

2021-2022 ANNUAL REPORT



Centre for Prehospital Care

Health Sciences North

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Centre for Prehospital Care

Health Sciences North

INTRODUCTION

On behalf of the staff, including the Medical Directors and Advisors, of Health Sciences North Centre for Prehospital Care (HSN CPC), it is our pleasure to present the annual report for fiscal year 2021-2022.

This report follows the template provided by the Emergency Health Regulatory and Accountability Branch, and demonstrates how our organization addresses the key performance indicators listed in the Performance Agreement.

We have completed another productive and successful year. Some key achievements during this fiscal year include:

- We certified **155** new paramedics
- We provided advice and online medical direction during **665** patch calls
- **118,447** ACRs were processed through our clinical filter identification system
 - **37,666** matched our clinical filters and electronically audited
 - **6,897** were identified as requiring further review by a clinical auditor

We acknowledge the exceptional work of all our staff as we continue to seek new and innovative methods of delivering our services to our stakeholders while meeting and, in some cases, exceeding the expectations defined in our Performance Agreement.

DR. JASON PRPIC
REGIONAL MEDICAL DIRECTOR

COREY PETRIE
INTERIM REGIONAL MANAGER

OUR PURPOSE, COMMITMENTS AND VALUES

Our Purpose

To provide high quality health services, support learning and generate research that improves health outcomes for the people of Northeastern Ontario.

Our Commitments

We will carry out our patient care, teaching and research responsibilities with integrity, ensuring patients and families remain the focus of all we do.

We will partner with humility, valuing each person's and each community's strengths and ideas to bring the best care, education and research solutions forward.

We will provide a physically, psychologically and culturally safe environment that promotes a positive care, working and learning experience.

Our Values

We believe in and will model:

Respect Showing positive regard for each person's strengths, qualities and values.

Quality Providing patient and family-focused services that are safe, reliable, accessible (timely), efficient, effective and equitable.

Transparency Sharing information that is timely and truthful, working within the limits of law and policy.

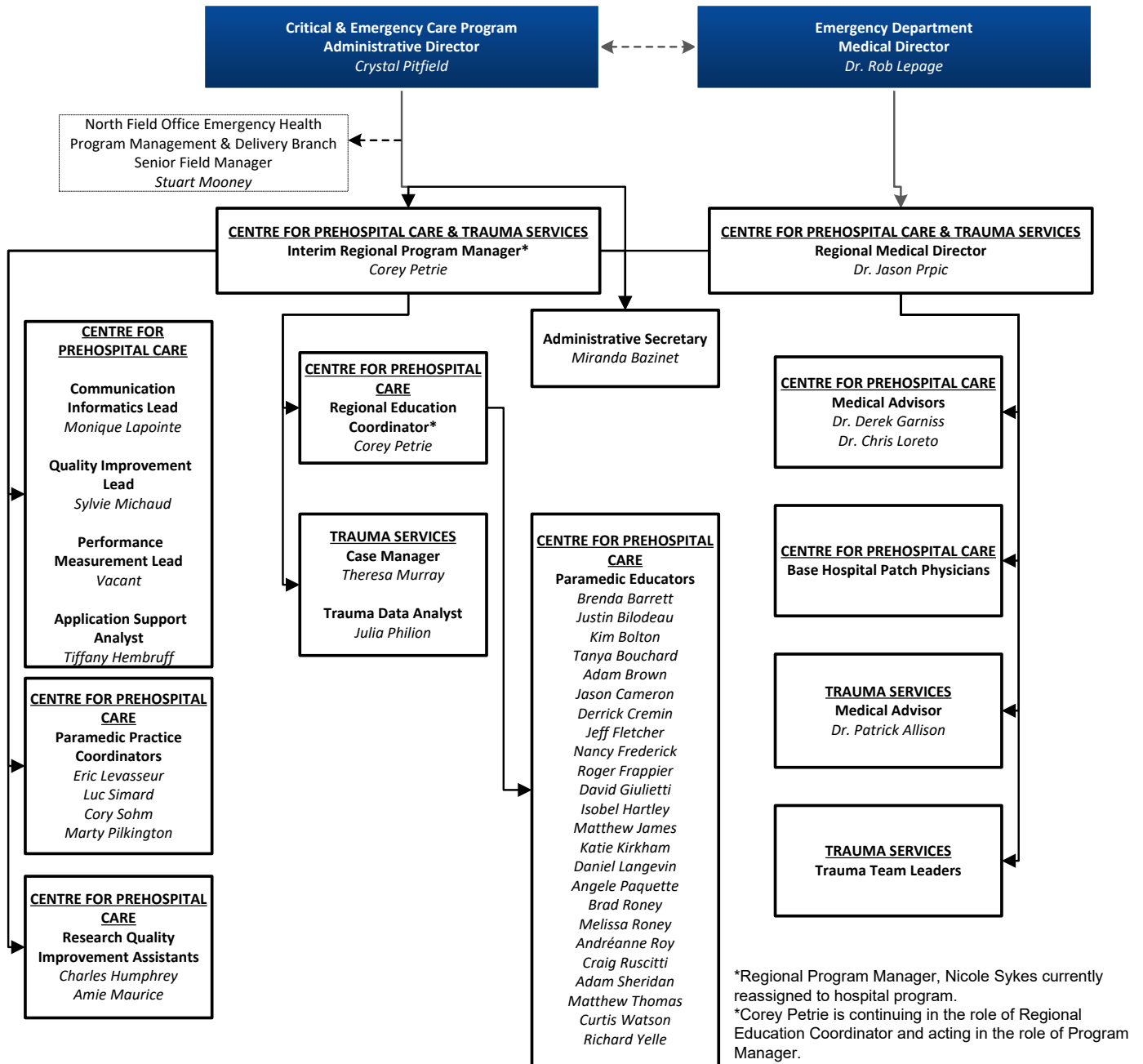
Accountability Taking personal responsibilities for our actions, behaviours and decisions.

Compassion Responding to the needs of others, showing kindness and empathy.



ORGANIZATION CHART

As of March 31, 2022



MEET THE TEAM

Nicole Sykes



REGIONAL MANAGER

Corey Petrie



REGIONAL EDUCATION &
CERTIFICATION COORDINATOR

Dr. J. Prpic



REGIONAL
MEDICAL DIRECTOR

Monique
Lapointe



COMMUNICATIONS &
INFORMATICS LEAD

Tiffany
Hembruff



APPLICATIONS
SUPPORT ANALYST

Miranda
Bazinet



ADMINISTRATIVE
SECRETARY

Sylvie Michaud



QUALITY
IMPROVEMENT LEAD

Eric Levasseur



PARAMEDIC
PRACTICE COORDINATOR

Cory Sohm



PARAMEDIC
PRACTICE COORDINATOR

Luc Simard



PARAMEDIC
PRACTICE COORDINATOR

Marty
Pilkington



PARAMEDIC
PRACTICE COORDINATOR

Casual Educators

- Brenda Barrett
- Justin Bilodeau
- Kimberly Bolton
- Tanya Bouchard
- Adam Brown
- Jason Cameron
- Derrick Cremin
- Jeffrey Fletcher
- Roger Frappier
- Nancy Frederick
- Dave Giulietti
- Isobel Hartley
- Matt James
- Katie Kirkham
- Dan Langevin
- Angele Paquette
- Brad Roney
- Andreeanne Roy
- Craig Ruscitti
- Adam Sheridan
- Matt Thomas
- Curtis Watson
- Richard Yelle

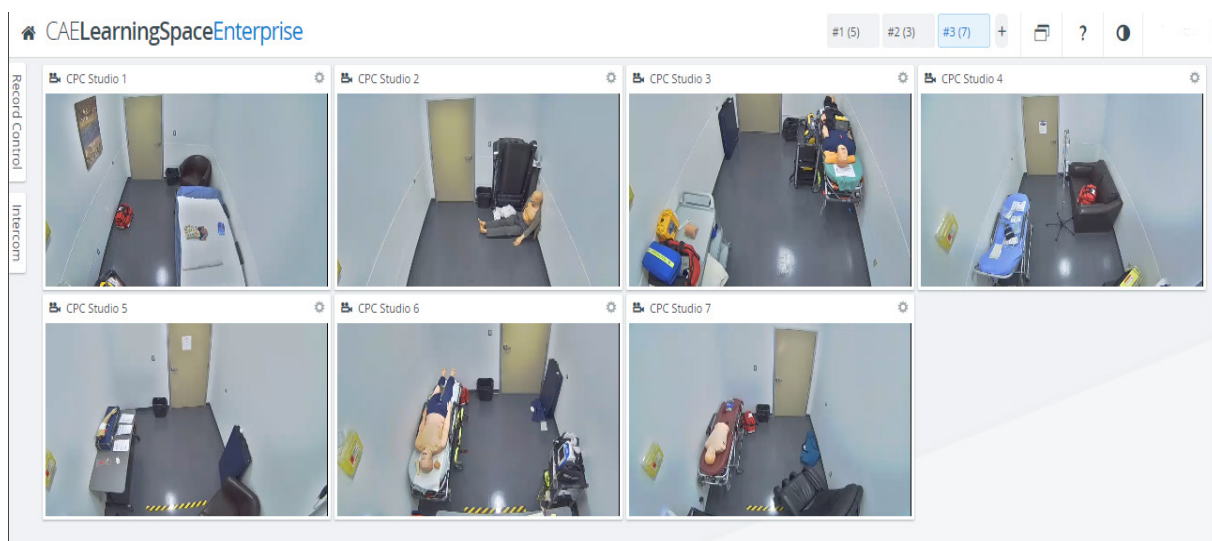
HIGHLIGHTS

Our Response to COVID-19

In response to the increased number of confirmed novel coronavirus (COVID-19) globally, the World Health Organization declared a pandemic on March 11, 2020, which continued throughout the 2021-22 Fiscal Year. As a result, the Ontario Base Hospital Group (OBHG) established a provincial working group to develop an alternate certification process, which permitted the timely certification of Ontario Paramedics. This remote virtual certification process was utilized successfully throughout most of the 2021-22 year with some limited in-person certification events in the Fall of 2021.

CPC Installs CAE LearningSpace, a new simulation management solution

In March of 2022, the Centre for Prehospital Care installed the CAE LearningSpace clinical simulation platform in the Sudbury office. CAE LearningSpace is a simplified solution for simulation video capture and debrief. The user-friendly system allows Paramedics or other clinical teams to learn, practice or review medical directives and skills while being provided post session feedback. CPC staff can now expand the variety and complexity of Simulated Clinical Experiences (SCEs) in both prehospital and in-hospital environments, providing hands-on training scenarios for Paramedics and/or students and professionals to obtain skills required for effective patient care. The system is designed so that our remote staff can virtually participate in real time during hosted educational or certification events.



Marty Pilkington Retires After 38 Years

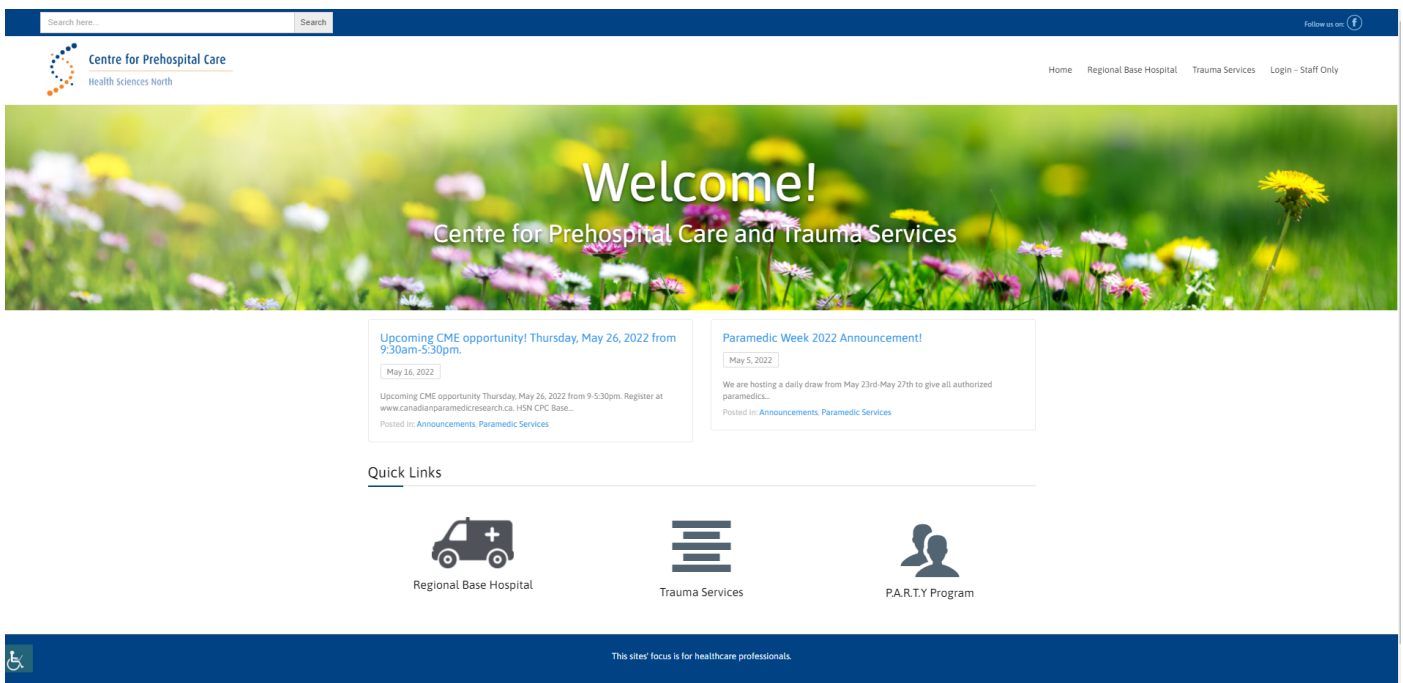


In early 2022, long time Paramedic Practice Coordinator (PPC), Marty Pilkington, announced his retirement. During his 38 years in the world of EMS, he held several roles, including a paramedic, Service and Base Hospital Reviewer, Manager and a Paramedic Practice Coordinator overseeing the WAHA, Cochrane and Timiskaming District Paramedic Services. He began his EMS journey in 1984, after graduating from Humber College, as a land Paramedic in the northern region, where he remained until 1999. During that time, he also spent 12 years working with the MoH Air Ambulance 7796. On April 1, 1999, Marty joined the Timmins and District Base Hospital Program, and then proudly joining the (then) Northeastern Ontario Prehospital Care Program, in early 2009. Marty has been a significant contributor to the Prehospital Care system for nearly four decades, and his involvement and contributions have helped shaped the system as it is today.

HSN CPC Website

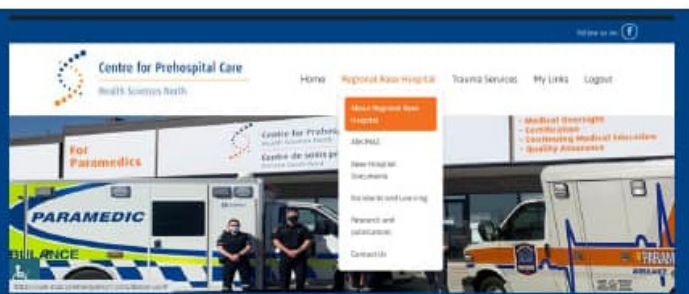
We are pleased to announce the newly designed Health Sciences North Centre for Prehospital Care website launched on November 1, 2021. Our main goal is to improve the navigation through our site to facilitate finding what you need, when you need it. Here are some highlights of our new site:

- Encompasses Base Hospital, Trauma and P.A.R.T.Y. Programs,
- Updated blog to include our program announcements, education opportunities, paramedic services updates and communiques, as well as news articles,
- Easier navigation through menus,
- Meet our team with pictures and contact information,
- Meets the Accessibility for Ontarians with Disabilities Act (AODA) Standards.



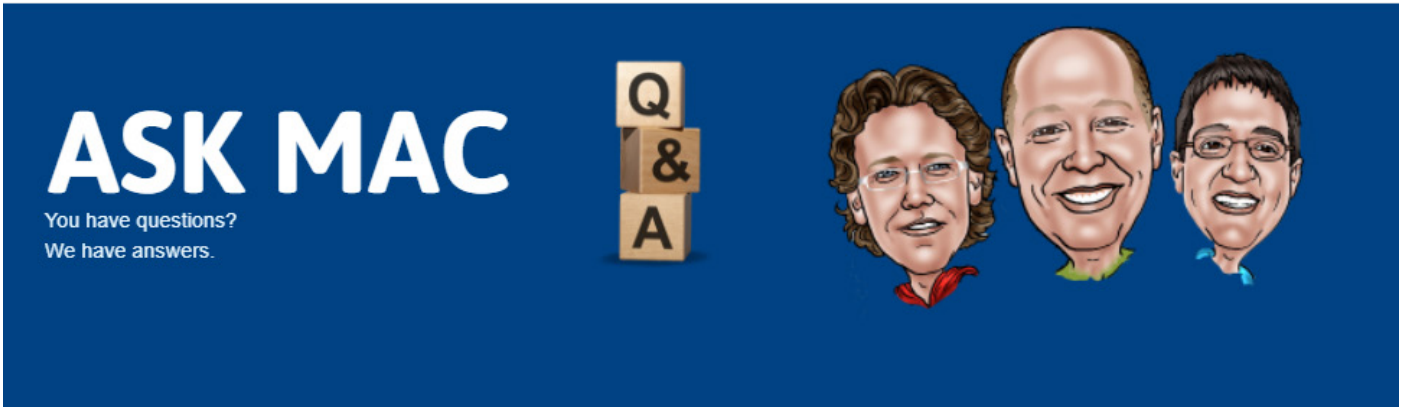
The screenshot shows the homepage of the Centre for Prehospital Care website. At the top, there is a search bar and a navigation menu with links for Home, Regional Base Hospital, Trauma Services, and Login - Staff Only. The main header features a large image of a field of daisies with the text "Welcome! Centre for Prehospital Care and Trauma Services". Below the header, there are two featured articles: "Upcoming CME opportunity! Thursday, May 26, 2022 from 9:30am-5:30pm." and "Paramedic Week 2022 Announcement!". A "Quick Links" section follows, with icons and text for "Regional Base Hospital", "Trauma Services", and "P.A.R.T.Y. Program". At the bottom, there is an accessibility icon and the text "This sites' focus is for healthcare professionals."

Improved Navigation



New Trauma Site





You have questions? We have answers!

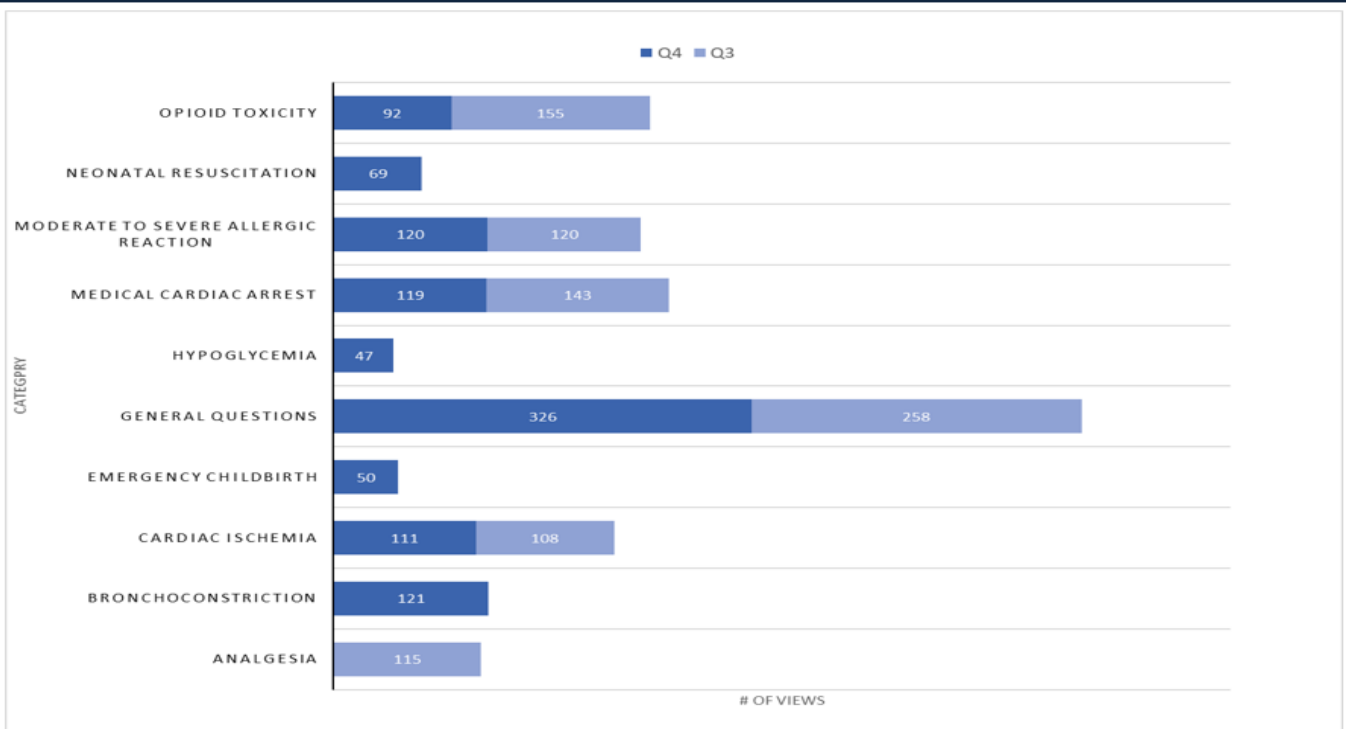
ASK MAC allows paramedics and services to submit questions to our medical directors and receive timely responses, as well as view existing questions and answers within our system in Northeastern Ontario.

Since our launch on November 1, 2021, we have had 24 questions asked and answered!

Most Viewed Questions

- Can we titrate naloxone 0.8 mg SC/IM/IN?
- When do we transport a pediatric VSA?
- Should Dimenhydrinate be administered if the patient has already taken some?
- Diluting Diphenhydramine
- Do we give epinephrine in anaphylaxis before running the code?

Ask MAC Views by Category 2021-22 Q3 – Q4 (Total Views 1954)



Fall Rounds Session for the James Bay Coast - September 2021.


The drone footage was provided by a PCP in Fort Albany!

Our PPC Marty Pilkington met with over 47 paramedics in 5 different communities in a single week!




Health Sciences North Centre for Prehospital Care
Published by Corey Petrie · October 19, 2021 ·

Congrats Kate, our CPC family couldn't be more proud!

 SooToday.com
October 19, 2021 ·

She will lead a team of 70 paramedics



SOOTODAY.COM
Sault's new paramedic chief makes history
She will lead a team of 70 paramedics

A congratulations goes out to our Casual Educator - Kate Kirkham who has been appointed the Chief position in Sault Ste Marie and for making history as the first female Chief in the North!

Fall CME is in full swing throughout the Northeast. Pictured here is PPC Luc Simard with a group of Greater Sudbury Paramedics discussing cardiac arrest treatment.



Mandatory Continuing Medical Education (CME) Highlights 2021-22

Special Project Palliative Care Program Online Modules

WAHA, Timiskaming, SSM, Parry Sound, Nipissing, MSPS, CDPS, ADPS

Palliative Care Instructor Led Sessions

WAHA, Timiskaming, SSM, Parry Sound, Nipissing, MSPS, CDPS, ADPS

Injection Review:

Special Palliative Medical Directives Knowledge Assessment

WAHA, Sudbury, Timiskaming, SSM, Parry Sound, Nipissing, MSPS, CDPS, ADPS

i-Gel Supraglottic Airway

WAHA, Timiskaming, SSM, Parry Sound, Nipissing, MSPS, CDPS, ADPS

Palliative Case Review and Improvement Opportunities

Sudbury

EtCO₂ Monitoring

Sudbury, Parry Sound, Nipissing

STEMI Review

Sudbury

The Centre for Prehospital Care offered the following Courses in 2021-22 for Elective CME credits

Session	Date of Live/Virtual Event	Available as an Archived Event with Video and Quiz?	Credits
Covid-19 – An update by Dr. Sandre	April 14, 2021	✓	1
Townhall: STEMI Mimick and ETCO ₂	April 28, 2021	✓	1
Man vs. Machine	May 5, 2021	✓	1
STEMI Review with Dr. Garniss	October 4, 2021	✓	1
Penetrating Trauma Case	October 21, 2021	✓	1.5
Town Hall STEMI	December 3, 2021	✓	1.5
Pediatric Respiratory Emergencies	February 24, 2022	✓	1

In addition to the above, paramedics are encouraged to also explore other educational opportunities related to their practice and submit as a request for CME Credits through the Paramedic Portal of Ontario. CPC Medical Advisors review these requests, along with course itineraries and learning objectives and approve for CME Credits.

Collaboration

OBHG Education Committee

Advanced Life Support Patient Care Standards (ALS PCS)

The Ministry of Health (MoH) reached out to OBHG MAC in spring 2021 for suggested prioritized implementation of all medical directives; a heat map was created by OBHG to develop two "buckets" of medical directives for implementation. Bucket 1 was memo based, bucket 2 requires changes that are more involved, a bucket 3 was developed for the chemical exposure and special event medical directives. Education Sub-Committee (ESC) has worked to ensure the bucket 2 education is ready for delivery in 2022, and the Data Quality Management SubCommittee (DQM) has requested necessary ACR codes be removed/added to the eACR. ALS PCS version 4.9a DRAFT (bucket 1) was posted for a 30-day consultation process on the MoH website, comments closed November 21, 2021. There were no major changes made from feedback received. The updated ALS PCS version 4.9 was posted on the MoH website December 2021 with an in-force date of February 1, 2022.

Updated Certification Scenario's for ACP and PCP's

Primary Care Paramedic (PCP) and Advanced Care Paramedic (ACP) existing simulation scenarios have been updated to ensure they are consistent with the v4.9 ALC PCS medical directives. Currently we have access to 57 scenarios that can be used for in-person testing or a modified version for use with the virtual objective structured clinical evaluation (VOSCE) certification process. This was possible through a Provincial Working Group in collaboration with other Base Hospitals.

Certification Standards

A Certification Standard Working Group was assembled in September 2018 to review the Certification Standards. The Working Group consists of one representative from each of the five regions of OAPC, one representative from Toronto EMS, one Ornge operational representative, and one representative from each Base Hospital. Greg Sage (OAPC) and Maud Huiskamp (MAC) Co-Chair this working group.

While Covid-19 priorities have delayed progress, the group plans to complete some pilot testing, target a couple areas to ensure nothing was missed and to roll the concepts out in phases. Rather than putting dates into standards, the group aims to create a generic statement, accompanied by a companion document. Work is continually shared among stakeholders to ensure all groups are on the same track.

Northeastern Ontario Stroke Network

Our office is continually in contact with our regional stroke partners as we serve as a spoke and hub model for our EMS services to receive this important information from the stroke network. In the fall of 2021, we were able to facilitate information to our 9 service providers that Health Sciences North EVT program was able to expand to a 24/7 service. We have been able to provide updates to our service providers on the number of EVT procedures performed.

Annual Curriculum and Storage Working Group

The work of the annual curriculum-working group resumed at full speed in 2021/22. Numerous detailed education packages were created to support the anticipated release of v5.0 ALS PCS. Supporting the work of the annual curriculum-working group is the OBHG storage-working group. The storage-working group has enabled a centralized location to house educational documents created by each base hospital as well as the curriculum-working group. This site supports ongoing sharing while achieving optimal organization of the created or edited material.

Autonomous Intravenous Working Group

Another collaborative effort, which continues, is the Autonomous Intravenous Working Group. The group's focus over the 21/22 year was to update the material to reflect the v4.9 ALS PCS medical directives, which came into effect February 1, 2022.

Covid-19 (previously Novel Coronavirus nCoV)

OBHG MAC issued memorandums to all paramedics and paramedic services providing clinical considerations and critical thinking perspectives regarding application of the Assessment of Patients with Possible Covid-19 Medical Directive (ACP and PCP versions) when managing patients who failed the "Covid-19 screening tool".

Upon a quality and safety assessment, it was found that there was an increase use of epinephrine in a few BH jurisdictions, mostly in elderly patients, with a few unfavorable adverse outcomes. Based on this data, OBHG MAC mentioned to modify the Covid-19 Paramedic Considerations document, specifically addressing the Bronchoconstriction Medical Directive, to restrict the use of IM epinephrine to age <50 years, and to consider a patch for the administration in patients <50 years. This was updated via a memo in February 2021.

As infection rates dropped following the third wave, and given a better understanding of Covid-19 and where risks lie, OBHG agreed many paramedic response effects could return to normal, with proper precautions in place. OBHG MAC led by our medical director, Dr. J. Prpic, released an updated memo October 19, 2021, as part of a strategy to return to normal paramedic practice. Overall, the update aimed to lighten language in the considerations document to allow for greater paramedic judgement.

Defibrillation Registration and Public Access Act

In June 2020 the legislator passed Bill 141, Defibrillation Registration and Public Access Act, that enabled the creation of a registry for ongoing maintenance of automated external defibrillators in designated premises and allows the MoH to appoint a registrar to maintain this registry. Intent of today's discussion is mostly as an awareness item. There are opportunities for written feedback and an online survey. The MoH is currently conducting consultation until early 2022 with several stakeholders, including OBHG, to ensure that the regulations created are responsive to the intent of the legislation.

Documentation Standard/ACR/ACR Completion Manual

The MoH is in the process of reviewing the Ontario Ambulance Documentation Standards (OADS) and associated documents/standards. The OADS Working Group has established the terms of reference for the scope of the review and will be meeting on a monthly basis to develop proposed changes to the OADS and associated documents/standards.

The MoH continues to receive and action ACR code requests with the support of OBHG DQM. The process for code requests was adjusted so when the MoH submits an ACR code request, they identify if it applies to a New Patient Care Model program. ACR codes and a change log can be viewed at:

http://www.health.gov.on.ca/en/pro/programs/emergency_health/edu/acr_codes.aspx

EHS Modernization

The MoH is seeking input and advice on the province's next steps regarding public health and emergency health services modernization. A discussion paper has been released and a Special Adviser has been appointed to lead the process of gathering feedback through a variety of mechanisms and meetings. OBHG continues to work on providing our feedback to the process. Due to the ongoing impacts of the Covid-19 pandemic, the work on EHS Modernization is paused.

OBHG Data and Quality Committee

The DQM continues to collaborate on provincial reporting such as naloxone, medication incidents as well as any ad hoc requests received from the OBHG Medical Advisory Committee. The DQM ACR Code Working Group continued to provide recommendations to the MOH related to ACR code requests.

The DQM is currently in the process of reviewing its current state and drafting a roadmap for the future of this subcommittee.

Paramedic Portal of Ontario (PPO)

Health Sciences North Centre for Prehospital Care, Southwest Ontario Regional Base Hospital Program, ORNGE Base Hospital and Sunnybrook Regional Base Hospital continue to collaboratively pursue standardization of paramedic certification management as well as enhancing the delivery of education through its established Paramedic Portal of Ontario (PPO). Workflow improvements continued in 2021-22. Users now receive system-generated notifications.

Several enhancements were made to reports, the application of medical directives to certification letters, and other administrative processes. In addition to new certification, deactivation and reactivation requests, Service operators can now confirm Reg. 257 compliance and clinical activity as part of the Annual Certification Process.

In 2022-23, our focus will continue on enhancing the reporting requirements to show the certification status history by medic and the medical directives applied/removed by medic as well as service summaries. Enhancements will be made to the application and removal of medical directives administrative processes and workflows. Other enhancements will include the ability for service operators to make requests for account changes, and certification level changes in PPO. Work continues on the development of the cross certification process, consolidation workflows and enhancements to the Document Management System (DMS) and Paramedic HR file.

Quality Programming

CorHealth Ontario - Prehospital STEMI Data

ST-segment elevation myocardial infarction (STEMI) is a form of heart attack that can cause death if not treated quickly. Approximately one-third of acute coronary syndromes are classified as STEMI. Data from the Canadian Institute for Health Information (CIHI) Discharge Abstract Database (DAD) suggest that the incidence of STEMI in Ontario is approximately 68 of every 100,000 adult residents, a total of about 7,000 STEMIs per year. Working with key stakeholders, including Base Hospital Programs and Paramedic Services, CorHealth is responsible for the Ontario Cardiac and Vascular Registries. The data collected include specific clinical parameters required to evaluate key components of care and determine risk-adjusted outcomes. In order to facilitate the inclusion of prehospital data, the Base Hospital coordinates their efforts with the Paramedic Services to ensure important key information is forwarded.

(source: <https://www.corhealthontario.ca/>)

Opioid-related harms in Canada – Provincial Reporting

The Government of Canada works closely with the provinces and territories to collect and share data on apparent opioid-related deaths. Accurate information about the crisis is needed to help guide efforts to reduce opioid-related harms, including deaths. Emergency Medical Services data in this report is collected by the Ontario Base Hospital Group, updated four times a year and have been shared through the Special Advisory Committee on the Epidemic of Opioid Overdoses. Source: <https://www.canada.ca>

IQEMS

Health Sciences North Centre for Prehospital Care, London Health Sciences Centre, Southwest Ontario Regional Base Hospital Program and Sunnybrook Centre for Prehospital Medicine continue to work collaboratively pursuing standardization of quality assurance software and work toward the delivery of a centralized data quality management solution using Intelligent Quality Evaluation and Management Suite (IQEMS). This web based software supports the management of many Base Hospital's Continuing Quality Improvement endeavors including data mining, peer review and compliance auditing, secure communication with stakeholders, investigation and self-reporting, efficient work flow and document management, statistical reporting and data visualization.

The development of IQEMS as a collaborative and integrated quality solution continued through 2021-22 guided by the strategic work plan through remote work and virtual face to face meetings to further improve the current system, develop additional capabilities such as the enhanced search functionality, bi-directional feedback and updating the clinical filters and audit forms. In 2021-22 a project work plan was drafted, and conversations regarding a new platform for IQEMS have begun.

Implementation of New Palliative Care Patient Care Model in the Northeast

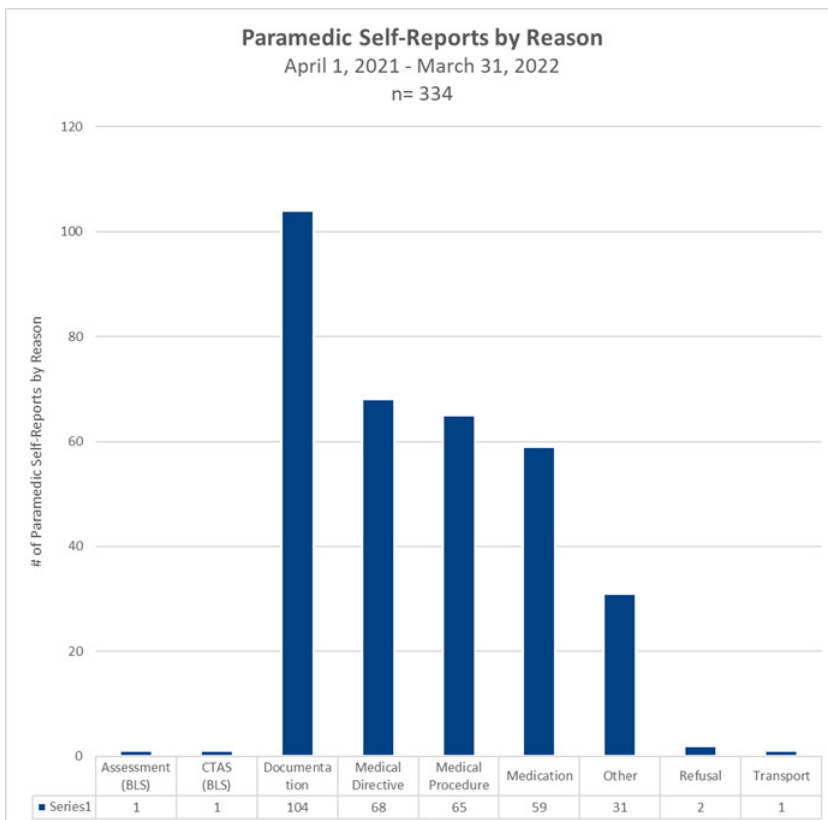
Under this "9-1-1-model of care", specifically-trained paramedics are able to administer a range of medications for a number of conditions, including pain management, shortness of breath, hallucinations or agitation, terminal congested breathing and nausea or vomiting and leave the patient at home if that is their goal of care. After treatment, the patient has the option of follow-up treatment with either their palliative care provider or can ask to go to an emergency department at any time. The Palliative Care Patient Care Model is aimed at getting quicker treatment for patients, reducing overcrowding in emergency rooms and empowering paramedics to treat patients as per their wishes.

The program "kicked off" in February 2022 with Greater Sudbury Paramedic Services providing care to 22 palliative patients who accessed the 911 system between February 1 and March 31, 2022. Other services in the Northeast will be coming onboard over the next year.

Web-Based Self-Reporting Continues

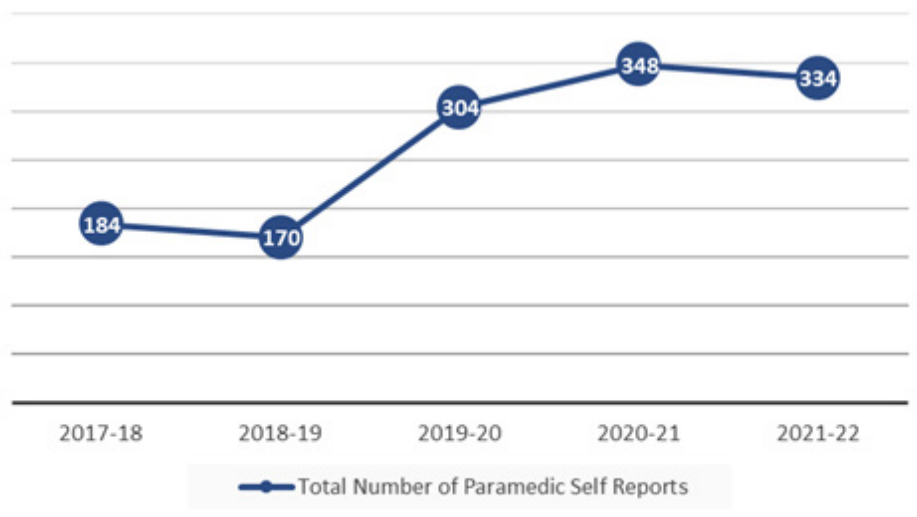
The HSN CPC strongly believes that self-reporting of adverse events is not only professional but developmental and has become part of our paramedics' standard of practice. The simple fact of recognizing an event means that some form of self-remediation has taken place. From a program perspective, we look for trending issues and develop regional education based on actual needs. The link to access the self-reporting tool via IQEMS is located on the HSN CPC website. The Paramedic Self-Reporting tool was launched in April 2014 and integrated into IQEMS in 2018 and the activities continue to impress. There were 334 Paramedic self-reports generated and reviewed in 2021-22 fiscal year. Aggregate reports are routinely shared with Service Operators.

Self-reports may include, but are not limited to, medical directive variances, documentation omissions or any challenges a paramedic may encounter during a call. The Self-Report form does not replace the option of contacting a Paramedic Practice Coordinator (PPC) for discussion, however serves as a standardized method of reporting.



Annual Paramedic Self- Reports

FY 2017-18 to 2021-22

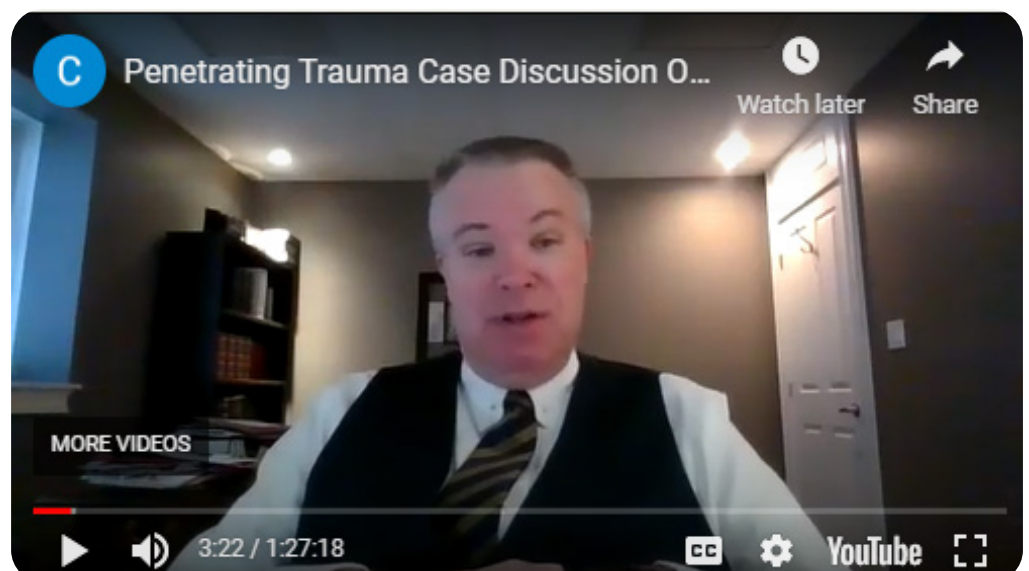
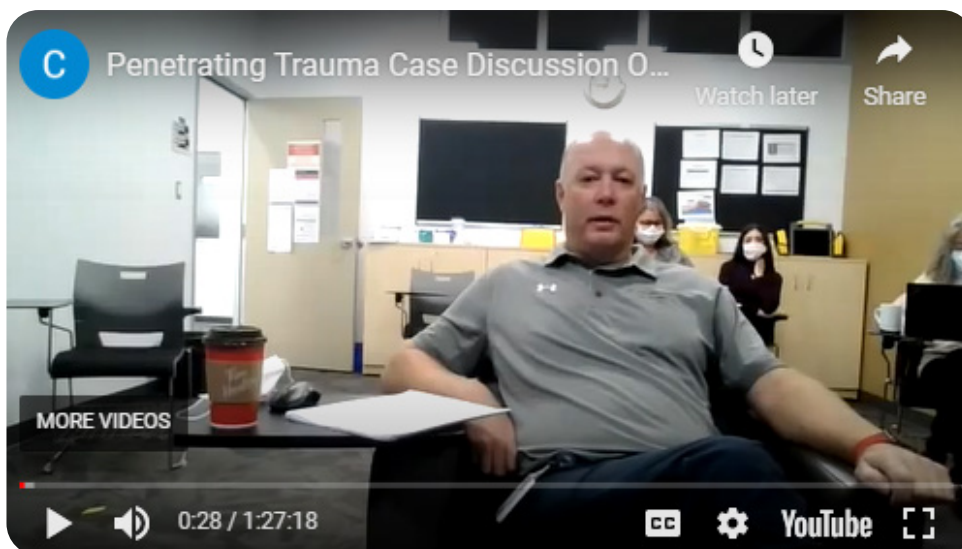


Distance Education

We continue to provide education to approximately 772 paramedics across one of the largest geographical regions in Ontario. To meet the challenge, especially during the Covid-19 pandemic, HSN CPC continues to experiment with different methods of education delivery such as Microsoft Teams, Adobe Connect, Zoom, Turning Point (anywhere polling), Social Media and the Paramedic Portal of Ontario. The newer methods of delivery allow HSN CPC to enhance learning opportunities and facilitate the delivery of education allowing ease of access by paramedics with instantaneous feedback. Educational pre-learning is available for all new certification candidates online via the Paramedic Portal of Ontario. This gives the candidates an opportunity to arrive at a virtual or in-person scheduled educational and/or evaluation session with the didactic portion of the material completed. It also gives the HSN CPC Education and Certification Coordinator the ability to track the progress of the candidates in real time.

The installation of CAE LearningSpace in 2022 will continue to allow the connectivity by the Northeast Region Paramedics to the Base Hospital for real time educational, certification and administrative purposes, while the Paramedic Portal of Ontario currently houses all our archived continuing education lectures. We currently have 39 elective presentations that paramedics can view from anywhere and anytime with an internet connection. As mentioned above, we also liaise with our provincial colleagues to provide educational opportunities in alternate areas of the province. This has been especially beneficial during the Covid-19 pandemic as paramedics can connect from almost anywhere.

HSN CPC continues to work on solutions to further reduce barriers of time and distance for paramedics to participate in a higher level of learning regardless of their location.



Social Media



facebook.com/hsncpc



Health Sciences North Centre for Prehospital Care

@HSNCPC · Hospital

[Send message](#)

Hi! Please let us know how we can help.

Highest Post Reach, Post Engagement and New Page Likes of 2021-22

Insights

[See all](#)

Last 28 days : Apr 18 - May 15 ▼

People reached

2,261

▲152%

Post engagements

713

▲494%

Page likes

21

Centre for Prehospital Care Celebrates Paramedic Week 2021



Health Sciences North Centre for Prehospital Care

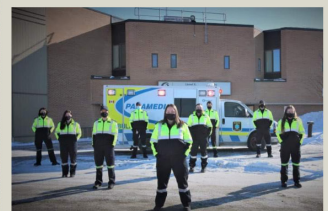
added 27 new photos.

Published by Tiffany Hembruff · May 25, 2021

HAPPY PARAMEDICS WEEK!!

We asked you to submit photos showcasing your service, community and/or service spirit as part of a photo contest, and we received some great submissions that we want to share with you all. Everyone who submitted a photo gets their name put in for a gift card draw. Monday and Tuesday draw winners will be announced shortly. Check back daily for the remaining winners this week.

We thank you for your continued efforts on the front lines, and for everything that you do!



RESEARCH

Prehospital Patellar Reduction in the Field

Results

Sixty-three patients were offered prehospital patellar reduction and two patients refused the procedure. Of the sixty-one who had an attempt at reduction, 50/61 (82%) were successful. Of the eleven unsuccessful attempts, two were outside of protocol due to age >50. Of the 50 successful attempts, one was outside of protocol due to direct trauma mechanism (1). If the success rate is adjusted for only those reductions that were performed on patients who met the inclusion criteria (n=58), the success rate is equal to 84%.

All Attempts N=61		Met Criteria Only N=58	
Unsuccessful 11 (18%)	Successful 50 (82%)	Unsuccessful 9 (16%)	Successful 49 (84%)

Although there were patients in the successful reduction cohort who did receive fentanyl (2) and morphine (1), the vast majority received ibuprofen and/or acetaminophen if any analgesic. When we exclude the three successful cases that received some form of opioid analgesia, we still observed a mean pain reduction score of 5.5/10, clearly demonstrating that prehospital reduction of the patella offers pain reduction that significantly exceeds that provided by opioid analgesia alone.

There were no cases in which distal CSM (circulation, sensory, motor) was compromised post-procedure, and no identified harms from the procedure in medical follow up. There were no cases in which medical quality assurance found paramedics to have erroneously believed a patella to be fully reduced.

Indication for this procedure in the prehospital environment is further supported by survey feedback from paramedics, the vast majority of whom were confident in diagnosis (97.5%), were able to reduce patellar (92.3%) and found the procedure easy (94.9%).

Conclusion

The rate of success (84%) in correctly identifying dislocations and performing the procedure in the appropriate patient population and the absence of identified harms or missed failed reductions in the medical quality assurance indicate that this is clearly a safe and reasonable procedure for paramedics to perform.



Recommendations to adopt this procedure provincially has been forwarded to the Ministry of Health.

The Base Hospital would like to thank Advanced Care Paramedic, Charles Humphreys for assisting with the project. Paramedic led research can improve patient care.

(Photo: Charles Humphreys)

Effect of RapidShock™ Implementation on Perishock Pause in Out of Hospital Cardiac Arrests

This retrospective cohort study examined the effect of a defibrillator software upgrade called RapidShock, on the length of cardiopulmonary resuscitation (CPR) pauses during care for out-of-hospital cardiac arrest among individuals 18 years of age or older.

Between September 1, 2015 and November 30, 2018, all out-of-hospital cardiac arrests (OOHCA) cases were treated using the Zoll "Standard" defibrillation software. This cohort was term the "Pre Rapid Shock Implementation" cohort. The majority of these cases were performed in manual interpretation mode. Between December 1, 2018 and September 30, 2020, OOHCA cases were treated using the Zoll Rapid Shock software. This cohort was termed the Post Rapid Shock Implementation cohort.

Our primary outcome was to determine the effects that implementation of the new software would have on perishock pause. Perishock pause was defined as the total time that no CPR was performed during an analysis where defibrillation occurred.

Secondary outcomes included perianalysis pause and total CPR pause. Perianalysis pause was defined as the total time in which chest compressions were not performed during a CPR cycle in which cardiac rhythm analysis was performed and defibrillation did not occur (end of compressions to resumption of compressions). The sum of all CPR cycle pauses, including perishock and perianalysis pauses, for each defibrillator software type, was considered the total CPR pause for that software. Pauses to CPR that were unrelated to cardiac rhythm analysis or defibrillation, such as pauses due to the delivery of medication, extrication, or the resumption of spontaneous circulation, were not examined within our study.

Characteristics of examined CPR events, 2015-2020

Characteristic	All Software n = 1,595 (%)	Standard Software n = 766 (%)	Rapid Shock Software n = 829 (%)
HIGHEST LEVEL OF PARAMEDIC CARE			
Primary	459 (28.8)	229 (29.9)	230 (27.7)
Advanced	1,136 (71.2)	537 (70.1)	599 (72.3)
PARAMEDIC SERVICE			
Algoma District Paramedic Service	42 (2.6)	0 (0.0)	42 (5.1)
Sault Ste. Marie Paramedic Service	112 (7.0)	47 (6.1)	65 (7.8)
Manitoulin-Sudbury Paramedic Service	95 (6.0)	26 (3.4)	69 (8.3)
District of Nipissing Paramedic Service	280 (17.6)	103 (13.4)	177 (21.4)
Parry Sound District Paramedic Service	143 (9.0)	101 (13.2)	42 (5.1)
Sudbury Paramedic Service	918 (57.6)	487 (63.6)	431 (52.0)
Temagami Ambulance Service	5 (0.3)	2 (0.3)	3 (0.4)

Preliminary Results

Although the results are still being validated, we observed a decrease in pauses between 1 and 6 seconds in all three categories: Perishock pause, Perianalysis pause and Total CPR pause.

We hope to complete the manuscript and publish the results by the fall.

Epistry Epidemiologic Registry



Cardiac Arrest Registry

The Cardiac Arrest Registry captures data for every out-of-hospital cardiac arrest patient within the CanROC catchment area. The Cardiac Arrest Registry collects data on cardiac arrest events, including patient demographics, bystander interventions (such as CPR or defibrillator use), emergency response times, treatments provided by emergency medical responders (including drug therapy and CPR quality), and patient outcomes. By analyzing this data CanROC is able to look for trends, best practices, and guide future protocol development, all of which can help increase survival. Additionally, participating services have access to this data to determine areas that can be improved locally to help give patients the best chance at surviving cardiac arrest. Data collection is currently ongoing at three Canadian sites representing a population of approximately 15 million people in the provinces of Ontario and British Columbia.

****97 cases have been submitted between April 01, 2021 and March 31, 2022**



The overall aim of the Canadian Sudden Cardiac Arrest Network (C-SCAN) is to measure the incidence of sudden cardiac arrest (SCA) and enable the prediction and prevention of these events by identifying key symptoms, risk factors, and triggers. Data from emergency medical services (EMS) ambulance call reports is combined with data from administrative

databases such as the National Ambulatory Care Reporting System Metadata (NACRS) and the Discharge Abstract Database Metadata (DAD), as well as data from coroners' reports, and survivor interviews. The specific objectives include:

1. Identify and classify all cases of SCA across Canada in 10 provinces
2. Measure the incidence of reported causes of SCA, categorized by sex, gender and age
3. Identify key triggers and symptoms related to SCA, categorized by sex, gender, and age
4. Determine if/what elements of a patient's past medical history are predictive of future SCA

For more information, see <https://c-scan.org/>

MEDICAL DELEGATION

Q1 The Host Hospital shall ensure that Emergency Medical Attendants and Paramedics are qualified to perform the Controlled Acts and/or other medical procedures as recommended by the Provincial Medical Advisory Committee (PMAC) and the Director. Describe the process.

The HSN CPC is mandated by the Ambulance Act (Ontario Reg. 257/00) to ensure that paramedics are competent to practice. The method by which paramedics are certified is strongly influenced by the Delegation of Controlled Acts policy developed by the College of Physicians and Surgeons of Ontario. In short, it is the responsibility of the Regional Base Hospital Programs to provide an ongoing process by which the “Providers” are continuously informed of best practice guidelines and new trends and are competent to practice in the prehospital environment. As no single process can accomplish these goals, the HSN CPC combines various methodologies and techniques to be utilized as part of a comprehensive continuing medical education program (CME). The goal of the CME program is to prepare paramedics to respond appropriately to a wide range of patient situations, both routinely and infrequently, encountered in the field. Paramedics who do not meet the requirements as laid out in the Certification Standard may be subject to a skills review by the Medical Director or delegate. In rare cases, a Paramedic may have their certification temporarily suspended until such a time that all mandatory CME credit hours are accumulated. Paramedic Services present paramedics who have, at a minimum, an offer of employment at the requested paramedic level to the Base Hospital for certification. Primary Care Paramedics (PCP) complete an orientation process to ensure that they are properly prepared for the evaluation process. They demonstrate competency through a process of scenarios and written questions mapped to their respective scope of practice. During the certification event, they are required to demonstrate competency through a series of scenarios, skills stations and oral questions. In addition to the requirements of a PCP, all Advanced Care Paramedic (ACP) candidates are required to have written the Ministry of Health Advanced Care Paramedic (MOH ACP) exam prior to attending.

Q2 The Host Hospital shall ensure that the Base Hospital Program establishes and maintains a procedure whereby Paramedics already certified under the authority of another Base Hospital Program Medical Director are recognized by the Base Hospital Program.

2.1 Describe the procedure used to ensure paramedics already certified under the authority of another Base Hospital Program Medical Director are recognized by the Base Hospital Program.

Cross Certification applies to paramedics already certified by an Ontario Base Hospital who are seeking certification from another Base Hospital. Once the paramedic is deemed eligible for cross-certification, the Paramedic must complete the Certification Request Form which includes:

- Certification from previous Ontario Base Hospitals.
- A declaration of any deactivation and/or decertification.
- Current certification status from previous Base Hospitals under which the paramedic is certified.
- Permission for the prospective Base Hospital to obtain information from other Base Hospitals regarding paramedic competencies and skills.

Following this, the Paramedic must successfully complete a Base Hospital orientation and/or evaluation process for any or all Auxiliary Medical Directives required which may include an interview/clinical evaluation with the medical director or delegate. It may also include an evaluation using written, scenario based, and oral examinations; but this is reserved only for skills the paramedic was not certified in with their previous Base Hospital.

After completion of these steps, the Base Hospital Medical Director will certify the paramedic.

2.2 Total number of paramedics that work for more than one employer.

As of March 31, 2022, HSN Centre for Prehospital Care had 49 paramedics who worked for more than one employer.

Q3 Provide a list of affiliated Ambulance Services with whom the Base Hospital has signed agreements.

- Algoma District Paramedic Services
- City of Greater Sudbury Paramedic Services
- Cochrane District Paramedic Services
- District of Sault Ste. Marie Paramedic Services
- Nipissing District Paramedic Services
- Manitoulin-Sudbury DSB Paramedic Services
- Parry Sound District Emergency Medical Services
- Timiskaming District Emergency Medical Services
- Weeneebayko Area Health Authority Paramedic Services

3.1/3.2 Total number of ACPs and PCPs for this reporting year.

REPORTING PERIOD	TOTAL ACP	TOTAL PCP	TOTAL #
April 1, 2021 to March 31, 2022	82	795	877

*Includes multi-service medics (i.e. a single medic who works in Service A and Service B would be counted twice).

SERVICE	ACP	PCP	TOTAL
ALGOMA DISTRICT PS	-	78	78
COCHRANE DISTRICT PS	-	98	98
GREATER SUDBURY PS	69	103	172
MANITOULIN-SUDBURY DSB PS	-	133	133
NIPISSING PS	13	93	106
PARRY SOUND DISTRICT EMS	-	86	86
DISTRICT OF SSM PS	-	84	84
TIMISKAMING DISTRICT EMS	-	60	60
WAHA PS	-	60	60

* These numbers include multi-service medics, therefore one paramedic may be represented twice for PCP and ACP under different services.

3.3 A list of the delegated Controlled Acts

Note: Not all components of the scope of practice are Controlled Acts

SCOPE OF PRACTICE FOR PARAMEDICS (* = SELECT AREAS OF THE REGION)

MEDICATIONS CARRIED	PRIMARY CARE	ADVANCED CARE
Acetaminophen	✓	✓
Adenosine		✓
Amiodarone (North Bay ACP)		✓
ASA	✓	✓
Atropine		✓
Calcium Gluconate		✓
10% Dextrose in water	✓	✓
50% Dextrose in water	✓	✓
Dimenhydrinate (Gravol)	✓	✓
Diphenhydramine (Benadryl)	✓	✓
Dopamine		✓
Epinephrine 1:1,000	✓	✓
Epinephrine 1:10,000		✓
Fentanyl		✓
Glucagon	✓	✓
Ibuprophen	✓	✓
Ketorolac	✓	✓
Ketamine		✓
Lidocaine (Sudbury ACP)		✓
Midazolam		✓
Morphine		✓
Naloxone	✓	✓
Nitroglycerin	✓	✓
Oxygen	✓	✓
Salbutamol (MDI and Nebulization)	✓	✓
Sodium Bicarbonate		✓
OBSTETRICAL/NEONATAL TRANSFER	PRIMARY CARE	ADVANCED CARE
Assess and Recognize Obstetrical Emergencies	✓	✓
Delivery of the Neonate	✓	✓

3.3 A list of the delegated Controlled Acts *continued*

SCOPE OF PRACTICE FOR PARAMEDICS (* = SELECT AREAS OF THE REGION)

AIRWAY/VENTILATORY COMPROMISE SKILLS	PRIMARY CARE	ADVANCED CARE
CPAP	✓	✓
Endotracheal Intubation (Oral)		✓
Endotracheal & Tracheostomy Suctioning	✓	✓
iGel Insertion	✓	✓
King LT Insertion	✓	✓
Magill Forceps Utilization		✓
Needle Thoracostomy		✓
Oral/Nasal Airway	✓	✓
Oximetry	✓	✓
Positive Pressure Ventilation with BVM	✓	✓
Suctioning Mouth and Nose	✓	✓
Tracheostomy Reinsertion	✓	✓
CARDIOVASCULAR COMPROMISE	PRIMARY CARE	ADVANCED CARE
V4R/15 Lead ECG Acquisition and Interpretation	✓	✓
12 Lead Acquisition	✓	✓
12 Lead Interpretation	✓	✓
ECG Interpretation (PCP-five basic rhythms only)	✓	✓
Pacing		✓
Fluid Bolus Initiation	*	✓
Intravenous Cannulation	*	✓
Intraosseous Access		✓
Manual Defibrillation	✓	✓
Synchronized Cardioversion		✓
Emergency Home Dialysis Disconnect	✓	✓
DRUG ADMINISTRATION	PRIMARY CARE	ADVANCED CARE
Administer Drugs via SL; SC; PO; IM; IN, MDI and Nebulized Routes	✓	✓
Administer Drugs via ETT; IO		✓
Administer Drugs via IV	*	✓
CVAD Access		✓
Hydrocortisone	✓	✓

ADVANCED CARE PROGRAM	Greater Sudbury Paramedic Service	Nipissing Paramedic Services
Medical Cardiac Arrest (Epinephrine 1:10,000 IV/IO/ETT, Lidocaine/Amiodarone IV/IO) ³	X	X
Trauma Cardiac Arrest	X	X
Hypothermia Cardiac Arrest	X	X
Foreign Body Airway Obstruction Cardiac Arrest (Laryngoscopy and Magill forceps)	X	X
Neonatal Resuscitation (Epinephrine 1:10,000 IV/IO/ETT)	X	X
Return of Spontaneous Circulation (Dopamine IV)	X	X
Cardiac Ischemia (ASA, Nitroglycerin SL, Morphine IV)	X	X
12 Lead ECG Acquisition & Interpretation	X	X
Acute Cardiogenic Pulmonary Edema (Nitroglycerine SL)	X	X
Cardiogenic Shock (Dopamine IV)	X	X
Symptomatic Bradycardia (Atropine IV, Transcutaneous Pacing, Dopamine IV)	X	X
Tachydysrhythmias (Valsalva Maneuver, Adenosine IV, Lidocaine/Amiodarone IV, Synchronized Cardioversion)	X	X
Intravenous & Fluid Therapy (0.9% NaCl IV/IO)	X	X
Pediatric Intraosseous (IO) Infusion	X	X
Hypoglycemia (Dextrose IV, Glucagon IM)	X	X
Seizure (Midazolam IV/IM)	X	X
Opioid Toxicity (Naloxone SC/IM/IV)	X	X
Endotracheal Intubation – oral (Lidocaine spray)	X	X
Bronchoconstriction (Salbutamol MDI/neb, Epinephrine 1:1000 IM)	X	X
Moderate to Severe Allergic Reaction (Epinephrine 1:1000 IM, Diphenhydramine IV/IM)	X	X
Croup (Epinephrine 1:1000 neb)	X	X
Tension Pneumothorax – (Needle Thoracostomy)	X	X
Hyperkalemia (Calcium Gluconate and Salbutamol)	X	X
Adult Analgesia (Ibuprophen, Acetaminophen- PO Ketorolac IM/IV and Morphine IV/SC and Fentanyl IV/IN)	X	X
Home Dialysis Emergency Disconnect	X	X
Emergency Childbirth	X	X
Suspected Adrenal Crisis	X	X
Endotracheal Tube and Tracheal Suctioning	X	X
Patellar Dislocation Research Protocol	X	X
Zoll Rapid Shock Research Protocol	X	X
Special Project Palliative Care	X	
Auxiliary Adult Intraosseous (IO) Infusion	X	X
Auxiliary Central Venous Access Device (CVAD access)	X	X

Auxiliary Continuous Positive Airway Pressure	X	X
Auxiliary Supraglottic Airway	X	X
Auxiliary Nausea and Vomiting (Dimenhydrinate IM/IV)	X	X
Auxiliary Combative Patient (Midazolam IM/IV)	X	X
Auxiliary Combative Patient (Ketamine IM)	X	X
Auxiliary Procedural Sedation (Midazolam IV)	X	X
Auxiliary Home Dialysis Emergency Disconnect	X	X
Auxiliary Special Events Medical Directives		X
Auxiliary Electronic Control Device Probe Removal		
Auxiliary Emergency Tracheostomy Tube Reinsertion Medical Directive	X	X
Auxiliary Chemical Exposure Medical Directive (CYANOKIT)	X	

Timelines for Medical Directive/Skill Implementation/Removal

Year	Month	Service	Modifications
2022	January	Greater Sudbury	Special Project Palliative Care
2021	October	Greater Sudbury	Endotracheal – Nasal intubation remove
2020	November	ALL	Endotracheal and Tracheostomy Suctioning Medical Directive and Emergency Tracheostomy Tube Reinsertion Medical Directive removed and replaced with Endotracheal and Tracheostomy Suctioning & Reinsertion Medical Directives
2019	December	ALL	Addition of V4R & 15 Lead ECG Acquisition & Interpretation
2019	June	WAHA	Addition of Auxiliary CPAP Medical Directive
2019	December	ALL	Addition of Patellar Dislocation Research Protocol
2019	January	Manitoulin-Sudbury	Addition of Zoll Rapid Shock Research Protocol
2018	December	SSM, Algoma, Greater Sudbury, Nipissing, Parry Sound	Addition of Zoll Rapid Shock Research Protocol
2018	December	Greater Sudbury	Addition of Auxiliary Chemical Exposure Medical Directive – Administration of Antidotes for Cyanide Exposures (CYANOKIT)
2018	December	Nipissing & Greater Sudbury	Addition of ACP Auxiliary Medication Ketamine for Combative Patient Medical Directive
2018	December	All except Manitoulin-Sudbury	Addition of ACP/PCP Auxiliary Analgesia Medical Directive
2018	June	All	Addition of ACP/PCP Auxiliary Emergency Tracheostomy Tube Reinsertion Medical Directive
2018	June	Manitoulin-Sudbury	Addition of PCP Auxiliary Analgesia Medical Directive
2017	December	ALL	Emergency Child Birth
2017	July	ALL	Addition of Endotracheal Tube Suctioning
2017	July	ALL	Addition of Suspected Adrenal Crisis
2017	July	ALL	Home Dialysis move to core directives
2016	November	Temiskaming	Addition of Auxiliary Chemical Exposure Medical Directive – Administration of Antidotes for Cyanide Exposures (CYANOKIT)
2016	October	Temiskaming, Algoma, WAHA, Parry Sound, & Cochrane.	Addition of PCP Auxiliary Home Dialysis Emergency Disconnect
2016	May	SSM	Addition of PCP Auxiliary Home Dialysis Emergency Disconnect
2016	April	ALL	Addition of PCP 12 Lead ECG Interpretation

3.4 A list of the Controlled Acts that have been removed this reporting year.

There have been no Controlled Acts removed in the fiscal year 2021-22.

Q4 Does the Host Hospital adhere to the Provincial Medical Directives recommended by the PMAC and approved by the Director?

HSN Centre for Prehospital Care adheres to the latest version of the ALS PCS Version 4.9 which came into effect on February 1, 2022.

Q5 The Host Hospital shall adhere to Provincial Certification, Recertification, Change in Certification and Remediation policies, as recommended by PMAC within recommended timelines.

5.1 Have the provincial Certification, Recertification, Change in Certification and Remediation policies, as recommended by PMAC within recommended timelines been adhered to?

HSN CPC adheres to the Provincial Maintenance of Certification Policy, Appendix 6 in the Advanced Life Support Patient Care Standards, Version 4.9.

5.2 Total number of initial PCP and ACP certification awarded in the reporting year.

PERIOD	TOTAL ACP	TOTAL PCP	TOTAL
April 1, 2021 to March 31, 2022	10	145	155

SERVICE	ACP	PCP	TOTAL
ALGOMA DISTRICT PS	-	17	17
COCHRANE DISTRICT PS	-	16	16
GREATER SUDBURY PS	6	16	22
MANITOULIN-SUDBURY DSB PS	-	9	9
DISTRICT OF NIPISSING PS	4	15	19
PARRY SOUND DISTRICT EMS	-	27	27
DISTRICT OF SAULT STE. MARIE PS	-	11	11
TIMISKAMING DISTRICT EMS	-	10	10
WAHA PS	-	24	24

5.3 Total number of PCP and ACP reactivations in the reporting year.

REPORTING PERIOD	TOTAL ACP	TOTAL PCP	TOTAL
April 1, 2021 to March 31, 2022	16	90	106

SERVICE	ACP	PCP	TOTAL
ALGOMA DISTRICT PS	-	9	9
COCHRANE DISTRICT PS	-	6	6
GREATER SUDBURY PS	14	18	32
MANITOULIN-SUDBURY DSB PS	-	20	20
DISTRICT OF NIPISSING PS	2	9	11
PARRY SOUND DISTRICT EMS	-	7	7
DISTRICT OF SAULT STE. MARIE PS	-	9	9
TIMISKAMING DISTRICT EMS	-	6	6
WAHA PS	-	6	6

5.4 Total number of PCP and ACP deactivations in the reporting year.

REPORTING PERIOD	TOTAL ACP	TOTAL PCP	TOTAL
April 1, 2021 to March 31, 2022	9	63	72

SERVICE	ACP	PCP	TOTAL
ALGOMA DISTRICT PS	-	8	8
COCHRANE DISTRICT PS	-	4	4
GREATER SUDBURY PS	8	7	15
MANITOULIN-SUDBURY DSB PS	-	15	15
DISTRICT OF NIPISSING PS	1	5	5
PARRY SOUND DISTRICT EMS	-	7	7
DISTRICT OF SAULT STE. MARIE PS	-	5	5
TIMISKAMING DISTRICT EMS	-	6	6
WAHA PS	-	6	6

Q6.1 Does the Medical Director practice emergency medicine full-time or part-time in the hospital emergency unit?

The Medical Director currently works in the HSN Emergency Department and exceeds the minimum requirement of 250 clinical hours.

6.2 Does the Medical Director hold recognized medical specialty credential(s) in emergency medicine?

The Medical Director is credentialed in Emergency Medicine as CCFP (EM).

Q7.1 Do all Base Hospital physicians have knowledge of paramedic practice and provincial medical directives?

HSN CPC has centralized all Base Hospital (BHP) patching to the Health Sciences North Emergency Department. Base Hospital Physicians are all Emergency Department Physicians and final year Residents credentialed through Health Sciences North.

The Emergency Department Physicians receive an orientation program which includes an overview of their roles and responsibilities as Base Hospital Physicians and an introduction to the ALS Patient Care Standards. The Medical Director regularly reviews the directives and/or amendments with the emergency physicians and shares CQI findings.

Emergency Department meetings have a standing Prehospital Care Section where changes in paramedic clinical practice/directives can be addressed.

7.2 Total number of emergency physicians engaged as a Base Hospital Physician.

34 Emergency Physicians were engaged as Base Hospital Physicians

BASE HOSPITAL PHYSICIANS	
Dr. Alex Anawati	Dr. Jeff Middaugh
Dr. Dominique Ansell	Dr. Renee-Anne Montpellier
Dr. Megan Bhatia	Dr. Jennifer Moore
Dr. Adam Bignucolo	Dr. Robert Ohle
Dr. Christopher Bourdon	Dr. Sam Oommen
Dr. Andrew Caruso	Dr. Laura Piccinin
Dr. Tyler Christie	Dr. Robert Pineau
Dr. Emily Conrad	Dr. Andy Primeau
Dr. Erin Creasor	Dr. Jason Prpic
Dr. Mark Dube	Dr. Christine Pun
Dr. Nicholas Fortino	Dr. Charles Robichaud
Dr. Pavan Koka	Dr. Steve Socransky
Dr. John Kusnierczyk	Dr. Melanie Squarzolo
Dr. Robert Lepage	Dr. Sam Stone
Dr. Louise Logan	Dr. Brian Tissot
Dr. Virginie Marchadier	Dr. Lee Toner
Dr. Bill McMullen	Dr. Aidan Wharton

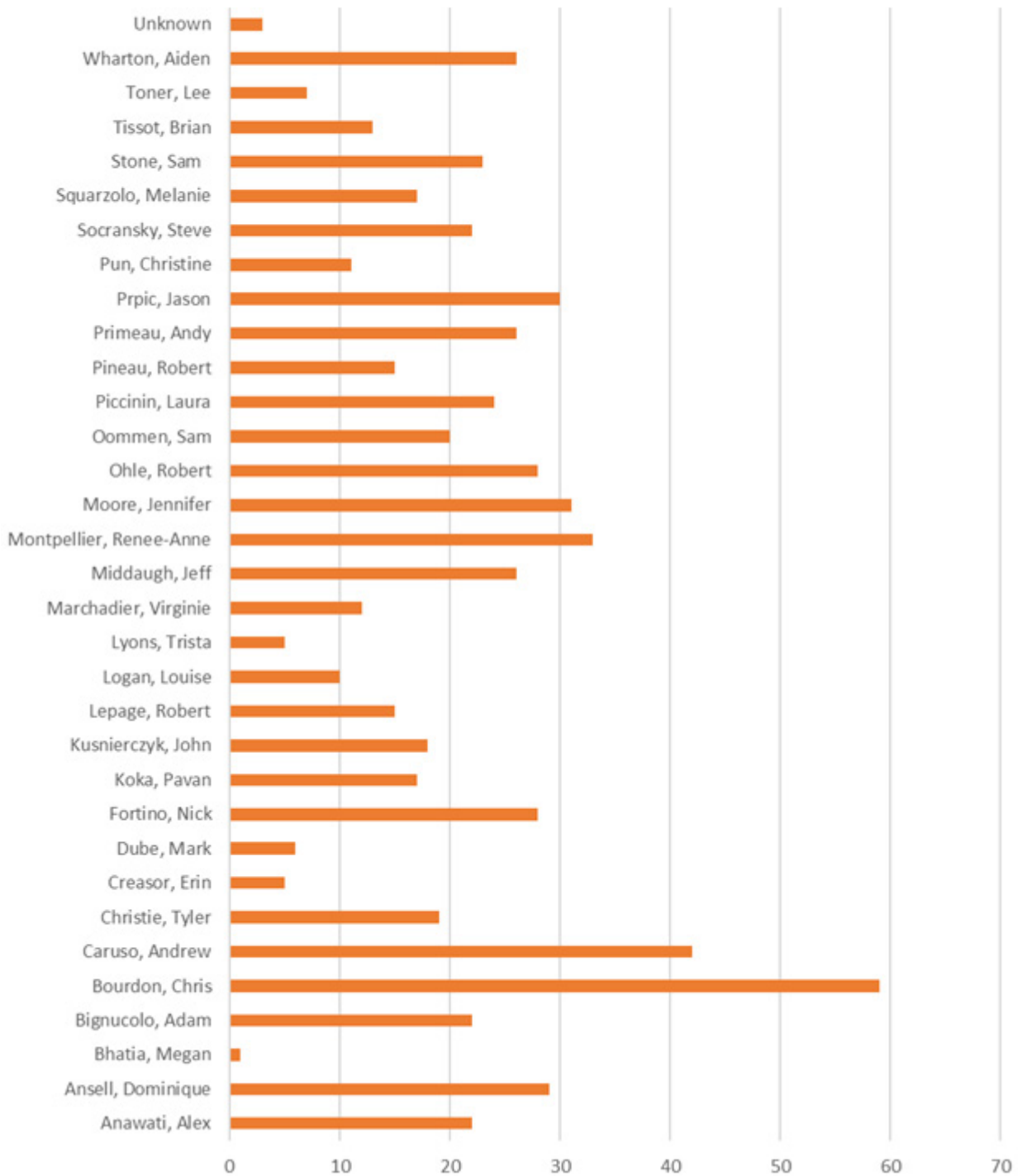
Q8.1 **Total number of Base Hospital physician and paramedic online interactions that have been reviewed for medical quality.**

Total of 665 online interactions occurred between April 1, 2021 and March 31 2022, and 100% were reviewed for medical quality.

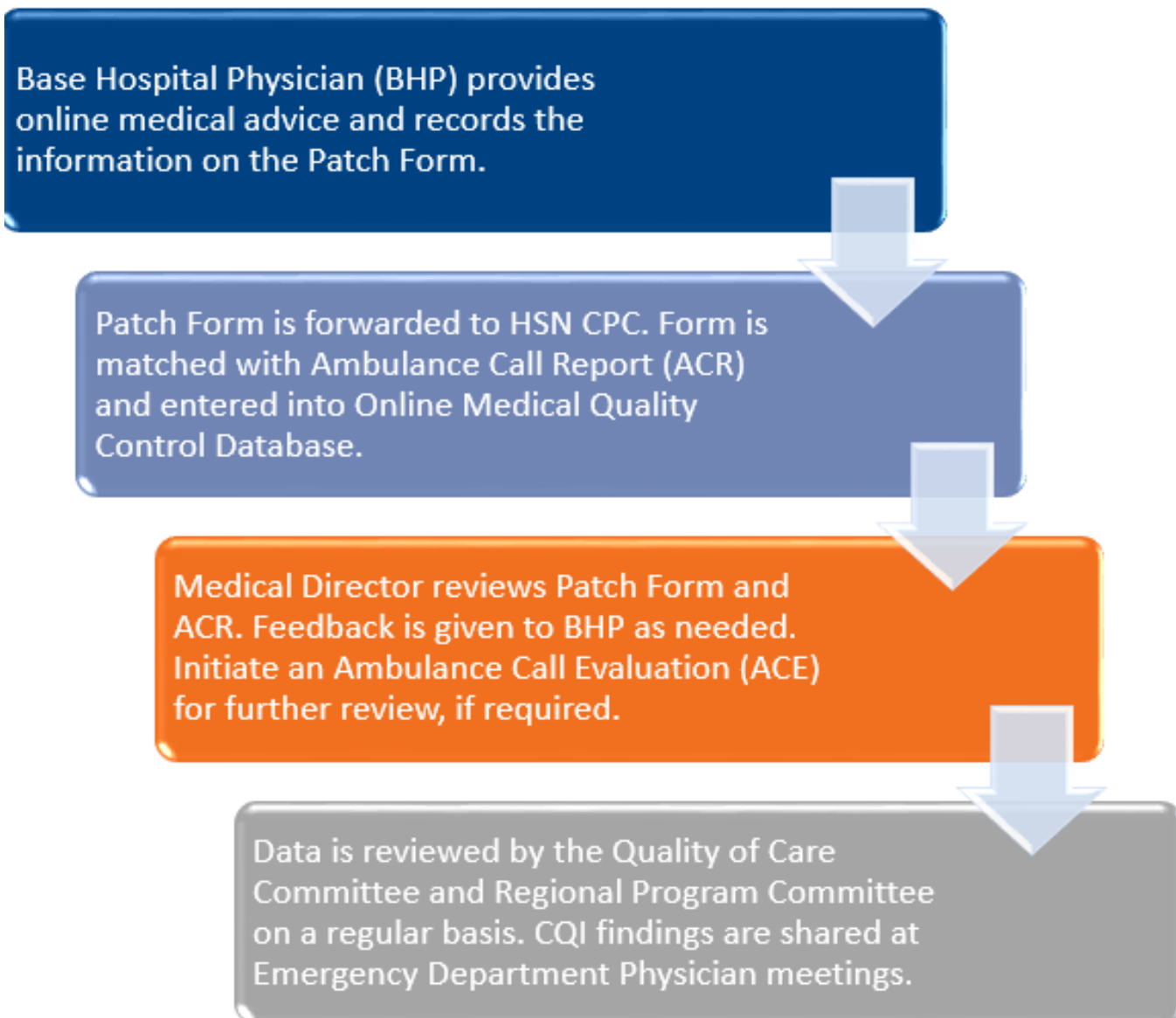
of Online Medical Quality Control Interactions by Physician

April 1, 2021 to March 31, 2022

n = 665



8.2 Describe the medical quality review process.



MEDICAL OVERSIGHT

Q9 List the dates of Provincial Medical Advisory Committee (PMAC) meetings attended by a member of the Base Hospital Program.

- May 1, 2021
- September 15, 2021
- December 17, 2021
- March 2, 2022

Q10 Are Base Hospital Physicians available for on-line medical direction and control on a 24 hr/7 days a week basis?

Yes.

Q11 The Host Hospital shall ensure that the Base Hospital Program enters into and keeps in effect an agreement with each certified land ambulance service provider listed in Appendix D, with respect to the qualification, ongoing medical oversight, and re-qualification of Paramedics to deliver controlled medical acts under the authority of the Base Hospital Program Medical Director.

HSN CPC has an agreement with each land ambulance service in the Northeast. These agreements include details related to qualification, ongoing medical oversight and requalification of paramedics to deliver controlled medical acts under the authority of the Base Hospital.

Q12 The Host Hospital shall ensure that the Base Hospital Program monitors the delivery of patient care in accordance with the Advanced Life Support Patient Care Standards. Describe the actions taken to monitor the delivery of patient care in accordance with the Advanced Life Support Patient Care Standards.

Continuous Quality Improvement (CQI) is a complex responsibility that requires the collective effort of varied focus areas. Within the HSN CPC, CQI is attained through an integrated system of performance measurement, performance improvement and continuing medical education within a broad based system of quality management and medical leadership.

Performance Measurement is accomplished by collecting and reviewing ambulance call reports (ACRs) for the appropriateness and quality of advanced patient care. Skills and specific patient conditions are categorized as high or low risk procedures by HSN CPC Quality of Care Committee (QCC).

Quality Improvement is an inclusive, multidisciplinary process that focuses on identification of system wide opportunities for improvement. Our efforts focus on identification of the root causes of problems through event analyses, self-reports, and clinical audit reports to reduce or eliminate these causes and develop steps to correct inadequate or faulty processes. The need and importance of a wide overlap between Performance Measurement, Performance Improvement and Continuing Medical Education (Figure 4) is vital to ensure ongoing quality patient care as demonstrated in the well-known and widely used Plan-Do-Study-Act cycle (Figure 5).

FIGURE 4

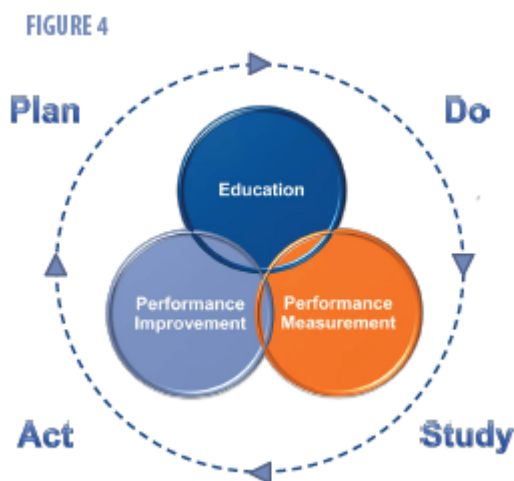
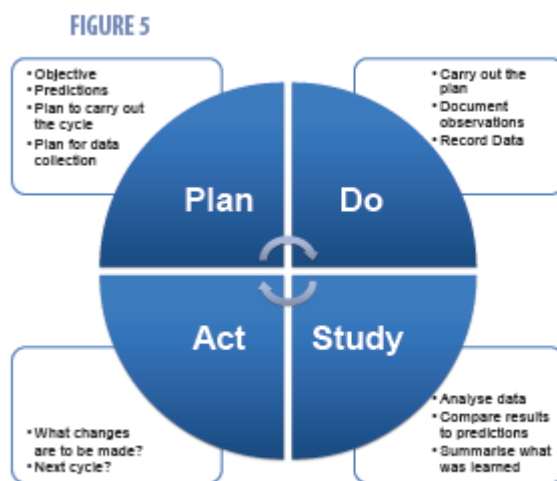


FIGURE 5



Q13 The Host Hospital shall ensure that the Base Hospital Program monitors the delivery of patient care in accordance with the Basic Life Support Patient Care Standards, if such monitoring is contained in the agreement with the Upper Tier Municipality and Designated Delivery Agent for land Ambulance Services as set out in Appendix D.

HSN Centre for Prehospital Care had an agreement with Algoma District Paramedic Service that requires monitoring of the delivery of patient care in accordance with the Basic Life Support Patient Care until July 31, 2022. A novel model for sampling calls of significant interest was collaboratively developed to perform this work. All other audit activities centre around the ALS PCS. Where a BLS issue is noted during the regular ALS auditing processes, service operators are notified for their follow up.

Q14 The Host Hospital shall ensure that timely advice is provided to each Upper Tier Municipality (UTM) and Designated Delivery Agent (DDA) for Land Ambulance Services as set out in Appendix D regarding medical issues in prehospital care

Advice may be provided formally through either the HSN CPC Quality of Care Committee proceedings that are reported back to Paramedic Services or through the HSN CPC Program Committee. Discussions and resulting action items are tracked through the meeting minutes. Ad hoc advice is provided frequently via conversation, email and non-standing meetings.

14.1 Total number of prehospital medical care issues raised by the UTM or DDA that required advice from the Base Hospital Total number of prehospital medical care issues raised by the UTM or DDA that required advice from the Base Hospital

When an official request is made by a Paramedic Service or the Ministry of Health and Long Term Care (MOHLTC) to review a specific occurrence, all information related to the call is tracked in the IQEMS database. It is forwarded to a Paramedic Practice Coordinator for review and may be analyzed by the QI Lead and the applicable Medical Director/Advisor. All reviews are completed via either the standard call review process or via a formal Event Analysis report in accordance with program policies.

For further information on the outcomes of program audit activities or event analyses, see Appendix B.

14.2 List the top 5 subject areas that advice was requested from UTMs and DDAs (i.e. medical equipment, medical acts, policies, etc).

1. Medical Directives and Companion Documents
2. Auxillary Skills
3. ePCR/IQEMS audits
4. BLS Advice/BLS equipment
5. Policy and Procedures

Q15 The Host Hospital shall ensure participation in provincial, regional and community planning that affects prehospital care such as emergency planning, where the Host Hospital has the authority to do so. The total number and dates of provincial, regional, and community planning meetings, indicate the meeting hosts are listed below.

Regional

- HSN CPC Council (Sudbury/ Videoconference) - Monthly
- HSN CPC Quality of Care Committee (Sudbury/ Videoconference) - Monthly
- Cambrian College Paramedic and Advanced Care Flight Paramedic Programs Advisory Committee - Bi-annual
- HSN CPC NEO Regional Data Advisory Group (Teleconference) - 3 times/year
- Regional Trauma Network Committee (HSN - Sudbury) - Bi-annual
- HSN CPC Program Committee (Sudbury/ Teleconference) - Quarterly
- Acute Stroke Protocol Improvement Team - Adhoc
- STEMI Bypass Steering Committee - Adhoc
- HSN EVT Program Development - Adhoc

Provincial

- Base Hospital Managers/ Directors Business Meeting - Monthly
- Ontario Base Hospital Medical Advisory Group (MAC) (Toronto) - Quarterly
- Trauma Registry Advisory Committee - Quarterly
- OBHG Education Sub-Committee - Quarterly
- OBHG Data Quality Management (DQM) - Quarterly
- OBHG Collaboration Working Group (Toronto) - Quarterly & Adhoc
- OBHG Annual Curriculum Development Group - Adhoc
- OBHG Storage Working Group - Adhoc
- OHBG Scenario Working Group - Adhoc
- OBHG Autonomous IV Working Group - Adhoc
- Ontario Trauma Advisory Committee (OTAC) Quarterly Meeting (Toronto) - Quarterly
- Ontario Trauma Coordinators Network (OTCN) (Teleconference) - Monthly
- Ontario Trauma Advisory Committee Medical Directors Working Group - Adhoc
- OBHG Annual General Meeting - Annual
- Sunnybrook/ HSN Joint Medical Council Meeting (Toronto & Sudbury) - Bi-annual
- CCSO Town Hall Meeting - Annual
- IQEMS Technical Working Group - Bi-weekly
- IQEMS Operational Working Group - Bi-weekly
- PPO Technical Working Group - Bi-weekly
- PPO Operational Working Group - Bi-weekly
- IQEMS/ PPO Executive Steering Committee - Bi-weekly

Community

- Sudbury CACC Advisory Committee
- Sudbury Paramedic Service Quality of Care Committee - Quarterly
- HSN Emergency Preparedness Committee - Bi-monthly
- HSN Annual General Meeting - Annual
- Critical and Emergency Care Program Council - Monthly

National

- Trauma Association of Canada - Performance Improvement Subcommittee - Bi-annual
- National Association of EMS Physicians - Canadian Relations Sub-Committee - Annual & Adhoc

Q16 The Host Hospital shall make every reasonable effort to ensure that each request for medical advice, direction, or assistance received from an Emergency Medical Attendant, paramedic or communications officer is provided expeditiously and that performance standards are set out in this Agreement are met.

16.1 How are requests for medical advice, direction or assistance from an emergency medical attendant, paramedic or communications office provided?

The following are primary methods of communication:

- 24/7 Online Medical Control through the Base Hospital Physicians
- IQEMS, which is used to discuss audit findings and patient care dialogues
- Email, which is used for the communication of general information and notifications
- Live chats during webcasts are a means for paramedics to ask questions and interact with their medical directors
- Typically twice annual (at minimum) in person sessions with Paramedic Practice Coordinators in an interactive education setting, however this has been moved to a virtual platform for the duration of the pandemic
- Adhoc, all program staff provide support and advice to paramedics on a daily basis.

16.2 Total number of formal requests for medical advice direction or assistance from an Emergency Medical Attendant, Paramedic or communications officer provided.

- 665. Refer to Appendix A for details.

Q17 Where a Host Hospital has not been available to expeditiously provide medical advice (eg. Radio patch), direction, or assistance to an Emergency Medical Attendant, Paramedic, or communications officer, the Host Hospital shall document the circumstances of the event in an incident report that will be provided to the Senior Field Manager within 48 hours of the event.

The total number and nature of incident reports provided to the senior Field Manager related to medical advice delays.

All patch failures identified during the audit review process or escalated to the QI Lead are analyzed to determine root cause and to recommend system improvements.

During the 2021-22 fiscal year there was one Base Hospital Physician (BHP) Patch Failure due to the delay in BHP contact. The HSN CPC Quality Care Committee reviewed this patch failure. This resulted in a BHP patch time analysis.

Q18.1 Describe the process used to assist operators with request for assistance and information regarding direct patient care components and elements of local policy and procedures.

Once a request for assistance and/or information has been received in writing by the program, it is triaged by the receiver to determine if its nature is Medical, Educational, CQI, Research, Operational or Other.

- Medical advice and/or inquiries are reviewed by the applicable Medical Advisor or the Regional Medical Director and, when required, forwarded to the Quality of Care Committee (QCC) to be reviewed by the Medical Program as a whole. Minutes of this committee are available to all staff and a report from this committee is provided at Regional Program Committee meetings.
- Educational advice and/or inquiries are assigned to the Regional Education & Certification Coordinator for review and, when required, brought to monthly Council or QCC meetings. A Medical Advisor or the Regional Medical Director may be consulted, as needed.
- Quality Improvement advice and/or inquiries are forwarded to the Quality Improvement Lead for review. A Medical Advisor or the Regional Medical Director may be consulted, as needed.
- Assistance or information related to reportable program metrics are forwarded to the Communication and Informatics Lead or Performance Measurement Lead for review.
- Operational advice and/or inquiries are forwarded to the applicable Paramedic Practice Coordinator and, when required, forwarded to the monthly Council meetings for review.
- Research inquiries are forwarded to the CQI Lead or Regional Manager and when required, the Regional Medical Director is consulted.

18.2 List the top 5 subject areas that information was requested from operators (i.e. medical equipment, medical acts, policies, etc).

1. Initial certification / Return to work requests
2. ePCR/IQEMS Audits
3. Event Analysis
4. Medical equipment purchase advice
5. Continuing Medical Education

EDUCATION

Q19

The Host Hospital will provide a process to confirm and/or ensure the education and standard of practical skills necessary for certification and delegation of specific controlled acts approved by the Provincial Medical Advisory Committee (PMAC) to Emergency Medical Attendants and Paramedics.

HSN CPC develops a yearly CME program that covers the paramedic scope of practice as per the ALS PCS and MOH approved Research Directives. The goal of the CME program is to prepare paramedics to respond appropriately to a wide range of patient situations both routinely and infrequently encountered in the field.

The Ministry of Health and Long Term Care Emergency Health Regulatory and Accountability Branch (MOHLTC-EHRAB) has mandated that PCPs receive a minimum of 8 hours of CME and that ACPs receive a minimum of 24 hours of CME annually. To meet the needs of the service operators, the paramedics and the Regional Base Hospital Programs, these hours have been converted to credit hours. In order for Northeast Paramedics to remain in good standing and maintain certification, ACPs must accumulate 24 credit hours while PCPs must accumulate 8 credit hours. Paramedics must have the required number of credits based on their scope of practice logged within the Paramedic Portal of Ontario no later than the second Wednesday in December.

Failure to meet these requirements will result in a Paramedic review by the Medical Director or designate and may result in the temporary deactivation of the Paramedic’s certification.. Paramedics who do not meet these requirements are subject to a performance review by the Medical Director or delegate and may have their certification temporarily suspended until such a time that all mandatory CME credit hours are accumulated.

19.1

List the topic, date and length of each continuing medical education program offered to and held for medical, nursing and other allied health staff of the Host Hospital and receiving hospitals in the Ministry-approved geographic coverage area.

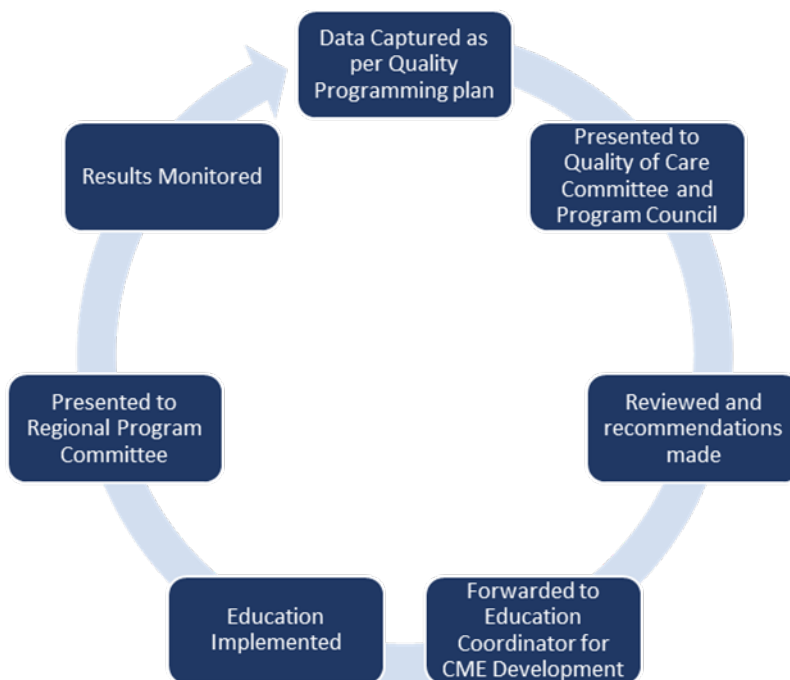
DATE	TOPIC/INSTRUCTOR	HOURS/CREDITS
April 14, 2021	Covid-19 Update by Dr. Roger Sandre, Infectious Disease Specialist	1 credit
April 28, 2021	STEMI Mimick and ETCO2 Townhall by Dr. Jason Prpic	1 credit
May 5, 2021	Man Vs. Machine by Dr. Chris Loreto	1 credit
October 4, 2021	STEMI Review by Dr. Derek Garniss	1 credit
October 21, 2021	Penetrating Case Review with Chris Robertson	1.5 credits
October 21, 2021	STEMI Review by Dr. Jason Prpic	1 credit
December 3, 2021	STEMI Townhall by Dr. Derek Garniss and Corey Petrie	1.5 credits
February 24, 2022	Pediatric Respiratory Emergencies by Dr. Chris Loreto	1 credit

Q20 The Host Hospital shall ensure that prehospital patient care education is provided in accordance with education standards approved by the Minister as may be implemented and amended from time to time. Provide the topics and time allotted for each educational session delivered this year to paramedics.

In addition to those noted above, the following Virtual sessions were provided specifically for the paramedics.

DATE	TOPIC/INSTRUCTOR	HOURS
April- June 2021	Spring Paramedic Practice Rounds	4
October 4, 2021	2021 Summer CME ECG Cases	2
September- November 2021	Fall Paramedic Practice Rounds	4

Q21 The Host Hospital shall ensure the development and implementation of an educational plan for the Region linked to Continuous Quality Improvement initiatives.



Q22 The Host Hospital shall ensure the provision of the mandated hours of education per year for both PCPs and ACPs.

22.1 Total number of hours of CME delivered per PCP.

In this fiscal year, 8 hours minimum were delivered per PCP.

22.2 Total number of hours of CME delivered per ACP.

In this fiscal year, 24 hours minimum were delivered per ACP.

CONTINUOUS QUALITY IMPROVEMENT (CQI)

Q23 The Host Hospital shall ensure the implementation of a CQI program for each Paramedic employed or engaged by land ambulance service operators as set out in Appendix C and ensure the provision of regular commentary to each Paramedic and operator.

23.1 Total number of paramedics that have been provided with commentary by the host hospital and a brief description of their program.

All paramedics certified under the Program receive commentary on a regular basis, generally via the applicable Paramedic Practice Coordinator for their area. Commentary may include electronic distribution of memos, policies and other documents. As part of auditing activities, paramedics are provided commentary on all of their ACRs with a possible variance from the standard. Additionally, paramedics receive positive commentary via IQEMS.

23.2 Total number of commentary provided to all paramedics.

During the fiscal year 2021-22, HSN CPC made available approximately 1,518 commentaries to paramedics via the Ambulance Call Evaluation process. The Program also distributed various correspondence including 9 memos/letters to paramedics via email and the HSN CPC website.

23.3 Was a minimum of one chart review commentary provided to each paramedic?

Paramedics will receive access to their commentary via IQEMS utilizing the credentials provided in their notification email, 100% of paramedics who completed a call with an identified potential variance received feedback.

Q25 The Host Hospital shall include a report on all CQI activities and findings as part of the annual report submitted to the Ministry.

Refer to [Appendix A: Performance Measurement Standard Reports](#), for the Audit Activities Summary Report and for the Patient Care Variance Report.

Q26 The Host Hospital shall collaborate with Emergency Medical Services System Stakeholders to share relevant CQI data, as appropriate. How and when was CQI data shared with Emergency Medical Services System stakeholders?

WHAT	WHO	FREQUENCY	HOW
AMBULANCE CALL REPORT AUDIT Notification of any event or circumstance which appears as a variance from the standard.	Paramedics Service Providers	Upon review and closure	IQEMS
EVENT ANALYSIS Sharing of information and outcomes during and post analysis.	Service Providers MOH Field Office	Upon discovery and closure	Event Analysis Report
AUDIT ACTIVITIES REPORT Number of audits completed by Paramedics	Service Providers	Quarterly	IQEMS
AUDIT VARIANCE DETAIL AND SUMMARY REPORTS Breakdown of variance rates and outcomes by Service	Service Providers	Quarterly	IQEMS
PARAMEDIC SELF REPORTS This report identifies the number of self-reports submitted by Paramedics. The summary categorizes self-reports by Service	Service Providers	Quarterly	IQEMS
BLS OMISSIONS/COMMISSIONS BLS issues discovered during an ALS audit are reported to the Service Operator during the auditing process.	Service Providers	Upon discovery	IQEMS
PARAMEDIC SKILLS INVENTORY Number of calls where a particular ALS skill was used as part of the overall patient care plan	Service Providers	Bi-annual	iMedic
CLINICAL AUDIT REPORTS Measures of current practice against a defined (desired) standard with the intent to improve systems vs individual practice.	Service Providers	2-3 times per year	Clinical Audit Reports
AD HOC FINDINGS	Service Providers	HSN CPC Program Committee	Discussion Minutes
REGIONAL DATA ADVISORY COMMITTEE	Service Providers Hospital Representatives CACC Representatives	Quarterly	Discussion Minutes
ONLINE MEDICAL CONTROL INTERACTIONS REPORTS	Service Providers	Quarterly	Report

Q27 **The Host Hospital shall ensure that Host Hospital physicians will be available to provide “online” continuous quality improvement and advice on a continuous basis.**

All HSN Emergency Physicians and 3rd year Residents are oriented by the Base Hospital Regional Medical Director prior to providing on-line Medical Control. Ongoing education is delivered during face-to-face departmental meetings and via email updates.

Dedicated patch phones are located in the HSN Emergency Department (ED). All Registered Nurses in the ED have been trained, through the ED Nurse Clinician, to answer the patch telephone and advise paramedics that a BHP will be on the line shortly. The RN answering the telephone is responsible for notifying the BHP of the call and advising the paramedic if there will be any delay. HSN CPC has also provided formal education to the paramedics on patching. Reminder emails are sent on a regular basis to help keep this process consistent.

Q28 **The Host Hospital shall ensure the establishment of a mechanism to track customer inquiries and organizational responsiveness to these inquiries and survey land ambulance stakeholder groups on a regular basis, and that all consumer feedback will be reviewed and integrated into quality management planning.**

All inquiries related to quality management are addressed in the same manner in which they were received i.e. an email is responded to with an email. Any inquiries/feedbacks relative to the quality management or education activities under the purview of the Base Hospital are incorporated into the Annual CME Plan and/or the Annual Quality Programming Overview. Each of these plans is provided to relevant stakeholders in draft form and feedback is actively solicited on each plan on an annual basis. All findings related to activities as laid out in the plan are distributed to key stakeholders and available upon request.

Refer to:

[Appendix A: Performance Measurement Standard Reports](#)

[Appendix B: Event Analysis 2020-21](#)

[Appendix C: Quality Programming Overview 2020](#)

Q29 **The Host Hospital shall ensure the conduct of clinically-focused audits of controlled acts performed on or indicated for a patient by a Paramedic employed or retained by an operator covered by this Agreement, to monitor paramedic compliance with Provincial Medical Directives, in accordance with the following chart audit process:**

29.1 **Total number of Ambulance Call Reports (ACRs) requiring auditing.**

Utilization of IQEMS enables auditing of 100% of selected call types, exceeding the minimum requirements. In 2021-22, there were 37,666 calls audited, compared to 2020-21, where 34,857 calls were audited.

29.2 **Total number of medical directive/protocols and cases that have been audited.**

There were 37,666 ambulance call reports that were electronically audited. Of these audited calls, 6,897 (18.3%) were identified as having a variance and required further action; and 30,769 (81.7%) were closed with no further action.

29.3 Have all paramedics that have performed at least 5 acts within the ALS PCS had a minimum of 5 ACR audited this year?

All Paramedics with at least 5 acts within the ALS PCS had a minimum of 5 ACRs audited this year.

Refer to [Appendix A: Performance Measurement Standard Reports, Section 2](#)

29.4 Total number of new paramedics (less than 6 months) and total number who had 80% of their charts audited

There were 10 newly certified ACPs and 145 PCPs (defined as paramedics not having previous Base Hospital certification) in 2021-22. The Performance Agreement states 80% of charts where a controlled act or advanced medical procedure is performed must be audited, however IQEMS allows for 100% of paramedic charts to be audited.

29.5 Number of cancelled calls where paramedics made patient contact that were audited.

Of the cancelled calls electronically sorted and audited in IQEMS, 2012 were manually reviewed by an auditor.

AUDIT TYPE	NO FOLLOW-UP REQUIRED	OPERATIONAL ISSUE	PARAMEDIC ACTIONS APPROPRIATE FOR SITUATION	PARAMEDIC FEEDBACK RECEIVED/ REMEDIATED	SELF REMEDIATION	TOPIC REVIEW AT RECENT/ UPCOMING CME	GRAND TOTAL
Cancelled Calls	1903	43	3	57	2	4	2012

APPENDIX A: PERFORMANCE MEASUREMENT STANDARD REPORT

ANNUAL REPORT 2021-22 Performance Measurement Standard Report April 1, 2021 to March 31, 2022



Centre for Prehospital Care

Health Sciences North

Performance Measurement Standard Report April 1, 2021 to March 31, 2022

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- Section 2: Audit Variance Summary
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- Section 5: Paramedic Self-Reports
- Section 6: BLS Issues Reported to Service Operators

Performance Measurement Standard Report April 1, 2021 to March 31, 2022

SECTION 1

HSN CPC AUDIT ACTIVITIES REPORT

This section is a breakdown of auditing results by service operator and by paramedic and exceeds paramedic auditing requirements as per the Regional Base Hospital Performance Agreement:

- Annually, each paramedic will have 100% of their calls audited, where a controlled act or advanced medical procedure was performed.
- The performance agreement states 80% of charts, where a controlled act or advanced medical procedure is performed, must be audited for all newly certified paramedics, however 100% of paramedic electronic Ambulance Call Reports (eACR) are audited through IQEMS where a controlled act is performed.

Audit Activities Summary Report

April 1, 2021 to March 31, 2022

CPC Audit Activities	Total #		# Medics with ALS Calls			
	Audits	Medics	< 10	≥ 10	1 - 9	0
N =	37666	861	103	756	49	54
% =			12%	88%	6%	6%
Audit Activities By Service	Total #		# Medics with ALS Calls			
	Audits	Medics	< 10	≥ 10	1 - 9	0
Algoma District Paramedic Services (740)	N = % =	2824 7%	77 19%	15 81%	62 12%	9 8%
Cochrane District Paramedic Services (741)	N = % =	3737 10%	98 6%	6 94%	92 2%	2 4%
Manitoulin-Sudbury DSB Paramedic Services (752)	N = % =	3221 9%	131 9%	12 91%	119 5%	7 4%
Nipissing Paramedic Services (285/287/469)	N = % =	4414 12%	102 6%	6 93%	95 3%	3 3%
Parry Sound District EMS -745	N = % =	2557 7%	86 19%	16 80%	69 9%	8 9%
District of Sault Ste. Marie Paramedic Service (751)	N = % =	7046 19%	81 7%	6 93%	75 4%	3 4%
Greater Sudbury Paramedic Service (747)	N = % =	11375 30%	168 14%	24 86%	144 6%	10 8%
Timiskaming District EMS (750)	N = % =	1148 3%	57 18%	10 82%	47 9%	5 9%
Weeneebayko Area Health Authority Paramedic Service (263)	N = % =	1344 4%	61 13%	8 87%	53 3%	2 10%

* Total Audits include total calls electronically sorted and audited

Performance Measurement Standard Report April 1, 2021 to March 31, 2022

SECTION 2

AUDIT VARIANCE SUMMARY

This section provides a summary of all the audit variances and the Base Hospital (BH) outcomes identified during the audit process and includes a breakdown by service operator.

Annual ALS Audit Variance Summary Report April 1, 2021 to March 31, 2022

	Total Audits *	Variances**				Total	BH Outcomes***						
		Minor (A)	Major (B)	Critical (C)	Other		Open	No Follow-Up Required / No Variance Found	Paramedic Acted Appropriately	Paramedic Feedback Received/ Remediated	Paramedic Interviewed/ Remediated	Topic Review at Recent / Upcoming CME	Other****
Algoma District Paramedic Services (740)	N = 2824 % of Total Audits = 7.5%	56 2.0%	121 4.3%	28 1.0%	131 4.6%	336 11.9%	0 0.0%	108 3.8%	0 0.0%	165 5.8%	1 0.0%	0 0.0%	2 0.1%
Cochrane District Paramedic Services (741)	N = 3737 % of Total Audits = 9.9%	60 1.6%	166 4.4%	54 1.4%	101 2.7%	381 10.2%	0 0.0%	109 2.9%	4 0.1%	114 3.1%	2 0.1%	0 0.0%	3 0.1%
Manitoulin-Sudbury DSB Paramedic Services (782/752)	N = 3221 % of Total Audits = 8.6%	70 2.2%	138 4.3%	50 1.6%	99 3.1%	357 11.1%	0 0.0%	131 4.1%	0 0.0%	100 3.1%	2 0.1%	0 0.0%	4 0.1%
Nipissing Paramedic Services (285/287/469)	N = 4414 % of Total Audits = 11.7%	68 1.5%	116 2.6%	66 1.5%	127 2.9%	377 8.5%	0 0.0%	114 2.6%	0 0.0%	132 3.0%	0 0.0%	3 0.1%	6 0.1%
Parry Sound District EMS (145)	N = 2557 % of Total Audits = 6.8%	48 1.9%	39 1.5%	17 0.7%	74 2.9%	178 7.0%	0 0.0%	81 3.2%	0 0.0%	48 1.9%	0 0.0%	3 0.1%	4 0.2%
District of SSM Paramedic Service (751)	N = 7046 % of Total Audits = 18.7%	77 1.1%	246 3.5%	74 1.1%	119 1.7%	516 7.3%	0 0.0%	235 3.3%	0 0.0%	141 2.0%	0 0.0%	0 0.0%	1 0.0%
Greater Sudbury Paramedic Service (747)	N = 11375 % of Total Audits = 30.2%	153 1.3%	343 3.0%	124 1.1%	281 2.5%	901 7.9%	1 0.0%	223 2.0%	2 0.0%	304 2.7%	2 0.0%	5 0.0%	50 0.4%
Timiskaming District EMS (750)	N = 1148 % of Total Audits = 3.0%	21 1.8%	48 4.2%	16 1.4%	36 3.1%	121 10.5%	0 0.0%	42 3.7%	0 0.0%	35 3.0%	0 0.0%	0 0.0%	1 0.1%
WAHA Paramedic Service (263)	N = 1344 % of Total Audits = 3.6%	28 2.1%	56 4.2%	11 0.8%	31 2.3%	126 9.4%	0 0.0%	32 2.4%	2 0.1%	39 2.9%	0 0.0%	0 0.0%	1 0.1%
Total	N = 37666 % of Total Audits =	581 1.5%	1273 3.4%	440 1.2%	999 2.7%	3293 8.7%	1 0.0%	1075 2.9%	8 0.0%	1078 2.9%	7 0.0%	11 0.0%	72 0.2%

* Total Audits include total calls electronically sorted and audited

**Variances includes all identified variances for all calls manually reviewed by an auditor

*** Includes outcome for all calls manually reviewed by an auditor

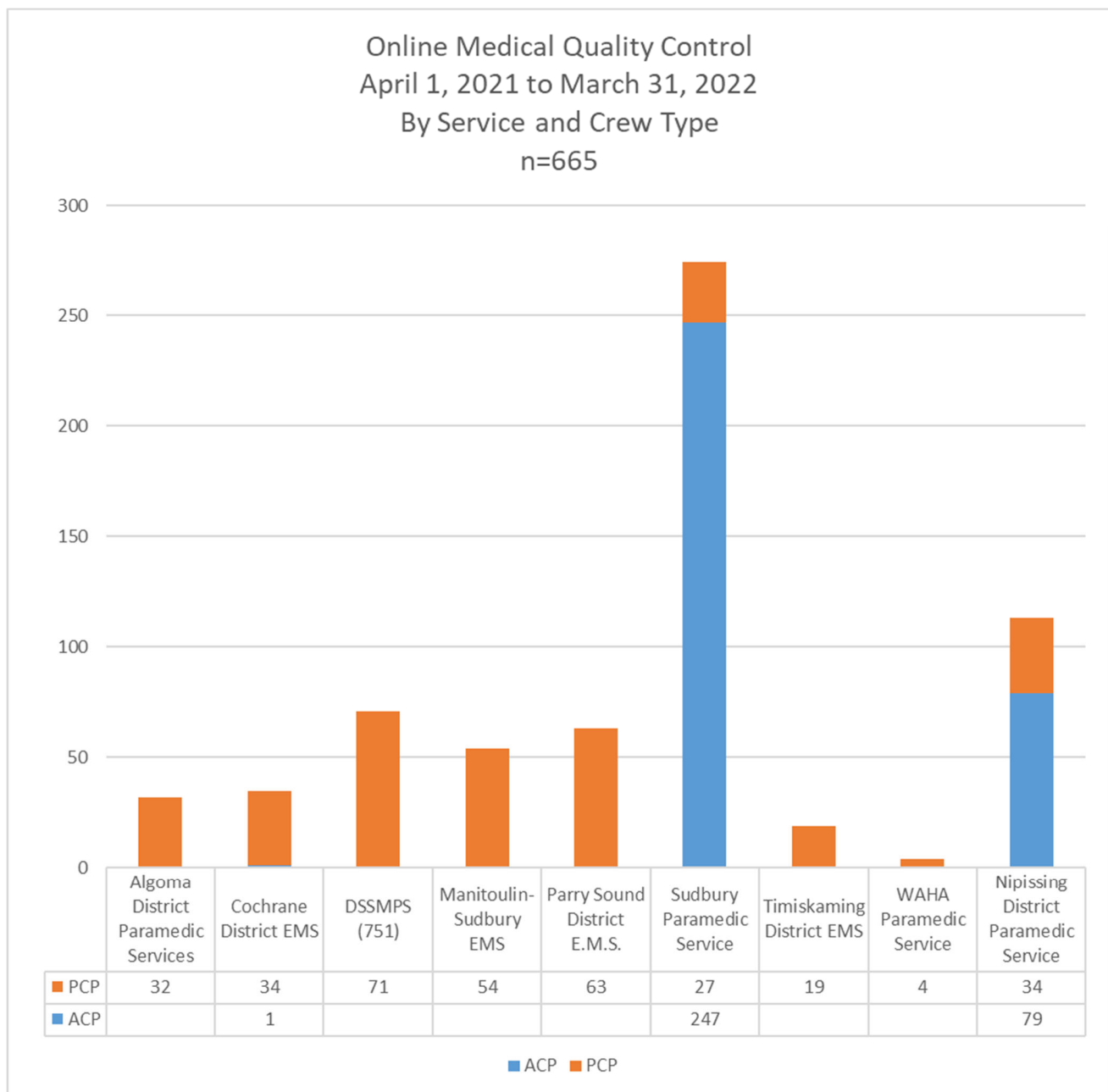
**** Other BH Outcomes include Operational Issues, Return to Practice, and Unresolved

Performance Measurement Standard Report April 1, 2021 to March 31, 2022

SECTION 3

ONLINE MEDICAL CONTROL INTERACTION REPORTS

This section provides a summary of “Patch” interactions by service operator and by ACP/PCP Interaction. Due to the change in process for data collection, the charts based on Physician and BHP Order Type will not be available. New reports with new data will be available beginning April 1, 2022.



Performance Measurement Standard Report April 1, 2021 to March 31, 2022

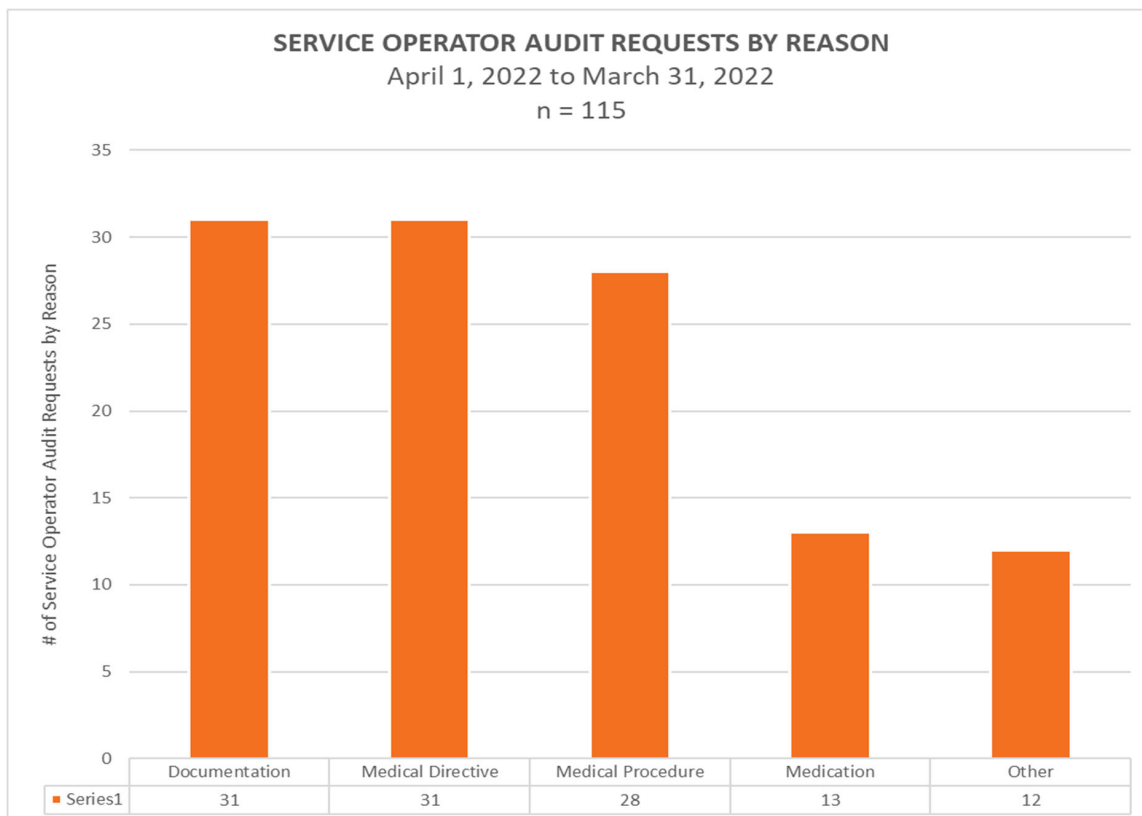
SECTION 4

SERVICE OPERATOR AUDIT REQUESTS

This section provides a summary of specific audits completed upon the request of the service operator.

SERVICE OPERATOR AUDIT REQUESTS BY REASON April 1, 2021 to March 31, 2022

SERVICE	Documentation	Medical Directive	Medical Procedure	Medication	Other	Grand Total
Cochrane District EMS				2		2
Manitoulin-Sudbury DSB					1	1
North Bay Ambulance Service	2	2	1			5
Sault Ste. Marie EMS	5	3	3	3	1	15
Sudbury Paramedic Service	23	25	23	8	10	89
WAHA Paramedic Service	1	1	1			3
Grand Total	31	31	28	13	12	115



Quarterly Service Operator Audit Requests	Total Requests
April 1, 2021 to June 30, 2021 (Q1)	15
July 1, 2021 to September 30, 2021 (Q2)	61
October 1, 2021 to December 31, 2021 (Q3)	11
January 1, 2022 to March 31, 2022 (Q4)	28
TOTAL	115

Performance Measurement Standard Report April 1, 2021 to March 31, 2022

SECTION 5

PARAMEDIC SELF-REPORTS

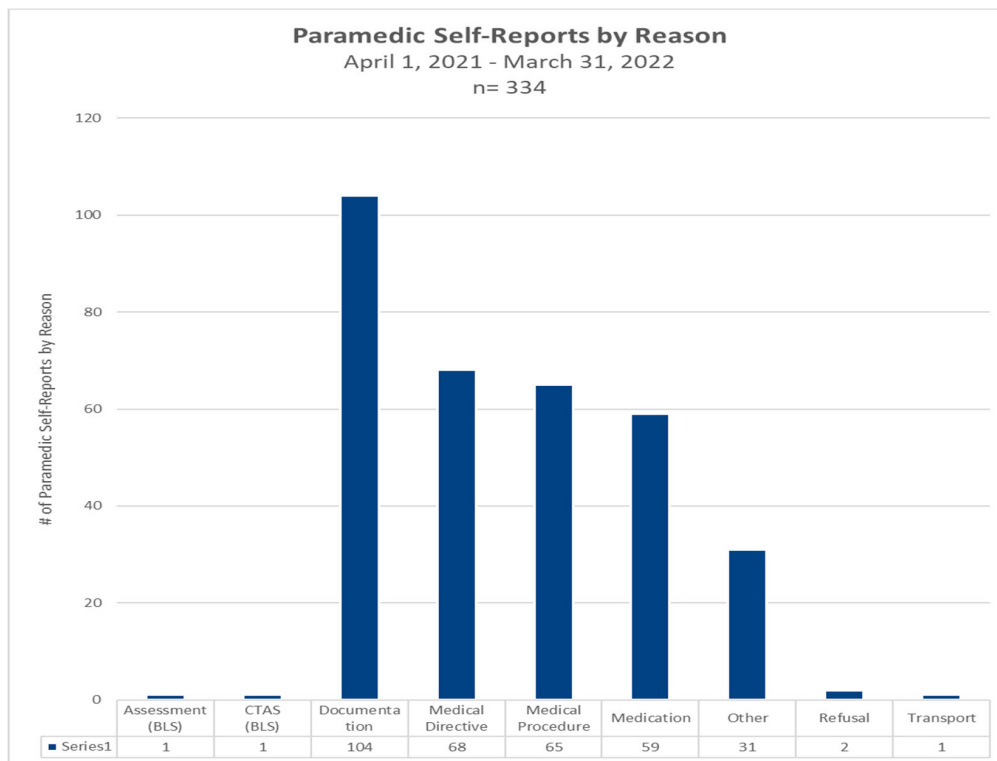
This section is based on paramedic self-reports received during this time period and are related to identified omissions and/or commissions in patient care or documentation.

This is recognized as a very important component of paramedic practice. Further expansion and development of this program continues as we strive to improve patient safety and outcomes.

PARAMEDIC SELF REPORTS BY REASON:

April 1, 2022 March 31, 2022

SERVICE	Assessment (BLS)	CTAS (BLS)	Documentation	Medical Directive	Medical Procedure	Medication	Other	Refusal	Transport	Grand Total
Algoma District Paramedic Services	1	1	7	3	1	1	4			18
Cochrane District EMS			11	6	5	4				26
Manitoulin-Sudbury DSB			23	8	13	11	3			58
Nipissing District Paramedic Service			17	14	16	10	1			55
Parry Sound District EMS			2	2	1	4				9
Sault Ste. Marie EMS			7	5	1	4	2	2		21
Sudbury Paramedic Service			26	25	19	14	18			102
Timiskaming District EMS			4	1	5	3	2		1	16
WAHA Paramedic Service			9	4	4	8	1			26
Grand Total	1	1	104	68	65	59	31	2	1	334



Quarterly Paramedic Self-Reports	Total Self-Reports
April 1, 2021 to June 30, 2021 (Q1)	99
July 1, 2021 to September 30, 2021 (Q2)	108
October 1, 2021 to December 31, 2021 (Q3)	66
January 1, 2022 to March 31, 2022 (Q4)	61
TOTAL	334

Performance Measurement Standard Report April 1, 2021 to March 31, 2022

SECTION 6

BLS ISSUES REPORTED TO SERVICE OPERATORS

This section is based on BLS PCS Issues identified during auditing of ALS calls and reported to the service operator. BLS Notifications to Service through the IQEMS System began July 1, 2021. Beginning with call dates April 1, 2022, Services will receive a list of Call numbers with this report.

BLS Issues Reported to Service Operators July 1 to March 31, 2022 n = 170

Service	# of Notifications
Algoma District Paramedic Services	1
Manitoulin-Sudbury DSB	10
Nipissing District Paramedic Service	13
Parry Sound District EMS	27
District of SSM Paramedic Service	5
Sudbury Paramedic Service	111
WAHA Paramedic Service	3
Total BLS Notifications to Services	170

APPENDIX B:

EVENT ANALYSIS 2021-2022

Incident Analysis is a structured process for identifying what happened, how and why it happened, what can be done to reduce the risk of recurrence and make care safer, and what was learned. (<http://www.patientsafetyinstitute.ca>). Ambulance Call Evaluations that require a more in-depth review are escalated to the Quality Improvement Lead for further analysis. **During the 2021-22 Fiscal Year, 45 reviews were completed.**

Base Hospital Outcome Audit Type	N
BHP Patch Issue Resolved	5
Cardiac Arrest	5
Equipment Issue Reviewed/Resolved	1
Cardiac Arrest	1
No Follow-up Required	6
Analgesia	5
Tachydysrhythmia	1
Operational Issue	5
Analgesia	1
Cancelled Calls	2
Hypoglycemia	1
Opioid Toxicity	1
Paramedic Actions Appropriate for Situation	3
Analgesia	1
Cardiac Arrest	2
Paramedic Feedback Received/Remediated	13
Analgesia	4
Cardiac Arrest	4
Cardiac Ischemia	4
Symptomatic Bradycardia	1
Paramedic Interviewed/Remediated	13
Allergic Reaction	1
Analgesia	2
Cardiac Arrest	7
Nausea & Vomiting	1
SOB (Asthma, Croup & Needle Thoracostomy)	1
Tachydysrhythmia	1
Grand Total	45

APPENDIX C: QUALITY PROGRAMMING OVERVIEW 2021-22

QUALITY PROGRAMMING OVERVIEW 2021-2022



Centre for Prehospital Care

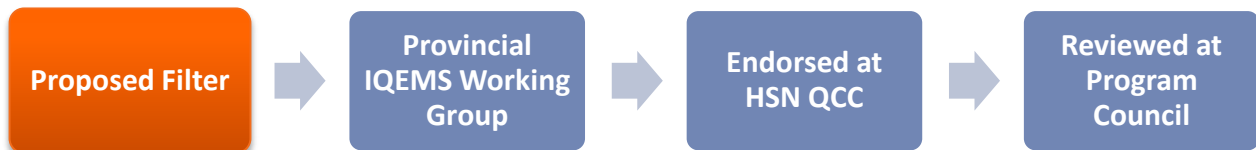
Health Sciences North

QUALITY PROGRAMMING OVERVIEW 2021-2022

INTRODUCTION

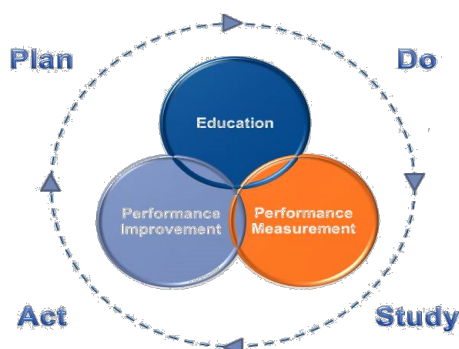
Quality is a multifaceted responsibility that requires the collective effort of varied focus areas. Within the Health Sciences North Centre for Prehospital Care (HSN CPC), this is attained through an integrated system of clinical measurements, quality improvement and continuing medical education within a broad based system of quality management and medical leadership. The need and importance of a wide overlap between these programs (Figure 1) is vital to ensure ongoing quality patient care as demonstrated in the Plan-Do-Study-Act cycle (Figure 2).

Performance Measurement is accomplished by utilizing the Integrated Quality Evaluation Management System (IQEMS). This clinical auditing system is fully web-based, and audits 100% of the data through the clinical filter identification system. Electronic Ambulance Call Reports (eACRs) received from the Service Operators are electronically sorted and filtered through computerized algorithms that are based on Medical Directives and/or Standards. The filters identified through the clinical filter identification system are developed and approved by the Provincial IQEMS Operational Working Group in consultation with Medical Directors then endorsed through HSN CPC Quality of Care Committee and reviewed at Program Council.



Continuous Quality Improvement (CQI) activities include continuously examining performance in the system to see where the personnel, system, and processes can continue to improve. Various databases currently exist which contain data relevant to CQI activities. These data systems are used to evaluate performance in the following ways:

- Prospectively identify areas of potential improvement
- Answer questions about patient related items within the EMS System
- Monitor changes once improvement plans are implemented
- Provide accurate information enabling data driven decisions
- Support research that will improve the system and potentially broaden EMS knowledge



QUALITY PROGRAMMING OVERVIEW 2021-2022

Since transitioning to the Intelligent Quality Evaluation and Management Suite (IQEMS) in 2017, the following sections have been updated based on the new chart audit processes and reporting functionalities.

A. PERFORMANCE MEASUREMENT

CLINICAL AUDIT SYSTEM

The Clinical Audit process ensures:

1. Paramedics have 100% of their charts audited where a controlled act or advanced medical procedure was performed.
2. Newly certified Paramedics (defined as paramedics not having previous Base Hospital certification): The performance agreements states 80% of charts where a controlled act or advanced medical procedure must be audited however IQEMS allows for 100% of paramedic charts to be audited.
3. All cancelled calls that fail an IQEMS filter, where paramedics made patient contact, with or without controlled acts performed, are audited.

STANDARD REPORTS

Reports are generated to ensure compliance with the Performance Agreement and the ALS/BLS Patient Care Standards. These reports are shared with the Service Operators and the Ministry of Health and Long-Term Care (MOHLTC) as outlined below. Following receipt, the Service Operators are invited to discuss any findings within the reports.

A. MONTHLY REPORTS

Audit Variance Detail Report by Paramedic

This report is a summary of the audits by paramedic and by service where a variance was identified and is grouped by variance type, variance description and base hospital outcome.

B. QUARTERLY REPORTS

HSN CPC Audit Activities

The report is an overview of ALS calls that were filtered through the IQEMS computerized algorithm. It is summarized by paramedic and includes the number of ALS calls, electronic audits and manually reviewed audits. This report also includes a summary of audit activities by service operator.

Audit Variance Summary

This report provides a breakdown of variance rates and outcomes by Service Operator.

QUALITY PROGRAMMING OVERVIEW 2021-2022

Audit Variance Detail

This report is a summary of the audits by service where a variance was identified. It is grouped by variance type, variance description and base hospital outcome.

Online Medical Quality Control Interactions

This report is a summary of the interactions between the Paramedic and Base Hospital Physician. It is categorized by Service Operator, reason for patch and identified variances.

Service Operator Audit Requests

This report identifies the number of audits requested by a Service Operator. It is categorized by reason for request and service.

Paramedic Self Reports

This report identifies the number of self-reports submitted by Paramedics related to identified omissions and/or commissions in patient care or documentation. This is recognized as a very important component of paramedic practice. It is categorized by reason for request and service.

BLS Issues Reported to Service Operators

Subsequent to the transition to IQEMS, we are no longer able to provide the total number of BLS issues discovered during an ALS audit and reported to the Service Operator. Service Operators are notified of any BLS issues discovered during an audit. This process continues to be developed with a goal of implementation in 2021.

C. BIENNIAL REPORTS

Paramedic Skills Inventory

This report is the total number of calls (by call #) where a particular ALS skill was used as part of the overall patient care plan. Paramedic skills activities are based on the number of times a Paramedic was on a call where an ALS skill was used as part of a patient care plan. These counts are based on the total number of ALS skills performed by the entire responding crew. For example, a call with multiple crew members identified on the ACR will each receive credit for their active participation in the assessed need and delivery of the identified ALS skill.

Reports are distributed as follows unless otherwise noted in this document:

REPORTING PERIOD	DISTRIBUTION TIMELINE
Service Operators	
Monthly Reports	8 - 12 weeks following reporting period
Service Operators/MoHLTC	
Quarterly Reports	8 - 12 weeks following reporting period
Biannual Reports	8 - 12 weeks following reporting period

QUALITY PROGRAMMING OVERVIEW 2021-2022

CLINICAL PERFORMANCE MEASURES

Clinical Performance Measures are defined measurements that are part of a process. They are evidence-based measures that optimally guide the improvement of the quality of patient care and practice. These indicators are evaluated on a regular basis by running standardized data queries and subsequently reviewing outlier data to provide accurate treatment rates for specific clinically relevant indicators. These indicators are reviewed and endorsed by the Quality of Care Committee.

Current indicators include:

- # of patients with an opioid overdose and receive Narcan by paramedics (run quarterly for OBHG Data Quality Committee)

REPORTING PERIOD	DISTRIBUTION TIMELINE
Service Operators	
April 1 to March 31, 2022	Annual Report

QUALITY PROGRAMMING OVERVIEW 2021-2022

B. CONTINUOUS QUALITY IMPROVEMENT

QUALITY IMPROVEMENT ACTIVITIES

Continuous Quality Improvement (CQI) provides a method for understanding the system processes and allows for their revision using data obtained from those same processes. HSN CPC uses a number of approaches and models of problem solving and analysis to ensure and demonstrate the required standards are being met through valid measurement tools.

1. Clinical Audit Reports



A clinical audit is a cyclical process where an element of clinical practice is measured against a standard. The results are then analysed and an improvement plan is implemented. Once implemented, the clinical practice is measured again to identify improvements, if any.

The Quality of Care Committee will lead the planning of the audit and determine the population as it directly relates to existing protocols (i.e. chest pain, stroke, multi-system trauma, etc.) and/or Standards. A random statistical sample will be calculated and reviewed. The cases will be compared to the associated treatment protocol algorithm and scored based on documentation and adherence to protocols. Based on the findings, improvement opportunities will be developed, disseminated and monitored.

2. Focused Reports

Focused reports are ad hoc reports responsive to needs as they arise. Content may be driven from the HSN CPC Quality of Care Committee, HSN CPC Program Committee, HSN CPC Program Council, or Ontario Base Hospital Data Quality Committee. Examples include repetitive errors reported by performance measurements, implementation of a new or changed directive, and request for data from the Ministry of Health (MoH).

FREQUENCY	
Service Operators / MOHLTC	
➤	Medication Administration Variance Rates
➤	ASA Administration in Ischemic Chest Pain
➤	V4R Acquisition Prior to Nitro Administration
➤	12 Lead Acquisition Achieving < 10 minutes from Patient Contact
➤	BHP Patch Time Analysis

QUALITY PROGRAMMING OVERVIEW 2021-2022

3. Event Analysis

Analysing incidents, through an established framework, can serve as a catalyst for enhancing the safety and quality of patient care.

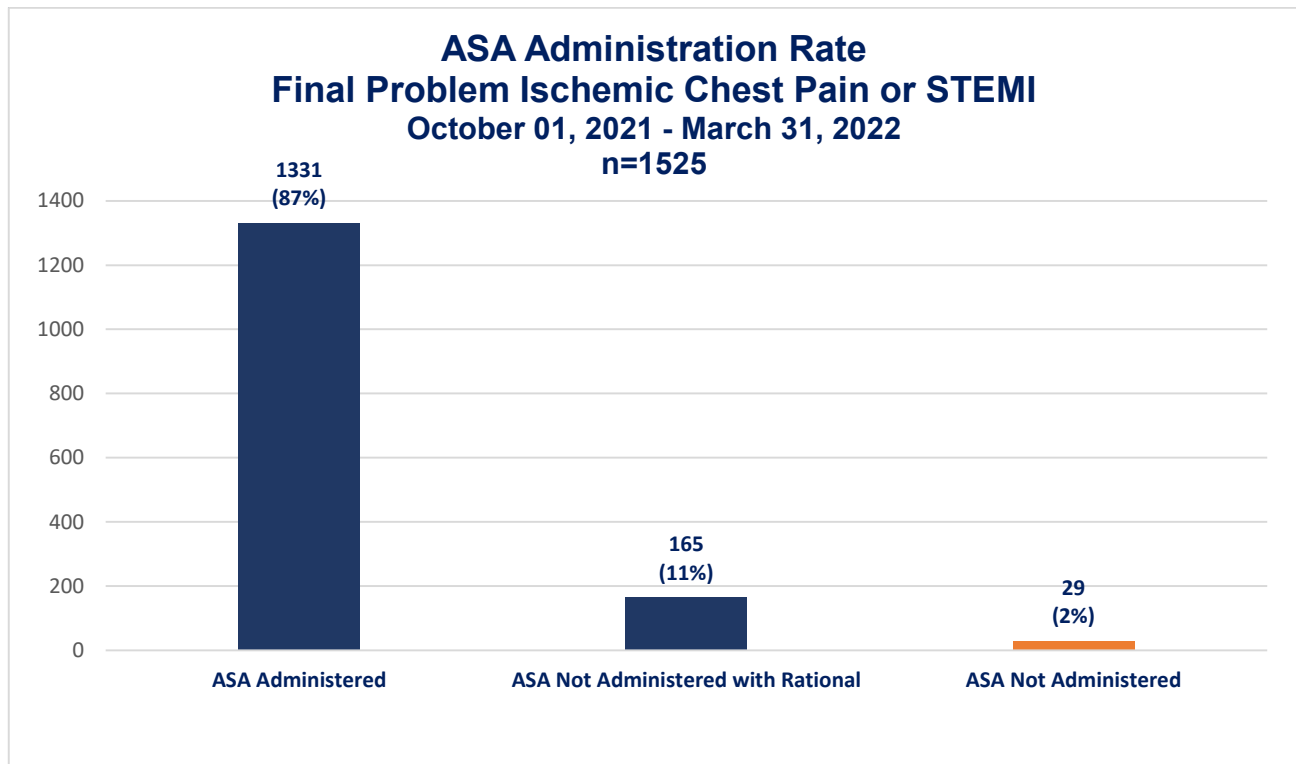
Recommendations and corrective actions will be formalised and have an evaluation plan to determine if the recommendations are implemented and what impact they had on the system.

REPORTING	DISTRIBUTION DATE
Preliminary Findings	14 days post event analysis
Final Report	30 days post event analysis

APPENDIX D: CLINICAL AUDIT REPORTS 2021-22

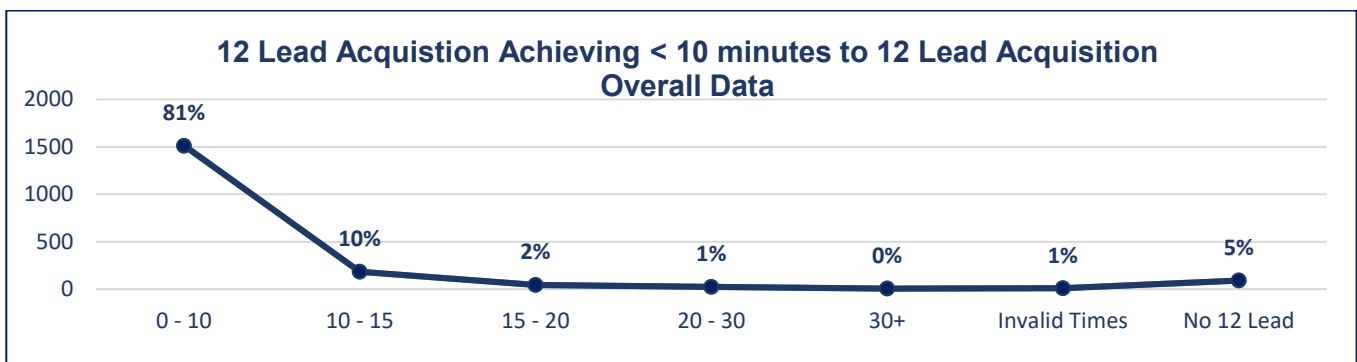
CLINICAL AUDIT REPORTS

ASA Administration in Ischemic Chest Pain	
Case Definition	Percentage of patients with ischemic chest pain that received ASA administration by paramedics.
Data source(s)	Ambulance Call Reports; IQEMS
Date of extraction	October 01, 2021 to March 31, 2022
Additional Notes	<ul style="list-style-type: none"> ▪ Query pulled all ACRs with a Primary or Final Problem Code of (51) Ischemic Chest Pain or (57) STEMI with or without ASA and/or 12 Lead ▪ ACRs with a documented rational for not administering ASA were identified (n=181). These include allergies, refusal, could not ingest, recent bleed etc. ▪ 1525 ACR with a Final Problem Code of Ischemic Chest Pain or STEMI were included.
Results	<ul style="list-style-type: none"> ▪ 87% of the patients who met criteria received ASA. ▪ 11% of the patients did not received ASA and a clear rational was documented on the ACR ▪ 2% met criteria and did not receive ASA



12 Lead Acquisition Achieving ≤ 10 minutes from Patient Contact

Case Definition:	Percentage of patients with a Primary or Final Problem Code of (51) Ischemic Chest Pain, (57) STEMI, (53) Palpitations
Data source(s)	Ambulance Call Reports IQEMS
Date of extraction	From : October 01, 2021 to March 31, 2022
Additional Notes:	<ul style="list-style-type: none"> *Because the Primary and Final Problem fields were used to identify cardiac patients, many patients who started with a cardiac presentation were coded as having a medical issue such as weak and dizzy, back pain, etc. Acquisition time was calculated from the "Patient Contact Time" to the first 12 lead acquisition documented on any ACR (all ACR associated with the patient were included).
Results	<ul style="list-style-type: none"> 81% (n=1627) of patients presenting in the Overall Group received a 12 Lead within 10 minutes of patient arrival. If we adjust to only include patients with Final Problems identified in the Cardiac Group, the acquisition rate remains the same at 81%. For patients identified as having a Final Problem Code of STEMI, the acquisition rate is 85% (n=143). 85 patients presenting with "Palpitations" did not receive any 12 lead 106 ACRs did not have a 12 Lead documented 11 acquisitions did not have a valid time.



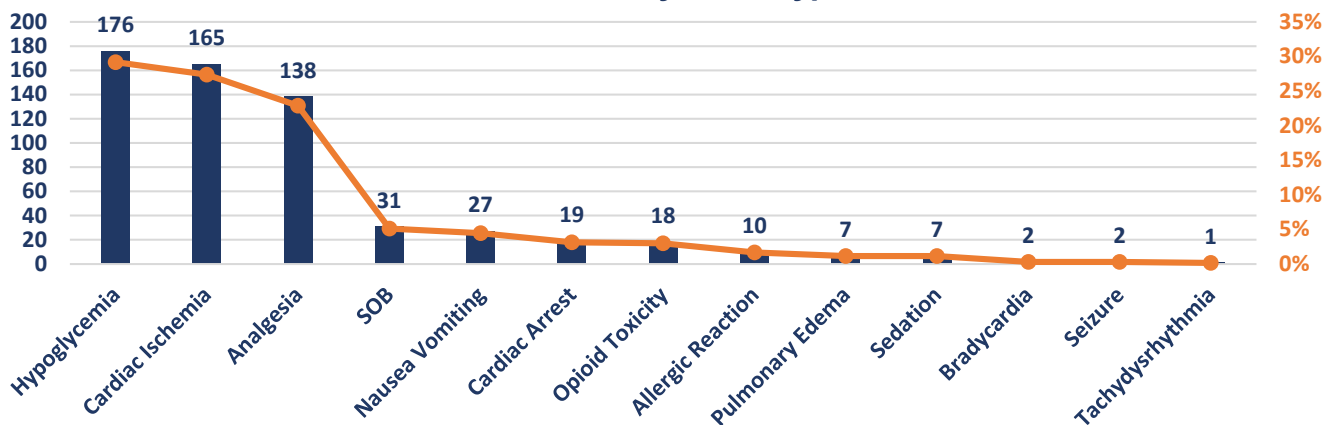
TIME	OVERALL		CARDIAC		NON CARDIAC		OTHER CARDIAC	
0 - 10	1627	81%	1513	81%	111	77%	3	75%
10 - 15	193	10%	184	10%	9	6%	0	0%
15 - 20	51	3%	44	2%	7	5%	0	0%
20 - 30	25	1%	24	1%	0	0%	1	25%
30+	7	0%	6	0%	1	1%	0	0%
Invalid Times	11	1%	10	1%	1	1%	0	0%
No 12 Lead	106	5%	91	5%	15	10%	0	0%
Grand Total	2020	100%	1872	100%	144	100%	4	100%
	All Final Problem Codes		Ischemic CP Non Ischemic CP STEMI Palpitations		All Other Problem		Cardiac Arrest Post Arrest	

V4R Acquisition Prior to Nitro Administration	
Case Definition	Percentage of STEMI positive patients receiving a V4R view prior to nitro administration.
Data source(s)	Ambulance Call Reports; IQEMS
Date of extraction	April 01, 2021 – March 31, 2022
Additional Notes	The clinical considerations in the ALS PCS (4.8) Ischemic Chest Pain Medical Directive advise the paramedics to suspect a right ventricular myocardial infarction (MI) in all inferior STEMIs and to perform a 15-lead ECG to confirm ST elevation \geq 1mm in V4R. The directive then states to not administer nitroglycerin to a patient with right ventricular STEMI.
Results	<ul style="list-style-type: none"> • Success Rate = 99% • 240 patients had a documented STEMI as Final Problem Code • 529 12/15 Lead were acquired (~ 2 per patient) • 7 patients received nitroglycerin. (6 were confirmed as not being a right ventricular MI) • Only 1 patient did not have a completed V4R prior to administration (no harm noted).

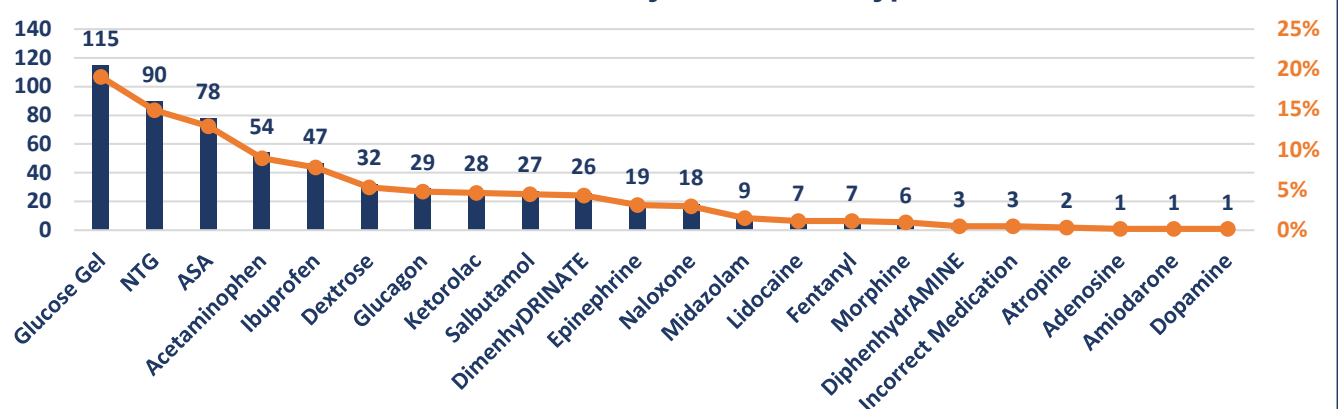
Medication Administration Variance Rate

Case Definition	Medication administration variances identified by IQEMS filters requiring further review
Data source(s)	IQEMS
Date of extraction	April 01, 2021 – March 31, 2022
Additional Notes	Only clinical questions identified as a variance (“disagree”) were included in this data
Results	<ul style="list-style-type: none"> The most frequent medication incident is the omission of glucose gel in the hypoglycemic population. The most frequent medication given in the presence of contraindication(s) is nitroglycerin and many are relating to vital signs outside parameters. The most frequent dosing error is with Acetaminophen and is related to age and weight calculations On 2 occasions the paramedics mistakenly administered the wrong medication (Gravol vs Benadryl)

Variations by Filter Type



Variations by Medication Type



Medication Administration Variance by Category and Medication

Medication Omission		349 (58%)	Contraindication		150 (25%)
1. Glucose Gel	115	1. NTG	35		
2. ASA	70	2. Ketorolac	19		
3. NTG	42	3. DimenhyDRINATE	17		
4. Ibuprofen	28	4. Glucagon	16		
5. Acetaminophen	25	5. Ibuprofen	14		
6. Salbutamol	20	6. Naloxone	8		
7. Dextrose	12	7. Acetaminophen	8		
8. Glucagon	10	8. Epinephrine	7		
9. Epinephrine	7	9. Dextrose	6		
10. DimenhyDRINATE	5	10. Midazolam	6		
11. Ketorolac	5	11. Fentanyl	3		
12. Naloxone	3	12. ASA	3		
13. Lidocaine	3	13. Morphine	2		
14. DiphenhydrAMINE	2	14. Salbutamol	2		
15. Amiodarone	1	15. Lidocaine	2		
16. Morphine	1	16. Adenosine	1		
		17. Atropine	1		
Dosing (16%)		101 (17%)	Incorrect Medication (0.5%)		3 (0.5%)
1. Acetaminophen	21	1. Diphenhydramine	1		
2. Dextrose	14	2. Dimenhydrinate	1		
3. NTG	13	3. Epinephrine	1		
4. Naloxone	7				
5. Ibuprofen	5				
6. ASA	5				
7. Salbutamol	5				
8. Epinephrine	5				
9. Ketorolac	4				
10. DimenhyDRINATE	4				
11. Fentanyl	4				
12. Midazolam	3				
13. Glucagon	3				
14. Morphine	3				
15. Lidocaine	2				
16. Dopamine	1				
17. Atropine	1				
18. DiphenhydrAMINE	1				

National Surveillance of Opioid related harms: Pilot Project using Emergency Medical Services (EMS) Data

Case Definition:	Suspected opioid overdose requiring administration of naloxone by paramedics (as indicated by Medication Code "Naloxone (610)")
Data source(s)/	Ambulance Call Reports
Date of extraction	From : April 01, 2021 to March 31, 2022
Additional Notes:	<ul style="list-style-type: none"> ▪ One call = one event (i.e. multiple administrations to a single patient on a call do not count as separate events) ▪ Multiple events may be triggered by the same 'person', as long as they were different call instances. ▪ **It is recognized that naloxone is not indicated for use for all suspected opioid overdose patients. The ALS PCS encourages the use of Naloxone only in those cases where the patient's oxygenation cannot be maintained.

National Surveillance of Opioid-related harms: Pilot Project using EMS Data

