

The Emergency Department Return Visit Quality Program

Results from the first year

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Introduction

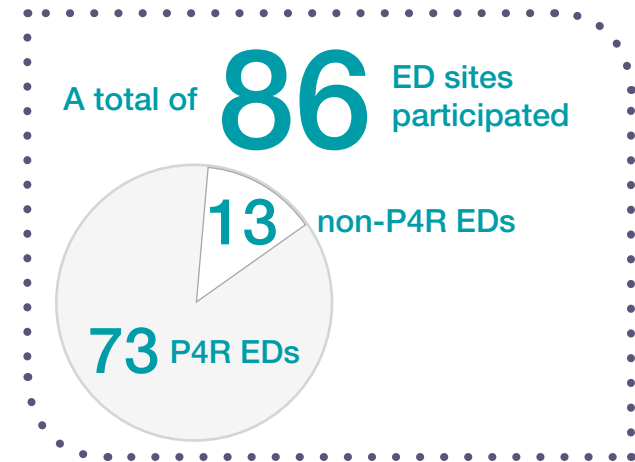
A just, patient-centred health system that is committed to relentless improvement. This is our vision for Ontario's health system as defined in [Quality Matters](#).

Quality Matters defines a quality health system as one that is safe, effective, patient-centred, timely, efficient, and equitable. It also describes a series of key enablers that need to be in place for this to be achieved, including fostering a culture of quality across the system. Many of our programs in quality improvement (QI) in Ontario focus on addressing these enablers and supporting communities of clinicians, teams, and organizations to learn from one another as part of their QI efforts.

The Emergency Department (ED) Return Visit Quality Program is a new program that follows this approach. It is an initiative that started in April 2016 and aims to bring focus on the quality of care and build a culture of continuous improvement in Ontario's EDs.

The ED Return Visit Quality Program was recommended by a task force with expertise in QI that included ED physicians as well as representatives from a number of stakeholder organizations, including the Ministry of Health and Long-Term Care, Access to Care (Cancer Care Ontario), and Health Quality Ontario. It was added to the Pay-for-Results (P4R) program, a component of Ontario's Emergency Room Wait Time Strategy, recognizing that the P4R program needed to be augmented to reflect a broader notion of quality that touches on more of the six domains – for example, safety. It is an expectation that EDs in P4R hospitals participate, although financial incentives are not tied to the results of the ED Return Visit Quality Program. This program has been supported through a partnership between Health Quality Ontario, Access to Care, and the Ministry of Health, and has been guided by an expert working group involved in all stages of design of the program.

The response to the program has been very positive, with all 73 EDs that are part of the P4R program participating and an additional 13 EDs voluntarily joining with the desire to better understand and, where appropriate, improve quality of care for their patients.



Overview of the ED Return Visit Quality Program

Return visits within 72 hours resulting in admission represent only 1% of all ED visits in Ontario. Although return visits make up only a small proportion of all ED visits, there is good rationale to investigate these cases, as evidence suggests that quality issues or adverse events are more likely to be identified in return visits.^{1,2}

In the ED Return Visit Quality Program, participating EDs are provided with data reports that identify return visits resulting in admission for which the initial visit occurred at their site. They conduct audits to investigate the causes of these return visits, identify any quality issues or adverse events that may be present, and take steps to address these causes, preventing future return visits and harm.

There are several types of return visits included in the data reports provided to participating EDs: return visits within 72 hours for any diagnosis resulting in admission; and return visits within 7 days involving admission with one of three key 'sentinel diagnoses' on the return visit, paired with a set of potentially related diagnoses on the initial visit. The sentinel diagnoses include acute myocardial infarction (AMI), paediatric sepsis, and subarachnoid hemorrhage. EDs are required to audit all of the return visits involving sentinel diagnoses occurring at their site, then audit all-cause 72-hour return visits until they meet the required number of audits.

Each year, participating EDs must submit the results of a set number of audits (25 in the first year) as well as a completed Narrative template to the Quality Committee of their Board and CEO for approval, then to Health Quality Ontario.

The program is designed to promote high-quality ED care by creating an efficient way for clinicians to reflect on their practice, work collaboratively, and systematically find improvement opportunities.

Return visits within 72 hours leading to an admission represented only 1% of ED visits, and return visits within 7 days involving sentinel diagnoses represented only 0.007%.



For more information about this program, visit the ED Return Visit Quality Program website:
www.hqontario.ca/ED-Return-Visit



The purpose of this report

On January 31, 2017, 86 EDs across Ontario submitted their results for the first year of the ED Return Visit Quality Program.

The purpose of this report is to summarize our observations and analyses of the submitted results from this inaugural year of the ED Return Visit Quality Program, in order to help EDs continue to build a culture of continuous improvement and improve the quality of care that they provide.

The examples featured throughout this report demonstrate EDs' commitment to improvement and present some of the steps they plan to take to achieve it. We hope that EDs will learn from the experiences of others presented in this report and consider adapting promising ideas used by other EDs to build a more successful program in their own site over the coming year.

The analyses featured in this report

Participating EDs submitted their results as two documents:

1. A completed audit template, in which participants recorded the details and results of the individual audits they conducted; and
2. A completed narrative template, in which participants answered key questions about program participation, learnings, challenges, and outcomes.

We used both of these documents to inform the analyses included in this report.

The analyses were conducted by a team of ED physicians working in Ontario's EDs, as well as QI specialists and data analysts at Health Quality Ontario.

A note on the examples in this report



All of the EDs that are featured in this report agreed to share their experiences as presented here.

If you have a question about any of the examples in this report, email EDQuality@hqontario.ca. We will contact the ED in question to find out more information.

For more information on how we conducted the analyses in this report, see Appendix A: Methodology.



The structure of this report

This report is organized in three sections:

Section 1. Program implementation. This section describes how EDs have operationalized the ED Return Visit Quality Program. This section is based on our analysis of the completed Narrative templates.

Section 2. An overview of the audit results. This section summarizes our quantitative analysis of the numbers and outcomes of the audits that were conducted.

Section 3. Common themes and QI initiatives among the audits that identified quality issues/adverse events. This section summarizes our qualitative analysis of the audits that identified quality issues/adverse events, and includes examples of QI initiatives to address each of these themes.

“

Given the nature and intent of emergency care, the ED team often does not know post-discharge patient outcome. The program has allowed the opportunity to further analyze the impact of care on patient outcomes beyond the ED visit. This opportunity provides a greater breadth to quality improvement within the ED.

”

**–Scarborough and Rouge
Hospital**

Section 1. Program implementation

In this section, we describe how EDs have operationalized the ED Return Visit Quality Program, as reported in the Narrative sections of their submissions. We share examples of how EDs have customized this program to better suit their site.

We encourage EDs to review these examples and consider adopting those that are feasible to them, if they believe that the approach would support QI in their ED.

EDs are engaging many different stakeholders in the program, including front-line physicians and other ED providers

Participating EDs reported many ways in which they have engaged their staff and clinicians in this program:

- Many EDs formed interdisciplinary teams that assumed responsibility for conducting the audits. These teams typically included physicians and nurses.
- Some EDs also involved their quality and patient safety staff, if they were available and if this was feasible at their site.
- Many EDs described engaging individual front-line physicians to conduct the audits. Some sites requested that physicians volunteer, while others required physicians to audit cases that they had been involved in.

Involving front-line care providers enables participating EDs to generate richer feedback that incorporates multiple viewpoints. This approach will likely identify issues that a single provider or single type of provider would not have found.

Southlake Regional Health Centre has included ED nurses in their review committee, and has added a column in the audit template to record opportunities for QI specifically relating to nursing care in the ED.

Scarborough and Rouge Hospital indicated that they will be involving patient advisors in the summary of results and action planning in Year 2.

“*Participation in this program has allowed us to set up a structured review and audit process for readmissions within our ED. It becomes another venue to identify process improvement initiatives within our ED and encourage valuable dialogue with our Medical and Nursing colleagues. The program promotes improvement and not performance management.*”

**–St. Thomas Elgin General
Hospital**

Sinai Health System created a multidisciplinary team to conduct their mandatory reviews, but also subdivided their data reports by the attending physician on visit #1 and calculated return visit rates for individual physicians. They provided each physician with a report that included their return rate, the overall group rate and range, and the list of cases they attended. They provided some guidance on how to review cases and offered to assist or discuss with them, but allowed the physicians to decide how much or little review to perform.

EDs are generating internal reports of return visits to facilitate timely review

Many EDs reported that they have set up a process for generating reports of return visits within their site to facilitate timely identification and review of return visits. A few EDs indicated that they had already been doing this before the ED Return Visit Quality Program was conceived.

Although this approach might not be realistic for many EDs that lack the necessary resources or infrastructure, it can circumvent the lag time to the release of the data reports (which reflects the time necessary for Access to Care to receive the data from the Canadian Institute for Health Information, conduct their analysis, and prepare the report). Generating these internal reports allows for more timely audits of cases, which may enable richer feedback to be collected from clinicians before their memories of the cases fade.

The Hospital for Sick Children has been tracking 72-hour return visits resulting in hospitalization for the last three years. They have developed several QI projects as a result of this initiative, including a Sickle Cell Optimization Program, a Culture Follow-Up and Escalation Algorithm, and a Young Infant Fever QI Project. They find that the ED Return Visit Quality Program adds value by flagging the sentinel indicator involving paediatric sepsis, as well as by flagging cases that involve return visits to other hospitals (which were not otherwise being identified).

Peterborough Regional Health Centre indicated that they have an established QI program that involves flagging return visits. The visits they flag in this program are return visits within 48 hours with acute condition. They have identified numerous QI initiatives arising from this program.

“ Experience performing audits is valuable and helps alter one's own behaviour after seeing that of others. ”

**–Brant Community
Healthcare System**

EDs are targeting the selection of cases to audit to increase their learnings or align with areas of interest

A few EDs indicated that they are interested in selecting cases to audit non-randomly to focus on cases where they expect additional learnings.

Ross Memorial Hospital plans to align the program with their organization's strategic goals for Year 2. They will consider focusing on return visits involving patients with chronic obstructive pulmonary disease, as this is an area of focus for QI this year.

Lakeridge Health Corporation plans to generate a top 10 list of themes/opportunities for improvement identified through this program. They will consider a more targeted approach to reviewing all-cause 72-hour return visits in Year 2 based on the themes that they identify during this process.

University Health Network worked with their Decision Support team to generate lists of discharge diagnoses for both the first visit and the return visit/admission. They examined the lists to identify which diagnoses were most common among the index visits and return visits/admission. For Year 1, they ensured that cases with these common diagnoses were included in the all-cause return visits they chose to audit. Moving forward, they are considering identifying specific areas of interest to focus their audits on, in addition to maintaining a subset of their audits for random cases to ensure that they still have the opportunity to identify as-yet-unknown quality issues.

EDs are discussing results regularly

Many EDs reported that they bring the results of the audits to their ED Quality Committee meetings. Some EDs also discuss audits during rounds.

Conducting discussions about these audits routinely and frequently can help to foster a culture of quality by taking the focus away from the individual providers involved in a given case, and instead demonstrating that these quality issues/adverse events may be encountered by all clinicians and emphasizing the systematic changes that could be made to prevent them from happening again. Sharing concrete examples can also help to trigger change, either by engaging clinicians through compelling stories or by convincing leaders that an issue is truly a significant one.

“ We have found that by including the front-line staff in this process, it allows for everyone to be part of the learning and the outcome, thus feeling invested in the change of the department. ”

–Bluewater Health

EDs are considering collaborating with other sites or with their LHIN

Several EDs commented on the partnerships they are developing to share learnings from this program. Some envision that this may eventually enable them to collaborate to learn what happened in cases in which the return visit and admission occurred to a different hospital.

Health Sciences North reported that initial discussions are occurring within the North East LHIN with regard to creating a collaborative to share and debrief findings.

“ *This program fits well with our current post-adverse event quality review process, but has the added benefit that it is proactive, rather than reactive to a reported adverse event.* ”

–North Bay Regional Health Centre

Section 2. An overview of the audit results

This section presents a summary of the number of audits conducted and a quantitative analysis of their outcomes, as defined in the audit templates submitted by participating EDs.

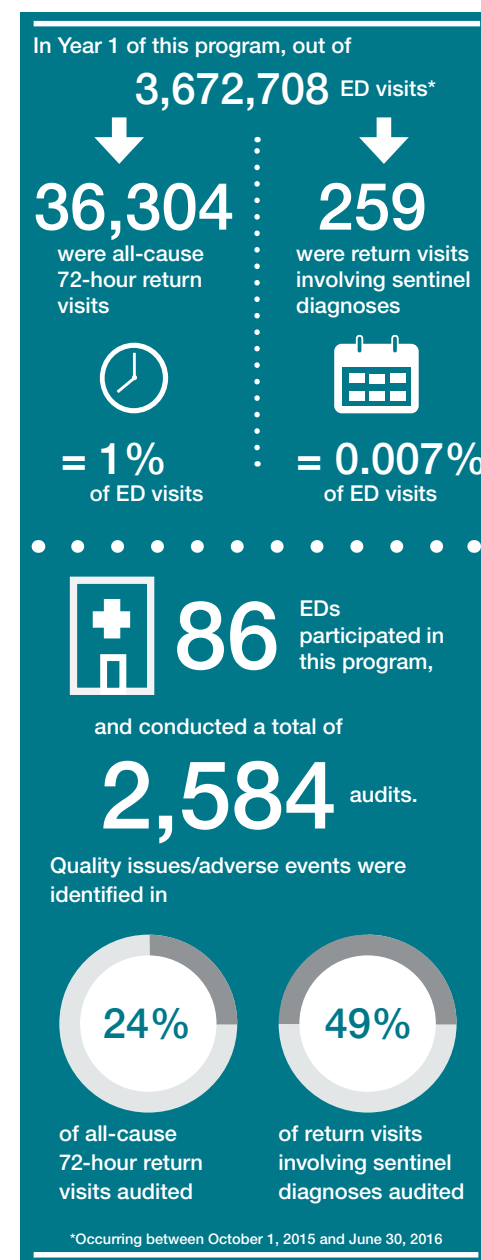
The types of return visits being audited

There are several types of return visits included in the data reports provided to participating EDs:

- Return visits within 72 hours for any diagnosis resulting in admission (referred to as *all-cause 72-hour return visits*); and
- Return visits within 7 days resulting in admission and involving one of three key ‘sentinel diagnoses’ on the return visit, paired with a set of potentially related diagnoses on the initial visit (referred to as *return visits involving sentinel diagnoses*).

The definition for all-cause 72-hour return visits was derived from a study conducted in an Ontario ED, which found that these cases are a useful trigger for investigation to identify adverse events.¹

The three sentinel diagnoses investigated in this program were AMI, paediatric sepsis, and subarachnoid hemorrhage. The definitions for return visits involving the three sentinel diagnoses were derived from three articles that investigated return visits for these diagnoses in the context of Ontario’s EDs.³⁻⁵ These sentinel diagnoses were chosen for several reasons. First, the addition of paired diagnoses on the initial visit increases the likelihood that the two visits are related; it is therefore likely that fewer cases will need to be screened before opportunities for QI are identified. Second, AMI, paediatric sepsis, and subarachnoid hemorrhage represent diagnoses for which there is a high likelihood of disability or death resulting from a missed diagnosis; thus, EDs that identify quality issues that have contributed to missed sentinel diagnoses may prevent significant patient harm by addressing these issues.



Rate of identification of quality issues/adverse events among the different types of return visits

We investigated the rates of identification of quality issues/adverse events among the different types of return visits (Table 1). As expected, the rate of identification of quality issues/adverse events was higher among the cases involving sentinel diagnoses (approximately 50% for each of the three diagnoses) compared with all-cause 72-hour return visits (24%).

At 24%, the rate of identification of quality issues/adverse events among the all-cause 72-hour return visits was higher than the rates identified in the literature; for example, the study by Calder et al (2015) identified adverse events in 11.9% of return visits within 72 hours resulting in admission in an Ontario ED.¹ However, we would expect the rate associated with this program to be higher, because some EDs intentionally chose to audit cases that they suspected would result in the identification of quality issues/adverse events, or eliminated cases from review once it became clear that a quality issue/adverse event would not be identified.

For more information on the technical specifications on these different types of return visits and how they were identified, refer to page 7 of the [ED Return Visit Quality Program Frequently Asked Questions document](#), available from www.hqontario.ca/ED-Return-Visit



TABLE 1

Type of return visit, number of cases audited, and number (%) of audits that resulted in the identification of an adverse event/quality issue

Type of return visit	Number of cases audited	Number (%) of audits that resulted in the identification of an adverse event or quality issue
Non-sentinel cases (72-h all-cause return visits)	2,354	571 (24)
Any sentinel diagnosis	219	107 (49)
Acute myocardial infarction	175	85 (49)
Paediatric sepsis	28	14 (50)
Subarachnoid hemorrhage	16	8 (50)

There is also likely significant variability with regard to what different reviewers in EDs across the province would consider to be a quality issue/adverse event. Guidelines for making this determination were provided, but a certain amount of clinical judgment is also required, so some amount of variability is expected.

The selection bias affecting the all-cause 72-hour return visit rate would not affect the rates for the sentinel cases, since participating EDs were required to audit all of these cases.

EDs that found very few quality issues/adverse events when conducting their audits might consider using some of the techniques discussed in Section 1 (e.g., pre-selecting cases or involving reviewers who were not involved in the case to get a fresh perspective) to increase their learning opportunities for the next year.

Severity of harm among the adverse events/quality issues identified

As part of the audit template used in this program, we asked participants to determine the severity of harm when a quality issue/adverse event was present using the classification system defined by the World Health Organization.⁶ We observed that the severity of harm was higher among the cases involving sentinel diagnoses compared with non-sentinel cases, with the quality issues/adverse events identified in all sentinel cases more frequently resulting in moderate harm, severe harm, or death (Table 2). These results reiterate the importance of investigating the return visits involving sentinel diagnoses.

A note on the audits that did not result in identification of quality issues/adverse events



Many of the return visits that were not associated with quality issues/adverse events were due to natural disease progression. Some audits specifically mentioned that discharge instructions had been provided to the patient on the first visit, instructing them to return to the ED if their condition worsened. These are good examples of return visits that are associated with appropriate care, and this is part of the reason why the ED Return Visit Quality Program is not focused on reducing the rate of return visits – sometimes a return visit is preferable to admission on the index visit, and indicates that the discharge instructions were clear and understood by the patient.

TABLE 2**Severity of harm of quality issues/adverse events according to the type of return visit**

Severity of harm of quality issue/ adverse event	Type of return visit, n (%)				
	Non-sentinel diagnoses (all-cause 72-hour return visits; n=571)	Sentinel diagnoses			
		All sentinel diagnoses (n=107)	Subarachnoid hemorrhage (n=8)	Paediatric sepsis (n=14)	Acute myocardial infarction (n=85)
None	44 (7.7)	4 (3.7)	1 (12.5)	0 (0)	3 (3.5)
Mild	201 (35.2)	20 (18.7)	1 (12.5)	4 (28.6)	15 (17.6)
Moderate	233 (40.8)	55 (51.4)	1 (12.5)	8 (57.1)	46 (54.1)
Severe	53 (9.3)	14 (13.1)	1 (12.5)	2 (14.3)	11 (12.9)
Death	10 (1.8)	6 (5.6)	1 (12.5)	0 (0)	5 (5.9)
Unable to determine	13 (2.3)	7 (6.5)	2 (25)	0 (0)	5 (5.9)
Type not specified	17 (3.0)	1 (0.9)	1 (12.5)	0 (0)	0 (0)

Section 3. Common themes and QI initiatives among the audits that identified quality issues/adverse events

In this section, we summarize the results of our qualitative analysis of the audits in which quality issues/adverse events were identified. We discuss the common themes we observed in the different types of return visits, and present examples of QI initiatives that EDs have undertaken to address these themes.

We encourage program participants to review these themes and consider whether they might be present in their ED as well. These lessons learned by other EDs could be used proactively to identify and address similar issues in EDs where a significant quality issue/adverse event may not yet have occurred.

A note on methodology

A team of emergency physicians with QI expertise (the ED Return Visit Quality Program Clinical Review Team) conducted the qualitative analysis of the audits that identified quality issues/adverse events. The clinical review team first analyzed all of the all-cause 72-hour return visits in which quality issues or adverse events were identified, and identified 11 themes that repeatedly arose in these audits. The team then analyzed the audits involving sentinel diagnoses and summarized the themes arising in these return visits as well.

A team of quality improvement specialists at Health Quality Ontario independently conducted a review of the completed Narrative templates. The examples of QI initiatives presented in this section of the report are largely drawn from this review of the completed Narrative templates, with some examples pulled directly from the audit templates.

When choosing QI initiatives to feature in this report, we aimed to include examples that were specific and that could potentially be replicated by other EDs. We also attempted to include initiatives that fall higher on the Hierarchy of Effectiveness. Although many EDs included general statements about “communicating to clinicians” or “educating clinicians” about an issue, we did not select these examples to be featured in this report.

For more information on the methodology we used to generate the analyses presented in this section and the teams who conducted these analyses, see Appendix A: Methodology.



All-cause 72-hour return visits

A total of 571 (24%) of the 2,354 all-cause 72-hour return visits that were audited resulted in the identification of quality issues/adverse events. Eleven key themes arose when the clinical review team analyzed the all-cause 72-hour audits that resulted in the identification of quality issues/adverse events. We have separated these themes into three groups:

1. Themes related to patient characteristics or actions;
2. Themes related to actions or processes of the ED team; and
3. Themes related to system issues.

Each of these is discussed in detail below.

1. Themes related to patient characteristics or actions

Patient risk profile

Many return visits involved patients who were high-risk due to the multiple comorbidities, psychosocial status, support system, age (e.g., paediatric patients), etc. that may not have been adequately accounted for by the ED clinicians during their evaluation and management.

Approaches to QI

Georgian Bay General Hospital recognized that their work with North Simcoe Muskoka Health Links to link and identify high-risk patients will help to minimize the risk of return visits among these patients. They are currently working to ensure access to coordinated care plans within the ED.

St. Joseph's Health Centre, Toronto noted that awareness and education about the complex needs of patients with mental health and addiction issues is needed in the ED. They plan to continue to bring forward stories learned through ED Health Link on patients with mental health and addictions (many are high users of the ED) to discuss the barriers/needs they have.

The Hierarchy of Effectiveness for QI interventions may be useful as EDs plan QI initiatives. Read about the Hierarchy of Effectiveness at patientsafe.wordpress.com/the-hierarchy-of-intervention-effectiveness/



Elderly patients

Return visits resulting in admission frequently involved elderly patients. Many audits of cases involving elderly patients revealed that these patients' unique needs and presentations may not have been adequately considered or addressed in the first visit to the ED.

Common examples of issues related to elderly patients include the following:

- There were inadequate supports in the community, including family and friends or medical support system (e.g., home care), which may have led to challenges implementing the plan of care and a subsequent return visit
- The patient had multiple comorbidities, which may have overlapped or conflicted with the prescribed plan of care
- The patient had altered mental status (e.g., dementia), leading to difficulty in communicating symptoms

Approaches to QI

For elderly patients, the quality issues may be rooted partially outside the ED and within the health system overall (e.g., inadequate supports in the community). Some sites recognized that they could do more to connect elderly patients with resources outside the hospital. Nonetheless, there are opportunities to ensure safer discharge plans within the ED by connecting with patients' caregivers (who may or may not be in the ED with them), by involving allied health professionals in the ED when available (e.g., physiotherapists, occupational therapists, social workers), or by involving nurses specialized in geriatric emergency medicine.

Queensway Carleton Hospital recognized an opportunity to improve with regard to the care they provide to elderly patients. They have undertaken several steps to make their ED more friendly to their geriatric patients. These include providing the following education opportunities for their nurses and physicians:

- Geriatric Resource Nurse (GRN) training
- Geriatric Emergency Nursing Education (GENE)
- Online courses for physicians through the Geri-EM website

Ger-EM is an e-learning website that provides personalized e-learning in geriatric emergency medicine.



Visit www.geri-em.com for more information.

- An education day for physicians, led by a gerontologist
- Attendance at a workshop regarding the creation of a geriatric-friendly ED

Scarborough and Rouge Hospital has initiated a regional geriatric management project lead in the ED along with the Central East CCAC and Central East LHIN Seniors Care Network. The purpose is to build knowledge capacity and enable best practice care standards for frail seniors within the ED.

Patients who left against medical advice or left without being seen

A number of return visits involved patients who left against medical advice or left without being seen during their first visit. Some patients may also have left after a medical directive had been initiated. Many EDs discussed this theme in their Narrative submissions, with some noting that these return visits may involve patients who do not feel well enough to wait for long periods of time.

Although this theme was commonly observed, it is important to keep in mind that the audits conducted as part of this program will not capture the many patients who leave without being seen and do not experience any ill effects. In fact, according to an analysis of data from high-volume EDs in Ontario, patients who leave without being seen are not at higher risk of death or hospital admission within 7 days.⁷

Approaches to QI

ED overcrowding/wait times are perceived to be a significant contributor to patients' decision to leave before being seen or discharged; thus, reducing wait times in the ED will likely help to address patients leaving without being seen.

Some EDs mentioned their plans to follow up with patients who left without being seen (e.g., through telephone). We encourage EDs to consider their approach to this carefully in light of the fact that patients who leave without being seen do not appear to be at higher risk of death or hospital admission to ensure that they will get the most value from their efforts.⁷ Examples might include following up with patients who were considered high-risk on triage.

Kingston General Hospital has implemented Chart Cards at triage. These are intended to act as a tool to remind triage nurses to complete reassessments. They plan to complete monthly chart audits focusing on reassessment times and completion rates.

2. Themes related to actions or processes of the ED team

Issues related to physician documentation

Many audits mentioned that documentation in the charts was suboptimal (e.g., illegible or incomplete). The ED physicians who performed the audits sometimes believed that this suboptimal documentation had contributed to the return visit. For other audits, the suboptimal documentation meant that it was difficult to identify the cause of the return visit because pertinent information was not recorded.

Here are some common examples of issues related to documentation:

- The documented patient history or physical examination was not sufficient
- Necessary tests were either not ordered or not documented
- There was no documentation that the treating physician had reviewed returned test results

Approaches to QI

Several EDs recognized that different aspects of their charting could be improved following their audits. One ED is working on a Lean project to improve their chart management process, while another is considering improvements to their ED face sheet that could support improved documentation.

Potential cognitive lapses on the part of the physician

This broad category includes audits that uncovered evidence of a knowledge gap or failure to act on signs and symptoms by the treating physician.

Approaches to QI

The process of having clinicians conduct audits of return visits to identify potential cognitive lapses (or other approaches to audit and feedback) is one way to help prevent the same cognitive lapse from occurring again in the future.

Many EDs indicated that cases involving cognitive lapses were discussed with clinicians one-on-one, with the ED team, or in M&M rounds.

A few EDs mentioned educational interventions to target specific knowledge gaps. For example, **The Ottawa Hospital** is planning a dedicated HINTS exam workshop for ED physicians to support them in conducting this classically difficult clinical examination.

High-risk medications & medication interactions

Some audits involved a failure to account for high-risk medications or address medication interactions in assessment and management.

Approaches to QI

Georgian Bay General Hospital is planning an initiative to conduct medication reconciliation for selected high-risk, non-admitted patients.

Sunnybrook Health Sciences Centre is planning a QI initiative to provide a medication list for all patients to accompany their ED charts.

Markham Stouffville Hospital conducted a 'prescribing in the elderly' geriatric/ED rounds as it was noted as an area of improvement by their review committee.

Issues related to abnormal or undocumented vital signs

Issues related to the documentation, communication, or reassessment of vital signs were fairly common. Specific examples include the following:

- Abnormal vital signs noted in the triage or nursing notes were not addressed in the physician chart, and/or were not repeated prior to discharge
- Vital signs were not repeated for long periods of time during the patient's stay in the ED and/or before discharge (or if they were repeated, they were not recorded in the patient's chart)
- Abnormal vital signs were recorded in the nursing notes after the last physician interaction with the patient, with no record of it being communicated to the treating physician

Approaches to QI

One ED observed that abnormal vital signs were sometimes not attended to in instances where the clinical presentation and assessment were reassuring. They are working on an initiative that involves enhancing the discharge process for paediatric patients to ensure that a set of vital signs is done at the time of discharge and communicated to the physician.

St. Mary's General Hospital has added a colour-coded prompt on their tracker board to identify when vitals need to be completed.

Bluewater Health noted an opportunity for improvement with regard to their process for disposition from the ED. They are creating a focus group and working group to review findings from this program and include topics such as routine vital signs, assessments, documentation upon arrival to the ED, medication management and standard processes for information and assessments that need to be conducted upon discharge (e.g., vital signs, discharge instructions and required assessments).

Handovers and communication between providers

Some audits revealed evidence of suboptimal communication among providers, particularly during handovers or between treating physicians and nurses. This is an area in which lapses in quality care are known to occur.

Approaches to QI

Milton District Hospital has worked to do some reorganization of the department to enhance workflow and communication. They have made some improvements related to communication, particularly related to nurse-physician communication associated with reassessments and treatments.

Scarborough and Rouge Hospital – Centenary Site recognized opportunities to improve communication among team members, patients and families. They have initiated a QI project to enhance clearer communication and prevent errors. Examples include an improved triage chart, ED record, and “hand-over” document to improve the transfer of patient care.

Issues related to radiology

This theme includes issues related to interpretation of diagnostic imaging tests by the emergency physician and/or delegates, communication of findings by the radiologist, and acting on discrepancies in a timely manner.

Approaches to QI

Woodstock Hospital has a discrepancy protocol in place for when discrepancies are encountered in diagnostic imaging. This was revised in 2016 based on the audits and safety issues that were identified. A real-time electronic tracking tool was developed, showing all diagnostic imaging orders from the ED. It uses visual cues to prompt staff/physicians for timely completion and interpretation of diagnostic imaging tests.

Sunnybrook Health Sciences Centre has a rigorous discrepancy process in place to manage missed radiologic findings. This includes documentation of preliminary findings by emergency physicians and communication to the ED by radiologists for discrepant results.

3. Themes related to system issues

Lack of availability of diagnostic imaging or other tests

Many audits identified issues related to a lack of availability of diagnostic imaging or other testing after hours. Specifically, access to ultrasounds and magnetic resonance imaging (MRI) after hours was often mentioned.

Approaches to QI

Multiple EDs cited their plans to expand their hours or increase their capacity for diagnostic imaging.

Scarborough and Rouge Hospital plan to introduce enhanced after-hours access to diagnostic imaging for ultrasound tests. They also plan to expand the ultrasound fellowship for physicians to expand the number of bedside ultrasounds that can be conducted.

Brant Community Healthcare System reported that the results of the audits led to conversation regarding MRI availability in emergency situations. The radiology department has now operationalized a process to allow for MRI availability in emergency situations outside of regular hours.

Sunnybrook Health Sciences Centre has created a Division of Emergency Radiology to improve diagnostic imaging services provided to the ED, .

Discharge planning and community follow-up

A subset of return visits involved inadequate discharge planning and/or follow-up in the community. For some of these return visits, the ED physician may not have assessed baseline function or ability to cope in the community. Other return visits involved a failure to ensure that adequate support systems or follow-up care were available before discharge from the ED. This theme also includes inadequate/unclear discharge instructions/communications.

Approaches to QI

Thunder Bay Regional Health Centre has created new follow-up processes and tools to manage abnormal laboratory results after a patient is discharged from the ED. They are developing a new report summary listing all abnormal laboratory results to facilitate timely result management and reconciliation. The report will be reviewed by the Charge Nurse each day to ensure abnormal results are followed up by the ED physician or physician assistant. The ED manager and Chief are involved in overseeing the process.

North York General Hospital plans to review cases involving patients with a diagnosis of chronic obstructive pulmonary disease who are returning to the ED to ensure that these patients are being referred to all relevant and available community resources.

St Thomas Elgin Hospital has implemented new clinical practice guidelines related to discharge of the patient and standards of care within the department as a result of their audit findings.

Sentinel diagnoses

In this section, we discuss our qualitative analysis of the audits involving the three sentinel diagnoses that identified quality issues/adverse events.

Acute myocardial infarction

AMI was the most common of the three sentinel diagnoses flagged in the data reports. A total of 175 audits were recorded as sentinel AMI cases, of which 85 (49%) resulted in the identification of a quality issue/adverse event.

We observed several themes among the AMI cases that resulted in identification of a quality issue/adverse event: issues related to troponin testing; patient risk profile; and discharge planning and community follow-up. The theme of issues related to troponin testing is unique to the AMI sentinel cases, while the themes of patient risk profile and discharge planning/community follow-up were also observed in the analysis of the all-cause 72-hour return visits.

Issues related to troponin testing

Issues related to troponin testing were common in cases involving AMIs. Issues documented in the audits included the following:

- Troponin tests were not ordered on the first visit when it appears that they would have been indicated
- Repeat troponin tests were not performed in higher-risk patients (or were repeated too early based on the clinical presentation)
- Increasing but low troponin levels were not addressed
- Troponin tests were ordered but abnormal results were not documented in the chart (and therefore it is unclear whether the treating physician was aware of the result)
- Troponin test results that were 'borderline' were not followed up

A note on the approaches to QI presented in this section



Because of the small numbers of sentinel cases and the fact that the discharge diagnosis is known, we have not included any names of EDs or details of cases here to ensure that patient privacy is maintained. For more information on any of the examples featured in this section, contact EDQuality@hqontario.ca.

It should be noted that some hospitals went through a change in the assay they used (towards the newer high-sensitivity troponin assays) over the past year through the year, resulting in a change in practice and a learning curve for the providers involved.

Approaches to QI

Some EDs indicated that they are considering revising the laboratory reports to clearly identify borderline troponin levels, developing or revising a chest pain protocol to include repeat troponin testing, or transitioning to high-sensitivity troponin testing.

Patient risk profile

Another common theme among AMI cases involved clinicians not recognizing or taking into consideration the patient's risk profile during the initial visit. This theme was also documented for the all-cause 72-hour return visits.

These cases frequently involved patients with risk factors for AMI (e.g., coronary artery disease, diabetes, history of smoking) who presented with atypical symptoms but did not receive electrocardiography or troponin testing on the first visit. Several cases involved elderly patients with epigastric pain for whom AMI did not appear to be considered. Some cases involved unrecognized unstable angina.

Approaches to QI

One ED mentioned that they will be providing education regarding the presentation of atypical chest pain on triage.

Discharge planning and community follow-up

Issues related to discharge planning and community follow-up included the following:

- Lack of timely access to an outpatient cardiology clinic or stress testing for patients with a presumed cardiac origin of chest pain
- ED clinicians did not confirm that follow-up by cardiologist would be feasible to be organized by the patient or their caregivers within the time frame that they recommended

- ED clinicians did not recommend (or did not document) a follow-up plan despite the patient experiencing chest pain with a presumed cardiac origin

For some of the audits that identified quality issues or adverse events related to community follow-up, the care provided on the first visit was appropriate (i.e., tests were negative for AMI, follow-up with an outpatient cardiologist was recommended) and it was unclear whether these return visits would have been prevented by more timely access to follow-up care in the community.

Approaches to QI

A few EDs mentioned that they would be investigating their discharge follow-up protocols and the availability of follow-up with the cardiac clinic.

Patients who left against medical advice

A few cases involved patients who left against medical advice. For some of these patients, troponin results came in after they left and they were called back in.

Approaches to QI

One ED mentioned that they will consider adding educational material for patients in the ED highlighting the importance of investigations if they are experiencing chest pain. Another ED mentioned considering telephoning patients who left against medical advice if they are high-risk.

Paediatric sepsis

There were few cases of paediatric sepsis flagged (28 cases audited, of which 14 resulted in the identification of quality issues/adverse events). The majority of the paediatric sepsis cases were associated with typical disease progression, with appropriate care provided on the first visit.

A few of the cases that resulted in the identification of a quality issue/adverse event were found to align with themes observed for the all-cause visits:

- Patient risk profile was not accounted for (e.g., neonatal patients <90 days of age)
- Discharge instructions were not documented (so it is not clear whether they were provided to the family)

A note on sample size for paediatric sepsis and subarachnoid hemorrhage



Only a small number of audits involving paediatric sepsis and subarachnoid hemorrhage led to the identification of quality issues/adverse events (14 and 8, respectively). Because of the small sample size, clear themes did not emerge for these cases to the same extent as for AMI and all-cause 72-hour return visits. We expect that themes will emerge more clearly as we continue to receive audits relating to these diagnoses in future submissions.

One recurring observation unique to the paediatric sepsis cases was a failure to recognize the significance or follow up on tachycardia/tachypnea when appropriate.

Approaches to QI

Since these cases were rare (with few EDs encountering more than a single case), EDs typically indicated that they planned to present the case at M&M rounds or educate clinicians on the relevant issues. Two EDs mentioned developing order sets or protocols for infants <90 days of age (for fever and 'not yet determined' presentation, respectively). One ED mentioned that they would consider adding an electronic reminder when the clinician attempts to discharge a patient with abnormal vital signs (e.g., if vital signs are >1 standard deviation from the norm).

Subarachnoid hemorrhage

As with paediatric sepsis, there were few cases of subarachnoid hemorrhage flagged (16 cases audited, of which 8 resulted in the identification of quality issues/adverse events). For the most part, evaluations and work-ups on the first visit were deemed to be appropriate by the local reviewers.

Themes among the few cases that resulted in the identification of quality issues/adverse events included:

- Issues related to handovers and communication between providers (e.g., between residents and staff)
- Radiological discrepancies (e.g., a patient who was called back after a discrepancy was identified during review)

Approaches to QI

EDs typically indicated that they would hold discussions or provide education related to these cases. One ED indicated their intention to add a template/EMR with a recommended work-up/evidence-based diagnosis for headache in the ED. One ED indicated that they have implemented same-shift reporting of diagnostic imaging to address issues with radiological discrepancies.

The Hospital for Sick Children has developed an evidence-based order set for management of fever without source in infants <90 days of age. This order set is available by request from EDQuality@hqontario.ca.



Moving forward

It is remarkable to observe the participation and contributions of so many EDs and clinicians in the ED Return Visit Quality Program over this pilot year. The program has provided the opportunity for EDs to reflect on how care is provided and identify potential areas for improvement. It also supports our broader goal for a safe, effective, efficient, patient-centred, timely, and equitable health care system in Ontario by helping to foster a culture of quality across the province.

The 86 participating EDs have thoughtfully adapted this program to suit the needs of their site in different ways. The audits they have conducted have led to significant insights into the causes of return visits in Ontario's EDs, and many participating EDs have described their plans to address these issues in their sites. Many of the planned initiatives identified through this program align with provincial priorities for improvement – for example, supporting transitions in care for patients with complex needs.

We encourage EDs to reflect on the results presented in this report, and consider whether there are proactive actions they might take to address the themes associated with return visits before significant quality issues arise in their site. We hope that EDs will continue to evolve how they approach this program in order to learn as much as possible from participating. Above all, EDs should continue to work to engage front-line staff in this program, ensuring that any audits, reviews, or feedback are conducted in a non-threatening and non-punitive manner.

It will be exciting to see what more can be learned as this program continues in 2017, including how it is helping to achieve our goal of fostering a culture of quality in Ontario.

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Schull MJ, Vermeulen MJ, Stukel TA. The risk of missed diagnosis of acute myocardial infarction associated with emergency department volume. *Ann Emerg Med* 2006;48(6):647–655.

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Collingwood General & Marine Hospital
Cornwall Community Hospital
Georgian Bay General Hospital
Grand River Hospital
Grey Bruce Health Services – Lions Head
Grey Bruce Health Services – Markdale
Grey Bruce Health Services – Meaford
Grey Bruce Health Services – Owen Sound
Grey Bruce Health Services – Southampton Hospital
Grey Bruce Health Services – Wiarton
Guelph General Hospital
Haldimand War Memorial Hospital
Halton Healthcare – Georgetown Hospital
Halton Healthcare – Milton District Hospital
Halton Healthcare – Oakville Trafalgar Memorial Hospital
Hamilton Health Sciences – Hamilton General Hospital
Hamilton Health Sciences – Juravinski Hospital
Hamilton Health Sciences – McMaster Children's Hospital
Hamilton Health Sciences – West Lincoln Memorial Hospital
Hawkesbury & District General Hospital

Headwaters Health Care Centre
Health Sciences North
Hôpital Montfort
Hotel Dieu Hospital
Humber River Hospital
Joseph Brant Hospital
Kingston General Hospital
Lakeridge Health – Ajax & Pickering
Lakeridge Health – Bowmanville
Lakeridge Health – Oshawa
Leamington District Memorial Hospital
London Health Sciences Centre – University Hospital
London Health Sciences Centre – Victoria Hospital
Mackenzie Health
Markham Stouffville Hospital
Michael Garron Hospital
Niagara Health System – Douglas Memorial
Niagara Health System – Greater Niagara
Niagara Health System – Port Colborne
Niagara Health System – St. Catharines
Niagara Health System – Welland
Norfolk General Hospital
North Bay Regional Health Centre
North York General Hospital
Northumberland Hills Hospital
Orillia Soldiers' Memorial Hospital
Pembroke Regional Hospital
Peterborough Regional Health Centre
Queensway Carleton Hospital
Quinte Health Care – Belleville General Hospital
Quinte Health Care – Trenton Memorial Hospital

Ross Memorial Hospital
Royal Victoria Regional Health Centre
Sault Area Hospital
Scarborough and Rouge Hospital – Birchmount
Scarborough and Rouge Hospital – Centenary
Scarborough and Rouge Hospital – General
Sinai Health System
Southlake Regional Health Centre
St. Joseph's Health Centre, Toronto
St. Joseph's Healthcare Hamilton
St. Mary's General Hospital
St. Michael's Hospital
St. Thomas Elgin General Hospital
Stevenson Memorial Hospital
Sunnybrook Health Sciences Centre
The Hospital for Sick Children
The Ottawa Hospital – Civic Campus
The Ottawa Hospital – General Campus
Thunder Bay Regional Health Sciences Centre
Timmins and District Hospital
Trillium Health Partners – Credit Valley
Trillium Health Partners – Mississauga
University Health Network – Toronto General Hospital
University Health Network – Toronto Western Hospital
West Haldimand General Hospital
William Osler Health System – Brampton Civic Hospital
William Osler Health System – Etobicoke General Hospital
Windsor Regional Hospital – Metropolitan Campus
Windsor Regional Hospital – Ouellette Campus
Woodstock General Hospital

Appendix A. Methodology

To conduct the qualitative analyses in Section 3, we reviewed all audits that had identified quality issues/adverse events in order to identify trends across participating EDs.

Health Quality Ontario, in collaboration with the ED Return Visit Quality Program Working Group, established a team of emergency physicians with expertise in QI to conduct this analysis (the ED Return Visit Quality Program Clinical Review Team). We removed any identifying information from the completed audits. Our goal was to conduct an inductive qualitative analysis in which the team would review a set of audits to identify themes, then come together in discussion to pool and refine the themes they had identified before reviewing the remainder of the audits.

While conducting this analysis, we relied on the completed audit template and conclusions within it, recognizing that a re-analysis of the case description would likely lead to inadequate transmission of the rich information within each case.

The team first analyzed 50% of the audits of all-cause 72-hour return visits that identified quality issues/adverse events. They then came together to compile and combine the themes and ensure agreement among reviewers. Finally, they reviewed the remainder of the audits according to the themes they had agreed upon, with the option to add new themes if they became apparent.

Not all audits that were reviewed could be classified into the 11 themes included in this report, and some audits could be classified into more than one theme.

The process was repeated for audits involving sentinel diagnoses, except the reviews were conducted by only two clinicians due to the smaller number of cases involved.

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Health Quality Ontario is the provincial advisor on the quality of health care. We are motivated by a single-minded purpose: **Better health for all Ontarians.**

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We are a scientifically rigorous group with diverse areas of expertise. We strive for complete objectivity, and look at things from a vantage point that allows us to see the forest and the trees. We work in partnership with health care providers and organizations across the system, and engage with patients themselves, to help initiate substantial and sustainable change to the province's complex health system.

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