



# SWORBHP LINKS

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Fall



## The Utility of the Prehospital ECG in the ED

There has been extensive research conducted demonstrating the benefits of the prehospital ECG (pECG) for decreasing door-to-drug time and door-to-balloon time in patients with STEMI (Morrison, Brooks, Sawadsky, McDonald and Verbeek, 2006). However, very few studies have examined the utility of the pECG in the Emergency Department (ED) management of patients not experiencing a STEMI. Valuable diagnostic information can be captured on the pECG before any prehospital interventions occur (ASA, oxygen, nitroglycerin administration). By the time patients are evaluated by an ED physician, their symptoms may have resolved and their initial ED ECG may be normal.

We recently conducted a study to determine if there were clinically significant abnormalities present on the pECG that are not apparent on the initial ED ECG. Furthermore, we investigated whether or not these abnormalities were significant enough to potentially influence ED management of these patients. It was discovered that 16/63 (25.4%) of the pECGs analyzed had abnormalities that were not present on the initial ED ECG. Of these, 12 (19%) showed signs of ischemia that were significant enough to influence ED management (Davis, Dukelow, Lewell, McLeod, Rodriguez, 2010).

These findings demonstrate the immense value of the pECG in capturing diagnostic information before the patient arrives in the ED and highlights the importance of obtaining pECGs in patients experiencing chest pain or symptoms suggestive of ischemia. ECGs conducted in the ED do not always capture information present on the pECG and as a result, the pECG may be a huge determinant of how the patient is managed.

We are continuing this study on a larger scale and are anticipating more encouraging results that emphasize the value of the pECG. Continue the great work and take pride in knowing that your interventions are helping guide physician management!

Matthew Davis, M.D., M.Sc.  
UWO Emergency Medicine PGY4  
EMS Resident  
Southwest Ontario Regional Base Hospital Program

References:

Morrison, L.J., Brooks, S., Sawadsky B., McDonald, A. & Verbeek, P.R. (2006). Prehospital 12-lead electrocardiography impact on acute myocardial infarction treatment times and mortality: A systematic review. *Academic Emergency Medicine*, 13, 84-89.

Davis, M.T., Dukelow, A., Lewell, M., McLeod, S. & Rodriguez, S. (2010). The utility of the prehospital 12-lead electrocardiogram in LHSC emergency departments. Presented at *The University of Western Ontario Emergency Medicine Resident Research Day*, March 26, 2010, London ON.

Look for us on the Web  
[www.lhsc.on.ca/bhp](http://www.lhsc.on.ca/bhp)

**A Note from  
the Regional  
Program  
Manager**

*...“Do I honestly  
know the GCS  
cut off for  
stroke or the  
current trauma  
triage  
guidelines?”*

## Progress and History are Made Today

We are often amazed, even left speechless, when we see history being made; be it the invention of radar, discovery of insulin, or the introduction of the Blackberry. In some cases, years of work result in a discovery that changes the world as we knew it. In other cases, technology changes how we perceive the world around us, shaping our culture and our lives. These changes are the result of considerable work, vision, leadership, planning, and commitment.

In the past several months we have been witness to history being made here in Southwest Ontario. During the week of September 19<sup>th</sup> the SWORBHP, in partnership with the National Registry of EMT's and Huron and Oxford County EMS, conducted the first ever Computer Adaptive Testing (CAT) for Canadian Primary Care and Advanced Care Paramedics. The CAT is the future, and it represents what strong partnerships can achieve.

During the week of October 4<sup>th</sup> the SWORBHP, in partnership with the National Association of EMS Educators (NAEMSE), hosted the first National Certified EMS Educator (NCEE) certification exam at the Regional Base Hospital offices. This was the first time in the history of NAEMSE that the exam had ever been administered in Canada. This was the first time in Base Hospital history provincially that all of the education staff of a Base Hospital Program had completed formal training in Adult Education, with specific application to EMS.

Today, the SWORBHP stands as the only Base Hospital Program in the province to achieve Educational Accreditation, and whose educators are all formally credentialed in Adult Education. Over the past two years, we have not only seen history being made, we have made it.

Severo Rodriguez, B.A., M.Sc., NR-LP, AEMCA  
Regional Program Manager

## Meetings

I really don't like meetings. Surprised? Don't be. What attracted me to a career in Emergency Medicine were the fast paced, patient focused, time limited, critical encounters that we faced throughout our chaotic shifts. I still love the challenge of solving problems under pressure, then when my shift is over, leaving with a sense of accomplishment, but also leaving it all behind. All this—I get to wear pajamas supplied by the hospital—no fancy clothes required.

I am sure many of the same reasons are what led you to your careers in EMS—minus the PJ's. Now, all too often, my days are filled with meetings. From never ending “new directive” teleconferences, eight hour MAC boardroom meetings, trauma triage, stroke, recert planning, research, college accreditations, cutscores, STEMI PCI—you name it—I've spent hours upon hours analyzing, debating, advocating, compromising, and you got it—meeting about it.

Before you get the wrong opinion, I know it comes with the territory. It is part of being a professional in EMS. I can justify watching beautiful day after day pass me by from the window of yet another meeting room, as long as I truly believe that we are contributing in a positive fashion to the EMS system—and here is where you come in.

We can design the best evidence based stroke, PCI, and trauma triage guidelines. We can (and do) argue for hours about the best GCS cut off, but all of this is wasted if, at the end of the day, you, the most important link, don't know it when you need to.

So I challenge you, right now—if a stroke call or a trauma call came in, ask yourself this: Do I honestly know the GCS cut off for stroke or the current trauma triage guidelines? If not, then there are a lot of wasted days that I want back. If you do, then good for you. It comes with the territory. It is part of being a professional in EMS.

Michael Lewell, B.Sc., M.D., FRCP(C)  
Regional Medical Director

## Learning Objectives

"The cat only grinned when it saw Alice. It looked good-natured, she thought: still it had VERY long claws and a great many teeth, so she felt that it ought to be treated with respect.

'Cheshire Puss,' she began, rather timidly, as she did not at all know whether it would like the name: however, it only grinned a little wider. She went on: 'Would you tell me, please, which way I ought to go from here?'

'That depends a good deal on where you want to get to,' said the Cat. 'I don't much care where--' said Alice. 'Then it doesn't matter which way you go,' said the Cat.

'--so long as I get SOMEWHERE,' Alice added as an explanation. 'Oh, you're sure to do that,' said the Cat, 'if you only walk long enough.' " (Carroll, 1865)

Perhaps you have seen the new movie, or maybe you remember the original Lewis Carroll book "Alice's Adventures in Wonderland" written in 1865. It is interesting to think that Lewis Carroll would help educators develop our training programs almost 150 years later. How so?

If we do not know where we are going in our training session, we are sure to get somewhere if we go long enough—but who knows where that will be!

Learning objectives tell us where we (or more importantly, the learners) really need to be at the end of our adventure, and they help us to get there in the shortest time possible. Clearly communicated learning objectives allow educators to:

- decide what content the learners need to receive,
- determine the best instructional method to use (lecture, case study, role-playing, etc.),
- construct evaluation tools (tests) to determine whether or not the learners had reached their destination.

Learning objectives are an excellent communication tool between the educator and the learners—it provides clear direction to the learners what is expected of them at the end of the training—in other words, "what's on the test?" is clearly explained in the learning objectives.

Learning objectives are student centered, describing their performance, not that of the educator. So be sure to look carefully at the learning objectives in your pre-course material. Then you will know, not only which way to go, but also when you have reached your destination!

David Vusich, ACP, A-EMCA, AdEd  
Education Coordinator

Reference:  
Carroll, L. (1865). *Alice's Adventures in Wonderland*. London, UK: Macmillan and Co.

## What Does it Take to Become an ED Doc in 2010? [Part 2](#)

Last month we explored getting through medical school and getting into residency. Now we will look at the rest of the training necessary to become an Emergency Physician.

Residents have an academic license to practice medicine through the CPSO. This allows them to practice in a clinic or hospital under the supervision of a fully licensed physician. All residency programs involve multiple rotations through a variety of medical / surgical specialties, long periods of time "on call" in the hospital and constant evaluation by peers and superiors. Sometime during residency, residents also complete the OSCE based step 2 of the Medical Council of Canada examination process.

What about "interns"? The term intern is no longer officially used in Ontario. Prior to the early 1990s at the completion of medical school all MDs did a one year rotating internship. The completion of an internship year was enough to become an independently licensed general practitioner. Some physicians working in Emergency Departments today will have completed their training this way (i.e., 3-4 years of medical and a one year rotating internship). In the early 1990's the one year internship was eliminated and students had to choose a specialty residency during their last year of medical school.

### **Focus on ER Training:**

Students interested in Emergency Medicine will apply to either Family Medicine (through the Canadian College of Family Physicians) or Emergency Medicine (through the Royal College of Physicians and Surgeons of Canada). Family Medicine residency is a two year program that includes clinic and hospital based work. At the completion of a Family Medicine program, residents obtain an independent license to practice.

....Cont'd on pg 4

## What Does it Take to become an ED Doc in 2010? - Cont'd

Some physicians will begin working full time as an ED doctor at this point. Others will work part time ED and part time family practice. The majority of physicians that train through the Family Medicine stream that want to work full time ED will complete a third year of residency in Emergency Medicine prior to starting to “work”.

Those students that choose the Royal College stream enter a five year residency program right out of medical school. Traditionally this has been viewed as the academic stream (i.e., working in an academic centre like London or Toronto). However many CCFP-EM graduates work in academic centres and many FRCP EM graduates work in community settings.

Adam Dukelow, M.D., FRCP(C), MHSC, CHE  
Local Medical Director  
Middlesex, Elgin, Oxford and Oneida

## What is the Value of a Cutscore?

In an effort to maximize the quality of care provided to the public and provide the highest quality recertification experience, the Southwest Ontario Regional Base Hospital Program (SWORBHP) conducted its first standard setting study on July 13, 2010. Standard setting is the scientific process that test makers use to establish the cutscore or passing standard for a certification examination.

Most modern certification programs approach the test development process from a criterion-referenced perspective. A criterion-referenced test determines a test outcome (e.g., pass or fail) by comparing a test score to absolute criteria (Haertel, 2006). This is different than norm-reference testing which determines test outcomes by comparing a test score to the scores of other examinees. SWORBHP's certification program approaches testing from a criterion-referenced perspective. Standard setting is the process that is used to determine what the absolute passing criteria will be for examinees taking a criterion-referenced exam.

During the SWORBHP standard setting, a psychometrician led a group of subject matter experts through a series of activities designed to synthesize the opinions of the group and render a cutscore for the Primary Care Paramedic (PCP) recertification examination. SWORBHP utilized a method called the modified-Angoff method (Angoff, 1971). The first part of the process was a discussion in which the group of participants collaborated together to develop a conceptual definition of minimal competency.

*“...a psychometrician led a group of subject matter experts through a series of activities...”*

This definition described the knowledge, skills, and abilities of the borderline minimally competent candidate. Using the newly developed definition, each subject matter expert individually predicted the performance of borderline minimally competent candidates on each item of the test. Specifically, each participant indicated whether or not borderline minimally competent candidates would answer the item correctly by providing a one or

zero rating. The results of the ratings were tabulated by taking the average rating across all items and judges.

Given the level of scrutiny placed on each item of the assessment, it should be clear that the standard setting process used by SWORBHP is far superior to arbitrarily picking a value such as 70%. By executing standard setting, the cutscore more accurately reflects the knowledge, skills and abilities required of PCPs.

Brian D. Bontempo, Ph.D.  
Mountain Measurement, Inc.  
<http://www.mountainmeasurement.com>

Reference:  
Haertel, E. H. (2006). Reliability. In R. L. Brennan (Ed.), *Educational Measurement* (4th ed., pp. 65-110). Westport, CT: American Council on Education/Praeger.

Angoff, W.H. (1971). Scales, norms and equivalent scores. In R.L. Thorndike (Ed.), *Educational Measurement* (2nd ed.). Washington DC: American Council on Education.

## Why EMS Research is Important

Occupations that have 'control' over a specific area of knowledge are able to use that knowledge to gain respect and status for the occupation. Most importantly, it allows the occupation to be able to make claims for resources. This is especially true when occupations make claims for public resources, like municipal budgets. Today, policy makers like to be able to say that the decisions they make are "evidence-based". This is one of the ways they justify committing resources to the activities they control.

In order for EMS to compete for these resources, EMS has to develop its own body of knowledge that is based on evidence. Gone are the days when EMS managers can say "we need more ambulances or ALS skills because these things SAVE LIVES!". Today, the response to that argument is "prove it". Research is the key to develop an EMS specific knowledge base that is able to make evidence-based arguments.

There are so many things we do in Paramedicine and Emergency Medicine that are done simply because we have always done them that way. Despite there being no evidence that something is effective, we continue to do them without question. We even find these treatments and procedures in the 'Standards' and the medical directives. An example would be to board and collar every patient that

has even the remotest chance of having a traumatic injury to the neck.

If Paramedicine is to advance, gain status and make claims for resources, we need to be able to say that we have evidence for what we do. This is done by doing good research.

There are some principles that must be followed to do good research. It is important to know these to be able to read and evaluate research literature. With some training and expert advice, it is possible to even do significant research locally. Not all research needs elaborate, costly, multi-site protocols involving hundreds of patients to be worthwhile. Much worthwhile research can be done for virtually no cost.

Over the next series of newsletters I will discuss some aspects of research with the hope that some people will be inspired to question the assumptions that we hold and seek evidence to support or refute it.

Don Eby, M.D., M.Sc., CCFP(EM) FCFP  
Local Medical Director  
Grey, Bruce, Huron and Perth

## Activity Report Summary

Fall is in full swing and so are the recertification courses. All SWORBHP paramedics will receive an individualized Activity Report Summary during their 2010/2011 recertification course. Paramedics who attended a recert class in September will have already received an Activity Report Summary from their instructor by the time this newsletter is published. You may have questions regarding the last item on the Activity Report, Sub Filter details. All other clinical information on the document is easy to interpret for paramedics working in both paper and e-ACR environments.

For ease of understanding, consider these sub filters as compliance checkers commonly found programmed in an e-ACR system for provincial Basic Life Support Standards. Almost three years ago, Rodriguez et al (2007) described the use of computerized algorithms to construct filters containing Key Clinical Indicators (KCI) to review medical treatment performed by paramedics. Currently, the Plan Do Study Act (PDSA) cycle from the concept (Rodriguez, 2007) has completed one full cycle, enabling paramedics to view this information on their Activity Reports. The sub filters are designed to identify high risk calls for human audit, not necessarily errors.

Reduction in sub filter matches on future Activity Reports can be achieved in some cases by properly documenting and coding items common in various treatment protocols. For example: history of allergy, oxygen administration, use of cardiac monitor, and patch information. This first attempt at providing you with your individual practice status will be improved next year, driven by modifications in internal data collection and verification process. Your feedback is also important. We need to know if there is anything on this version that in your opinion, 'can't be right', so we can ensure there are no problems in our data validation process. You can also let us know if there is a measurement you would like to see on future versions of this report. Questions can be directed to paramedic instructors or [adeel.ahmed@lhsc.on.ca](mailto:adeel.ahmed@lhsc.on.ca)

Adeel Ahmed  
Team Leader, Professional Standards & Performance Improvement

### Reference:

Rodriguez, S., Shkorets, N., Summers, J., Burgess, R., Verbeek, P. (2007) *Key Clinical Indicators and SQL-Logic Application in Medical Auditing*. IJAMT 5(1).

## Up Close and Personal

In this edition of **LINKS**, we will take you up close and personal with Dr. Paul Bradford and Dwayne Cottel. We hope this allows you an opportunity to get to know each of them a little better.



**Paul Bradford, B.Sc., M.D., CCFP(EM), FCFP, CD**  
Local Medical Director

Paul has been with the Base Hospital since 2003. He was a physician representative on the Ontario Base Hospital Executive Committee for two years. He serves as the Medical Director of Trauma for Windsor, and assists as an ATLS, and ACLS instructor, PHTLS and ITLS Medical Director, and teaches Tactical Combat Casualty Care. Paul has a military background with over twenty years service, and serves as Commanding Officer of 23 Field Ambulance, based in South Western Ontario. He has training in CBRN and helped draft the pilot provincial medical directives and assists with the local Hazmat/CBRNE Provincial Response Team. Paul is a certified Flight Surgeon and Civil Aviation Medical Examiner and is certified in Aeromedical Retrieval and Transport. He has been involved in prehospital research with C-spine injury, defibrillation, and the recent ROC studies. Paul is pleased to be part of the SWORBHP where he is the Local Medical Director for Essex and Kent Counties and serves as the Medical Director for Professional Standards. Paul and his wife Diane live in LaSalle Ontario with their four small children.



**Dwayne Cottel, ACP, A-EMCA, CQIA**  
Regional Paramedic Educator

Dwayne joined the SWORBHP in November 2008 as a full-time Regional Paramedic Educator. Prior to that he worked part-time with the former London Base Hospital Program as a BLS Coordinator, doing chart audits and assisting with annual Symptom Relief and Defib recertification courses. Dwayne is an Advanced Care Paramedic (Fanshawe 2005), an AEMCA (St. Clair 1998), and is a Certified Quality Improvement Associate (ASQ 2009). He is currently finishing his Bachelor of Science Degree with a major in Human Science (Athabasca University). Dwayne also works part-time with Lambton County EMS as an Advanced Care Paramedic. He teaches First Aid and CPR as an Authorized Provider through the Canadian Red Cross. Dwayne was a member of the Canadian team from LHSC that won the 2010 Paramedic Championship ALS Division in Israel this past June. Dwayne and his wife Denise live in Dutton with their nine year old daughter Amber and five year old son Brayden.

## Online Paramedic Registry

SWORBHP, in partnership with the National Registry of EMTs (NREMT) has developed an online Paramedic information database. Information maintained within the Paramedic Registry includes personal demographics, continuing education units, and certifications. Paramedics can log in to the Registry and create an account, allowing them to manage their personal demographics, continuing education, and print their certification letters. SWORBHP and EMS Operators can access the Registry for data entry and data collection purposes.

Beta testing was conducted in July and August providing SWORBHP with extremely helpful and positive feedback. Live activity throughout the region began September 1st.

Paramedics who have not yet logged in to the Registry to create an account are encouraged to do so. Go to [www.paramedic-registry.ca](http://www.paramedic-registry.ca). Click on "create a new account". Complete the required fields and click "Submit". Enter your username and password, click "Login". Once at the "Edit Personal Information" page, please complete the requested information and click "Save".

Training bulletins and detailed information on how to manage your continuing education can be found on our website at [www.lhsc.on.ca/bhp](http://www.lhsc.on.ca/bhp). Go to About Us and click on Paramedic Registry.

If you have difficulty accessing the Registry or have any questions on how to use the Registry, please contact us at: [paramedicregistry@lhsc.on.ca](mailto:paramedicregistry@lhsc.on.ca).

Cathy Prowd, CQIA  
Operations & Logistics Team Leader

Look for us on the Web  
[www.lhsc.on.ca/bhp](http://www.lhsc.on.ca/bhp)

## Ticks and Fire Do Not Mix

“My buddy is a paramedic, he tried to remove the tick with a lighter...”

Tick season is well upon us, and we need to be vigilant, especially when camping. Lyme disease is caused by a bacteria *Borrelia burgdorferi* and it is spread through the deer tick. These ticks are very small (3 to 5 mm) and may not be noticed. They can feed on birds and be transported anywhere. The tick has to latch on to the victim for 24 to 72 hours to transfer the disease, which is felt to be present in 10 % of ticks in endemic areas (CDC, April 12 2010). All of the Provincial Parks in the SWORBHP area are in the endemic zone (CBC, June 4 2009).

Generally, the tick should be removed with fine tweezers, and the mouth parts saved for identification. Although there appears to be old wisdom that “ticks are afraid of fire”, which could be true, it is generally felt that holding a flame near them so they back out of the person is not helpful. In fact, in excessively hairy individuals who have been camping, and possibly doused in rubbing alcohol in an initial attempt to remove the tick, may pose a highly incendiary “stop drop and roll” situation. This technique is especially dangerous as ticks find themselves hidden in more secluded parts of the body.

Although members of the public may access Paramedics as health experts, it is best if these removals are done in an office or hospital where the tick can be preserved and sent for analysis. Initial symptoms may not occur for several weeks with less than half of the population developing the characteristic rash of erythema migrans. Many develop non-specific fever, headache, fatigue, and lymphadenopathy. The disease is treatable with antibiotics and causes a lot of anxiety. If not treated, it may develop into a terrible chronic debilitating condition.

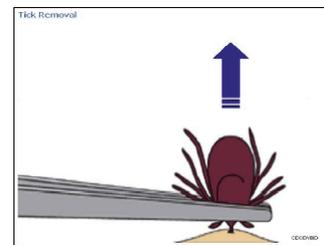
Paul Bradford, B.Sc., M.D., CCFP(EM), FCFP, CD  
Local Medical Director  
Essex-Windsor, Chatham-Kent



Close-up of an adult female deer tick, dog tick, and a lone star tick. (Getty Images)



This 2007 photograph depicts the pathognomonic erythematous rash in the pattern of a “bull’s-eye”, which manifested at the site of a tick bite on this Maryland woman’s posterior right upper arm, who’d subsequently contracted Lyme disease CDC/ James Gathany



### References:

Centre for Disease Control, (2010, April 12) Lyme Disease Resources, Retrieved August 15, 2010, from [http://www.cdc.gov/ncidod/dvbid/lyme/ld\\_resources.html](http://www.cdc.gov/ncidod/dvbid/lyme/ld_resources.html)

Canadian Broadcasting Corporation, (2009, June 4) CBC News, Health Diseases “Lyme disease: Tiny tick, big problem”, Retrieved August 15, 2010, from <http://www.cbc.ca/news/background/health/lyme.html>

## Trivia

### Did you know?

- The length from your wrist to your elbow is the same as the length of your foot.
- It is impossible to sneeze and keep one’s eyes open at the same time.
- A square piece of dry paper cannot be folded in half more than seven times.
- The thin line of cloud that forms behind an aircraft at high altitudes is called a contrail.

Reference: <http://didyouknow.org/fastfacts/>

## Self Report Hotline –1-888-997-6718

Everyone makes mistakes. Everyone has bad days. If you should happen to have one of those days, we would like you to call and tell us about it.

Being a professional comes with the ability to recognize when you have made a mistake, taking responsibility for your actions, and hopefully being able to make something positive out of an incident. The positive element may be learning from your mistake. We hope the learning happens immediately following the error. When it does, we want you to pick up the phone and call the self report hotline.

The hotline is a toll-free number that can be accessed 24/7/365. Your call is confidential and voice mail messages are checked daily. Only the Professional Standards Specialists, Tracy Gaunt and Paul Robinson have access to the voice mail. Please provide us with enough information to help us determine our next steps.

Identifying errors as soon as they occur benefits both you and your patients. Self reported errors are handled quickly, and usually require no remediation. This is because you have already recognized your error and hopefully made the adjustments to your practice that remediation involves. If it turns out there was no error made, no file is created or maintained. For major errors, there will continue to be a paper trail generated for due diligence.

We encourage you to use the self report hotline. Call and leave a message any time you think something has gone wrong and we'll do our best to resolve the issue as soon as possible.

Paul Robinson, ACP  
Professional Standards Specialist

Tracy Gaunt, AEMCA, B.A., CQIA  
Professional Standards Specialist

Self Report  
Hotline:

1-888-997-6718

## Paramedic Recognition Awards

### **Prehospital Save**

Congratulations to Dave Wagner and Harold Martin, Huron County EMS for their prehospital save—September 14, 2010.

### **Prehospital Newborn Delivery**

Congratulations to the following Paramedics for their assistance with a prehospital newborn delivery:

Don Dolmage, Huron County EMS—June 13, 2010

Ryan Kreeft, Kenard Silver, Matthew Oades and Doug Bryant, Essex-Windsor EMS—September 13, 2010

### Comments to the Editor

If you have comments or feedback on the newsletter, or have an article you would like to have considered for publication in a future edition of **LINKS**, please send to:

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