

2022-2023 ANNUAL REPORT



Centre for Prehospital Care

Health Sciences North

CONTENTS

Introduction	1
Highlights	9
Research	21
Medical Delegation	25
Medical Oversight	37
Education	43
Continuous Quality Improvement (CQI)	45
Appendix A: Performance Measurement Standard Reports	49
Appendix B: Case Reviews (Event Analysis) 2022-23	55
Appendix C: Quality Programming Overview 2022-23	57
Appendix D: Clinical Audit Reports 2022-23	63
i) Review of ASA Administration	63
ii) Special Project Palliative Care	69
iii) Review of Nitroglycerin Administration	73



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 2022-2023.

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 **120** new paramedics
- We provided advice and online medical direction during **628** patch calls
- **117,745** ACRs were processed through our clinical filter identification system
 - **41,939** matched our clinical filters and were electronically audited
 - **4,015** 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

NICOLE SYKES
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

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

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

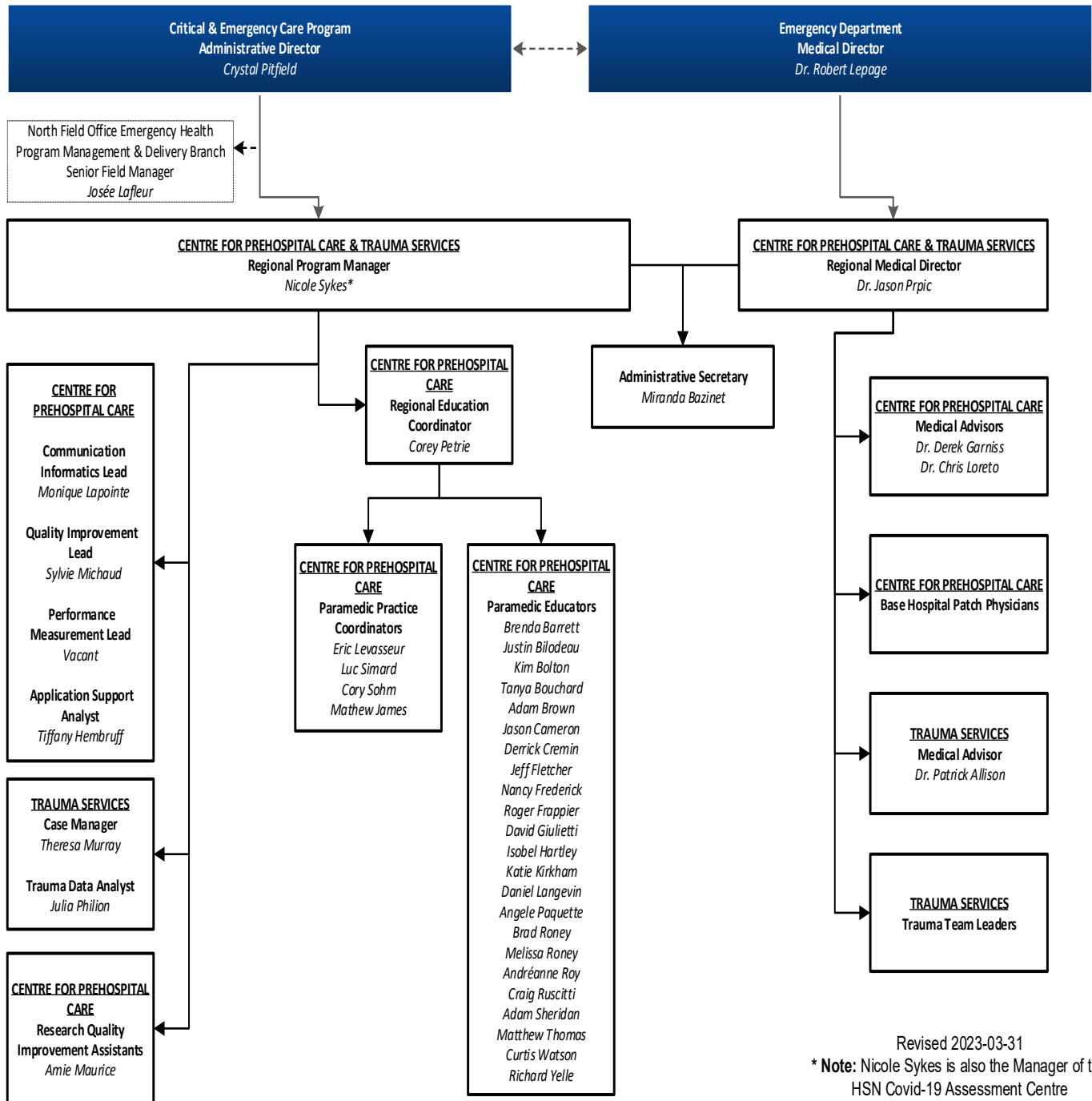
We believe in and will model:

- 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, 2023



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



APPLICATION 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

Mathew James



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
- Katie Kirkham
- Dan Langevin
- Amie Maurice
- Angele Paquette
- Brad Roney
- Andreeanne Roy
- Craig Ruscitti
- Adam Sheridan
- Matt Thomas
- Curtis Watson
- Richard Yelle

HIGHLIGHTS

CPC Installs CAE LearningSpace, a new simulation management solution

In collaboration with HSN's SIMLAB simulation technicians, CPC staff completed the CAE Learning Space Fundamentals course in spring 2022. Since then, the Learning Space system has been widely used such as migrating over our centers inventory and capturing vital administrative details of our equipment as well as the ability to run tailored reports. We have provided numerous educational events and have supported our regional Paramedics returning to clinical practice with strength building simulations and debriefing sessions. Leveraging on CAE's simplified solution for video capturing capabilities, our staff providing education and certification activities have benefited from the platform's audio and video capabilities during several certification events in 2022-2023. Recently the system has received it's digital capture unit encoders upgrade permitting the capture of most video feeds within the platform. CPC will continue to harness the power of this platform to accelerate the knowledge retention for our regional paramedics

New Paramedic Practice Coordinator



Mat joined the Centre for Prehospital Care team November 2022, as a Paramedic Practice Coordinator, after having been a valued contributor with our program since August 2018 as a Paramedic Educator. He has been an Advanced Care Paramedic with the Greater Sudbury Paramedic Service for over 13 years, a relief Platoon Superintendent and a member of the Tactical Paramedic Team. Additionally, Mat possesses a Certificate in Clinical Education from the Michener Institute Level 1 Instructor Certification with the National Association of EMS Educators and is currently completing National Certified Investigator and Inspector training from the Council on Licensure, Evaluation and Regulation. Mat works out of our Sudbury office at 2037 Long Lake Road.

CPC Portfolio Changes

After the addition of our new Paramedic Practice Coordinator, the Centre for Prehospital Care made some changes to portfolios as follows:



Contact	Area of Coverage
Luc Simard	Manitoulin-Sudbury Paramedic Service Greater Sudbury Paramedic Service – PCP Practice
Eric Levasseur	Algoma District Paramedic Service Sault Ste. Marie Paramedic Service Cochrane District Paramedic Service
Mat James	WAHA Paramedic Service Greater Sudbury Paramedic Service – ACP Practice Nipissing District Paramedic Service – ACP Practice
Cory Sohm	Timiskaming District Paramedic Service Parry Sound District Paramedic Service Nipissing District Paramedic Service – PCP Practice

HSN CPC North Bay Office Relocation

The new North Bay office is located at 176 Lakeshore Drive and offers an assortment of available training rooms, break rooms and free parking spaces for paramedics.



HSN CPC exploring new and exciting technologies to enhance paramedics existing education

HSN CPC is actively exploring ways to narrow geographical gaps with customized scenarios in new software and having paramedics access them via Virtual Reality headsets. A virtual reality headset has been purchased, and software is being evaluated to potentially allow paramedics to experience a variety of immersive patient care scenarios that focus on high acuity low occurrence events (HALO). The software being investigated is fully customizable to create a multitude of situations and environments that correspond with our ALS directives. Paramedic Practice Coordinator, Mat James, is currently completing the Virtual Reality Educator's course through Georgian College to support this new initiative.



National Recognition Award: Emergency Medical Services Exemplary Service Medal (EMSESM)

Congratulations to one of our own, Cory Sohm!

Cory received the prestigious Governor General's Emergency Medical Services Exemplary Service Medal, presented by Brigadier General John M. Valtonen recognizing 20 years of exemplary service at a ceremony on October 22, 2022. Since 1994, as part of the Canadian Honours Programme, the Governor General annually selects Canadian EMS professionals to receive an Exemplary Service Medal for 20 years of exemplary service and a bar for each 30 years and 40 years of exemplary service. This award recognizes professionals in the provision of prehospital emergency medical services to the public, who have performed their duties in an exemplary manner, characterized by the highest standards of good conduct, industry and efficiency. At least 10 of these years must have been in the provision of prehospital emergency medical services to the public, which involves potential risk to the individual. Cory is a Cambrian College alumnus and a graduate of both the Primary and Advanced Care Paramedic programs. Cory remains active paramedic and has been practising for over 24 years. He also continues in his role as Paramedic Practice Coordinator with our base hospital in our North Bay office. He ensures efficient, effective and timely delivery of continuing medical education and continuous quality improvement for Paramedics in the Nipissing, Timiskaming and Parry Sound districts.



ASK MAC

You have questions?
We have answers.



You have questions? We have answers!

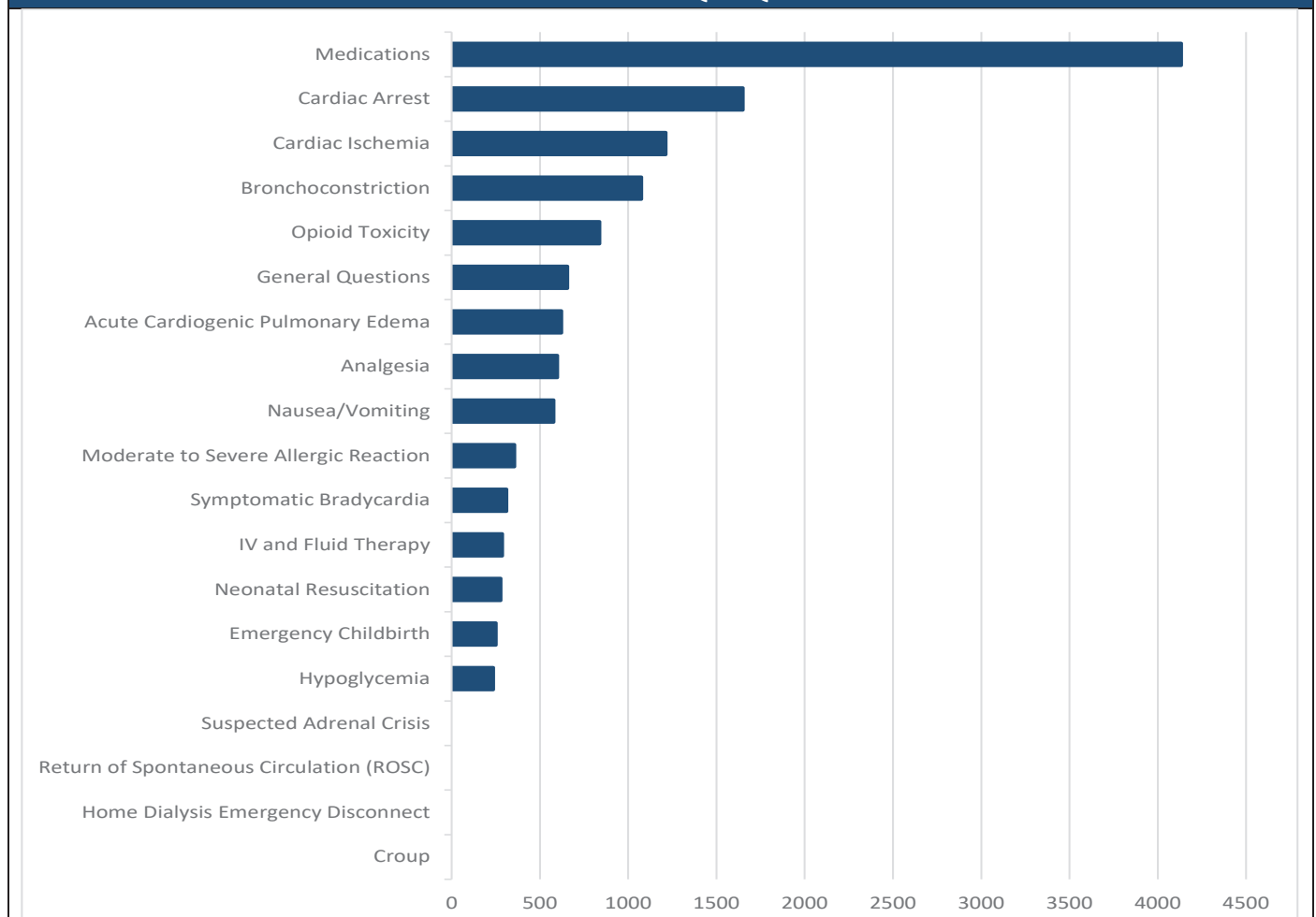
ASK MAC allows paramedics and services to submit questions to our medical directors and receive timely responses, as well as view existing questions and answers within our system in Northeastern Ontario.

Since our launch on November 1, 2021, we have had 37 questions asked and answered!

Most Viewed Questions

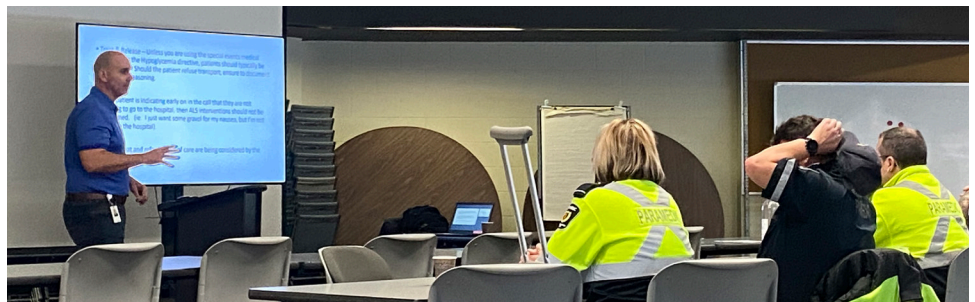
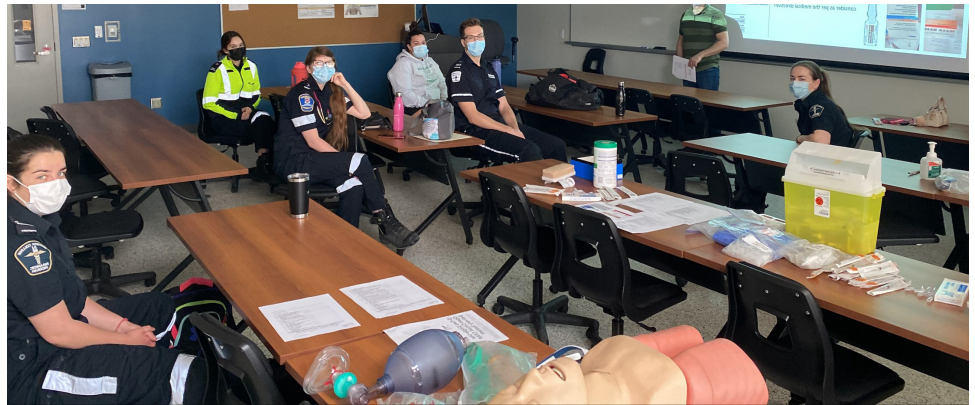
- Diluting Diphenhydramine
- When do we transport a pediatric VSA?
- Should Dimenhydramine be administered if the patient has already taken some?
- Can we titrate naloxone 0.8mg SC/IM/IN?
- Do we treat a STEMI patient and CHF with 0.8mg or 0.4mg of nitro?

Ask MAC Categories by Most Viewed 2022-23 Q1-Q4



Mandatory Continuing Medical Education (CME) Highlights 2022-23

2022 Spring Rounds consisted of ALS PCS updates, including changes to the hypoglycemia medical directive, a review of skills and improvement opportunities. Later in the fall of 2022, paramedics received online training related to the administration of oxytocin as it relates to the Emergency Childbirth medical directive and the administration of dexamethasone for Croup and Bronchoconstriction. Additionally, paramedics completed online modules on the administration of ondansetron as it relates to the Nausea/Vomiting medical directive. Advanced care Paramedics (ACPs) received additional continuing medical education on the signs, symptoms and pathophysiology of Tension Pneumothorax as well as it relates to the Traumatic Cardiac Arrest and Tension Pneumothorax medical directives. ACPs were also given the opportunity to attend the 2022 Summer CME event consisting of M&M Rounds and ACP skills.



College Information Sharing



Every year our CPC office visits various paramedic college programs throughout northern Ontario. This great initiative provides our base hospital the platform to disseminate the information required for future successful paramedic practice. This also provides an opportunity for the students to ask questions related to; ministry regulations, paramedic scope of practice, ALS PCS updates, research initiatives, certification and base hospital geographical boundaries.

Many of the students' questions are often directed towards the certification process and timelines utilized during that process. To the students benefit, we are able to clarify details such as the type of simulation equipment used, skills performed during patient care scenarios and overall success requirements. Our staff enjoy interacting with the students and also gain some insight on college curriculum progress and development.

In December, during the 2022/23 reporting period, we visited Collège Boréal and Cambrian College. The picture above was taken at Cambrian College, courtesy of our HSN CPC paramedic practice coordinator Mathew James.

Collaboration

OBHG Education Sub-Committee

Advanced Life Support Patient Care Standards (ALS PCS)

Over the last few years, paramedic services and hospitals continue to be challenged with unprecedented pressures to provide care, putting risks to patient safety. To help support addressing these pressures in a timely manner, the Ministry of Health (MoH) and the OBHG group began the ground work on three newly proposed Treat and Discharge medical directives (PCP/ACP Hypoglycemia, ACP SVT, PCP/ACP Seizure). The Education Sub-Committee (ESC) worked to ensure the newly created treat and discharge education was ready to roll out in early 2023. The Data Quality Management SubCommittee (DQM) had requested necessary ACR codes be added to the eACR. ALS PCS version 5.0 DRAFT was posted for public consultation to the MoH website for 15 days from December 21, 2022 to January 13, 2023 with an inforce date of February 1, 2023.

Besides the implementation of the treat and discharge medical directives, updates were also added to the following directives: Medical and Trauma cardiac arrest, Newborn resuscitation, Bronchoconstriction, Croup, Emergency Childbirth, Tension pneumothorax, Combative patient, Supraglottic airway, Nausea/vomiting, Central venous access device, Procedural sedation. In addition, Electronic Control Device Probe was removed from the medical directives.

Updated Certification Scenario's for ACP and PCP's

After 3 months of group development work, all Primary Care Paramedic (PCP) and Advanced Care Paramedic (ACP) existing simulation scenarios have been updated to ensure they are consistent with the v5.1 ALC PCS medical directives. In addition, 7 new ACP scenarios have been created. Currently we have access to 63 PCP scenarios and 29 ACP scenarios that can be used for objective structured clinical evaluation (OSCE) certification process. This was possible through a Provincial Working Group in collaboration with other Base Hospitals.

Certification Standards Working Group

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.

This work has temporarily been on hold while group priorities shifted to ensure development of patient care models such as the treat and discharge medical directives.

Annual Curriculum and Storage Working Group

The work of the annual curriculum-working group resumed in 2022/23. Numerous detailed education packages were created in a short amount of time to support the release of v5.1 ALS PCS. These included the CVAD module along with the treat and discharge education package. 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

The Autonomous Intravenous Working Group will be meeting soon to ensure all IV education material is consistent with the v5.1 medical directives.

Documentation Standard/ACR/ACR Completion Manual

Significant work continued over the 2022/23 campaign in collaboration with the MoH who is in the process of reviewing the Ontario Ambulance Documentation Standards (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

OBHG Data and Quality Committee

The DQM continues to collaborate provincially with other Regional Base Hospital Programs (RBHP) on matters related to data management and quality improvement in Ontario. Current projects include:

1. Data Quality

- 1.1. The ACR Code Request Working Group continually reviews and provide recommendations to the Ministry of Health (MoH) on ACR code requests.
- 1.2. The Problem Code sub-committee is currently reviewing and making recommendation to the MoH on a new methodology for documenting Chief complaint and Problem codes.
- 1.3. An ACR code registry is currently being developed to enhance the Master ACR Codes List available on the Emergency Health Services MoH Web Site.
- 1.4. The ACR check boxes for Past Medical History, Medications and Allergies are being reviewed align with the Advanced Life Support Patient Care Standards and improve data capture.
- 1.5. The committee is working with the MoH to access Dispatch Data.

2. Quality Assurance and Quality Improvement

- 2.1. The committee is working with the MoH in developing the Quality Framework for new patient care models including:
 - 2.1.1. Discharge from Care
 - 2.1.2. Patellar Reduction
 - 2.1.3. Administration of Buprenorphine/naloxe
 - 2.1.4. Palliative Care
- ### 3. OBHG Strategic Plan
- 3.1. A strategic road map has been developed to assist the committee in achieving its mission.
- ### 4. Medical Directive Development Group
- 4.1. Members continue to take part in the development of new medical directives to assist with data capture and measurement.

Paramedic Portal of Ontario (PPO)

Health Sciences North Centre for Prehospital Care, Southwest Ontario Regional Base Hospital Program, ORNGE Base Hospital and Sunnybrook Center for Prehospital Medicine 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). Several enhancements to workflows and administrative processes were made. New reports were developed, including a history of certification status, and service summary. In 2023-24, our focus will continue on enhancing 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, and consolidation workflows.

IQEMS

Health Sciences North Centre for Prehospital Care, London Health Sciences Centre, Southwest Ontario Regional Base Hospital Program and Sunnybrook Center 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 2022-23 guided by the strategic work plan through remote work and virtual face to face meetings to further improve the current system, develop built-in reporting tools, and updating the clinical filters and audit forms. In 2022-23 a project work plan was finalized, and conversations continued regarding a new platform for IQEMS.

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>)

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. HSN CPC in collaboration with HSN Communications distributed an article on June being "Stroke Awareness Month". HSN CPC submitted photos for use in the June communication bulletin for public awareness, highlighting the importance of recognizing signs of stroke using the FAST acronym and the importance of calling 9-1-1. The article goes on to state *"More people are surviving stroke because of increased public awareness, better treatment and coordinated systems of care, but four in 10 Canadians do not know the FAST signs of stroke. Anyone witnessing or experiencing the signs of stroke should call 9-1-1 right away. Do not drive to the hospital, an ambulance will get you to the best hospital for stroke care. Lifesaving treatment begins the second you call 9-1-1."*

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.

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 **254** Paramedic self-reports generated and reviewed in 2022-23 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. Refer to Appendix A.

Distance Education

We continue to provide education to more than 812 paramedics across one of the largest geographical regions in Ontario. HSN CPC continues to utilize all methods of education delivery, such as Microsoft Teams, Adobe Connect, Zoom, Turning Point (anywhere polling), Social Media and the Paramedic Portal of Ontario. Enhanced virtual methods of delivery allows 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 and returning to practice paramedics, online via the Paramedic Portal of Ontario. This gives the paramedics or candidates an opportunity to arrive at the prescheduled 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 paramedics and candidates in real time.

The Paramedic Portal of Ontario currently houses all our archived continuing education lectures. We currently have 32 elective presentations that paramedics can view from anywhere and anytime with an internet connection. Continued collaboration with our provincial colleagues provides additional educational opportunities in alternate areas of the province.

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

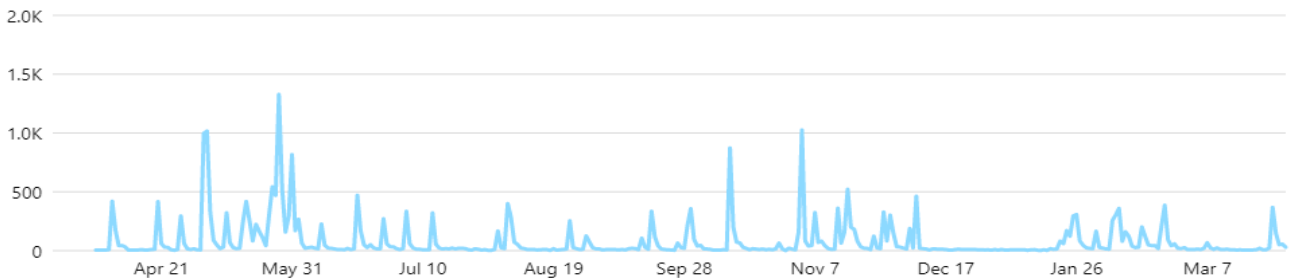
@HSNCPC · Hospital

[Send message](#)

Highest Post Reach, Post Engagement and New Page Likes of 2022-23

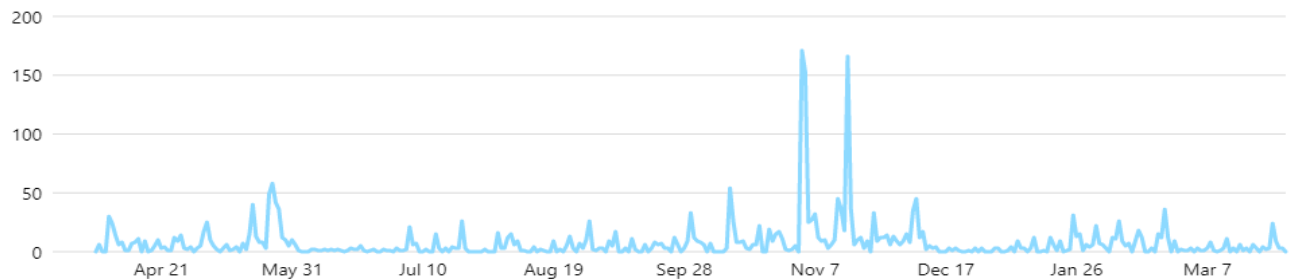
Facebook Page reach ⓘ

9,777 ↓ 7.8%



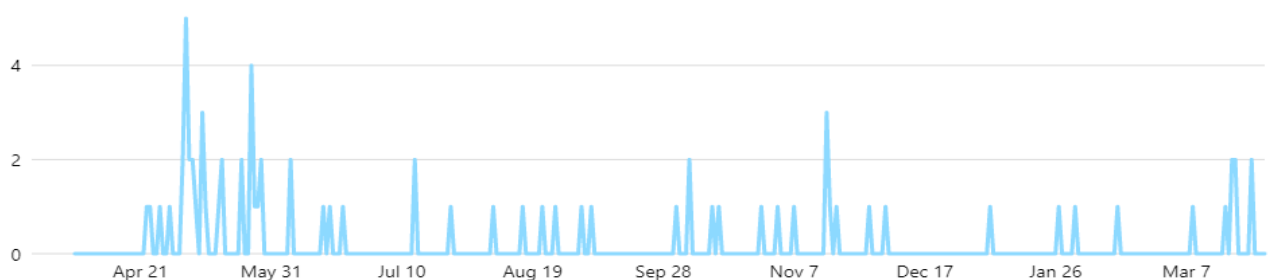
Facebook Page visits ⓘ

2,894 ↑ 372.1%



Facebook Page new likes ⓘ

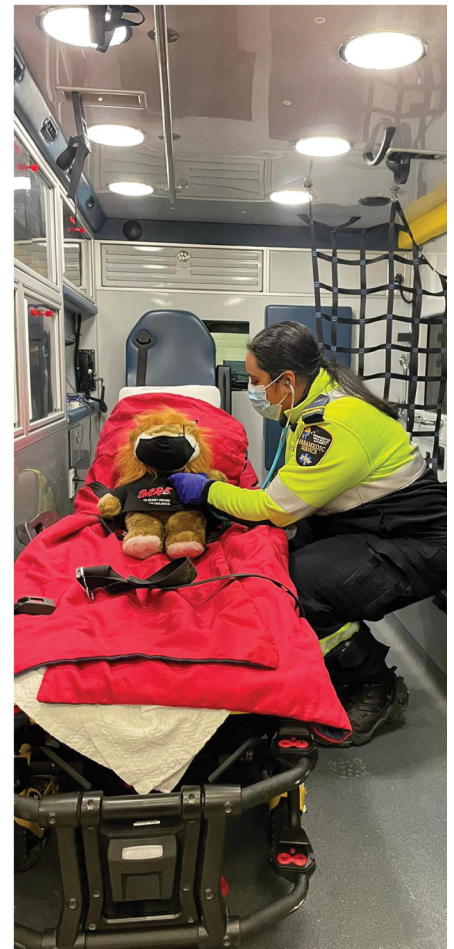
74 ↑ 12.1%



Centre for Prehospital Care Celebrates Paramedic Week 2022

In recognition of all of the hard working paramedics in our region, CPC hosted a daily gift card draw between May 23-27, 2022. All authorized paramedics had their names automatically entered for a chance to win a \$50.00 gift card of their choosing!

Paramedics were also invited to participate in a contest by submitting photos to show what set their service apart from others. The theme was "Faces of Paramedicine".



RESEARCH

Prehospital Patellar Reduction in the Prehospital Setting (PRPS)

Prehospital care of patella dislocation is limited to knee immobilization and pain management. Given the potential benefits of early reduction, the perceived low risk of harm, patella reduction was added to the ALS scope of practice in our region through a research project at CPC. Our objective was to describe the success rate and complications experienced with the addition of a prehospital patella reduction.

The PRPS study started in 2020 and although the research phase is completed, we continue to gather statistical information until the procedure is included in the next release of the Advanced Life Support Patient Care Standards.

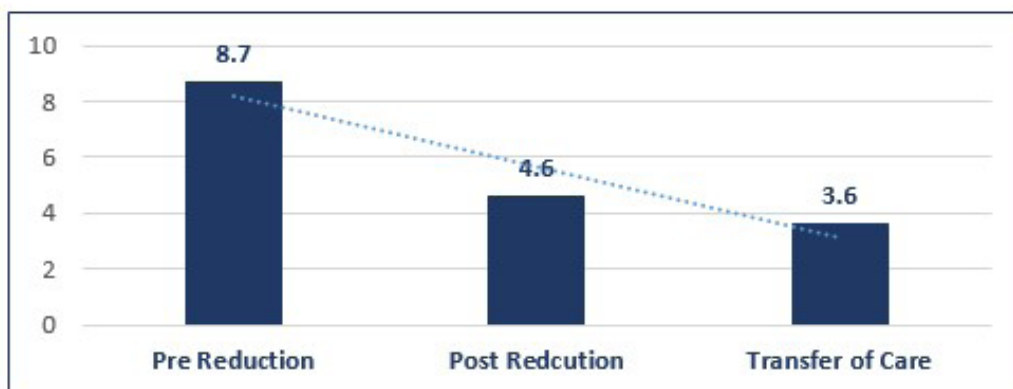
Population and Success Rate (Cumulative)

Between February 2020 and March 2023, 103 patellar reductions were attempted with a success rate of 87% (n=90). Of the 103 reductions completed, 4% (n=4) did not meet the criteria. The average age for all attempts was 28 years (min 10, max 59). Of note, 30 patellar reductions were completed during this fiscal year.

	Pre Study	Study	Total
Successful	40 (95%)	51 (84%)	91 (88%)
Unsuccessful	2 (5%)	10 (16%)	12 (12%)
Grand Total	42	61	103

Pain Score

The average initial recorded pain scale assessed by paramedics was 8.7, with a recorded pain scale of 4.6 post reduction and a final recorded pain scale of 3.6 at transfer of care in the emergency or refusal of transport by the patient. Overall, we observed a decrease of 5.1 points in pain intensity.



Quality Assurance Findings

Of the 30 reductions completed this fiscal year, 23 (83%) had no variances identified. Of the remaining 7 audits, 3 involved assessment omissions, specifically neurovascular and circulatory assessments, 3 medication variances where the dose for acetaminophen was high and 1 patient received 2 attempts at reduction vs the recommended 1 attempt.

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

The RapidShock study was started September 2018 and is now in the final manuscript phase.

The objective of the study was to examine the effect, if any, of a defibrillator software upgrade called RapidShock on the length of CPR pauses (perishock pauses) during care for out of hospital cardiac arrest among adults.

The primary outcome was perishock pause which is the total time that no CPR was performed during an analysis where defibrillation occurred. The secondary outcomes were perianalysis pause in non-shockable rhythms and total CPR pause for all rhythms.

766 CPR cycles for 166 patients were included for analysis in the pre-phase where the software was not in use (Standard Mode) and 829 CPR cycles for 158 patients were included for analysis in the post-phase where the software was activated (RapidShock Mode).

Compared with Standard (Manual mode) defibrillator software, use of Rapid Shock

(SAED mode) to treat OOHCA resulted in a 31.8% reduction in perishock pause (median pause 22.0s (IQR: 18.0 – 27.0) vs. 15.0s (IQR: 13.0 – 19.0)), and a 23.5% reduction in total CPR pause (median pause 17.0s (IQR: 11.0 – 24.0) vs. 13.0s (IQR: 10.0 – 17.0)). Observed differences in the distribution of perishock and total CPR pauses between defibrillator software groups was highly significant ($p < 0.0001$). No effect on perianalysis pause was observed with Rapid Shock software.

Similar findings were observed when examining differences in perishock (27.3% reduction in median pause; $p < 0.0001$) and total CPR (27.3% reduction in median pause; $p < 0.0001$) pause between CPR cycles performed using Standard (Manual and SAED modes) or Rapid Shock (Manual' and SAED modes) defibrillator software. No changes in perianalysis pause were observed.

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

Centre for Prehospital Care
Health Sciences North

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¹Health Sciences North Centre for Prehospital Care, Sudbury, ON, Canada; ²Health Sciences North Research Institute, Sudbury, ON, Canada; ³TruEHealth Inc., Sudbury, ON, Canada
 Authors report no conflicts of interest. This study was supported by the ZOLL Medical Corporation and the Northern Ontario Academic Medicine Association.

BACKGROUND

Prolonged pauses in cardiopulmonary resuscitation (CPR) are known to decrease survival in out-of-hospital cardiac arrest (OHCA). Use of external defibrillators equipped with upgraded software that performs rhythm interpretation during chest compression may allow emergency medical services to reduce CPR pauses.

OBJECTIVE

Examine the effect, if any, of a defibrillator software upgrade on the length of CPR pauses during care for OHCA among adults.

METHODS

Design & Setting

- Cohort study of adults (18+ years) with OHCA.
- CPR data were abstracted from electronic ambulance call reports and corresponding ZOLL® cardiac defibrillator files from seven Northern Ontario paramedic services.

Outcomes

- Primary outcome was perishock pause: total time that no CPR was performed during an analysis where defibrillation occurred.
- Secondary outcomes were perianalysis pause (non-shockable rhythms) and total CPR pause (all rhythms).

Statistical Analyses

- Median and interquartile ranges were calculated in seconds for CPR pauses by software.
- Percent change in median perishock pause, perianalysis pause, and total CPR pause was compared between CPR administered using 'Standard' or 'RapidShock' defibrillator software using the Mann-Whitney test.

STUDY COHORT

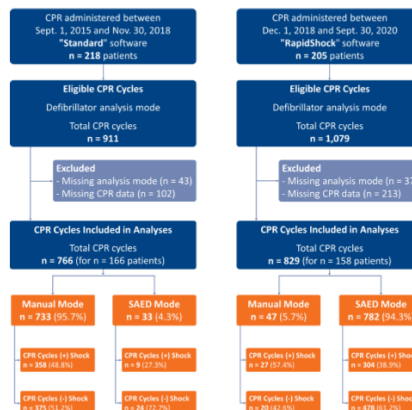


Figure 1. Selection of CPR cycles included in study analyses.

Abbreviations: CPR, cardiopulmonary resuscitation
 SAED, semi-automatic external defibrillator

RESULTS

Table 1. Median pauses in CPR delivery by defibrillator software for administered shocks: 'Standard' versus 'RapidShock' software.

CPR Pauses by Defibrillator Software	n	Median Pause (seconds)	Interquartile Range (Q1 - Q3) (seconds)	Percent Change of Median (%)	P Value
Perishock Pause					
'Standard Software' ('Manual' mode)	358	22.0	(18.0 - 27.0)	-	-
'RapidShock' Software ('SAED' mode)	304	15.0	(13.0 - 19.0)	-31.8	<0.01
Preshock Pause					
'Standard Software' ('Manual' mode)	358	18.0	(15.0 - 22.0)	-	-
'RapidShock' Software ('SAED' mode)	304	10.0	(9.0 - 13.0)	-44.4	<0.01
Postshock Pause					
'Standard Software' ('Manual' mode)	358	3.0	(2.0 - 5.0)	-	-
'RapidShock' Software ('SAED' mode)	304	4.0	(3.0 - 6.0)	33.3	<0.01

Table 2. Median pauses in CPR delivery by defibrillator software for all rhythms: 'Standard' versus 'RapidShock' software.

CPR Pauses by Defibrillator Software	n	Median Pause (seconds)	Interquartile Range (Q1 - Q3) (seconds)	Percent Change of Median (%)	P Value
Perishock Pause					
'Standard Software' ('Manual' mode)	358	22.0	(18.0 - 27.0)	-	-
'RapidShock' Software ('SAED' mode)	304	15.0	(13.0 - 19.0)	-31.8	<0.01
Perianalysis Pause					
'Standard Software' ('Manual' mode)	375	11.0	(8.0 - 17.0)	-	-
'RapidShock' Software ('SAED' mode)	478	11.0	(9.0 - 15.0)	0.0	0.09
Total CPR Pause					
'Standard Software' ('Manual' mode)	733	17.0	(11.0 - 24.0)	-	-
'RapidShock' Software ('SAED' mode)	782	13.0	(10.0 - 17.0)	-23.5	<0.01

CONCLUSIONS

- RapidShock external defibrillator software reduced overall pauses to CPR.
- Time savings were attributed to shorter preshock pauses.
- Future studies are necessary to determine if greater reductions in CPR pauses may be achieved and to examine effects of pause reductions on patient outcomes.

Paramedic Services in the Health Sciences North Region to Provide Services Receiving Palliative Care

This project was a quality improvement initiative that prepared paramedics in the HSN base hospital region, to treat patients who are registered in the Client Health and Related Information System (CHRIS) Home and Community Care (HCC) database and part of a palliative care program. The patient-centered initiative, provided the options for patients receiving palliative care and their caregivers to have symptoms managed within their home and avoid transports to hospital reducing unnecessary Emergency Departments visits and acute care admissions.

Deliverables of the project included a medical directive for paramedic palliative care, delivery of a training curriculum for all paramedics, development of a system to acknowledge registered patients, and development of data tracking for paramedic palliative care services. All four deliverables have been met by the Greater Sudbury Paramedic Services and are currently in progress for all other Services in the HSN region.

RESULTS AGGREGATED FOR MOH REPORTING

INDICATORS	GSPS	ALL	%
1. # of registered patients for the pilot. Manual input from HCC and includes patients who have passed away for a cumulative total)	218	2268	10%
2. # of registered patients for the pilot. On-site BHP confirmed	NA	59	0%
3. # of registered patients for the pilot. (Total)	218	2327	9%
4. # 911 calls for paramedic services by registered patients. Patients called with symptoms listed in the palliative care Medical Directive	22	488	5%
5. # 911 calls for paramedic services by registered patients. Patients called with OTHER symptoms NOT listed in the palliative care Medical Directive. e.g. Lift Assist; Weakness; Abdominal Pain; etc.	31	833	4%
6. # of patients not transported. Patients called with symptoms listed in the palliative care Medical Directive.	13	176	7%
7. # of patients not transported. Patients called with OTHER symptoms NOT listed in the palliative care Medical Directive, e.g. Lift Assist; Weakness; Abdominal Pain; etc.	19	93	20%
8. # of patients transported to ED. Patients called with symptoms listed in the palliative care Medical Directive.	9	177	5%
9. # of patients transported to ED. Patients called with OTHER symptoms NOT listed in the palliative care Medical Directive. e.g. Lift Assist; Weakness; Abdominal Pain; etc.	12	464	3%
10. # repeat users of a new patient care model Number of unique repeat patients who use a new patient care model one (1) or more times per month on average during the implementation period	4	217	2%

NOTES:

- *GSPS started the program February 2022. Data requirement submission to MoH ended January 31, 2023
- Of note, 58 REGISTERED patients called 911, but paramedics did not receive a notification flag from the dispatch center and therefore did not meet the inclusion criteria.
- 100% of the calls were audited and there were no adverse events noted during the trial.
- Combined Data include Services from HSN, the Regional Paramedic Program for Eastern Ontario (Ottawa) and Centre for Paramedic Education and Research (Hamilton)

CanROC

Canadian Resuscitation Outcomes Consortium
Consortium Canadien de Recherche en Réanimation

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.

A total of 99 patients from the Greater Sudbury Paramedic region were registered in the Registry. The table below summarizes the patient outcomes.

Outcomes	N
Pronounced: First ED	45 (45%)
Pronounced: First Hospital	33 (35%)
Alive: Discharged - First Hospital	16 (16%)
Could not obtain	3 (3%)
Grand Total	99



The overall aim of the Canadian Sudden Cardiac Arrest Network (C-SCAN) is to measure the disease burden 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 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, 2023, HSN Centre for Prehospital Care had 44 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
- District of Nipissing 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, 2022 to March 31, 2023	84	818	902

*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		77	77
COCHRANE DISTRICT PS		106	106
GREATER SUDBURY PS	67	108	175
MANITOULIN-SUDBURY DSB PS		141	141
DISTRICT OF NIPISSING PS	17	83	100
PARRY SOUND DISTRICT EMS		85	85
DISTRICT OF SSM PS		97	97
TIMISKAMING DISTRICT EMS		64	64
WAHA PS		57	57

* These numbers include multi-service medics, therefore one paramedic may be represented twice for different services and/or cert level.

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 (NIP)		✓
ASA	✓	✓
Atropine *(Palliative for GSPS)	✓	✓
Calcium Gluconate		✓
10% Dextrose in water	✓	✓
50% Dextrose in water	✓	✓
Dexamethasone	✓	✓
Dimenhydrinate (Gravol)	✓	✓
Diphenhydramine (Benadryl)	✓	✓
Dopamine		✓
Epinephrine 1:1,000	✓	✓
Epinephrine 1:10,000		✓
Fentanyl		✓
Glucagon	✓	✓
Glycopyrrolate *(Palliative for GSPS)	✓	✓
Haloperidol *(Palliative for GSPS)	✓	✓
Hydromorphone *(Palliative for GSPS)		✓
Hydroxocabalin (GSPS, CDSP, TDEMS)	✓	✓
Ibuprofen	✓	✓
Ketorolac	✓	✓
Ketamine		✓
Lidocaine (GSPS)		✓
Midazolam		✓
Morphine		✓
Naloxone	✓	✓
Nitroglycerin	✓	✓
Ondansetron	✓	✓
Oxytocin	✓	✓
Oxygen	✓	✓
Salbutamol (MDI and Nebulization)	✓	✓
Sodium Bicarbonate		✓

3.3 A list of the delegated Controlled Acts *continued*

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

	PRIMARY CARE	ADVANCED CARE
OBSTETRICAL/NEONATAL TRANSFER		
Assess and Recognize Obstetrical Emergencies	✓	✓
Delivery of the Neonate	✓	✓
TRAUMA		
Lateral Patellar Reduction	✓	✓
AIRWAY/VENTILATORY COMPROMISE SKILLS		
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		
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	✓	✓
Valsalva Maneuver		✓
Synchronized Cardioversion		✓
Emergency Home Dialysis Disconnect	✓	✓
DRUG ADMINISTRATION		
Administer Drugs via SL; SC; PO; IM; IN, MDI and Nebulized Routes	✓	✓
Administer Drugs via ETT; IO		✓
Administer Drugs via IV	*	✓
CVAD Access		✓
Hydrocortisone	✓	✓

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 2022-23.

PRIMARY CARE PROGRAM	GSPS	MSPS	DSSMPS	ADPS	NIP	PSDEMS	TDEMS	CDPS	WAHA
Medical Cardiac Arrest (Defibrillation, Termination of Resuscitation)	X	X	X	X	X	X	X	X	X
Trauma Cardiac Arrest (Defibrillation, Termination of Resuscitation)	X	X	X	X	X	X	X	X	X
Hypothermia Cardiac Arrest (Defib)	X	X	X	X	X	X	X	X	X
Foreign Body Airway Obstruction Cardiac Arrest (Defib)	X	X	X	X	X	X	X	X	X
Newborn Resuscitation	X	X	X	X	X	X	X	X	X
Return of Spontaneous Circulation	X	X	X	X	X	X	X	X	X
Cardiac Ischemia (ASA, Nitroglycerin SL)	X	X	X	X	X	X	X	X	X
Acute Cardiogenic Pulmonary Edema (Nitroglycerin SL)	X	X	X	X	X	X	X	X	X
Hypoglycemia (Dextrose IV, Glucagon IM)	X	X	X	X	X	X	X	X	X
Bronchoconstriction (Salbutamol MDI/neb, Epinephrine 1:1000 IM)	X	X	X	X	X	X	X	X	X
Moderate to Severe Allergic Reaction (Epinephrine IM, Diphenhydramine IV/IM)	X	X	X	X	X	X	X	X	X
Croup (Epinephrine 1:1000 nebulized)	X	X	X	X	X	X	X	X	X
12 Lead ECG Acquisition & Interpretation	X	X	X	X	X	X	X	X	X
Adult Analgesia (Ibuprophen, Acetaminophen, Ketorolac)	X	X	X	X	X	X	X	X	X
Opioid Toxicity (Naloxone SC/IM/IV)	X	X	X	X	X	X	X	X	X
Auxiliary Intravenous & Fluid Therapy (0.9% NaCl)	X	X	X		X	X	X	X	*
PCP Manual Defibrillation	X	X	X	X	X	X	X	X	X
Home Dialysis Emergency Disconnect	X	X	X	X	X	X	X	X	X
Emergency Childbirth	X	X	X	X	X	X	X	X	X
Suspected Adrenal Crisis	X	X	X	X	X	X	X	X	X
Patellar Dislocation Research Protocol	X	X	X	X	X	X	X	X	X
Special Project Palliative Care	X								
Endotracheal and Tracheostomy Suctioning and Reinsertion	X	X	X	X	X	X	X	X	X
Auxiliary Cardiogenic shock	X	X	X		X	X	X	X	*
Auxiliary Continuous Positive Airway Pressure	X	X	X	X	X	X	X	X	X
Supraglottic Airway (King LT)	X	X	X	X	X	X	X	X	X
Nausea and Vomiting (Dimenhydrinate IV/IM)	X	X	X	X	X	X	X	X	X
Auxiliary Chemical Exposure Medical Directive (CYANOKIT)	X						X	X	
Auxiliary Special Events Medical Directives			X		X	X			
Auxiliary Electronic Control Device Probe Removal									

* Under the WAHA Service: Auxiliary Intravenous & Fluid Therapy and Cardiogenic Shock apply ONLY to Constance Lake Station

ADVANCED CARE PROGRAM	GSPS	NIP
Medical Cardiac Arrest (Epinephrine 1:10,000 IV/IO/ETT, Lidocaine/Amiodarone IV/IO) ¹	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
Special Project Palliative Care	X	
Auxiliary Adult Intraosseous (IO) Infusion	X	X
Central Venous Access Device (CVAD access)	X	X
Auxiliary Continuous Positive Airway Pressure	X	X
Supraglottic Airway	X	X

¹ Greater Sudbury Paramedic Service – Lidocaine

ADVANCED CARE PROGRAM	GSPS	NIP
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	

References and Related Documents

Emergency Health Services Branch Ministry of Health and Long Term Care –Advanced Life Support Patient Care Standards ALS PCS

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 5.1 which came into effect on February 1, 2023.

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 5.1.

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

PERIOD	TOTAL ACP	TOTAL PCP	TOTAL
April 1, 2022 to March 31, 2023	8	112	120

SERVICE	ACP	PCP	TOTAL
ALGOMA DISTRICT PS		13	13
COCHRANE DISTRICT PS		20	20
GREATER SUDBURY PS	5	18	23
MANITOULIN-SUDBURY DSB PS		11	11
DISTRICT OF NIPISSING PS	3	8	11
PARRY SOUND DISTRICT EMS		7	7
DISTRICT OF SAULT STE. MARIE PS		19	19
TIMISKAMING DISTRICT EMS		9	9
WAHA PS		7	7

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

REPORTING PERIOD	TOTAL ACP	TOTAL PCP	TOTAL
April 1, 2022 to March 31, 2023	5	60	65

SERVICE	ACP	PCP	TOTAL
ALGOMA DISTRICT PS		5	5
COCHRANE DISTRICT PS		4	4
GREATER SUDBURY PS	4	10	14
MANITOULIN-SUDBURY DSB PS		10	10
DISTRICT OF NIPISSING PS	1	7	8
PARRY SOUND DISTRICT EMS		9	9
DISTRICT OF SAULT STE. MARIE PS		6	6
TIMISKAMING DISTRICT EMS		2	2
WAHA PS		7	7

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

REPORTING PERIOD	TOTAL ACP	TOTAL PCP	TOTAL
April 1, 2022 to March 31, 2023	10	81	91

SERVICE	ACP	PCP	TOTAL
ALGOMA DISTRICT PS		15	15
COCHRANE DISTRICT PS		9	9
GREATER SUDBURY PS	10	9	19
MANITOULIN-SUDBURY DSB PS		19	19
DISTRICT OF NIPISSING PS		3	3
PARRY SOUND DISTRICT EMS		6	6
DISTRICT OF SAULT STE. MARIE PS		9	9
TIMISKAMING DISTRICT EMS		2	2
WAHA PS		9	9

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.

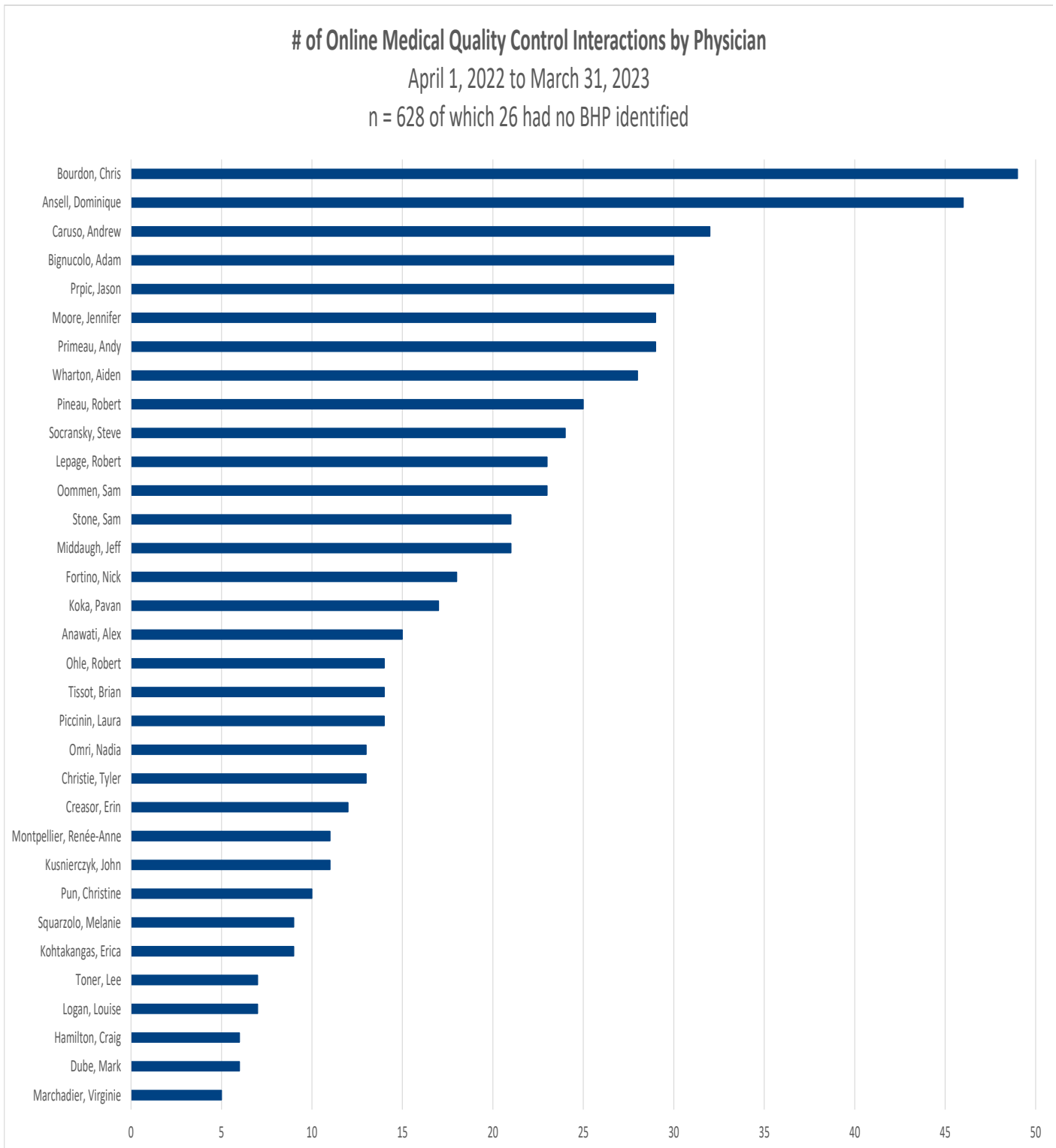
7.2 Total number of emergency physicians engaged as a Base Hospital Physician.

35 Emergency Physicians were engaged as Base Hospital Physicians

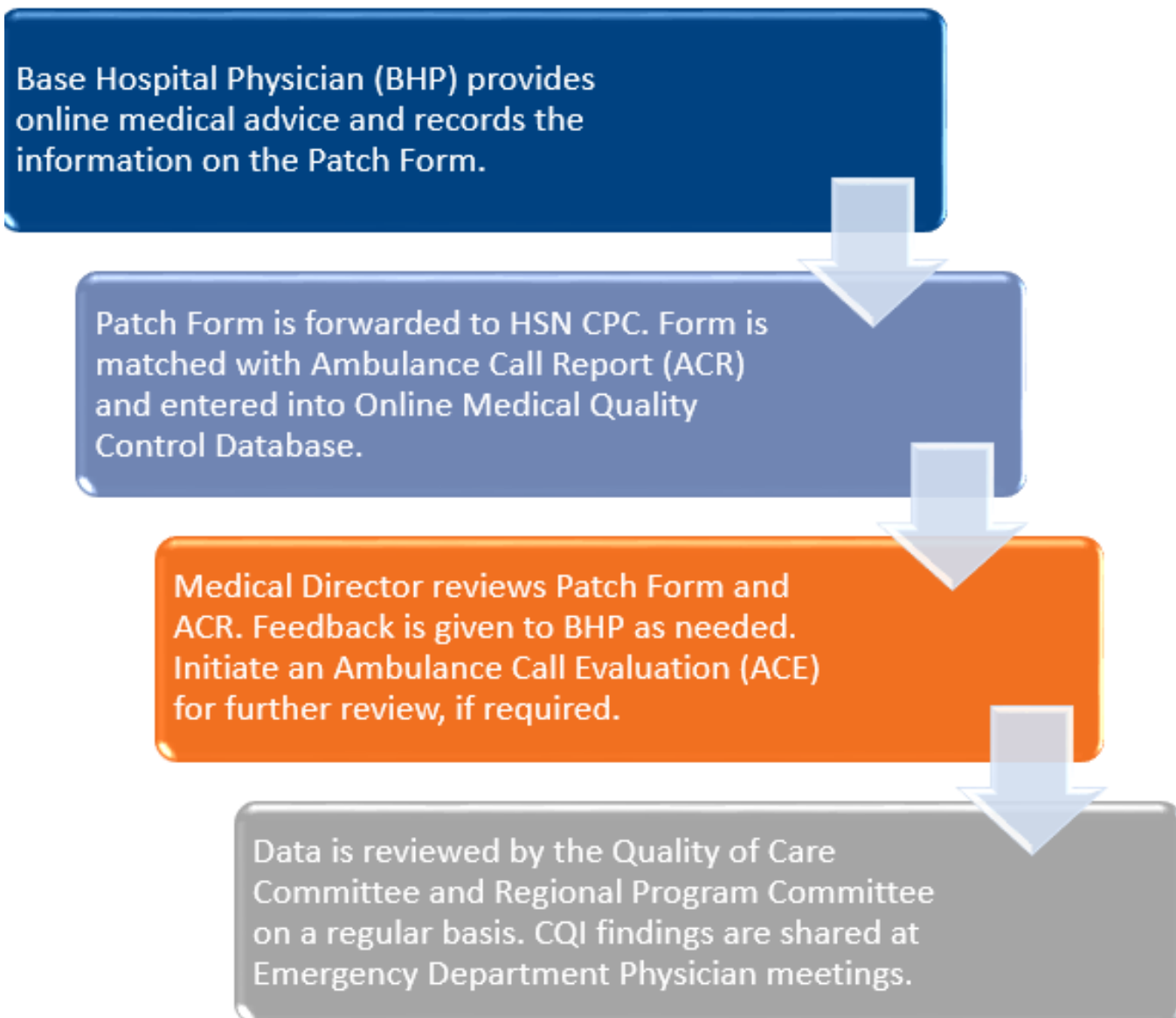
BASE HOSPITAL PHYSICIANS	
Dr. Alex Anawati	Dr. Jeff Middaugh
Dr. Dominique Ansell	Dr. Renee-Anne Montpellier
Dr. Megan Bhatia	Dr. Jennifer Moore
Dr. Adam Bignucolo	Dr. Robert Ohle
Dr. Christopher Bourdon	Dr. Nadia Omri
Dr. Andrew Caruso	Dr. Sam Oommen
Dr. Tyler Christie	Dr. Laura Piccinin
Dr. Emily Conrad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

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

Total of **628** online interactions occurred between April 1, 2022 and March 31 2023, and 100% were reviewed for medical quality.



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.

- June 15, 2022
- September 14, 2022
- December 7, 2022
- March 1, 2023

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

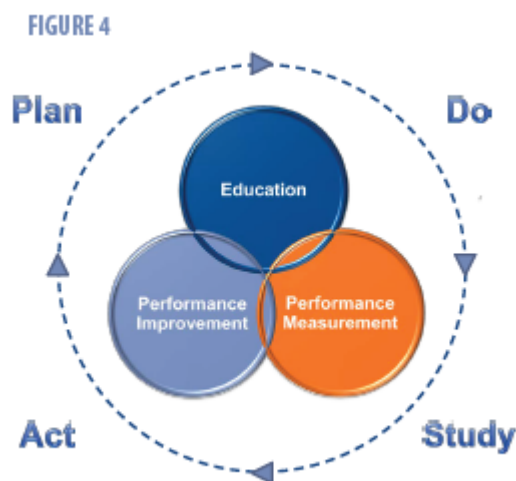
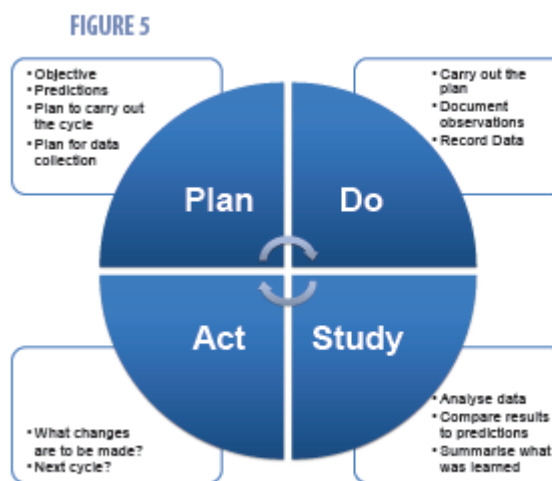


FIGURE 5



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.

There are no agreements in place at this time. When 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. ePCR/IQEMS audits
2. Medical Directives and Companion Documents
3. Implementation of Patient Care Models
4. Medical equipment/medication
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
- 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 (on hold)
- OBHG Annual Curriculum Development Group - Adhoc
- OBHG Storage Working Group (Wiki site) - Quarterly
- 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) - Quarterly
- 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
- HSN Emergency Preparedness Committee – Ad-hoc
- 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
- 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.

- There were 628 formal requests for medical advice direction or assistance.

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.

The HSN CPC Quality of Care Committee (QCC) defines “expeditiously provide medical advice” as a Base Hospital Physician (BHP) making contact with the paramedic within 3 minutes of receiving the request (T4). In our system, there are four phases for a patch completion.

All patch failures noted on an Ambulance Call Report and/or reported by a paramedic are escalated to the Quality Improvement Lead to determine root cause and recommend system improvements.

During 2022-2023, eleven (11) “No BHP Contact” patch failures were reviewed. Of those:

- 2 events (18%) were due to a BHP not meeting the benchmark of < 3 minutes. Factors such as the BHP being engaged in patient care in the emergency department could contribute to the delay. These incidences were reported to the Senior Field Manager via an event analysis report.
- 5 events (45%) were due to technical issues (cell coverage, bad reception, call dropping, etc...).
- 4 events (36%) were due to the paramedic electing to disconnect the line within 3 minutes of making hospital contact (during T3 phase noted above). Contributing factors include a change in patient’s condition where rapid transport would benefit the patient or the family not coping well with the situation.

T1	T2	T3	T4
Paramedic requests radio/phone patch via Dispatch	Dispatch transfers to Charge Nurse in ED	Charge Nurse answers phone and locates a BHP	BHP answers phone
Benchmark established by QCC is < 3 minutes			

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
2022-04-19	HSN CPC Research Updates - Presented by Dr. Jason Prpic	1
2022-08-04	Prehospital Medication Errors - Presented by Dr. Derek Garniss	1
2022-08-29	M&M Rounds and Skills Review - Presented by Dr. Jason PRpic	2
2022-09-07	Northern Ontario Opioid Crisis & New Prehospital Treatment Options Presented by Dr. Samson and Dr. Marion-Bellemare	1.5
2022-12-01	Skills Review Session	2
2023-02-09	Pediatric Emergencies - Presented by Dr. Sean Murray	1
2023-02-23	TownHall: Medical Cardiac Arrest - Presented by Dr. Chris Loreto	1
2023-02-23	Practical Cardiac Arrest Simulations - led by Paramedic Practice Coordinators	2

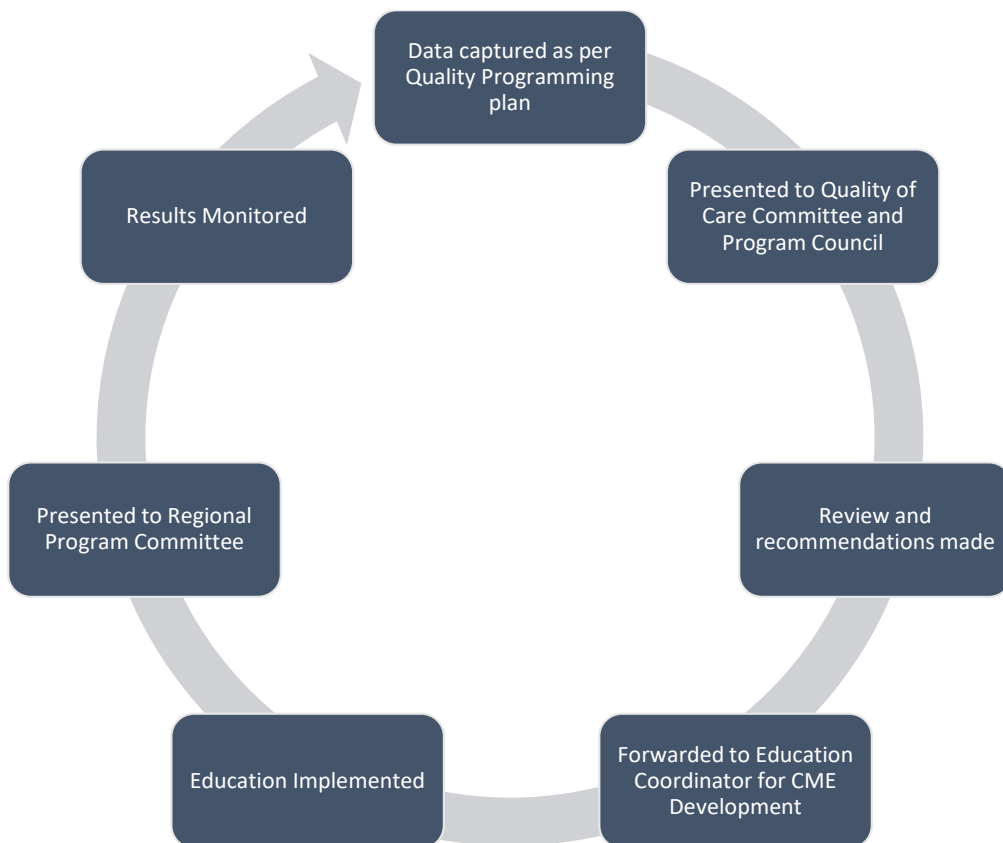
Q20 The Host Hospital shall ensure that prehospital patient care education is provided in accordance with education standards approved by the Minister as may be implemented and amended from time to time. Provide the topics and time allotted for each educational session delivered this year to paramedics.

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

DATE	TOPIC/INSTRUCTOR	HOURS
April- June 2022	Spring Paramedic Practice Rounds	4
September- December 2022	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 2022-23, HSN CPC made available approximately 1,464 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](#)

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 / Paramedics	Service Providers	Quarterly	Performance Measurement Standard Reports
AUDIT VARIANCE DETAIL AND SUMMARY REPORTS Breakdown of variance rates and outcomes by Service	Service Providers	Quarterly	Performance Measurement Standard Reports
PARAMEDIC SELF REPORTS This report identifies the number of self-reports submitted by Paramedics. The summary categorizes self-reports by Service	Service Providers	Quarterly	Performance Measurement Standard Reports
BLS OMISSIONS/COMMISSIONS BLS issues discovered during an ALS audit are reported to the Service Operator during the auditing process.	Service Providers	Upon discovery	Performance Measurement Standard Reports
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	Performance Measurement Standard Reports
CLINICAL AUDIT REPORTS Measures of current practice against a defined (desired) standard with the intent to improve systems vs individual practice.	Service Providers	Quarterly	Clinical Audit Reports
AD HOC FINDINGS	Service Providers	HSN CPC Program Committee	Discussion Minutes
REGIONAL DATA ADVISORY COMMITTEE	Service Providers Hospital Representatives CACC Representatives	3x / yr	Discussion Minutes
ONLINE MEDICAL CONTROL INTERACTIONS REPORTS	Service Providers	Quarterly	Performance Measurement Standard Reports

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 considered as part of 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 2022-23](#)

[Appendix C: Quality Programming Overview 2022](#)

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 2022-23, there were **41,939** calls audited, compared to 2021-22, there were 37,666 calls audited, and 2020-21, where 34,857 calls were audited.

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

There were 41,939 ambulance call reports that were electronically audited. Of these audited calls, **4,015 (9.57%)** were identified as having a variance and required further action; and **37,924 (90.43%)** 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 8 newly certified ACPs and 112 PCPs (defined as paramedics not having previous Base Hospital certification) in 2022-23. 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, 942 were manually reviewed by an auditor.

FILTER TYPE	NO FOLLOW-UP REQUIRED	PARAMEDIC FEEDBACK RECEIVED/ REMEDIATED	PARAMEDIC INTERVIEWED/ REMEDIATED	SELF REMEDIATION	GRAND TOTAL
Cancelled Calls	794	135	4	9	942

APPENDIX A: PERFORMANCE MEASUREMENT STANDARD REPORT

**Performance Measurement Standard Report
ANNUAL REPORT
April 1, 2022 to March 31, 2023**



Centre for Prehospital Care

Health Sciences North

Performance Measurement Standard Reports April 1, 2022 to March 31, 2023

SECTION 1

AUDIT ACTIVITIES SUMMARY BY FILTER TYPE (ALL SERVICES)

This is a cumulative report providing a breakdown of the number of ACRs that matched a filter type and required further review, measured against the Northeast.



Centre for Prehospital Care
Health Sciences North

Audit Activities: Summary by Filter Type (All Services) April 1, 2022 to March 31, 2023

ACR Matched the Filter Type FILTER TYPE	Total*				Identified for Further Review				Escalated for Additional Review**			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Allergic Reaction	112	364	466	561	7	27	33	34	4	12	15	15
Analgesia	1153	2574	3893	5270	59	136	216	296	23	54	93	136
Cancelled Calls	4861	9875	14806	18918	102	184	266	321	21	32	50	63
Cardiac Arrest	232	454	734	963	232	454	734	963	83	181	288	372
Cardiac Ischemia	1043	2115	3149	4207	209	406	624	836	74	147	228	294
Difficult Airway	143	260	411	549	4	6	6	11	2	2	2	6
Emergency Childbirth	13	30	38	54	13	30	38	54	3	8	9	15
Hypoglycemia	258	504	773	985	141	269	407	504	29	63	105	136
Nausea & Vomiting	754	1601	2422	3345	23	44	70	97	9	15	26	37
Opioid Toxicity	811	1544	2285	2935	21	37	46	95	14	22	27	43
Palliative Care	37	55	79	101	34	52	74	83	27	42	59	66
Pulmonary Edema	1491	2877	4758	6292	40	86	142	185	13	30	44	54
Sedation	25	52	78	109	3	11	18	29	2	3	4	9
Seizure	95	200	310	435	11	21	31	39	2	5	6	6
SOB (Asthma, Croup & Needle Thoracostomy)	375	746	1318	1864	71	144	244	352	27	49	91	134
Suspected Adrenal Crisis	3	7	11	16	3	7	11	16	0	1	2	3
Symptomatic Bradycardia	24	67	119	144	10	26	51	65	1	11	21	23
Tachydysrhythmia	11	25	40	59	3	12	25	34	1	1	5	9
Total	11441	23350	35690	46807	986	1952	3036	4014	335	678	1075	1421

*Matched the Filter Type Totals: This is the total number of Ambulance Call Reports (ACR) that matched the filter type in IQEMS. It includes ACRs not requiring further review and those identified for further review.

**Matched the Filter Type - Escalated for Additional Review: Of the ACRs identified for further review, these are the ACRs that required an additional review.

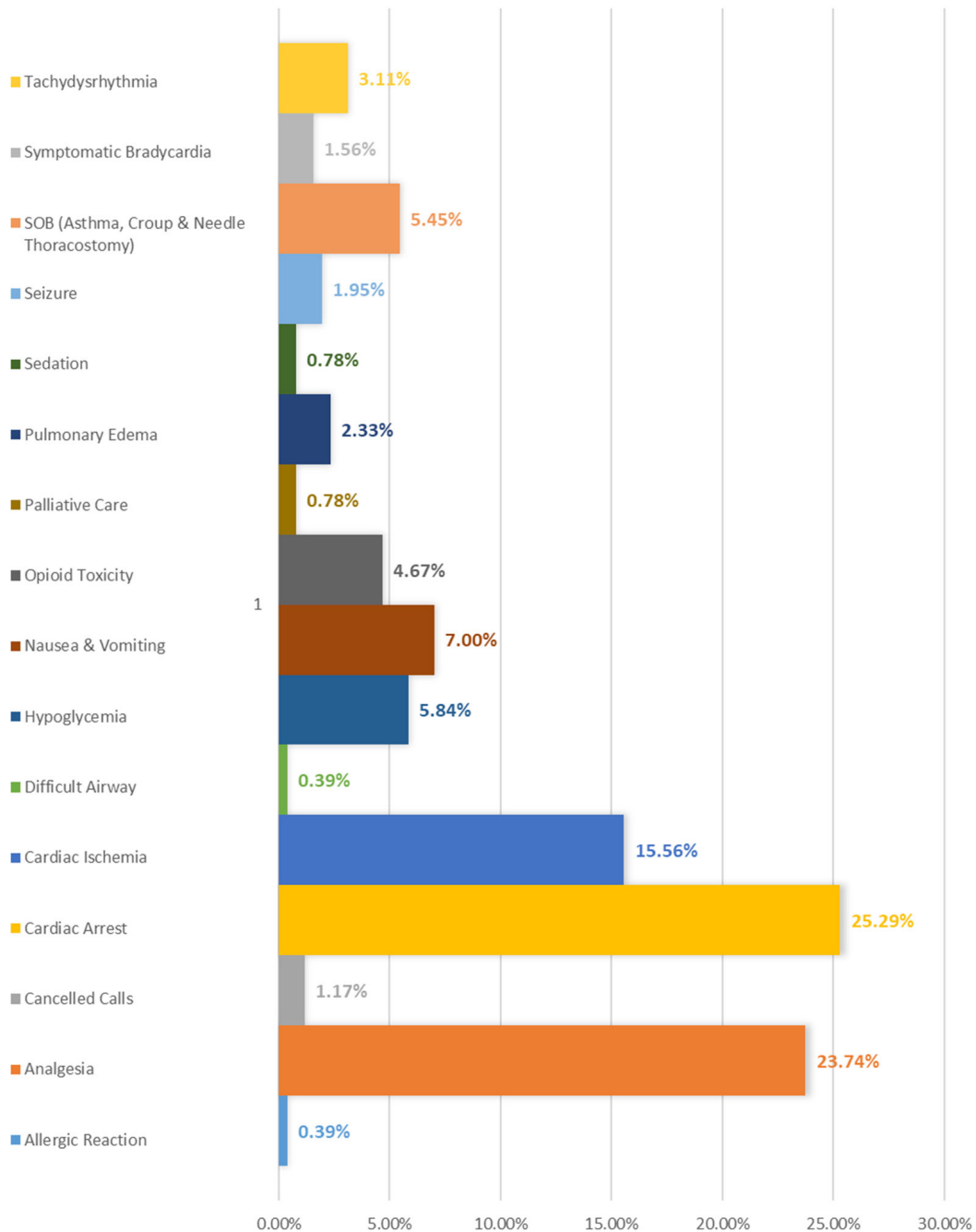
Performance Measurement Standard Reports April 1, 2022 to March 31, 2023

SECTION 2

PARAMEDIC SELF-REPORTS

This report identifies the number of self-reports by filter type, submitted by paramedics related to identified omissions, and/or commissions, and patient care or documentation.

PARAMEDIC SELF-REPORTS BY FILTER TYPE
APRIL 1, 2022 - MARCH 31, 2023
N= 257



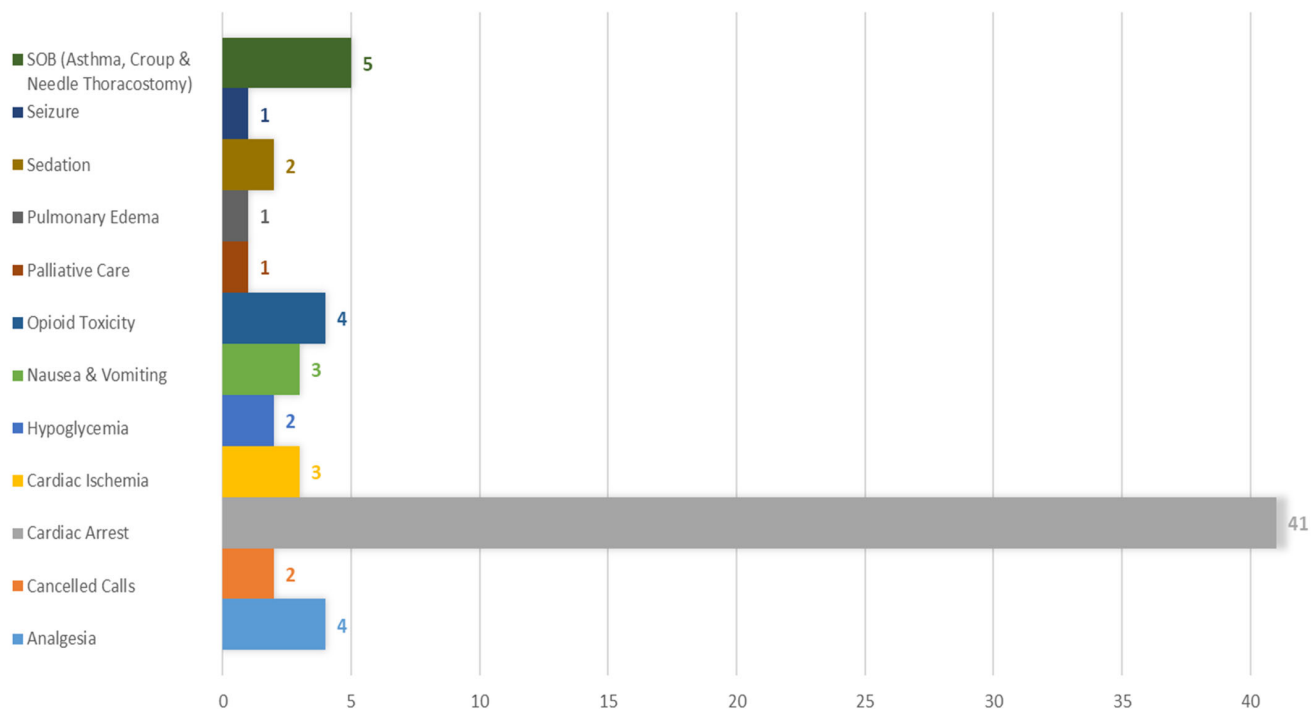
Performance Measurement Standard Reports April 1, 2022 to March 31, 2023

SECTION 3

SERVICE OPERATOR AUDIT REQUESTS

This report provides the number of service operator driven audit requests listed by IQEMS Filter Type.

SERVICE OPERATOR DRIVEN AUDIT REQUESTS APRIL 1, 2022 - MARCH 31, 2023 N = 69



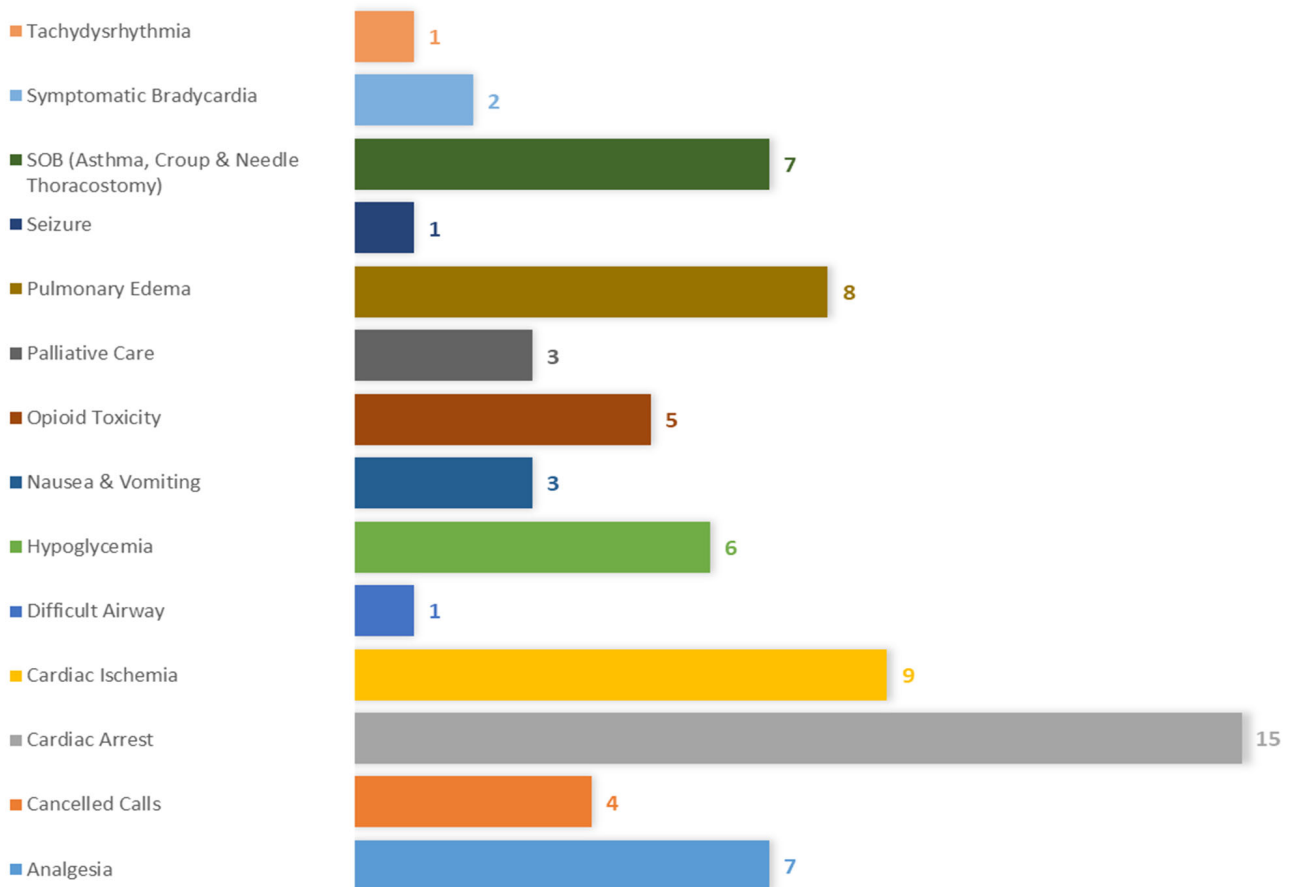
Performance Measurement Standard Reports April 1, 2022 to March 31, 2023

SECTION 4

BLS CONCERNS REPORTED TO SERVICE

This report is the number of BLS PCS concerns communicated service operators during the audit process. This summary is broken down by Filter Type.

BLS NOTIFICATIONS TO SERVICES
APRIL 1, 2022 - MARCH 31, 2023
N = 72



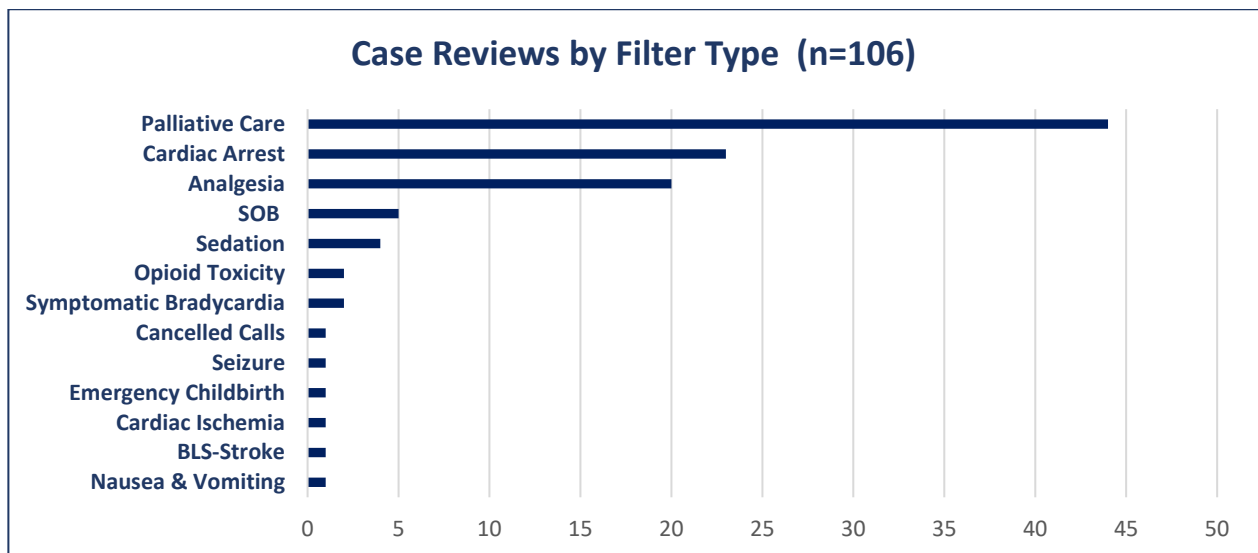
APPENDIX B: CASE REVIEWS (EVENT ANALYSIS)

Incidences requiring additional review are identified in IQEMS by means of a case review entry. The Case Review module interrelates with the audit platform and collects information in a centralized workspace to facilitate communication between paramedics, auditors, managers and medical directors.

For this fiscal year, 106 ACRs were analyzed as case reviews of which 69% (n=73) required a concise audit review, and 31% (n=33) required a comprehensive event analysis. The following table provides the final base hospital outcome for each type of review

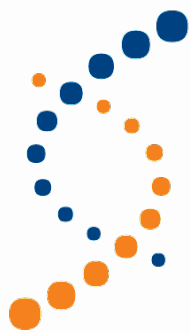
Concise Audit Review	Clinical Practice	Palliative Care	Patellar Reduction	Grand Total
No Follow-up Required	6	18	12	36
Operational Issue		1		1
Paramedic Actions Appropriate for Situation		2		2
Paramedic Feedback Received Remediated	8	25	1	34
Grand Total	14	46	13	73

Event Analysis	BHP Patch Review	Clinical Practice	Medical Consult	Grand Total
BHP Patch Issue Resolved	8			8
No Follow-up Required	1	5		6
Paramedic Feedback Received Remediated		7	1	8
Remediation Plan Completed		10		10
System Issue/Service Approach to be Taken			1	1
Grand Total	9	22	2	33



APPENDIX C: QUALITY PROGRAMMING OVERVIEW 2022-23

QUALITY PROGRAMMING OVERVIEW 2022-2023



Centre for Prehospital Care

Health Sciences North

QUALITY PROGRAMMING OVERVIEW 2022-2023

Online Medical Quality Control Interactions

Under development for 2022-23.

Service Operator Audit Requests

This report identifies the number of audits requested by a Service Operator. It is categorized by IQEMS filter type, reason and Base Hospital Outcome.

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 IQEMS filter type, reason (negative statement) and Base Hospital Outcome.

BLS Concerns Reported to Service Operators

This report is the number of BLS PCS concerns communicated to the Service Operator during the audit process. This summary is provided in excel format and includes a sheet for each quarter.

B. 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/MoH EHPMDB	
Quarterly Reports	8 - 12 weeks following reporting period
Biannual Reports	8 - 12 weeks following reporting period
Annual Reports	8 – 12 weeks following reporting period

QUALITY PROGRAMMING OVERVIEW 2022-2023

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 agreement 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 by the IQEMS filters.
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 (MOH) Emergency Health Program Management and Delivery Branch (EHPMDB) as outlined below. Following receipt, the Service Operators are invited to discuss any findings within the reports.

A. QUARTERLY REPORTS

HSN CPC Audit Activities (Audit Activities Summary by Filter Type Report and Audit Activities by Paramedic Report)

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.

Detailed Variances by Paramedic

This report includes variances by medic, IQEMS filter type, and Base Hospital Outcome. This is provided in excel format to allow service operators to review, sort, and organize the data.

QUALITY PROGRAMMING OVERVIEW 2022-2023

Online Medical Quality Control Interactions

Under development for 2022-23.

Service Operator Audit Requests

This report identifies the number of audits requested by a Service Operator. It is categorized by IQEMS filter type, reason and Base Hospital Outcome.

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 IQEMS filter type, reason (negative statement) and Base Hospital Outcome.

BLS Concerns Reported to Service Operators

This report is the number of BLS PCS concerns communicated to the Service Operator during the audit process. This summary is provided in excel format and includes a sheet for each quarter.

B. 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/MoH EHPMDB	
Quarterly Reports	8 - 12 weeks following reporting period
Biannual Reports	8 - 12 weeks following reporting period
Annual Reports	8 – 12 weeks following reporting period

QUALITY PROGRAMMING OVERVIEW 2022-2023

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:

- Medication Incidents (Pediatric and Adults)
 - Provided quarterly to Service Operators
- # of patients with a suspected opioid overdose and received Narcan by paramedics \
 - Provided quarterly to OBHG Data Quality Management Committee (OBHG Medical Advisory Committee)
- Palliative Care Special Project
 - Provided in collaboration with Greater Sudbury Paramedic Service to the Special Project Lead, Ottawa Hospital Research Institute (OHRI).

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 leads the planning of the clinical audit and determines the population as it relates to existing protocols (i.e. chest pain, stroke, multi-system trauma, etc.) and/or Standards. A random statistical sample is calculated and the cases are

QUALITY PROGRAMMING OVERVIEW 2022-2023

compared to the associated treatment protocol. Based on the findings, improvement opportunities are 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 Management 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).

3. Case Reviews

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

Recommendations and corrective actions are formalised and have an evaluation plan to determine if the recommendations are implemented and the impact they have 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 2022-23

MEDICATION INCIDENTS Review of ASA administration



Centre for Prehospital Care

Health Sciences North

Review of ASA administration

OBJECTIVE 1

The objective is to report on the number of medication variances based on the World Health Organisation (WHO) International Classification of Patient Safety Error Types including:

- **Incorrect Medication:** A medication administered that was unintended to be administered (i.e. paramedic administered Gravol vs Benadryl).
- **Incorrect Quantity/Dose:** A medication dose administered that was incorrect or inappropriate given the patient's need (over dose, under dose).
- **Administered when Contraindication Present:** A medication administered to a patient who had one or more contraindications to the medication.
- **Omitted Medication or Dose:** A medication not administered to a patient to whom it was indicated under the ALS PCS.

The report is shared with the Service Providers and the Centre for Prehospital Care Quality of Care Committee (CPC QCC) on a quarterly basis.

DESIGN

Date range: April 1, 2022 (Q1) – September 30, 2022 (Q2) reported by quarter.

1. The IQEMS database was used to identify any variances in the Medication Administration Category.
2. All medication questions identified as a variance were included in the report.

OBJECTIVE 2

The information was presented at the Centre for Prehospital Care Quality of Care Committee (CPC QCC). The committee members requested a deeper analysis for the omission of ASA (n=37). The data was reviewed with the QCC members on January 19, 2023 and a recommendation to review the data with the Services to improve the documentation omissions was submitted.

Review of ASA administration

OBJECTIVE 1: ALL SERVICE REPORT

Medication	Contra Indication		Dosing High		Dosing Low		Incorrect Medication		Medication Omission		Total			
	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Trend	Overall
Acetaminophen	1	5	4	6	2	2			6	2	13	15		28
Amiodarone										1		1		1
ASA		1	1			1			22	15	23	17		40
Calcium Gluconate										1	0	1		1
Dextrose	4	1	3	3	2	3			2	3	11	10		21
Gravol	5	4			1	1				1	6	6		12
Benadryl	1	1			1				2	1	4	2		6
Epinephrine	4	3	1		2				1	6	8	9		17
Fentanyl		1	1	1					1		2	2		4
Glucagon		3	1	1					1		2	4		6
Glucose Gel/Tablets									2	15	2	15		17
Glycopyrrolate					1						1			1
Hydrocortisone										1	0	1		1
Hydromorphone									1	1	1	1		2
Ibuprofen	2	6	4						2	5	8	11		19
Incorrect Medication							1				1			1
Ketorolac	2	4	2								4	4		8
Lidocaine	1								1		2	0		2
Midazolam				1							0	1		1
Morphine	1		1							1	2	1		3
Naloxone	2	4	5			2			3	1	10	7		17
NTG	7	9	1	3	3	2			14	31	25	45		70
Salbutamol	1		3	1					9	9	13	10		23
Grand Total	31	42	27	16	12	11	1	0	85	94	156	163		319

Review of ASA administration

OBJECTIVE 2: ASA OMISSIONS

METHODOLOGY

The omission of ASA in the IQEMS system is graded as a “C” variance. This means the Paramedic Practice Coordinators (PPC) will seek paramedic feedback for the omission.

If a paramedic clarifies this was a documentation error and simply forgot to document the administration, the variance remains as an omission. The PPC does not remove the omission from the audit.

RESULTS

Reason	Total
Documentation	17 (46%)
Presentation	11 (30%)
Omission	5 (14%)
Contraindication	2 (5%)
Refused	2 (5%)
Grand Total	37

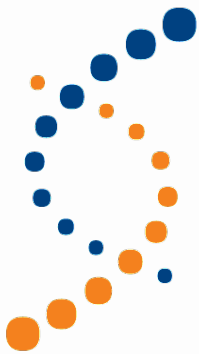
- 46% responded ASA was administered but they forgot to document the procedure on the ACR.
- 30% responded the patient had an atypical presentation or they were not confident the patient's chest pain was ischemic, although they documented (51) ischemic as one of the problem codes.
- 5% were omissions.
- 2% had a contraindication though not always documented. (An example was a recent fall).
- 5% of the patients refused

Review of ASA administration

DETAILED RESULTS

REASON AND COMMENTS	COUNT OF CALL#
Documentation	17
• Admin by PRU	1
• ASA given by other ambulance	1
• Did administer	15
Presentation	11
• Chest pressure	1
• Epigastric	1
• Indecisive	1
• LOA/Patient Slurring	1
• Not Cardiac	2
• Pain resolved	2
• Pain right sided	1
• Symptoms Resolved	1
• Vague	1
Contraindication	2
• Fall	2
Omission	5
• 2 self admin + 2 CACC	1
• Refusal of Transport and Not Treatment	1
• Self-Administered	2
• Symptoms presented as many possibilities	1
Refused	2
• Refused	2
Grand Total	37

Special Project Palliative Care



Centre for Prehospital Care

Health Sciences North

Special Project Palliative Care

OVERALL HEADING

INTRODUCTION

This project is a quality improvement initiative that prepares 911 emergency paramedics, in the Health Sciences North (HSN) base hospital region, to treat patients who are registered in the Client Health and Related Information System (CHRIS) Home and Community Care (HCC) database and part of a palliative care program, so that symptom management can begin at home.

Patient registration begins with the HCC provider after palliative needs are identified. The HCC provider will speak to the patient/SDM and obtain consent to share their CHRIS identification information with the CACC to create an emergency flag and therefore notify the paramedic when patients or caregiver engages 911.

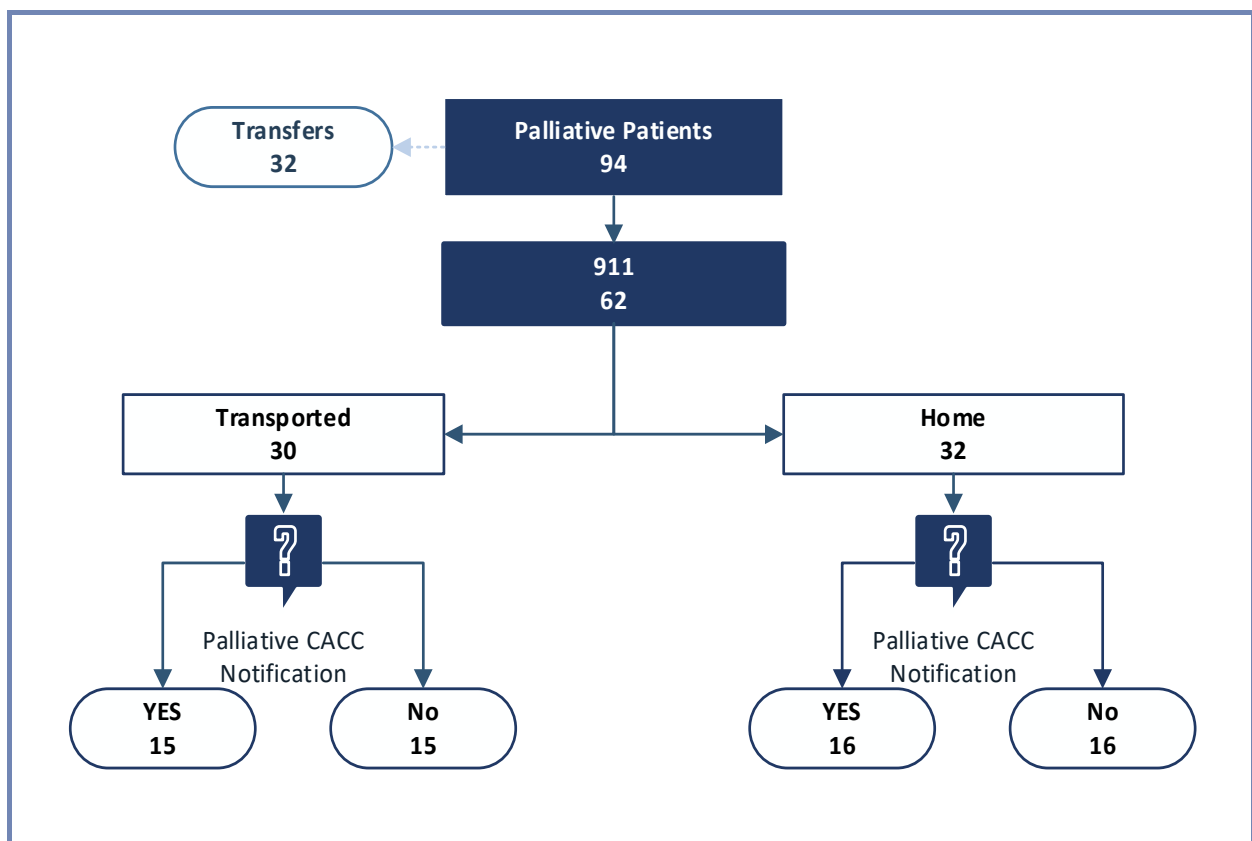
The following data pertains to Sudbury Paramedic Services. Once other services go live with their program, the data will be compiled and shared with the Quality of Care Committee (QCC) on a quarterly basis.

RESULTS

The data includes requests for paramedic services between February 01, 2022 and August 31, 2022. Although we do keep track of transfers for the purpose of monitoring resource access, these are not included in the report.

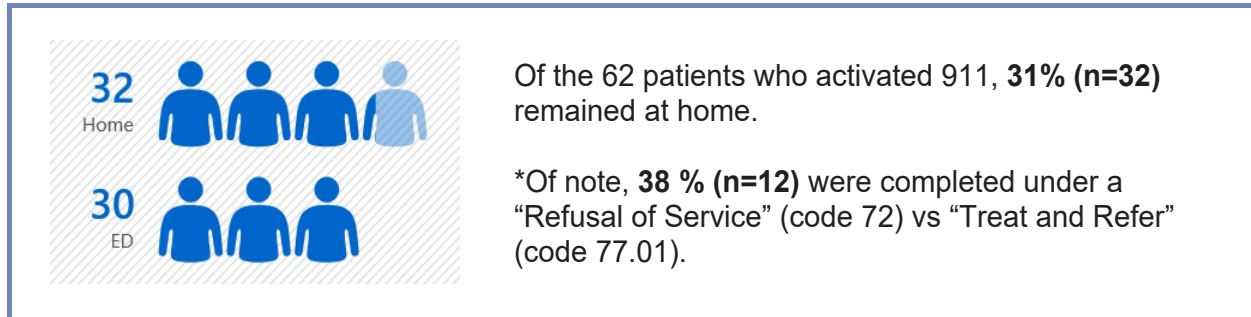
POPULATION

Ninety-four (94) registered patients activated 911 for a request for service. Of those, 34% (n=32) were transfers (for example inter-facility transfers) and 66% (n=62) were 911 requests.



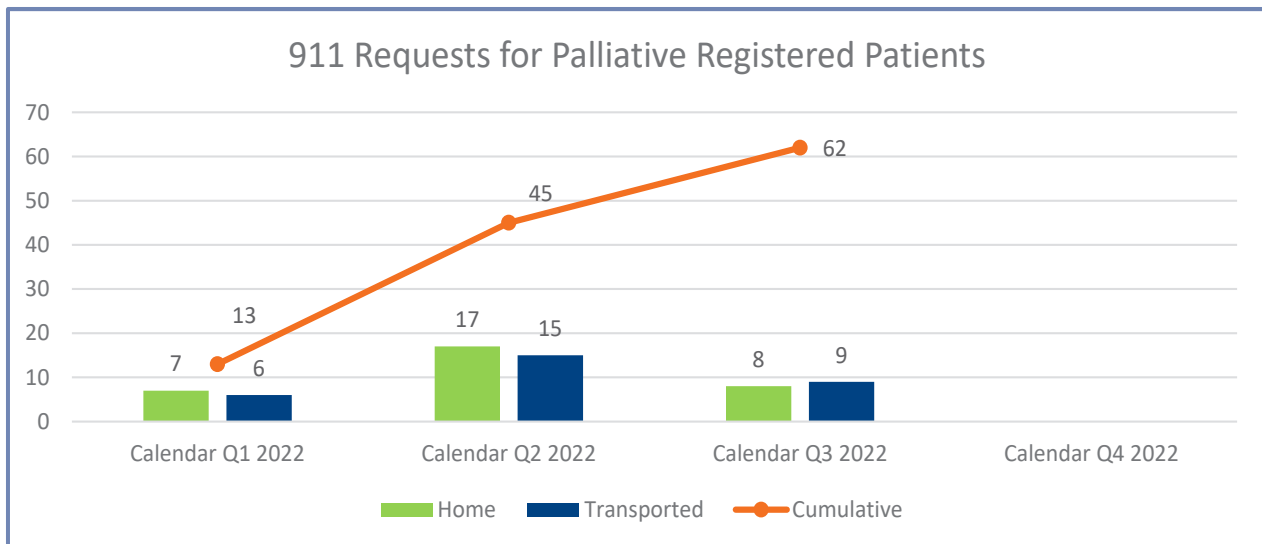
Special Project Palliative Care

PATIENT DISPOSITION



CALL VOLUME

The following table provides the cumulative number of registered patients who activated 911.



REASON FOR TRANSPORT

The most common cause for transport was pain management. Of note, 5 request for transport were made for no discernable reason. Based on the documentation, these appear to be related with a simple desire for further assessment.

	N	%
Pain Management	6	20%
SOB	5	17%
Stable- Request Transport	5	17%
Failure to cope	5	17%
New Presenting Problem	3	10%
Treatment	3	10%
Possible Infection	3	10%
Grand Total	30	100%

Special Project Palliative Care

IQEMS AUDITS

Fifty-nine (59) audits have been completed in IQEMS. The most common challenges and/or variances noted include:

1. Failure to complete the call with the Treat & Refer Directive vs “Refusal of Service”.
2. Difficulty in identifying the patient as palliative:
 - a. Either by not receiving notification from CACC that the patient is a registered patient or
 - b. The paramedic was unable to confirm with the patient/family that the patient is registered with HCC. There appears to be a lack of identification at the scene and since HCC’s policy is to not leave any documentation at the residence, an alternate solution should be considered.
3. Misunderstanding relating to when a Base Hospital Patch should be performed.
4. Confusion relating to when/what ALS skills should/should not be performed for registered patients who request transport. The current guidelines state the paramedic must activate the ALS PCS directive if the patient is transported.
5. Uncertainty as to when a discussion with HCC should occur. Almost no telephone referrals were completed for patients who were left at home. This means HCC is not aware that the patient may require additional assistance.

Of note, there were no negative outcome in our patient population.

HCC CASE REVIEWS

Twenty-seven (27) case reviews were conducted with the Paramedic Service and HCC Representative. The goal is to find improvement opportunities.

MEDICATION INCIDENTS

Review of Nitroglycerin Administration
Q1-Q3



Centre for Prehospital Care



























Health Sciences North

Nitroglycerin Variances

INTRODUCTION

The Medication Incident Q1 to Q3 Report was presented to the Quality of Care Committee members at the March 23, 2023 meeting. Nitroglycerin, which accounted for 19% (n=97) of the total medication variances was noted to have the highest variance rate with 61% (n=59) being omissions (Q1=14, Q2=31, Q3=14). The committee members requested an additional review to determine root cause for the omissions.

MEDICATION INCIDENT REPORT¹ Q1-Q3

Medication	Contra Indication			Dosing High			Dosing Low			Incorrect Medication			Medication Omission			Total				
	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Q1	Q2	Q3	Trend	Cum.
Acetaminophen	1	5	4	4	6	10	2	2	2				7	2	5	14	15	21		50
Adenosine			1													0	0	1		1
Amiodarone														1		0	1	0		1
ASA		1	1	1				1	1				22	15	17	23	17	19		59
Calcium Gluconate														1		0	1	0		1
Dextrose	4	1	3	3	3		2	3	5				2	3	4	11	10	12		33
Gravol	5	4	11			1	1	1						1		6	6	12		24
Benadryl	1	1					1						2	1		4	2	0		6
Dopamine									1							0	0	1		1
Epinephrine	4	3	2	1			2						1	6	4	8	9	6		23
Fentanyl		1	1	1	1								1	1	1	2	3	2		7
Glucagon		3	1	1	1	1			1				1		3	2	4	6		12
Glucose Gel/Tablets													20	15	28	20	15	28		63
Glycopyrrolate							1									1	0	0		1
Hydrocortisone														1	1	0	1	1		2
Hydromorphone													1	1		1	1	0		2
Ibuprofen	2	6	6	4		3							2	5	5	8	11	14		33
Incorrect Medication										1						1	0	0		1
Ketorolac	2	4	2	2		2										4	4	4		12
Lidocaine	1		1						1				1			2	0	2		4
Midazolam			1	1												0	1	1		2
Morphine	1			1										1		2	1	0		3
Naloxone	2	4	3	5		1		2					3	1	1	10	7	5		22
NTG	7	9	10	1	3	1	3	2	2				14	31	14	25	45	27		97
Salbutamol	1		1	3	1								9	9	21	13	10	22		45
Grand Total	31	42	48	27	16	19	12	11	13	1	0	0	86	95	104	157	164	184		505

NITROGLYCERIN OMISSIONS BY FILTER TYPE

Filter Name	Total
Cardiac Ischemia	47 (80%)
Pulmonary Edema	12 (20%)
Grand Total	59

¹ This report is shared with the Service Providers in a quarterly report.

Nitroglycerin Variances

METHODOLOGY

The Ambulance Call Report (ACR), paramedic self reports and paramedic feedback with the Paramedic Practice Coordinator were reviewed to determine the root cause for the omission. The data was categorised into plausible patterns, themes and sub-themes.

RESULTS

- 29% (n=17) are considered “true” omissions where the paramedic agreed the medication or a missed dose should have been administered.
- 25% (n=15) were contributed to the patient refusing the medication or a dose. IQEMS does not make the distinction between the two (medication vs dose).
- 20% (n=12) were influenced by patient presentation.
- 12% (n=7) were due to vitals signs being outside the medical directive which excluded the patient from receiving the medication or a dose.
- 10% (n=6) were related to intravenous access.
- 4% (n=2) Other

RESULTS	TOTAL
Omissions <ul style="list-style-type: none"> • Medication (10) • Dose (7) 	17 (29%)
Patient Refused Dose or Medication	15 (25%)
Patient Presentation <ul style="list-style-type: none"> • Poor Historian (4) • No complaint of chest pain (3) • Numerous doses of NTG taken (1) • Epigastric (1) • PE (1) • Uncooperative (1) • Pneumonia (1) 	12 (20%)
Exclusion <ul style="list-style-type: none"> • BP dropping by 1/3 (3) • Initial low BP (2) • Heart Rate (1) • Unable to obtain BP (1) 	7 (12%)
Issue related to intravenous therapy <ul style="list-style-type: none"> • No Prior Use; Not IV certified (2) • No Prior Use; IV unsuccessful (3) • Delay due to IV start (1) 	6 (10%)
Treated by other ambulance	1 (2%)
Unable to determine	1 (2%)
Grand Total	59

MEDICATION ADMINISTRATION VARIANCES



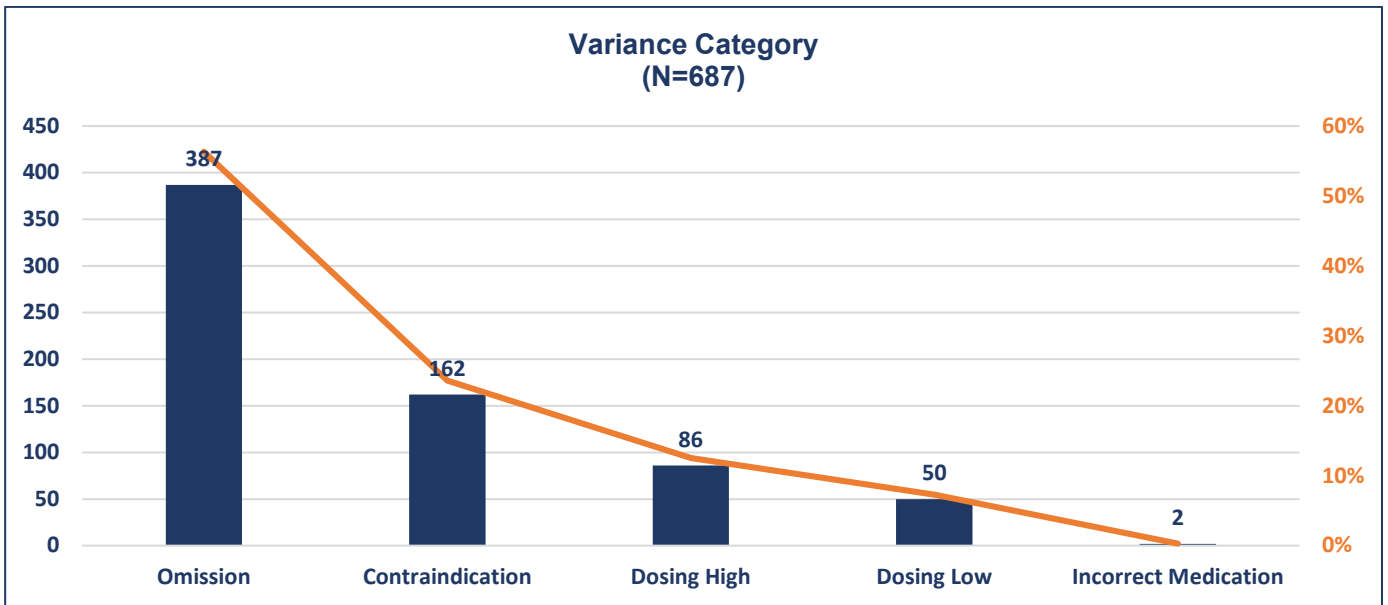
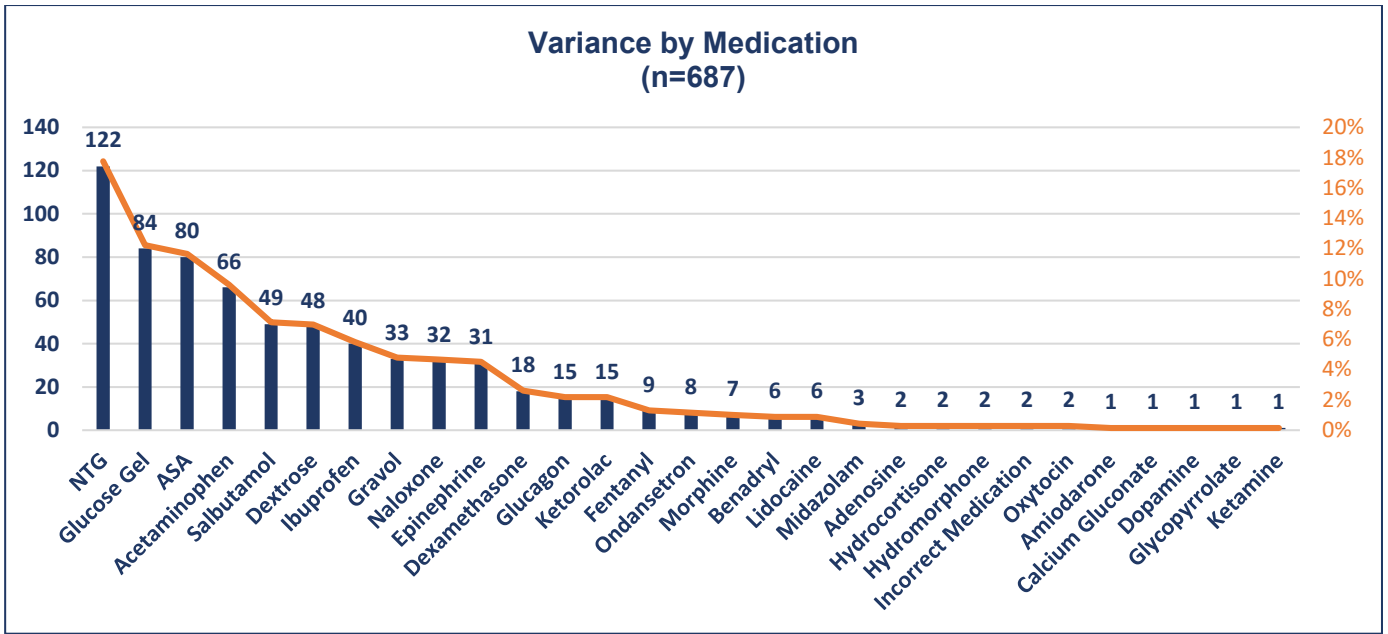
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MEDICATION VARIANCES

Case Definition	Medication administration variances identified by IQEMS filters requiring further review
Data source	IQEMS
Dates	April 01, 2022 – March 31, 2023
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 nitroglycerin. This includes the omission of the medication or a missed dose. The most frequent medication given in the presence of contraindication(s) is also 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 (for example Gravol vs Benadryl).

Medication	Contra Indication	Dosing High	Dosing Low	Incorrect Medication	Medication Omission	Total Variance by Medication
Acetaminophen	11	29	9		17	66
Adenosine	2	0	0		0	2
Amiodarone	0	0	0		1	1
ASA	3	3	2		72	80
Benadryl	2	0	1		3	6
Calcium Gluconate	0	0	0		1	1
Dexamethasone	0	0	1		17	18
Dextrose	12	9	13		14	48
Dopamine	0	0	1		0	1
Epinephrine	12	2	3		14	31
Fentanyl	2	2	1		4	9
Glucagon	6	4	1		4	15
Glucose Gel/Tablets	0	0	0		84	84
Glycopyrrolate	0	0	1		0	1
Gravol	28	1	2		2	33
Hydrocortisone	0	0	0		2	2
Hydromorphone	0	0	0		2	2
Ibuprofen	17	10	0		13	40
Incorrect Medication	0	0	0	2	0	2
Ketamine	0	0	1		0	1
Ketorolac	9	5	0		1	15
Lidocaine	2	0	2		2	6
Midazolam	1	1	1		0	3
Morphine	2	1	1		3	7
Naloxone	15	7	3		7	32
NTG	33	5	7		77	122
Ondansetron	2	1	0		5	8
Oxytocin	0	0	0		2	2
Salbutamol	3	6	0		40	49
Total Variance by Category	162	86	50	2	387	687



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	April 01, 2022 to March 31, 2023
Additional Notes:	<ol style="list-style-type: none"> 1. One call = one event (i.e. multiple administrations to a single patient on a call do not count as separate events) 2. Multiple events may be triggered by the same 'person', as long as they were different call instances. 3. It is recognized that naloxone is not indicated for use in all suspected opioid overdose patients. The ALS PCS encourages the use of naloxone only if the patient's oxygenation cannot be maintained. 4. It is important to note that only patients who received naloxone by a paramedic is included in this data. If a patient received naloxone from a bystander or first responder and no additional doses were administered by a paramedic, the patient was excluded from the data. 5. 410 patients met the inclusion criteria for 2021-2022 and 369 patients met the inclusion criteria for 2022-2023 for a decrease of 41 cases. This could be attributed to an increase in the administration of naloxone by bystanders and/or first responders (police, fire, etc...).

National Surveillance of Opioid-related harms: Pilot Project using EMS Data (n=369)

