS, ATLS, medical oversight, citizen CPR training, common charting in ED's, CME for paramedics etc.

Concurrent with this local activity, the Ministry of Health E.H.S. group was taking advice from its Curriculum Committee which had developed curriculum objectives for paramedic training. This curriculum was based heavily on the C.M.A. guidelines.

A "pilot" land based Advanced Paramedic program was announced by the Health Minister of the day in 1983. Training was done by the Toronto Institute of Medical Technology and got underway on January 9, 1984 with the principle mandate being:

1. To test the form and content of Level II and Level III paramedic training programs.

The History of the Ontario Ambulance Program:  
Part 2.....Pg. 1

Welcome to Our New Staff.....Pg. 3  
Dr. Daren Lin  
Alan Batt

Pediatric Tape Infographic.....Pg.4

Quality of Care.....Pg. 5

Link with Lin.....Pg. 5

Niagara Health Quality Symposium.....Pg. 6

2. To establish policy, legal and operational requirements in support of effective paramedic service delivery.

3. To provide information on which to base future planning, including forecasts for future manpower and costs.

The program graduated 40 Advanced Care Paramedics to treat patients for ambulance services in Toronto and Hamilton.

Throughout the development of the program, the long term goal, as stated by the M.O.H. in 1981, was, "to have EMCA IIs on the staff of most of the province's ambulance services with EMCA IIIs in major population centres and on our air ambulances".

It was further stated that: "Once the project is completed, the full paramedic training program will be made available to attendants in other communities which have the necessary services".

In the discussion paper on Base Hospitals, developed by the M.O.H., and circulated by the Minister's office, it was further stated that:

" A Base Hospital could be located in a city which has a population of 100,000 and above and an annual emergency call volume of 5,000 or over. Such a community is capable of maintaining a highly sophisticated A.L.S. Program for cardiac and other critical emergencies..."

"In other areas of the province and lower population densities, should be capable of a less sophisticated A.L.S. Program directed toward non-cardiac emergencies..."

With these stated objectives, although somewhat dated 30 years later ....emergency physicians and other interested parties could see a solid direction for the future of Prehospital A.L.S. in Ontario and the expectations for advanced prehospital care by the profession were running high.

In 1986, and upon review of the ACP pilot in Toronto and Hamilton, the Ministry published a report recommending the following:

- Paramedic services should be introduced in other communities in Ontario.
- The range of medical procedures performed by paramedics should be designed to meet local needs and local medical support: different types of communities should have different combinations of paramedic skills.
- The Ministry develop core training standards, standardized curriculum modules and a core faculty in order to foster uniformity of training.
- It concluded that the province would be best served by developing a variety of paramedic programs tailored to these characteristics.
- Paramedic services be phased into Ontario communities at a controlled pace spanning the next five years.

These recommendations conceived and published by the Ministry were supported and endorsed by both the Provincial Emergency Health Services Advisory Committee (P.E.H.S.A.C.) and by the College of Physicians and Surgeons.

Over the next six years 1986 -1992, the existing official ACP programs in Toronto and Hamilton continued and a network of Base Hospitals were funded and covered the majority of

the province with most communities having semi-automatic defibrillation programs.

In the late eighties medical journals began to publish various articles questioning the scope of practice of some paramedic programs and the efficacy of some of the procedures performed in the prehospital setting.

In light of these publications, the Ministry indicated that there would be no expansion of service (procedures) beyond defibrillation unless those enhancements were within the context of a controlled clinical trial. The M.O.H., through its E.H.S. Research Advisory Committee, invited Base Hospitals to submit research proposals for consideration by this committee. Some research programs were approved on an individual Base Hospital basis and a group of Base Hospitals formed "The Ontario Prehospital Care Study Group".

This group of some eight Base Hospitals felt that by pooling resources and statistics, research projects could be performed more efficiently and expeditiously than by one Base Hospital alone.

The Research Committee, as of summer 1991, had reviewed some 37 research proposals from Base Hospitals, approving 18. In 1991, the Provincial Ambulance Program comprised of a mixture of Ministry, private, hospital, municipal and volunteer services. It had a network of air ambulances and communication centres. Base Hospitals covered a growing percentage of the province, providing training and Q/A activity.

Yet Advanced Care Paramedics were few and far between in the Province of Ontario!!

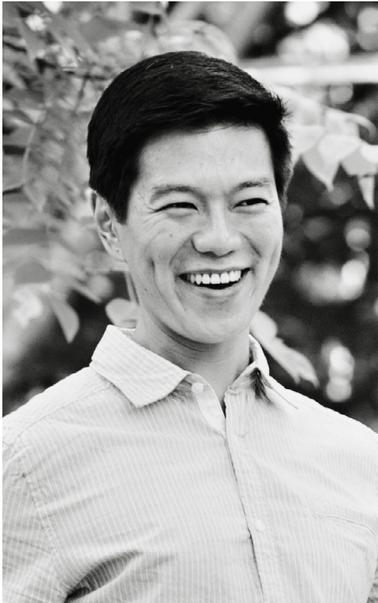
Under public scrutiny and a call for more advanced prehospital care as in other parts of Canada, particularly Alberta, Nova Scotia and B.C., the EHS Branch of the Ministry formed a "Research Retreat" group, to look at expanding paramedicine in Ontario. The first meeting was in the fall of 1991. This group included researchers Ian Stiell and George Wells from Ottawa. Two Base Hospital Medical Directors, representatives from EMS Services, unions and the Ministry. Also brought in as a consultant was Dr. Dan Speight from Tucson AZ.

The "Research Retreat" met and planned over the next two years and in the end of that process, the EHS Branch agreed to a major \$ 15 Million dollar expansion of ACP care in Ontario under the research umbrella of OPALS (the Ontario Prehospital Advanced Life Support Study). This brought land ambulance based ACP's to Niagara, Ottawa, Waterloo, London, ThunderBay, Sarnia, Sudbury, Windsor and Kingston. It also was a requirement that these communities had an "optimised defibrillation program" meaning the expansion of Fire Fighter Defib programs in these areas. Thus began the OPALS era in Ontario, with the first of hundreds of new Advanced Care Paramedics hitting the streets in 1997.

**NEXT ISSUE: OPALS and into the 21st Century**

Doug Munkley

# Welcome to our new staff



## Medical Advisor

### Dr. Daren Lin

Daren Lin is an Emergency Medicine physician at Guelph General Hospital. He graduated from Medical School at the University of Western Ontario, and completed his residency at McMaster University. Before moving to Guelph, he worked at Hamilton Health Sciences, where you may have talked to him as the overnight BHP. He enjoys having quality time with his amazing wife and three endlessly energetic children. He spends his free time skiing, running, cycling, and oil painting.

## Paramedic Educator

### Alan Batt

Alan Batt began his prehospital care career with the Irish Red Cross (aged 9!) and subsequently as a student nurse in University College Cork, and then worked as a Paramedic with the National Ambulance Service in the cities of Galway and Limerick in Ireland. Alan has previous clinical, research and teaching experience in a variety of settings in Ireland, Europe, North America and the Middle East. He holds paramedic certifications in Ireland, the UK, Canada and remote/offshore.

In addition to his role with CPER, Alan teaches on the PCP and ACP programs in Fanshawe College, London, ON, and teaches several subjects by distance on various programs in Portland Community College. He is also a Prehospital Emergency Care and First Aid Program Manager with the International Committee of the Red Cross. He provides consultancy services to a number of ambulance services and healthcare groups worldwide on research, clinical governance and educational issues. Most recently, he spent nearly two years in the Middle East working as a Paramedic Educator and Research Coordinator. Alan holds multiple instructor and instructor-trainer qualifications and has completed a Certificate in Training & Development (Adult Education). He is a published author and regular conference speaker on issues relating to paramedicine and prehospital care.

Alan has completed a Diploma in Emergency Medical Technology from University College Dublin, Ireland, a Certificate in Critical Care Paramedic studies from Creighton University, Nebraska, USA, and a Graduate Certificate in Intensive Care Paramedic studies from Charles Sturt University, Australia. He is currently finishing an MSc in Critical Care in Cardiff University, Wales UK. He is the founder and editor of [prehospitalresearch.eu](http://prehospitalresearch.eu) and the Irish Journal of Paramedicine, editor of Resuscitation Today Journal, an editorial board member for Canadian Paramedicine, a researcher with the Centre for Prehospital Research in the University of Limerick, Ireland, and he sits on the research committee of the National Association of EMS Educators and the communications group of the Canadian EMS Research Network.

He lives in Hamilton, ON with his wife Christine, a resident physician, and their two sons, Tadhg and Eoin.



# Pediatric Emergency Tape Guide

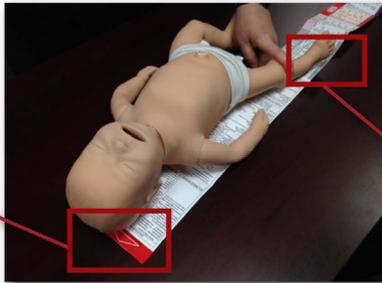
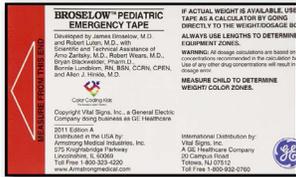


## How to estimate pediatric patient's weight

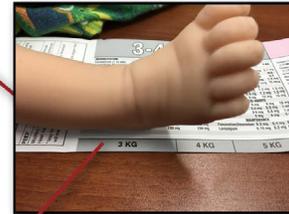
Use one or more of the following, preferably in this order (if scale not available):

1. Ask parent/caregiver for patient's weight (use this if they are certain regarding recent weight)
2. Use the pediatric emergency tape (e.g. Broselow® tape) to estimate weight based upon length

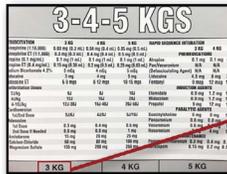
A. Red Arrow to TOP of head



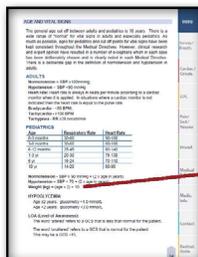
B. Straighten leg and know where HEEL rests



C. Colour-coded sections of weight estimate



3. Use the reference calculation on Page 14 of CPER Medical Directive book to estimate weight based upon age



AGE	RESPIRATORY RATE	HEART RATE
0-3 months	30-60	90-190
3-6 months	30-60	80-160
6-12 months	25-45	80-140
1-3 yr	20-30	70-130
6 yr	16-24	70-110
10 yr	14-20	60-90

Normotension - SBP  $\geq$  90 mmHg  $\div$  (2 x age in years)  
 Hypotension - SBP  $<$  70  $\div$  17 x age in years  
 Weight (kg) = (age x 2) + 10

**HYPOGLYCEMIA**  
 Age  $\geq$  2 years: glucometry  $<$  4.0 mmol/L  
 Age  $<$  2 years: glucometry  $<$  3.0 mmol/L

On Page 13 of the CPER directive book it states:

“Pediatric medication doses can vary slightly according to the source of expert opinion. The pediatric medication doses in the ALS PCS are the preferred doses. However, medication doses as determined by an up-to-date version of a widely accepted pediatric emergency tape (e.g. Broselow® tape) are an acceptable alternative. Use of a pediatric emergency tape shall be documented on the ACR when it is used to determine a pediatric medication dose.”

Therefore, it is preferred to use the Medical Directives to determine medication doses, but the pediatric emergency tape can be used to estimate weight, and in some circumstances can also be used as a guide for medication doses.



## Annual Quality of Care Awards

The CPER Annual 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 are 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. Please watch for your opportunity to nominate one of your peers. Recognition will be given during the 2016 Paramedic Services Week.

## Link with Lin

When I get a patch from a Paramedic with a request for analgesia outside of directives, I am also hearing compassion on the other end of the patch phone. I have the same desire to alleviate suffering, and this interest is always weighed against other considerations regarding the entire trajectory of the patient's visit to the ED, as well as after their visit.

In our new consolidated pain directives, several options are available to alleviate pain for a variety of indications.

For some indications such as musculoskeletal trauma, there is ample evidence for safety and effectiveness in the prehospital setting. (1) Treating pain in these situations should not be delayed. What about management of pain in situations not included in the medical directives? This article will go over common pain management patches, and whether the evidence supports an order (or no order) from the Base Hospital Physician in each situation.

### Severe headache

The Canadian Headache Society recommends against the use of opioids in migraine. (2) The most pressing emergency issue in these high-risk patients is ruling out a life-threatening cause. Complete resolution of headache in subarachnoid hemorrhage has been well described after opioid and non-opioid pain medications, and prehospital use of these drugs may delay or mislead the Emergency Department (ED) diagnosis. (3) Ketoralac may inhibit platelet function in the case of a not-yet-diagnosed intracranial bleed. (4)

### Undifferentiated abdominal pain

Although a few small studies in the ED showed that early ED morphine use did not lead to an incorrect diagnosis for acute abdominal pain, in these studies the same provider usually provided both the early analgesia and initial diagnostic work-up. (5) We currently have no similar studies in the prehospital setting, and we don't know if a patient with well-treated pain can mislead the hospital provider. Trials with active heat applied by Paramedics has been shown to reduce pain in cholelithiasis, renal colic, and pelvic pain, with improved patient satisfaction. (6)

### Non-musculoskeletal back pain or flank pain without a prior history

Catastrophic causes of back or flank pain, such as referred cardiac pain, ectopic pregnancy, spinal infection, or aortic disease, almost always require in-hospital tests to rule-out. A 2015 prehospital study of aortic dissection showed that prehospital analgesia completely or

partially resolved the pain in a third of these patients – a surprising result since many physicians rely on the nature and severity of pain in considering acute aortic dissection. (7)

### Chest pain, out of directive

There is no known mortality benefit to using morphine in cardiac ischemia, and one large study found harm in a non-ST-elevation population. (8) Following the existing directives around morphine is appropriate, but patching for the use of morphine when a contraindication is present, such as hypotension or altered level of awareness, is not indicated.

### Chronic Non-cancer Pain

The use of parenteral opioids in acute or chronic non-cancer pain is not recommended in ED opioid guidelines due to the short duration of action and potential for addictive euphoria. (9) Furthermore, a review of the literature finds a lack of data demonstrating benefit of parenteral opioids in these difficult situations. (10) In some patients, prehospital parenteral opioids can perpetuate aberrant drug-related behaviours and recurrent inappropriate use of prehospital services. (9,10)

A careful review of daily opioid doses, existing narcotics contracts, collateral history from the pharmacist/family physician, and misuse risk assessment are all a requisite part of the ED evaluation, but these may be difficult to perform effectively in the prehospital setting. (9,10) Paradoxically, some patients report severe pain despite the high opioid doses, due to opioid withdrawal mediated / modulated pain, hyperalgesia (increased pain sensitivity due to opioid use), or opioid-induced dysphoria. (9,10)

### Midazolam for traumatic pain

A 2014 prehospital study showed that midazolam combined with morphine did not improve pain over morphine plus placebo in severe traumatic pain. (11)

The pendulum has swung in the last few years from a view that health care providers are always under-treating pain to the view that sometimes pain is over-treated in North America, resulting in drug dependence and overdoses. (10) I am conscious of these issues when ordering pain medications in my base hospital and ED practice, trying to reach a balance between alleviating pain and causing harm. We always wish to reduce pain, yet we don't want to mask or cause an illness.

Thanks for reading, and until next time, base out.

Dr. Lin

## References

1. Gausche-Hill, M, et al. An Evidence-based Guideline for Prehospital Analgesia in Trauma. *Prehospital Emergency Care*, 2014; 18(sup1): 25-34.
2. Orr, SL, et al. Canadian Headache Society systematic review and recommendations on the treatment of migraine pain in emergency settings. *Cephalalgia*, 2014; 35(3): 271-284.
3. Edlow, JA, et al. Avoiding Pitfalls in the Diagnosis of Subarachnoid Hemorrhage. *N Engl J Med* 2000; 342: 29-36.
4. Bauer KA, et al. Platelet function following administration of a novel formulation of intravenous diclofenac sodium versus active comparators: a randomized, single dose, crossover study in healthy male volunteers. *J Clin Anesth*. 2010 Nov;22(7):510-8.
5. Manterola C, et al. Analgesia in patients with acute abdominal pain. *Cochrane Database of Systematic Reviews*. 2007; Issue 3, Article Number CD005660.
6. Pak SC, et al. Nonpharmacological interventions for pain management in paramedicine and the emergency setting: a review of the literature. *Evid Based Complement Alternat Med*.

2015;2015:873039.

7. Axelsson C, et al. A description of the prehospital phase of aortic dissection in terms of early suspicion and treatment. *Prehosp Disaster Med*. 2015 Apr;30(2):155-62.
8. O'Connor, RE, et al. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science, Part 10: Acute Coronary Syndromes. *Circulation*. 2010; 122: S787-S817.
9. Kahan, M, et al. Canadian guideline for safe and effective use of opioids for chronic non cancer pain. 2011; 57(11): 1257-1266.
10. Cantrill, SV, et al. Clinical Policy: Critical Issues in the Prescribing of Opioids for Adult Patients in the Emergency Department. *Ann Emerg Med*. 2012;60:499-525.
11. Auffret Y, et al. Does midazolam enhance pain control in prehospital management of traumatic severe pain? *Am J Emerg Med*. 2014 Jun;32(6):655-9.

**These articles can be used for CME credits, on the [CPER web site](#).**

---

CPER attended the Niagara Health Quality Symposium on April 6th. CPER is happy to share that this year we will be participated in this great 4th annual initiative in Niagara Falls. CPER's quality team has been focusing on medication safety for 3 years, completing amongst other projects, multiple medication incident analysis. Resulting from these analysis and other projects, CPER has implemented several programs and made improvements to other areas, all with a focus and goal aimed at improving Paramedic medication safety. CPER has created a poster highlighting all this amazing work, which has been selected by organizers for presentation at the symposiums poster presentations.

We would like to thank Mike Longeway for leading this initiative and presenting at the symposium.

---



**Join us May 10th, 2016 at 1500**  
**for** **AskMED**

**submit your question live via Twitter or email [AskMED@cper.ca](mailto:AskMED@cper.ca)**

**Watch live! on**  **Periscope**

## CONTACT US

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

JULIE LANGDON  
Administrative Assistant  
[jlangdon@cper.ca](mailto:jlangdon@cper.ca)



CENTRE FOR PARAMEDIC  
EDUCATION AND RESEARCH