London Health Sciences Centre
Southwest Ontario Regional Base Hospital Program
Leadership of optimal prehospital care systems

SWORBHP LINKS

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The Ambulance Act - A Call for Stakeholder Feedback

This summer, the Ontario Government announced its intention to enhance and modernize the Emergency Health Services (EHS) system in Ontario. The vision for change is based upon the Government's principles of Patients First: Action Plan for Health Care. The Ambulance Act, which governs the provision of the EHS in Ontario, has not been amended in almost 20 years. With this in mind, the first stage of this modernization process was to consult with various stakeholders such as the Ontario Base Hospital Group (OBHG), the Ontario Association of Paramedic Chiefs (OAPC), paramedics and Central Ambulance Call Centre (CACC) to provide insight and advice into what elements of the Act would need to be amended to enable patient-centered change. The focus of feedback regarding the policy changes centered around the following areas: patient definition, setting/destination, care/treatment, medical oversight and conveyance.

The Southwest Ontario Regional Base Hospital (SWORBHP) contributed to the joint feedback provided by OBHG. In doing so, we utilized our mission of "facilitating the delivery of excellent prehospital care while advancing safe practice and preparedness in our communities through collaborative partnerships and innovation" as a guiding principle when responding to the topics at hand. SWORBHP advocated for changes to be based in evidence. SWORBHP supported changes that would be made in accordance with patient safety. SWORBHP advocated for changes that would allow for Paramedics to continue to provide safe and evidence based care to our communities. In collaboration with the other 7 base hospitals in Ontario, OBHG generated our collective response. Although some contentious ideas have been put forth by different prehospital stakeholders, we wanted to remain true to SWORBHP's value of providing leadership of optimal prehospital care systems and ensure that all of our recommendations aligned with our mission.

The months ahead will be very interesting and there are likely some substantial changes regarding the Ambulance Act on the horizon. Only time will tell how this will play out. If or when it does occur, SWORBHP will continue to work with all stakeholders to ensure that our paramedics continue to deliver excellent prehopsital care while advancing safe practice in our community.

Matthew Davis, M.D., M.Sc., FRCP(C)
Regional Medical Director

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COLLABORATION UPDATES

IQEMS

We're in the final stages of implementation and expected to go live mid-October – that's right – in the middle of a busy CME season! It's like Emergency Childbirth…you can plan all you want, but the timing maybe out of your control!

The Southwest, Sunnybrook and Health Sciences North Base Hospitals have been very busy over the past year preparing for the IQEMS quality assurance implementation. The data centre has been setup; clinical, technical and policy and privacy working groups have been established; and operational, programming and database changes have occurred to allow for a multi-site application. During our final phase, we are spending a significant amount of time testing data, training, creating accounts and preparing documentation to ensure a smooth transition. We look forward to demoing the application to our Services and working with them in phase II to incorporate ZOLL data into our repository and to develop a robust and valuable reporting module.

Debbie Janssen, BMOS
Coordinator, Quality Assurance & Business Functions

Quality Council

The Quality Council has been very busy in the last few months collaborating on the creation of standards. We've had a wealth of input and expertise from our Services, which has led to several QA focused initiatives!

Justin Lammers (Essex-Windsor) is leading and currently working with InterDev on automating individual standardized Paramedic reports. Unfortunately, this initiative was put on hold earlier this year due to the NDS changes at InterDev, but has now been revitalized and is expected to go live before the end of the calendar year. Similar work with ZOLL is expected to commence in 2018.

Additionally, we've worked with our colleges to standardize student identifiers, we are collaboratively working toward standardizing our save award process and our ACP Services have formed a subcommittee to work with Dr. Matt Davis on standardizing our Controlled and Expired Medication process. We look forward to a busy 2017/18 as these initiatives evolve and we embark on the implementation of our IQEMS quality assurance system and QA reporting application.

Debbie Janssen, BMOS
Co-Chair; Quality Council
Coordinator, Quality Assurance & Business Functions

Education Council

Under the capable leadership of Allison Crossett (MEMSEO) the Paramedic Service Educators from within the SWORBHP region devised a collaborative approach to training for the implementation of the new BLS-PCS that will come into force on December 11, 2017. Once news of this initiative leaked out, there were 35 services from all across Ontario that leapt to join the efforts!

Those of you who have been around since before 2000 will remember the many benefits of having provincially standardized training. Paramedics within the SWORBHP region have either received the training, or will be in the coming months. It has been designed to highlight the need-to-know content to inform your work.

SWORBHP staff were honoured to participate in this great initiative and, as always, to collaborate with the excellent Paramedic Service leaders in our region.

Cindy Harrison
Co-Chair; Education Council
Prehospital Care Specialist

Empty Nest - Thank You and Congratulations

Dr. Drew Schappert was SWORBHP's EMS Fellow for the last year and is now moving on to the final year of his Emergency Medicine Residency training.

We would like to thank Drew for his dedication and support over the last year assisting with training and quality assurance initiatives for Southwestern Ontario Paramedics.

Drew also led research in multiple studies regarding prehospital refractory VF that he has presented both nationally and internationally. He is also currently involved with a new project examining the current awareness of the MOHLTC issued prehospital DNR form.

We wish Drew all the best as he completes his residency program and hope to see him back in the prehospital world in the future.

You may remember the smiling, friendly face of Dr. Lauren Leggatt as our EMS Fellow for the 2015-16 year. Her interest in education assisted us in developing and implementing several educational initiatives in our region. She also had a keen interest in research and presented her research in Lift Assists both nationally and internationally. Lauren is also currently completing research into Paramedic self identified education gaps and CME.

We would like to congratulate Lauren on obtaining her destination as a Fellow of the Royal College of Physicians of Canada (FRCPC) in Emergency Medicine and beginning her career as an Emergency Physician at London Health Sciences Centre and St. Joseph's Healthcare London. We look forward to having Lauren contribute some of her newly gained expertise in prehospital care as she begins her Emergency Medicine career.

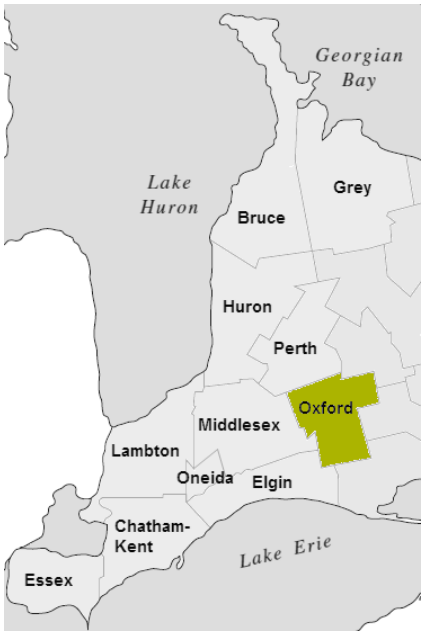
Welcome Prehospital Care Specialist - Melissa Derksen

Melissa joined SWORBHP in August of 2017 as a Pre-Hospital Care Specialist (PHCS). Prior to joining SWORBHP Melissa worked as a Clinical Educator for the Northwest Region Base Hospital Program (NWRBHP) since September 2009. During her time with the NWRBHP she led both the Primary Care & Advanced Care portfolios in regards to Education, Quality Assurance and Continuing Quality Improvement. Melissa was an active part of the Provincial Education Sub-Committee and was a Facilitator for the Primary Care Paramedic Program at Confederation College. She completed the Primary Care Paramedic Program at Confederation College in 2004 with her Paramedic Career routed in Northwestern Ontario.

Melissa is a Nationally Certified EMS Educator with the National EMS Certification Board, and holds a Nationally Certified Investigations and Inspectors certificate through the Council of Licensure, Enforcement & Regulation. She is currently working on her Bachelors of Integrated Studies with a minor in Adult Education from the University of New Brunswick.

SERVICE STATION

Featuring:



Located in the heart of Southwestern Ontario at the crossroads of Highways 401 and 403, Oxford County has a population of approximately 114,000 people across eight municipalities that are "growing stronger together" through a partnership-oriented, two-tier municipal government incorporated as the County of Oxford. Oxford County is emerging as a leader in sustainable growth through the Future Oxford Community Sustainability Plan and County Council's commitment to becoming a zero waste community and achieving 100% renewable energy by 2050. Situated in one of Ontario's richest areas for farmland, agriculture is a key industry that serves as a springboard for some of the sustainable industries that are steadily diversifying the local economy. Oxford County offers a thriving local arts, culture and culinary community, as well as conservation parks, natural areas and more than 100 kilometres of scenic trails. The Oxford County Administration Building is located in Woodstock, Ontario.

Visit www.oxfordcounty.ca
Follow social media sites at www.oxfordcounty.ca/social.
Oxford County's Strategic Plan is at oxfordcounty.ca/strategicplan.

Oxford Goes Green

Oxford County becomes the first municipality in Canada to introduce electric hybrid ambulances as part of its Paramedic Services fleet with the purchase of two Crestline Coach Fleetmax XL3 Hybrid ambulances.

Oxford County has been steadily shifting towards cleaner burning fuels and electric power in its fleet in an effort to reduce greenhouse gas emissions, a key goal under the Future Oxford Community Sustainability Plan. Being a true integrator of technology, Crestline's engineering team eagerly jumped onboard, researching and testing to ensure the system would work effectively in Oxford's application. With approvals from both parties it was agreed upon in May 2017 to move forward and make history with the manufacturing of Canada's first hybrid ambulance.

Production for the two Fleetmax XL3 Hybrid ambulances is currently underway at Crestline's headquarters in Saskatoon, SK, Canada. The XL3 Hybrid System, essentially a "strap on–plug in" hybrid electric power train will increase fuel economy by 25% and reduce fuel costs by 20%, while lowering CO2 emissions and footprint and even vehicle maintenance.

The ambulances will also incorporate ACETECH's ECO-Run module and solar panels. The ACETECH ECO-Run module, an idle-management tool, will eliminate excessive idling by shutting down the vehicle engine when it is stopped and is under ideal operating conditions. The module also includes security and safety features, emergency override, driver control and administrative lock-out. Oxford County Paramedic Services piloted the anti-idling technology in 2016 on two ambulances.

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Oxford Goes Green - cont'd from page 4

Solar panels installed onto the roof of the vehicle will use the sun's rays to assist in powering the lifesaving equipment onboard as well as the conversion batteries, resulting in less maintenance and further enhancing better fuel economy.

Oxford County's green fleet enhancements are projected to reduce the County's CO2 emissions by to 1,706 tonnes in 2017 (a 6.2% decrease). This puts the County fleet on track to achieve a 10% reduction by 2019, equivalent to nearly 3000 tree seedlings planted and grown for 10 years.

Oxford County's new Fleetmax XL3 Hybrid ambulance was displayed for the first time in Ottawa at the Ontario Association Paramedic Chiefs (OAPC) conference on September 26 to 28, 2017.

Russell Chase Receives 2017 Ontario Award for Paramedic Bravery

(Left to right) Ben Addley, Dr. Eric Hoskins, Russell Chase, Ernie Hardeman

On August 31st, 2014, while on vacation with his family, Oxford County Paramedic Service's Superintendent, Russell Chase, noticed 2 swimmers that were struggling in the water of Lake Huron. Russell, along with another bystander, entered the water to help. The undertow is extremely strong around that area which is what was causing the swimmers trouble in the first place. The two struggling swimmers were a father and his 7 year old son. Russell and the other bystander reached the father/son with great difficulty and managed to rescue the 7 year old back to safety. Russell carried the child through the riptide until he was almost overcome by the current and was aided by other bystanders on the shore. Russell attempted to aid the father but by this time they were no longer able to find him. His body was recovered some time later.

For his act of considerable bravery, Russell was awarded the Ontario Award for Paramedic Bravery by Minister of Health, Dr. Eric Hoskins, Oxford County Paramedic Service's Chief, Ben Addley and Oxford MPP, Ernie Hardeman.

The Ontario Award for Paramedic Bravery was created to recognize individual acts of outstanding courage and bravery performed by members of Ontario's Paramedic Services. The recipients of this award are men and women whose actions exemplify such selfless courage without concern for their own personal safety.

Ryan Hall
Deputy Chief, Operations & Performance
Oxford County Paramedic Services

In keeping with a 'Just Culture' approach, the SWORBHP Safety Pause enables the sharing of cases that have occurred in our region and strategies that can be utilized to prevent similar variances or errors from occurring. After uncovering system and human factors, these briefs will serve as a summary of recommendations put forth in order to prevent future adverse events or near misses.

CASE: A 24 year old male is accidentally exposed to nuts while eating at a restaurant. He has forgotten to bring his Epipen. A call to 911 is initiated after he experiences difficulty breathing, nausea and urticaria.

Upon arrival, he has audible wheezes, is hypotensive and covered in hives. You quickly move the patient to the stretcher where his work of breathing significantly increases and his SpO_2 drops to 88%. You are well aware that this patient's condition is declining rapidly. You recognize that he requires epinephrine 0.5mg in order to treat his anaphylaxis.

As this is transpiring, your partner initiates cardiac monitoring and establishes an IV. You draw up and administer the 0.5mg of epinephrine and transport the patient to the ED. The patient's condition improves slightly. He begins to complain of chest tightness and palpitations as you deliver your report to triage. It is at this time that you realize your error: you administered the 0.5mg of epinephrine IV rather than IM. Your heart begins to race as you digest what has just occurred. You disclose the occurrence with the triage nurse, the ED physician and proceed to document and notify SWORBHP and your service. Shortly thereafter, SWORBHP meets with you and reviews the call, the medical directive and helps you through a simulated case. You return to work and are ever vigilant when administering medications on subsequent calls.

ALWAYS DOUBLE CHECK

The above case highlights a key point to mitigating medication administration errors. Always be sure to perform an independent double check prior to EVERY medication administration. This double check ensures that the right medication, dose and route are confirmed and applicable. Only then, should medication be administered to a patient. The key is that this independent check be performed on EVERY patient, especially for the dynamic, fast-paced calls that require quick thinking and quick treatment.

There are numerous potential adverse outcomes to administering an IM dose of epinephrine via IV including tachycardia, myocardial ischemia, arrhythmia, severe hypertension and even cardiac arrest. In cases of anaphylaxis, consider administering the 0.5mg epinephrine IM PRIOR to initiating the IV to avoid the possibility of making the error and always perform a double check with your partner.

You are NOT "in trouble"!

It has been a few months since I began working with SWORBHP, Local Chiefs, Paramedic Leaders and Educators, Paramedic Students, and Paramedics of varying levels of experience. I am continually impressed by the dedication, professionalism and patient care exemplified by those working in Paramedic Services. One aspect of the past few months that has concerned me somewhat is a lingering negative perception of the role of Base Hospital (BH) in regards to quality assurance and improvement. I have had several encounters when, during the auditing process, it was clear that some felt (and some have stated outright!) that they were "in trouble". This is an issue that myself, and the rest of us working at SWORBHP, wish to continue to improve upon.

The role of the BH is three fold in order to allow for medical acts to be delegated to paramedics by a physician: education, quality assurance and medical oversight of the Advanced Life Support Patient Care Standard (ALS PCS). BHs complete audits of prehospital calls as part of our QA mandate to discover variances from the provincial medical directives and investigate each case. This provides us with the opportunity to identify trends and/or make recommendations for changes in the provincial directives. On occasion, a meeting with those involved in a call is arranged in order to review the case to better understand the various issues that were involved that, on the surface, appears to be a less than "textbook" approach towards handling a particular case. This would involve understanding the myriad of environmental, personal, system issues, etc. that contributed to a particular event occurring.

SWORBHP views this process through a "Just Culture" lens with the goal of gaining new insight into our prehospital care system, learn from mistakes (an inevitable reality of human existence) and continue to advance the quality of care that we provide for our patients and communities. Each case reviewed and discussed is an opportunity for BH and Paramedics to come together and discuss issues that impact patient care and look for ways to move forward and improve. We're not looking to lay blame and punish – such an approach destroys any ability to foster an open environment that encourages discussion around cases and issues in the interests of improving the system for ourselves, our colleagues and our patients.

The bottom line? We're ultimately here to help and to continue to improve prehospital care in Southwestern Ontario. Please feel free to contact us at anytime with any questions, issues or concerns you may have.

Sean Doran, BA, BSc, Bed, MD, FRCPC
Medical Director of Education
Local Medical Director
Oxford, Oneida, Elgin

Over the past few years we have developed a variety of online learning resources for our paramedics. Recently we have noticed that our resources were located in a number of different areas making it difficult to locate them. In an effort to make it as user friendly as possible, we decided to collate everything into one area called MedicLINK (https://askmac.sworbhp.ca).

MedicLINK contains all of our online learning resources which includes:

ASK MAC

Ask MAC is a catalog of approximately 400 questions and answers related to the medical directives, challenging or unique calls, or other relevant topics. You can browse the catalog of questions and ask our Medical Directors a question if you are unable to find an answer on a specific topic.

TIP OF THE WEEK

Tips of the Weeks are helpful tips and tricks of the trade. The goal is to share these tips in order to improve patient care, save time and at the very least, provide some interesting information.

ECG CHALLENGER

ECG Challenger is a library of 12 Lead ECGs and their interpretations, which includes physician notes and key teaching points. You can ask our Medical Directors for help interpreting an ECG and practice your own interpretation skills by trying out the Test My Knowledge self-evaluation tool.

MED LIST

MEDList is a tool that shares common medications for a variety of patient conditions. The MEDLists provide a brief description of the medications covered, their generic/chemical and brand names as well as links to Medscape for additional information.

VISIT SWORBHP MEDICLINK TODAY TO DISCOVER NEW EDUCATIONAL RESOURCES!

Michelle Priebe
Web and eLearning Design Developer

Academic Certification: *When does it apply?*

We are proud of the relationship we have with the three College Paramedic Programs in our Region. As a result of our collaboration, SWORBHP offers Academic Certification to students training to become PCPs or PCPs who are training to become ACPs.

It is possible to hold both a PCP Certificate and an Academic Certificate when training to become an ACP. However, the acts delegated under the ACP Academic Certificate can only be performed while in the student role, working with your assigned preceptor. While working on shift as a PCP, you cannot be working under your PCP AND your Academic Certificate. You can wear only one hat at a time. If you come to work as a PCP, you remain a PCP throughout your shift. If you come to work as a student, you work as a student under the supervision of your preceptor. Even if you and your preceptor cross paths while you are working as a PCP, you cannot take off your PCP hat and transition into student mode for a procedure or delegated act that falls under your Academic Certification. Not only is this important for our students working in the SWORBHP Region to be aware of, but also for our ACP paramedics and preceptors to be familiar with. Although it is coming from a good place to give a trainee a great learning opportunity, this can only occur when that student is working a student shift. It is ONLY during this defined shift that you have medical delegation to perform ACP medical directives (excluding Schedule 3 Acts). Doing so outside of these student shifts leaves both you as the paramedic and the service open to significant liability.

We want to continue to build upon this relationship that we have with our College Programs because we believe that the best way to learn is by “doing”. However, the restrictions of delegation based on one’s level of Certification must be adhered to in order for this relationship to continue to flourish.

Matthew Davis, M.D., M.Sc., FRCP(C)
Regional Medical Director

Changes in Certification

The Certification Standard Version 4.4, Appendix 6 of the ALS PCS was released February 1st, 2017. The Standard sets out the requirements and processes related to Paramedic Certification. Certification is “the process by which Paramedics receive Authorization from a Medical Director to perform Controlled Acts and other advanced medical procedures in accordance with the ALS PCS”. Authorization is the “written approval to perform Controlled Acts and other advanced medical procedures requiring medical oversight by a Medical Director”.

The Certification Standard speaks to processes related to Certification, Consolidation, Cross Certification, Maintenance of Certification, New Certification and the Paramedic Practice Review Committee (PPRC). SWORBHP’s role on behalf of the MOHLTC and the College of Physicians and Surgeons of Ontario is to monitor Paramedic Certification.

A practice that is new to some on the Paramedic Services in our region is Consolidation. Consolidation provides the opportunity for a newly certified paramedic to acquire more skills and confidence while ensuring that a support mechanism is in place for the Paramedic. The new Paramedic is partnered with a Paramedic of the same or higher level of Certification and Authorization who is not n Consolidation himself/herself. PCPs must complete 36 hours of consolidation and ACPs and CCPs must complete 168 hours within 90 days following authorization. Paramedics who work for more than one Service or Base Hospital can combine their hours. The hours are tracked by Paramedics and their Services and SWORBHP is notified when the hours are completed.

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Changes in Certification - cont'd from page 8

Another change that has occurred relates to Maintenance of Certification. The new Standard states that Paramedics shall have no absence from providing patient care that exceeds 90 consecutive days. This is a change from the past draft Standard where Paramedics were considered potentially capable of providing patient care when they were actively attending work. SWORBHP is required to monitor Paramedic activity monthly and identify Paramedics who have not provided patient care within the previous 90 days. After checking with your Service, we notify the Local Medical Director who determines whether an educational intervention is required or we should continue to monitor the situation. Those of you with no patient care activity for 90 days may begin to receive notification from SWORBHP indicating that your Certification is at risk and a self-directed activity may be required in order to maintain Certification.

Within the Maintenance of Certification requirement, there is also the need for each Paramedic to provide patient care to a minimum of 10 patients per year whose care requires assessment and management at the Paramedic's level of Certification or to demonstrate alternate experience, as approved by the Medical Director. These may include other patient care activities, additional CME, simulated patient encounters, and clinical placements. For the 2017 Certification year, SWORBHP will be monitoring these numbers and developing pro-active plans for 2018 for those who do not meet the 10 patient contacts.

Susan Kriening, RN, BScN, MHS, ENC(C)
Regional Program Manager

SWORBHP STRATEGIC PLAN

A TIME TO REFRESH

The Southwest Ontario Regional Base Hospital developed a strategic plan in 2013. The process involved input from SWORBHP Staff and Physicians, Paramedic Service leaders and Paramedics. SWORBHP's current Vision is: Leadership of optimal prehospital care systems. The mission is: Facilitating the delivery of excellent prehospital care while advancing safe practice and preparedness in our communities through collaborative partnerships and innovation. There are a series of Objectives and Initiatives and a strategic map built from the Mission and Vision statements.

Over the past 4 years SWORBHP has seen considerable success executing the strategic plan. Dr. Davis's recent appointment as Regional Medical Director presents an opportunity to refresh the plan. SWORBHP Leadership believe that the Mission and Vision are still relevant and should be maintained for the next iteration of the strategic plan. Keeping our current Mission and Vision has been endorsed by Paramedic Service leadership and our host hospital (LHSC).

Over the next few months the SWORBHP Team will conduct an environmental scan that includes a thorough review of the current Ontario and Canadian Pre-hospital care landscape. Paramedics can expect a brief electronic survey intended to engage them in the process and as an opportunity to provide feedback on where you think SWORBHP should head over the next few years. Members of our Education and QA Councils will also be engaged. In early 2018 a refreshed strategic plan will be communicated with SWORBHP's stakeholder community.

Adam Dukelow, M.D., FRCP(C), MHSC, CHE
Medical Director of Innovation & Research

London Health Sciences Centre
Southwest Ontario Regional Base Hospital Program

The Problem of Pulseless Electrical Activity and Termination of Resuscitation

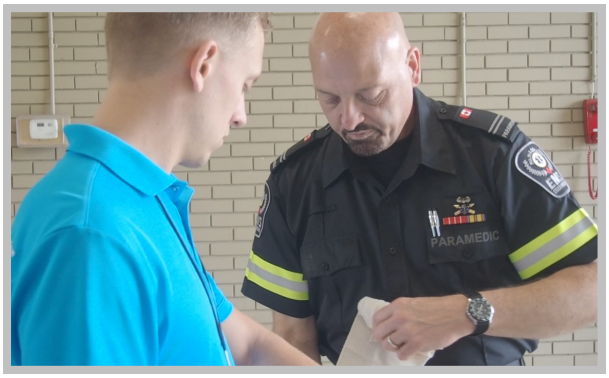
Several recent audits revealed paramedics decided to transport cardiac arrest patients who continue to have pulseless electrical activity (PEA) after completion of the cardiac arrest directive rather than patching for a termination of resuscitation order. Why did this happen? When questioned about this, the paramedics replied that there was no use patching to the Base Hospital Physician (BHP) because they would be told to transport the patient as the patient was in PEA. Why are paramedics being told to transport patients in PEA when the evidence from the termination of resuscitation studies suggest that only a small number of these people survive?

There are two problems that lead to this situation. The first problem is the use of the term PEA to imply one condition or problem. If the electrical system is not functioning at all, the heart is in asystole. If there is any electrical activity, on a continuum from agonal wide QRS complexes to coarse ventricular fibrillation, without a pulse, then the heart has PEA. There can be primary failures of the electrical system. However, we don't call these PEA but rather arrhythmias such as ventricular fibrillation, pulseless ventricular tachycardia, and heart blocks. These causes of primary failure of the electrical system can be treated with direct shocks or pacing. The remaining causes of PEA are secondary to something other than a primary failure of the electrical system. This includes a wide variety of things, such as hypovolemia, hypoxia, tension pneumothorax, myocardial infarction etc. The list of causes is long. Some of these causes of PEA are reversible and some are not. The reversibility of PEA frequently depends on factors such as how long the cause has been present, the person's age, pre-existing heart disease, heart rate, width of the QRS, etc,. The quicker the cause is relieved the greater the chance of survival. All these factors affect a determination of the chance of survival.

This leads to the second problem. BHPs have difficulty processing all this information, if it is even available, over a radio patch. Most physicians recognize the futility of further resuscitation in these cases. However, termination of resuscitation is a final, 'potential for further life' ending procedure. PEA is just a description that electrical activity is still occurring. It does not give information about the cause or the likely reversibility of it. Despite evidence from the termination of resuscitation studies that indicate the chance of survival from cardiac arrest after greater than 6 minutes of CPR by paramedics followed by transport to hospital, is very small, there is reluctance on the part of some physicians to terminate resuscitation as long as there is electrical activity present. Most physicians will terminate resuscitation, especially if the PEA is slow and the QRS complexes are wide. It is worth having a discussion about termination of resuscitation with the BHP in these cases. Besides, it remains a mandatory patch point in the medical directive.

Don Eby, M.D., PhD., CCFP(EM), FCFP
Medical Director of Preparedness
Local Medical Director
Grey, Bruce, Huron, Perth

What is The Best Hemostatic Dressing and Massive Wound Hemorrhage Plan for Paramedics?



We think this article will generate much discussion, and so we put together coauthors as a review team with prehospital, special operations, civilian and combat experience to answer the question. The BLS PCS mandates that effective December 11, 2017 these dressings be carried in ambulances, and so it makes sense to put some thought into designing the best kit. Basically we want something that is versatile, well proven, handles well for both urban and rural operations, and works for all of the different types of patients we take care of. We are leaving tourniquets out of this discussion.

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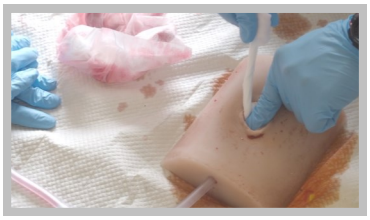
What is The Best Hemostatic Dressing and Massive Wound Hemorrhage Plan for Paramedics? - cont'd from page 10

Trauma is the leading cause of death below the age of 44, and we are seeing more penetrating trauma these days. Elderly falls make up our largest group of multisystem injured patients, and many are on anticoagulants. I think we have all seen at least a trend for upper middle aged people sustaining serious traumatic injuries on motorcycles. Clearly just directly applying military experience, working on young fit healthy adults doesn't necessarily correlate to the experience of treating older adults who sustain trauma. The other variable is paramedic experience, and the ideal product will be easy to use for the less experienced first responder, when the paramedic is directing multiple agencies in an MCI, and also have advanced features that enable it to perform in unique circumstances.

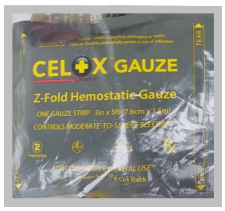


There has been many questions surrounding the controlled act of "performing a procedure on tissue below the dermis" and whether or not packing a wound falls under the scope of medical delegation. SWORBHP's interpretation of this is that this refers to the intentional violation of the dermis to perform that procedure. In this instance, the dermis has been violated secondary to trauma and if required, packing a wound is a life-saving procedure that falls to the BLS Standards. Clearly, the dermis is not intact in this situation and the patient has the potential to lose a critical volume of blood in minutes. Please pack the wound, wrap it tightly, and stop the bleed. Ninety percent of the time with practiced technique, 4 ½" Kerlix skillfully packed into a wound and overdressed with a 6" elastic bandage is highly successful.

A popular wound bandage to use is the Olaes Bandage in 6" format. It is very easy to use even for first timers. Open it up....cover the bleeding part with the white part and wrap it. It is basically a lump of gauze stitched to an elastic wrap. Another technique that a paramedic can employ is the use the built in pressure cup (that doubles as a rigid eye shield for a ruptured globe when needed). You can pull out and utilize the inner Kerlix gauze to pack, and there is also the occlusive seal that can be utilized. The wrap has staged Velcro security strips so the ends do not get away from you in high stress adrenaline fueled situations with low manual dexterity or windy helicopter operations.

IMAGE 1

If the situation calls for hemostatic dressings then paramedics need to consider some of those recommended by the Committee on Tactical Combat Casualty Care (TCCC). Many would suggest "Quick Clot Combat Gauze", as that has been around in a military environment the longest, has a proven track record of saving many lives, and it contains the clay mineral kaolin to activate factor XII. However, it is important to consider CELOX gauze, which is also TCCC[i] recommended as it utilizes a propriety composition of chitosan, a natural polymer derived from shrimp shells, which has efficacy regardless of intact clotting pathways[ii]. Given the high incidence of modern anticoagulant therapy in our aging population, we think it is wise to consider a recommendation for a hemostatic gauze that works despite the presence of coagulopathy, whether induced by medications, hypothermia or metabolic dysfunction from large blood loss.



The ideal plan would be to pull these items together into a ready to grab bleeding kit or massive hemorrhage kit (see image 1) Refresher training is crucial to maintain the skills with massive hemorrhage control.

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Tony Meriano CD MD FCFP (EM)
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[i] Brad Bennett, Frank Butler et al, "Management of External Hemorrhage in Tactical Combat Casualty Care: Chitosan-Based Hemostatic Gauze Dressings", Journal of Special Operations Medicine Volume14, Edition 3/ Fall 2014. Pg12-29

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SWORBHP:DID YOU KNOW?

CASE 1

73 year old male awakens in the middle of the night with chest pressure 7/10. He is short of breath, has crackles in the bases and a history of CHF. An IV is established and the first 12 Lead ECG reveals STEMI. HR 110 BP 142/92 RR 24 SpO2 92% with accessory muscle use.

How much nitroglycerin (NTG) might you administer to this patient?

OPTION A

The dose according to the Acute Cardiogenic Pulmonary Edema (ACPE) Medical Directive: Maximum 0.8mg x 6 doses?

OR

OPTION B

The dose according to the STEMI Medical Directive: Maximum 0.4mg x 3 doses?

CASE 2

Same as Case 1, **except** the 12 Lead ECG reveals evidence of cardiac ischemia and is not a STEMI.

Now how much NTG might you administer?

Are there other therapeutic options you might consider?

Does your answer change with ECG changes consistent with cardiac ischemia vs. STEMI?

OPTION A

The dose according to the Acute Cardiogenic Pulmonary Edema (ACPE) Medical Directive: Maximum 0.8mg x 6 doses?

OR

OPTION B

The dose according to the STEMI Medical Directive: Maximum 0.4mg x 3 doses?

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CONSIDER THIS...

Nitroglycerin induces arterial and venous dilation, relaxation of coronary arteries, improved coronary blood flow and collateral vessel dilation. The net effect of these physiological effects is a reduction of preload and afterload with resultant improved subendocardial blood flow.

Consider what your treatment priority is in each of the cases above. What are the risks and benefits of treating each with NTG? The answer of course will depend on your initial working diagnosis, treatment plan and information gathering.

CASE 1

In the 1st case, a patient with STEMI and ACPE requires the maintenance of oxygenation and coronary perfusion. Coronary perfusion and subendocardial blood flow may be improved by NTG. In accordance with the STEMI medical directive, a maximum of 0.4mg x 3 doses of NTG may be given to the STEMI positive patient with ACPE. Once STEMI is confirmed, there is no known benefit, and some potential harm, from continued administration of NTG beyond 3 doses.

CASE 2

In the second case where cardiac ischemia is suggested by the ECG and/or clinical picture and the patient is in ACPE, the ACPE directive can be utilized.

IN BOTH CASES, the patient with ACPE may benefit from CPAP and it should be utilized if indicated and no contraindications exist.

CLOSING REMARKS...

- In cases of STEMI, utilize the NTG doses associated with the STEMI medical directive.
- In cases of cardiac ischemia and ACPE, utilize the NTG doses associated with ACPE directives if indicated.
- Consider CPAP if criteria are met as this may be significantly beneficial to patients with ACPE regardless if they are having STEMI or cardiac ischemia.
- Consider adding 12 lead ECG interpretation to all of your ACPE (and short of breath) patients.
- ASA should be provided to the above patients when indicated.

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SWORBHP WORD SEARCH

N M E D I C A L Q B T Z B H S
Z O E C U C A C B T P X Z Q E
K F I D A A T V P Q V D Y C R
G S W T I R G L U A H E R S V
C Q L S A C D A H I P L E E I
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M M D U F I I I A C M G I I E
E I B E T Z P C N C B A L T Q
T H I Y M H E A S K D T E C E
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C B D R Q U R G C E S D E R N
Y X O A B C N A T K E E K I O
W W C M L H E O P W P T R D N
S P A N A L G E S I A F A L L
S D R A D N A T S D R O F X O

ACP
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AMBULANCE
FALL
OXFORD

CPAP
DOSE
DIRECTIVES
RESUSCITATION
MOHLTC
ANALGESIA
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QUALITY
STANDARDS
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PARAMEDIC

SWORBHP CME Opportunities

For a detailed list of all upcoming events view our event calendar:
http://www.lhsc.on.ca/About_Us/Base_Hospital_Program/Upcoming%20Events/index.htm

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Comments or suggestions?

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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