

URBAN AND REGIONAL EMERGENCY DEPARTMENT PATIENT EXPERIENCE REPORT (2010-2013): PEDIATRIC SITES

August 2015

Promoting and improving patient safety and health service quality across Alberta

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To reference this document, please use the following citation:

Health Quality Council of Alberta. Urban and regional emergency department patient experience report (2010-2013): pediatric sites. Calgary, Alberta, Canada: Health Quality Council of Alberta; August 2015.



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SECTION A: BACKGROUND, METHODS, AND RESULTS

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1.0 EXECUTIVE SUMMARY

Overview

In 2010, the Health Quality Council of Alberta (HQCA) made a significant change to its process for conducting emergency department patient experience surveys. In consultation with Alberta Health Services (AHS), the HQCA shifted to sampling emergency department patients every two weeks beginning in June 2010. This bi-weekly surveying continued until July 2013. The two previous HQCA emergency department patient experience surveys were each conducted over a single two-week period, once in 2007 and once in 2009.

The purpose of the change, to more frequent sampling in 2010, was to monitor variation and detect changes in emergency department patient experience over time at the provincial aggregate level and at 15 urban or regional emergency departments, chosen by the HQCA and AHS. Among these 15 sites were the two pediatric emergency department sites that are the focus of this report: the Alberta Children's Hospital and the Stollery Children's Hospital. This shift in sampling methods enabled the HQCA to provide emergency department stakeholders (particularly those at the site level) with relevant information that they could use to inform their patient experience, quality of care, and patient safety improvement efforts.

As a result of the change in survey methodology, a valid comparison of the patient experience results for 2010-2013 with the 2007 and 2009 point-in-time results is not possible. This is because of the broader time frame and different sampling frequency employed for this survey.

As in 2007 and 2009, the questionnaire used in the 2010-2013 survey was based on the *British Emergency Department Patient Experience Survey* tool, which was validated in both Britain and Alberta prior to use. A rigorous survey protocol was followed, resulting in an overall response rate of 44.8 per cent. Response rates for individual sites ranged from 32.8 per cent to 54.4 per cent.

The final HQCA emergency department survey involved two slightly different questionnaires: the adult version (for respondents 16 years of age and older) and the pediatric version (for proxy respondents for patients 12 years of age and younger). The pediatric version of the survey, which was used to collect the data in this report, excludes several demographic questions, but otherwise is the same as the adult version. Parents of children who had recently visited a pediatric emergency department, and were contacted to participate in this survey, were instructed that if their child was unable to complete the survey on their own, the person who visited the emergency department with the child should complete the survey from the child's point of view. Because of this, throughout the report results are presented as if the child was the one who completed the survey.

The HQCA's new sampling strategy necessitated the adoption of two different analytical methods to report patient experience data: run charts and control charts. These charts were used to graphically display patient experience data over time as well as to identify instances of non-random variation (which represent operationally meaningful changes) in patient experience. Provincial aggregate and site-specific results are presented together to allow for comparison.



Context of the patient visit

Almost four in 10 respondents (39%) reported they went to the emergency department because they perceived it to be the only choice available at the time. More than half of the respondents (52%) visited the emergency department because they believed it was the best place to go to deal with their medical problem.

- Exactly 3 in 4 respondents (75%) stated that the medical problem that brought them to the emergency department was for new symptoms, either a *new illness or condition* (49%) or a *new injury or accident* (26%).
- More than 1 in 10 respondents (15%) said that the medical problem that brought them to the emergency department was related to a chronic illness, either for a worsening of their condition (13%) or for routine care of that condition (2%).
- More than 4 in 10 respondents (43%) were advised to go to the emergency department by a healthcare professional, most often by a Health Link nurse (20%) or their personal family doctor (11%).

Patient experience in the context of site-level volumes, length of stay, and CTAS

The HQCA highlights three factors that have an impact on emergency department patient experience: patient volumes, length of stay (LOS), and patient acuity (CTAS – Canadian Triage and Acuity Scale). In this report, emergency department volumes, average LOS, and CTAS counts are presented monthly via run charts, and are displayed by site.¹ These factors are reported for the entire population of patients presenting to an emergency department, rather than for the sample of patients surveyed on their experience of care. This provides an overall sense of how these three factors change over time, and illustrates the relative magnitude of these pressures on emergency departments over time.

Results revealed that patient volumes have consistently increased at both of the pediatric sites since June 2010. These consistent volume increases were observed for both admitted and discharged patients at both pediatric sites. Conversely, average LOS varies between the two pediatric sites over the study period. At Alberta Children's Hospital average LOS consistently increased for admitted patients, but consistently decreased for discharged patients over the study period. Meanwhile, at Stollery Children's Hospital, average LOS consistently decreased for both admitted and discharged patients over the study period. Both pediatric sites exhibit consistent increases in patient volumes in three CTAS levels. However, despite this general trend indicating increasing volumes in multiple CTAS levels, the two pediatric sites differ regarding which CTAS levels increased and which did not. At Alberta Children's Hospital consistent increases in patient volumes were observed for patients designated as CTAS 1, CTAS

ⁱ This is administrative data, routinely collected by Alberta Health Services (AHS). Administrative data are data collected for "administrative" purposes such as accounting, billing, tracking of diagnoses, etc. Administrative data were not designed to measure the quality of health care; however, secondary use of administrative data can often produce useful measures of quality. The decision to use AHS' data was made to ensure the HQCA was reporting volumes and LOS that matched AHS' records.



2, and CTAS 3 (the three most urgent assignments). Conversely, at Stollery Children's Hospital consistent increases in patient volumes were observed for patients designated as CTAS 3, CTAS 4, and CTAS 5 (CTAS 4 and CTAS 5 are the least urgent acuity assignments). Overall, results for patient volumes, average LOS, and CTAS counts indicate that the pressures emergency departments are subjected to are diverse.

Emergency departments are also diverse with respect to the variety of programs and initiatives implemented to improve patient care and experience. The HQCA captured this diversity by consulting with emergency department stakeholders at the site, zone, and provincial levels to construct timelines of the implementation of these various initiatives. Timelines at both the provincial aggregate and site levels revealed that patient care and patient experience were often influenced by multiple and sometimes simultaneously occurring events and initiatives. Many events and initiatives were implemented and administered concurrently, which makes accurate assessment of the impact of any one of them on patient experience difficult.

Key Findings

Overall rating of care

Results for the overall (global) rating of care, reported as the percentage of patients who rated their emergency department care as either excellent or very good, were examined over time at the provincial aggregate and site levels. Over the course of the study period, the provincial aggregate run chart exhibited random variation around a median of 79 per cent of patients who rated their overall care as excellent or very good, with the exception of an unsustained change toward better patient experience ratings, which occurred from August 2012 to January 2013. At Alberta Children's Hospital, a single unsustained change toward a lower percentage of patients who rated their overall care as excellent or very good occurred from March to April 2013. At Stollery Children's Hospital the percentage of patients who rated their overall care as excellent or very good exhibited random variation throughout the study period, with no evidence of unsustained or sustained changes.

Factors influencing the overall rating of care

In addition to the overall rating of care, the HQCA monitored specific factors shown to influence the overall rating of care over time.ⁱⁱ A synthesis of the different multivariate analyses conducted in the 2007 and 2009 emergency department reports determined that staff care and communication is undoubtedly the most important patient experience factor affecting the overall rating of care. The synthesis also revealed the following order of importance for factors influencing the overall rating of care (most influential to least influential):

ⁱⁱ These factors were shown to influence the overall rating of care through multivariate regression analyses in the 2007 *Emergency Department Patient Experience Survey* report and the *Urban and Regional Emergency Department Patient Experience Report 2009*, and a path analysis in the *Urban and Regional Emergency Department Patient Experience Report 2009*. These reports are available on the HQCA website [http://hqca.ca/surveys/emergency-department-patient-experience/].



- 1. Staff care and communication
- 2. Wait time and crowding
- 3. Pain management
- 4. Respect
- 5. Facility cleanliness
- 6. Wait time communication
- 7. Privacy
- 8. Medication communication
- 9. Discharge communication

This report monitors results for the above nine factors over time, by examining both composite variables and individual survey questions.ⁱⁱⁱ Overall, the provincial aggregate results and most of the site-level results exhibited either random variation, or some unsustained or temporary periods of change over the study period. Out of 28 total pediatric site-level analyses of these patient experience factors, there were three depicting evidence of a sustained or lasting improvement. Of these three improvements, only the Stollery Children's Hospital was represented. These improvements include:

- Improvement in wait time and crowding ratings Stollery Children's Hospital
- Improvement in facility cleanliness ratings Stollery Children's Hospital
- An improvement in the percentage of patients who self-reported waiting more than two hours to be examined by a doctor Stollery Children's Hospital

After examining the pediatric sites individually, we looked at their performance relative to each other. These comparisons revealed, over the course of the study period:

- The Alberta Children's Hospital exhibited slightly higher patient experience scores than the Stollery Children's Hospital regarding the overall rating of care, the staff care and communication factor, the pain management factor, the wait time communication factor, and the medication communication factor.
- The Stollery Children's Hospital exhibited slightly higher patient experience scores than the Alberta Children's Hospital regarding the wait time and crowding factor.
- The two pediatric sites exhibited very similar patient experience scores on the respect factor, the facility cleanliness factor, the privacy factor, and the discharge communication factor.

^{III} Composite variables are the average score of responses to all questions related to a specific aspect of patient experience. They provide a summary score for that aspect of patient experience.



Conclusion

The change in the HQCA's emergency department patient experience survey methodology, from pointin-time surveys to bi-weekly surveys over the entire calendar year, enabled the HQCA to provide emergency department stakeholders with more useful information to improve patient experience, quality of care, and patient safety.

Monitoring site-level data over time was an important step for demonstrating how emergency department patient experience changed (or did not) from 2010 to 2013. However, explaining why patient experience changed (or did not) proved to be challenging. The HQCA recognizes that emergency departments are diverse in terms of their size, patient population served, and the pressures they experience.^{iv} Therefore, this report monitors patient volumes, average LOS, and CTAS counts in addition to patient experience over the study period. It was also recognized that emergency department programs and initiatives have an impact on patient experience. These programs and initiatives vary between sites. Mapping programs and initiatives onto the study timeline revealed that many were implemented and administered concurrently, making it difficult to accurately assess the effect of any one of them on patient experience. This underscores the importance of pursuing a systematic and highly structured approach to the implementation and evaluation of emergency department quality improvement programs and initiatives.

Despite many quality improvement efforts, there was little evidence of improvements in pediatric emergency department patient experience from June 2010 to July 2013; with the exception of three improvements at the Stollery Children's Hospital emergency department.

Conclusions drawn from these patient experience results should acknowledge the effects that increasing volumes and longer average LOS have on the emergency department. Maintaining the same or similar levels of patient experience should be interpreted positively, considering that pressures related to emergency department volumes (and at Alberta Children's Hospital, average LOS for admitted patients) have shown increases over the study period.^v

^{iv} The HQCA highlights patient volumes, average LOS, and CTAS counts as three examples of emergency department pressures that impact patient experience.

v At Alberta Children's Hospital, volume pressures include increases in the number of higher acuity patients (CTAS 1 or CTAS 2) presenting to the emergency department.



2.0 HQCA AND BACKGROUND

The Health Quality Council of Alberta (HQCA) is an independent organization legislated under the *Health Quality Council of Alberta Act*, with a mandate to survey Albertans on their experience and satisfaction with patient safety and health service quality.

The HQCA first completed an emergency department survey and report in 2007, which was the product of a collaboration between the Alberta health regions at the time, the Ministry of Health and Wellness, and other stakeholders, including a working group comprised of emergency department medical professionals, managers, and academics. The survey was repeated in 2009. The 2007 and 2009 emergency department patient experience reports are available on the HQCA website (www.hqca.ca) and include details regarding rationale for the survey, selection and validation of the survey instrument, and survey and analysis methodology.^{vi} The 2010-2013 survey was conducted in collaboration with Alberta Health Services and emergency department staff representing each of the participating sites.

As in the previous surveys, the 2010-2013 survey focused on patient experience of emergency department care in 15 of Alberta's large urban and regional hospital emergency departments. Among these 15 sites were the two pediatric emergency department sites that are the focus of this report: the Alberta Children's Hospital and the Stollery Children's Hospital.

An ongoing focus on emergency department care

In undertaking the 2007 and 2009 surveys, the HQCA recognized the following points that equally apply to the 2010-2013 survey:

- Many of the challenges facing emergency departments in Alberta, including crowding issues, are health system issues where both the causes of problems and their solutions extend beyond the emergency department itself. In this context, improving the experience of patients, and their quality of care, needs to include strategies at broader hospital, AHS zone, and health system levels.
- Emergency department facilities are diverse in terms of the services they provide to the community, their size and volume, patient population, and the causes and degree of pressures they experience. However, it is recognized that facilities may not be able to influence all of the factors that impact their performance from a patient experience perspective.
- Results at the provincial aggregate level (all surveyed pediatric patients who visited the Alberta Children's Hospital or the Stollery Children's Hospital) provide an important overview of emergency department patient experience in the province's pediatric emergency departments.

Since the release of the 2009 report, the HQCA has recognized that provincial aggregate results also have limitations. Primarily, provincial aggregate results assume that patients presenting to different sites all enter the same provincial emergency department care delivery system, which is not the case. As

vi These reports can be retrieved from the HQCA website, at http://hqca.ca/surveys/emergency-department-patient-experience/.



mentioned above, emergency department facilities are extremely diverse. This extends to the programs and initiatives they implement, as well as to how patients rate the care they receive. By aggregating results from both pediatric sites into a provincial pediatric patient experience score, important betweensite differences are masked along with valuable actionable information at the site level. Recognizing that patients presenting to different sites do not all enter an identical care delivery system led the HQCA to focus on patient experience at the site level.

Purpose of the 2010-2013 survey

The purpose of the 2010-2013 survey is to monitor variation and detect changes in emergency department patient experience over time at the provincial aggregate level and at the two pediatric emergency department sites: the Alberta Children's Hospital and the Stollery Children's Hospital. Additionally, this report aims to:

- Provide actionable information about pediatric patient experience over time that will assist care
 providers at both the provincial and site levels to improve the quality of pediatric emergency
 department patient care.
- Present site-specific patient experience results in conjunction with results from other sites to encourage comparison for the purpose of shared learning.^{vii}
- Monitor variation and detect changes in pediatric patient experience over time, relative to historical norms and in response to changes applied to the delivery of emergency department care.

In 2010, the HQCA made an important change to the process of conducting emergency department surveys compared with 2007 and 2009. Beginning in June 2010, the HQCA shifted to sampling emergency department patients every two weeks (presented monthly in this report) to monitor patient experience results over the entire calendar year. Monitoring results over the calendar year allows for the identification of seasonal variability, which was impossible with the point-in-time approach used in the 2007 and 2009 surveys.

This change means that comparison of the patient experience results for 2010-2013 with the 2007 and 2009 point-in-time results is strongly discouraged; conclusions may be misleading and inappropriate because of the broader time frame and different sampling frequency employed for the 2010-2013 survey.

^{vii} The HQCA urges caution given the potential for differences between sites that may influence patient experience. However, the HQCA acknowledges that comparison has the potential to aid in the identification of weak or strong aspects of emergency department care delivery. This may encourage discussion regarding practices employed by the higher-performing sites and facilitate learning from best practices.



3.0 STUDY METHODOLOGY

Survey methodology

The 2007 working group selected and adapted the *British Emergency Department Patient Experience Survey* tool for use in Alberta. This rigorously developed and validated survey tool provided the core set of questions for the HQCA's survey, and additional items were developed to capture the unique Alberta context. These new items, and selected original items, underwent both cognitive and psychometric testing, and field testing in Alberta emergency department patient populations prior to use.

The final HQCA emergency department survey involved two slightly different questionnaires: the adult version (for respondents 16 years of age and older) and the pediatric version (for proxy respondents for patients 12 years of age and younger). Both versions of the survey underwent several rounds of cognitive testing and were pilot tested. The pediatric version of the survey, which was used to collect the data in this report, excludes several demographic questions, but otherwise is the same as the adult version. Parents of children who had recently visited a pediatric emergency department, and were contacted to participate in this survey, were instructed that if their child was unable to complete the survey on their own, the person who visited the emergency department with the child should complete the survey from the child's point of view. Because of this, throughout the report results are presented as if the child was the one who completed the survey.

The HQCA selected and engaged the services of Prairie Research Associates Incorporated (PRA), a national research firm, to conduct the 2007, 2009, and 2010-2013 emergency department patient experience surveys. During the 2010-2013 survey, PRA was provided with representative samples of patients who had visited each of the 15 sites (including the two pediatric sites) every two weeks. Patients were selected randomly from the entire population of patients seen in an emergency department during the sample period.^{viii} Sample sizes were proportionately larger for smaller facilities, requiring the calculation of cluster sample weights to adjust for the higher probability of patient selection in low volume sites.^{ix} Samples generated for this report exclude patients older than 12 years of age,^x pediatric patients who visited a non-pediatric emergency department, patients who left before being seen or treated, and patients who died in the context of their emergency department stay.^{xi}

A rigorous four stage survey protocol was used to maximize the response rate and quality of the final sample. The survey was administered primarily via a mail-out instrument. However, the protocol also involved a telephone reminder call to those who had not returned their survey 25 days after the

viii Site-level sample sizes were based on predicted response rates (from previous surveys) and were set at the level required to report reliable zone-level results on a quarterly basis, and site-level results annually.

^{ix} Cluster weights were applied to the provincial aggregate results but not site-level results, because samples were selected to be representative at the site level.

^x Adult patients (16 years of age and older) were surveyed for the remaining 13 sites; however results are not included in this report because the populations are fundamentally different. A separate adult report has been previously released and is available on the HQCA's website, at: http://hqca.ca/surveys/emergency-department-patient-experience/.

^{xi} Patients without contact information, and a small number of "privacy" sensitive cases, such as domestic abuse, were also excluded from the sample and were randomly replaced with eligible cases.



sampling period ended. During this call, respondents were given the option to complete the survey over the phone. Using this protocol, the HQCA was able to achieve an overall response rate of 44.8 per cent (24,181 completed out of 53,963 surveys distributed). Response rates for individual sites ranged from 32.8 per cent to 54.4 per cent. More information regarding this protocol and its outcomes, overall and at the site level, can be found in <u>Appendix I</u>.

In general, the 15 large urban or regional hospital emergency departments surveyed (including the two pediatric sites) are routinely faced with some of the most severe challenges in the province, including the greatest crowding, longest wait times, and, historically, the poorest patient experience.^{xii}

While the primary goal of this study is to produce actionable information at the site level, results are also analyzed at a provincial aggregate level. This aggregate result should not be interpreted as an overall provincial result because the survey includes only pediatric patients who visited the Alberta Children's Hospital and the Stollery Children's Hospital, and excludes other sites.

For more information regarding survey methodology, see <u>Appendix I</u> or the 2007 *Emergency Department Patient Experience Survey* technical report.⁹

Measurement and analytical methodology

The HQCA transitioned from collecting data cross-sectionally (at a single point-in-time) to sampling biweekly in 2010. This decision was made in order to better monitor variation, detect meaningful changes^{xiii} in emergency department patient experience over time (i.e., either improving or diminishing patient experience), and ultimately provide emergency department stakeholders with data to inform the improvement of patient experience, quality of care, and patient safety.

This new data collection method necessitated the adoption of different analytical methods to report these data. This report uses both descriptive statistics and statistical process control (SPC) methods to monitor variation and detect changes in emergency department patient experience over time.

The run chart is a widely accepted tool for graphically displaying simple descriptive statistics, such as means (averages), percentages (for categorical or attribute data), and standard deviations, over time. A key component of run chart evaluation involves identifying instances of non-random variation (which represent changes) in patient experience, and then determining whether these changes represent improving or declining patient experience.

xⁱⁱ Previous HQCA reports, including the 2007 *Emergency Department Patient Experience Survey* and site-specific reports distributed to site stakeholders in 2010, suggest that emergency department patient experience tends to be better at the pediatric sites than the adult sites.

xⁱⁱⁱ Used in this context, "meaningful changes" refers to instances of non-random variability in the data over time. These instances of non-random variability are termed "meaningful" because they represent periods of change that can be attributed to an unexpected cause (something that is not inherent to the system and would not normally be expected to influence results).



Using control charts (the most common application of SPC methods) instead of run charts has an added benefit; in addition to observing variation and identifying changes in quality measures over time, control charts use historical data to determine whether the process is functioning within normally expected limits. These limits define the range of expected random variation and are identified by upper and lower control limits. The upper control limit (UCL) is the maximum acceptable variation above the centreline (an overall average) for a process that is in a state of control, and the lower control limit (LCL) is the maximum acceptable variation below the centreline for a process that is in control.¹ For more information on measurement and analytical methodology see <u>Appendix II</u>.

In this report, run charts are used to display the provincial aggregate patient experience results, but not the site-level results. In contrast, control charts are used to track emergency department performance with respect to patient experience at the site level, but not at the provincial aggregate level. See <u>Appendix III</u> for more information about the reasons for this discrepancy.

For all charts, the plotted results represent pooled patient-level results, collected for a specific month. Although run charts and control charts are similar in many ways, an important difference between the two is in the rules they employ for detecting non-random variation or meaningful changes in the data. The HQCA has adopted the following rules to identify changes in run charts:^{2,xiv(3)}

- 1. *A shift:* Six or more consecutive points above or below the median.
- 2. A trend: Five or more consecutive points increasing or decreasing.
- 3. *Too many or too few runs:* A run is a series of consecutive points that fall on one side of the median. This rule is based on a complex probability-based test for detecting non-random patterns of data; essentially it tests to see if data clusters above or below the median too often to conclude the data are behaving randomly. Refer to <u>Appendix IV</u> for more information on this rule and for a table depicting the minimum and maximum number of runs required to decide if run chart data are varying randomly or not.
- 4. *An astronomical data point:* A data point that is obviously or blatantly different than the rest of the data; sometimes referred to as an outlier.

In contrast, the HQCA uses six rules to detect non-random variability, or meaningful change, in control charts (adapted from several established control chart guidelines):^{2,4,5}

- 1. A single point outside of the control limits.
- 2. A run of eight or more consecutive points above or below the centreline.
- 3. Six consecutive points increasing or decreasing.xv(2)

xiv Rules one and three for run charts are violations of random patterns and are based on a probability of less than a five per cent chance (p<.05) of occurring by chance when there is no real change.

^{xv} Because the control charts in this report have variable control limits (due to varying numbers of patients surveyed per month), rule three for control charts should be interpreted with caution. According to strict theory it is not correct to use this rule; however, in practice this rule is quite useful for identifying meaningful change.



- 4. Two out of three consecutive points near, but not outside (outer one-third) the control limits.
- 5. Fifteen consecutive points close to the centreline (inner one-third).
- 6. An unusual or non-random pattern of points.xvi(2,6,7)

It is important to note that change in emergency department patient experience is directional and can be either positive or negative relative to historical norms. However, not every positive change should be deemed an improvement, nor should every negative change be deemed a regression. To differentiate improvements from changes, the HQCA has adopted the following operational definition of improvement:⁸

- 1. Alter how the work is done... Improvement is the result of some design or redesign of the system.
- 2. Produce visible, positive differences in results relative to historical norms (defined by control limits).
- 3. Produce *lasting* or *sustained* impact.
- 4. The impact must be on measures *that matter* to the organization.

See the illustration in <u>Appendix III</u> for a visual depiction of improvement, according to this operational definition. For more information regarding interpretation and evaluation guidelines for run charts and control charts, or to view visual illustrations of example charts and their characteristics, refer to <u>Appendix III</u>.

^{xvi} This rule seems to be somewhat subjective, but is included because special circumstances may warrant the use of other tests for nonrandom variation, such as tests from Nelson (1984) or the Western Electric Handbook (1956).



4.0 CONTEXTUALIZING PATIENT EXPERIENCE

A number of factors impact patient experience, some of which are not under the direct control of the emergency departments. These factors can be either patient-centric, focusing on the context of the patient visit, or more structural, referring to circumstances specific to the emergency department at a given time. Patient-centric factors that may influence emergency department patient experience include how urgent patients perceived their medical condition to be, and why patients presented to the emergency department.

Results from the 2010-2013 pediatric survey revealed that 88 per cent of respondents self-rated their urgency within one category of their emergency department assigned Canadian Triage and Acuity Scale (CTAS) score, ^{xvii} indicating that most patients accurately assessed how urgent their medical situation was. However, there was also evidence that some patients underestimated the urgency of their health problem. More than one in three respondents (34%) in CTAS categories 1 and 2 (the most urgent categories) rated their acuity as only somewhat urgent or not urgent. Furthermore, evidence suggests there may be opportunities to better manage chronic conditions outside of an emergency environment. For example, more than one in 10 respondents (15%) stated that the medical problem that brought them to the emergency department was related to a chronic illness, either for a worsening of their condition (13%) or for routine care of their condition (2%). For more information regarding patient-centric factors that may influence patient experience see Section B.^{xviii}

Other factors that impact patient experience are more structural and include circumstances specific to the emergency department at a given time. Three structural factors that have an impact on emergency department patient experience are patient volumes, length of stay (LOS), and acuity of emergency department patients. The HQCA's previous emergency department survey reports indicate that factors related to waiting for care significantly influence patients' overall rating of emergency department care. As perceived wait times and crowding improved (shorter waits, less crowding), so did the overall rating of care.^{xix}

Understanding the influence of structural factors is important when interpreting emergency department patient experience results. For example, if the results show that patient experience scores have not changed substantially throughout the study period, and an investigation of administrative data^{xx} reveals

^{xvii} Acuity is measured using the Canadian Emergency Department Triage and Acuity Scale (CTAS) developed by the Canadian Association of Emergency Physicians (CAEP). CTAS is a tool used in most emergency departments as an indicator of triage priority and attempts to accurately capture patients' need for timely care. There are five CTAS designations, with 1 being the most urgent and 5 being the least urgent.

xviii Section B looks at descriptive information for the entire sample of respondents. For site-specific descriptive information see Appendix <u>VI</u>.

xix This result was reported in the 2007 *Emergency Department Patient Experience Survey* report and the *Urban and Regional Emergency Department Patient Experience Report 2009*, both of which can be found on the HQCA website [http://hqca.ca/surveys/emergency-department-patient-experience/].

^{xx} Administrative data are data that were collected for "administrative" purposes such as accounting, billing, tracking of diagnoses, etc. Administrative data were not designed to measure the quality of healthcare; however, secondary use of administrative data can often produce useful measures of quality.



that emergency department volumes, average LOS, and acuity (CTAS) have increased over this same period of time, the interpretation should be that the same or similar levels of patient experience were maintained despite these added pressures.

In this report, emergency department volumes, average LOS, and CTAS are presented monthly via run charts, and are displayed by site. Volumes and average LOS are displayed on the same chart, using different scales. Volumes and average LOS for admitted and discharged patients^{xxi} are displayed separately, because the data was expected to be noticeably different between these two groups. Emergency department volumes are also displayed separately for each CTAS level.

Note that emergency department volumes, average LOS, and volumes by CTAS level are reported for the entire population of patients presenting to an emergency department, and not specifically for the sample of patients surveyed.^{xxii} This was done in order to develop an overall sense of how these three factors changed over time, so that the relative magnitude of these pressures on emergency departments over time can be assessed. Also, note that many of these run charts are presented with trend lines instead of the usual median.^{xxiii} This was done in accordance with best practice,² which states that a trend line can be placed on a run chart in place of the median if the chart shows evidence for a change and the data appear to move in a consistent upward or downward direction. Curved trend lines are used when there are multiple signals for change and the data originally appear to consistently move in one direction before switching to a different direction.

^{xxi} In this report, admitted refers to patients admitted to hospital from the emergency department, while discharged refers to patients discharged home directly from the emergency department without being admitted to hospital.

^{xxdi} Note: These are administrative data, routinely collected by Alberta Health Services (AHS). The decision to use AHS' data was made to ensure the HQCA was reporting volumes and LOS that matched AHS' records.

xxiii See <u>Appendix X</u> for original run charts, containing the median depicting the centre of the distribution and highlighted periods of substantial change.



4.1 Emergency department volumes, length of stay (LOS), and acuity



Figure 1: Emergency department volumes and LOS for admitted patients at Alberta Children's Hospital

Figure 2: Emergency department volumes and LOS for discharged patients at Alberta Children's Hospital





- Emergency department (ED) patient volumes increased consistently for admitted patients since June 2010.
- Average LOS increased consistently for admitted patients since June 2010.
- ED patient volumes increased consistently for discharged patients since June 2010.
- Average LOS decreased consistently for discharged patients since June 2010.





Figure 3: Emergency department volumes by CTAS level at Alberta Children's Hospital



- CTAS 1 patient volumes increased consistently since June 2010.
- CTAS 2 patient volumes increased consistently since June 2010.
- CTAS 3 patient volumes increased consistently since June 2010.
- CTAS 4 patient volumes cycle above and below the median (2,245) over the course of the study period, and generally do not consistently increase or decrease over time. There was one unsustained change toward fewer patients being triaged as CTAS 4 from June to November 2010, and four unsustained changes toward more CTAS 4 patients from November 2010 to March 2011, December 2011 to June 2012, January to May 2012, and August to December 2012.
- CTAS 5 patient volumes remained relatively unchanged from June 2010 to December 2012, mostly varying randomly around a median of 128 patients triaged as CTAS 5 per month. There was one unsustained change toward fewer CTAS 5 patients from June 2010 to January 2011, and one unsustained change toward more CTAS 5 patients from March to September 2012.

Large and sudden increases in volumes of CTAS 5 patients were observed from January 2013 until the end of the study period (July 2013). Conversely, CTAS 3 patient volumes decreased suddenly in 2013. These changes were a consequence of a transition to a new emergency department information system which supports standardized computer-assisted assignment of CTAS levels.^{xxiv} The transition period extended well beyond the conclusion of the study period (July 2013); therefore, the full extent to which these changes represent greater accuracy in CTAS coding is unknown.^{xxv}

^{xxiv} This new emergency department information system is called Sunrise Emergency Care (SEC) and represents the emergency component of the Sunrise Clinical Manager Patient Care Information System (SCM) used in the Calgary Zone.

xxv Discussions with Calgary Zone emergency department stakeholders suggested that spikes in CTAS 5 patient volumes resulted from issues with the implementation of the SEC information system and do not reflect more accurate CTAS coding. The extent to which changes in other CTAS volumes reflect greater accuracy in CTAS coding remains unknown.





Figure 4: Emergency department volumes and LOS for admitted patients at Stollery Children's Hospital

Figure 5: Emergency department volumes and LOS for discharged patients at Stollery Children's Hospital





- ED patient volumes increased consistently for admitted patients since June 2010.
- Average LOS decreased consistently for admitted patients since June 2010.
- ED patient volumes increased consistently for discharged patients since June 2010.
- Average LOS decreased consistently for discharged patients since June 2010.





Figure 6: Emergency department volumes by CTAS level at Stollery Children's Hospital



- CTAS 1 patient volumes remained relatively unchanged since June 2010, mostly varying randomly around a median of 12 patients triaged as CTAS 1 (the most urgent acuity designation) per month. There was one unsustained change toward more patients being triaged as CTAS 1 from January to September 2011.
- CTAS 2 patient volumes remained relatively unchanged since June 2010, mostly varying randomly around a median of 500.5 patients triaged as CTAS 2 per month. There were two unsustained changes toward fewer patients being triaged as CTAS 2 from April to September 2011 and February to July 2012, and one unsustained change toward more CTAS 2 patients from September 2012 to March 2013.
- CTAS 3 patient volumes increased consistently since June 2010.
- CTAS 4 patient volumes increased consistently since June 2010.
- CTAS 5 patient volumes increased consistently since June 2010.

Summary

The emergency department patient volume (by discharge status and CTAS level) and LOS data presented above can be useful when considered alongside emergency department patient experience results (see Sections 5.2 to 6.10). The analysis illustrates that emergency departments are diverse in terms of the pressures they are subject to. Despite the overall heterogeneity of results, pressures on emergency departments related to patient volumes have increased for both pediatric sites since June 2010. There is also evidence that the pediatric sites have been successful at controlling or reducing average emergency department LOS despite volume increases overall and within specific CTAS levels. Alberta Children's Hospital was able to reduce average emergency department LOS for both admitted and discharged patients. Whether or not this success is reflected in emergency department patient experience is discussed in the following sections (Sections 5.2 to 6.10).



4.2 Emergency department programs and initiatives

Emergency departments are diverse with respect to the services they provide to the community, their size, patient population served, and the causes and degree of pressures they experience. Differences between sites also extend to the programs and initiatives implemented to try to improve patient care and experience. The HQCA attempted to capture this diversity by consulting with emergency department stakeholders at the site, zone, and provincial levels to construct timelines of the implementation of these various initiatives. One of the barriers to collecting this information was that emergency department stakeholders were often unable to provide specifics about when an initiative was implemented or an event occurred. This was not surprising given the retrospective nature of this report.

The following site-level timelines for pediatric sites reveal that patient experience was often influenced by multiple events and initiatives that may occur simultaneously. This introduces a level of complexity when investigating the causes of changes in patient experience. The site-level timelines below illustrate this point; there were simply too many events and initiatives being implemented and administered concurrently to accurately assess the effect of any one of them on patient experience. For the full provincial emergency department programs and initiatives timeline (including information on the non-pediatric sites), see <u>Appendix V</u>.

Figure 7: Alberta Children's Hospital emergency department programs and initiatives timeline





Figure 8: Stollery Children's Hospital emergency department programs and initiatives timeline







In order for the regular measurement of patient experience (e.g., every two weeks) to provide stakeholders with actionable information that can be used to improve experience, event and initiative implementation needs to be systematic. Measurement projects should be coupled with well-established evaluation methods specifically designed to capture the unique effects of change initiatives. Some examples of potentially useful methods include on/off protocols, pre- and post-intervention measurement, and various other quasi-experimental design methods. Regular measurement of pediatric emergency department patient experience has the potential to provide stakeholders with important actionable information if steps are taken to be more systematic with initiative implementation and evaluation.

The following run charts and control charts were only annotated with event and initiative information when there was evidence of a change in patient experience occurring, and that change coincided with the implementation of an initiative or event. Even when a change in patient experience aligns with the timing of an event or initiative, at most, the change may be the result of the event or initiative; however, it is equally possible that the change was caused by something that was not captured in these timelines.

Conversely, there were instances when an initiative or event was implemented but no change was detected. This may imply that the initiative had no impact on patient experience; however, it is also possible that the initiative's effect on patient experience was masked by other simultaneously occurring factors.



5.0 OVERALL QUESTIONS ABOUT CARE

This section examines pediatric patients' responses to several questions, whereby respondents provide an overall evaluation of their visit to the emergency department. While each of these items provide a different and useful perspective on that overall experience, the most important of these variables is the overall (global) rating of care (question 57), which asks respondents to rate their overall emergency department experience on a six-point scale ranging from *very poor* to *excellent*. This item demonstrated high reliability at the site level,^{xxvi} and is arguably useful as a discrete performance measure.^{xxvii} The properties of this variable also make it suitable for use as an outcome variable in multivariate analyses. The overall (global) rating of care acts as a measuring stick, against which other variables can be compared, relative to how much they influence the overall rating.

Traditional tests of significance (specifically the chi-square and t-test) were applied to the descriptive statistics presented in Section 5.1 and Section B, but were not applied to the data presented over time in run and control charts. Identifying important changes in run and control charts employs alternative probability-based tests specifically suited for examining data over time.

Where traditional tests were used, the HQCA suggests using a significance level of 0.001 to designate whether a relationship is statistically significant. See <u>Appendix I</u> for more information on statistical significance and strength of association.

5.1 Overall questions about care: descriptive statistics

In terms of the overall care respondents reported receiving while in the emergency department, Table 1 shows:

- Almost 8 in 10 respondents (79%) rated their overall care as *excellent* (47%) or *very good* (32%).
- Almost 7 in 10 respondents (68%) reported the main reason for their visit was dealt with completely to their satisfaction.
- Conversely, slightly more than 3 in 10 respondents (31%) reported the main reason for their visit was either not dealt with to their satisfaction (6%), or only to some extent (25%).

xxvi As calculated using the SAS macro: General Reliability and Intra-class Correlation Program (GRIP) see Appendix D of the 2007 Emergency Department Patient Experience Survey technical report for details (<u>http://hqca.ca/surveys/emergency-department-patient-experience-survey/</u>).

^{xxvii} Alberta Health Services (AHS) used this overall rating of emergency department care during the survey study period (June 2010 to July 2013) as one of their key performance measures prior to restructuring their performance measures in January 2014.



• More than 8 in 10 respondents (83%) reported they were always treated with respect and dignity while they were in the emergency department.

 Table 1: Overall care received in the emergency department

E.

Q57: Overall, how would you rate the care you received in the emergency department?					
Q55: Was the main reason you went to the emergency department dealt with to your satisfaction?					
Q56: Overall, did you feel you were treated with respect and dignity while you were in the emergency department?					
	June 2010-July 2013				
Overall rating of care	(n=3,018)				
Excellent	47%				
Very good	32%				
Good	14%				
Fair	5%				
Poor	2%				
Very poor	1%				
Main reason for visit dealt with to satisfaction	(n=3,008)				
Yes, completely	68%				
Yes, to some extent	25%				
No	6%				
Overall, treated with respect and dignity	(n=3,011)				
Yes, all of the time	83%				
Yes, some of the time	15%				
No	2%				
Note: Data are weighted for cluster sample at site level					



Table 2 displays the overall rating of emergency department care, this time reported as a dichotomous (two-category) measure to capture the proportion of patients rating their overall care as *excellent* or *very good*, and stratified by admitted and discharged patients. Results indicate that there was no significant difference in the overall rating of care (dichotomous) between admitted and discharged patients (chi-square = 0.004). This was supported by a Phi statistic of 0.0520, indicating a very weak association between discharge disposition and the overall rating of care (Phi^{xxviii} < 0.15).

Q57: Overall, how would you rate the care you received in the emergency department?				
Overall rating of care	June 2010-July 2013			
Admitted	(n=281)			
Less than Excellent or Very Good [‡]	14%			
Excellent or Very Good	86%			
Discharged	(n=2,728)			
Less than Excellent or Very Good [‡]	21%			
Excellent or Very Good	79%			
p value	Chi-squared = 0.004	Phi = 0.0520		
Note: Data are weighted for cluster sample at site level [‡] Includes the following categories: very poor, poor, fair, and good				

xxviii Phi is preferred over Cramer's V when both variables are dichotomous, that is, they both have two categories. In this case, Cramer's V and Phi give identical strength of association statistics.



5.2 Overall rating of emergency department care: results over time

This section monitors variation and identifies changes in pediatric patients' overall rating of emergency department care (question 57). Results for this dichotomous indicator (reporting the percentage of patients who rated their emergency department care as either excellent or very good) are presented over time at both the provincial aggregate and individual site levels.

Provincial aggregate data are weighted to adjust for cluster sampling at the site level. Conversely, site-level data are unweighted, as sample sizes were determined to achieve a representative sample at the site level.

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with the exception of an unsustained change toward better patient experience that occurred from August 2012 to January 2013. Results during this time period were above the median indicating that the percentage of patients who rated their overall care as excellent or very good was substantially higher than expected had the results been stable. It was also necessary to analyze the results at the site level, as important changes could be missed with only provincial aggregate results (see Figure 9).

As noted in Section 4.0, patient experience is impacted by a number of factors, some of which are not under the direct control of the emergency departments. Therefore, patient experience results should be interpreted in the context of several factors, including emergency department volumes, emergency department length of stay (LOS), and acuity (CTAS) of emergency department patients.

Section 4.1 revealed that volumes consistently increased (for both admitted and discharged patients) in both pediatric emergency departments (including volume increases in three CTAS levels at each site) over the study period (June 2010 to July 2013). Average emergency department LOS varies between the two pediatric sites over the study period. At the Alberta Children's Hospital average LOS consistently increased for admitted patients, but consistently decreased for discharged patients. At the Stollery Children's Hospital, average LOS consistently decreased for both admitted and discharged patients over the study period.

- At Alberta Children's Hospital, an unsustained change toward lower overall ratings of emergency department care occurred from March to April 2013. The percentage of patients who rated their overall care as excellent or very good in March and April were in the outer one-third of the control limits below the centreline, indicating that a substantially lower percentage of patients than expected rated their overall care as excellent or very good, given the otherwise stable results.
- Stollery Children's Hospital exhibited random variation throughout the study period, with no
 evidence of unsustained or sustained changes. Results were stable with respect to the
 percentage of patients who rated their overall care as excellent or very good, essentially
 maintaining the status quo throughout the duration of the study period.



Additionally, by comparing the centrelines (percentage who reported their care was excellent or very good for the study period)^{xxix} of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.

 Over the study period, the Alberta Children's Hospital exhibited slightly higher overall ratings of care than the Stollery Children's Hospital. At the Alberta Children's Hospital, on average, 81 per cent of patients reported they received excellent or very good care. Meanwhile, on average, 77 per cent of patients reported they received excellent or very good care at the Stollery Children's Hospital.

Determining the acceptability of the centreline or level at which each site is performing with respect to the overall rating of emergency department care is complex, given the unique pressures each facility is subject to. As a result, these considerations should be left to emergency department managers, administrators, and other stakeholders at each site who have a more comprehensive understanding of their unique challenges.

^{xxix} In practice, the centreline is calculated for the first two years of stable data and then extended to apply to the final year of data. For more information on the centreline calculation for *P* charts, see <u>Appendix VIII</u>.




Figure 9: Overall rating of emergency department care – Provincial aggregate and site-level results



6.0 PROVINCIAL RUN CHARTS AND SITE-LEVEL CONTROL CHARTS: RESULTS FOR COMPOSITES AND SPECIFIC PATIENT EXPERIENCE QUESTIONS

The following sections reflect specific aspects of patient-perceived quality of care.^{xxx} The following statements apply to all of the remaining patient experience results presented over time:

- Provincial aggregate data are weighted to adjust for cluster sampling at the site level.
 Conversely, site-level data are unweighted, as sample sizes were determined to achieve a representative sample at the site level.
- Analyzing at the site level is important for developing a comprehensive understanding of how
 patient experience has changed over time; many site-level changes in patient experience would
 be missed if only provincial aggregate results were reported.
- Site-specific performance with respect to patient experience and relative to other sites can be
 assessed through the comparison of centrelines on control charts. However, the HQCA
 recognizes that determining the acceptability of the centreline, or level at which each site is
 performing with respect to patient experience, is complex, given the unique pressures each
 facility is subject to.

6.1 Description of composite variables and relative importance

Individual survey questions have been grouped into sets of items that are related and shown to address a common underlying construct or issue. These sets of questions have been demonstrated to be sufficiently related to belong to a common scale or factor, and composite variables for each factor have been calculated from the individual questions that belong to that factor.

The detailed analysis and methodology for identification, validation, and computation of composites are provided in Appendix D of the 2007 *Emergency Department Patient Experience Survey* technical report.⁹ This analysis (and subsequent multivariate analyses) indicates that these variables are valid, reliable, and have significant predictive power with respect to patients' overall rating of care quality and other outcome variables.

The composite variables are essentially the average score of responses to all variables within a common scale or factor. They provide a summary score for the common quality characteristic represented by the scale. For each, the composite score is presented as a standardized score where zero is the lowest possible score and 100 is the highest, and best, possible score.^{xxxi} Given they are shown to be valid,

xxx Selection of the original Healthcare Commission survey questions was based on extensive qualitative evaluation of emergency department patient issues, as well as patient rating of the relative importance of these issues. Closed ended questions are based on this research.

xxxxi The scoring scheme used to generate the zero to 100 score follows the methods developed by the Healthcare Commission for their *British Emergency Department Patient Experience* survey.



composite variables are often better performance measures than the individual question items they represent.

The patient experience results covered in the subsequent sections are presented so that composite factors, and any of the selected individual questions that are related to them (and have individually been shown to be important predictors of patients' overall rating of care), are presented together, in order of relative importance to the overall rating of care, as determined by previous HQCA measurement activities.^{xxxii}

Table 3: Order of importance for composite effects on overall (global) rating of emergency department care (Q57)

Composite
1. Staff care and communication composite
2. Wait time and crowding composite
3. Pain management composite
4. Respect composite
5. Facility cleanliness composite
6. Wait time communication composite
7. Privacy composite
8. Medication communication composite
9. Discharge communication composite
Note: The order of importance reflects a synthesis of the different multivariate analyses that have been conducted since 2007. Wait time and pain management have significant indirect effects, which are reflected in a path analysis but are not captured in conventional regression analyses.

Previous HQCA measurement activities determined that the staff care and communication composite is by far the most important patient experience factor affecting the overall rating of care (question 57). The results for question 30 are reported with the staff care and communication composite results. It asks, "If you needed attention, were you able to get a member of staff to help you?" Although not included in the composite calculation,^{xxxiii} getting staff to help (question 30) is shown to be associated with the staff care and communication composite and its constituent items.⁹ More importantly, this individual question has been shown to have a significant influence on patients' overall rating of care. This influence has been captured in both traditional regression analyses (performed in the HQCA's 2007 and 2009 emergency

^{xxxxii} Order of relative importance to overall rating of care was determined from the following HQCA measurement activities: the 2007 *Emergency Department Patient Experience Survey* report and the *Urban and Regional Emergency Department Patient Experience Report 2009*, which can be found on the HQCA's website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).

xxxxiii Being able to get staff to help (question 30) was not included in the computation of the composite because dropping it improved internal consistency reliability.



department survey reports) and a path analysis (included in the HQCA's 2009 emergency department survey report).

The previously conducted path analysis also revealed that both wait time and pain management have significant secondary interaction effects (with other variables) on the overall rating of care. In light of this, their total importance to the overall rating is elevated over what can be measured using conventional regression analysis alone. Results for question 13, which asks, "From the time you first arrived at the emergency department, how long did you wait before being examined by a doctor?" are reported with the wait time and crowding composite results. Time to being seen by a doctor (question 13) is used in the calculation of the wait time and crowding composite, but has also been shown to have a significant influence on the overall rating of care on its own.¹⁰ Similarly, results for question 42, which asks, "Do you think emergency department staff did everything they could to help control your pain?" are reported with pain management composite, but has also been shown to significantly influence the overall rating of care on its own.¹⁰

The respect composite also significantly influences patients' overall rating of care. Results for question 19, which asks, "Did the doctors and nurses treating and assessing you introduce themselves?" are reported with the composite results. Although not included in the calculation,^{xxxiv} whether doctors and nurses introduced themselves (question 19) is shown to be associated with the respect composite and its constituent items.⁹ More importantly, question 19 has been shown to have a significant influence on patients' overall rating of care.¹⁰

Though less influential on the overall rating of care, the wait time communication composite is worth mentioning because its results are supplemented by another individual survey question, question 17, which asks, "Did a member of staff check on you while you were waiting?" As with the questions that supplemented the wait time and crowding and pain management composite results, question 17 is used in the calculation of the wait time communication composite. However, results from this individual question have been shown to significantly influence the overall rating of care on its own.¹⁰

While the relationship between some variables or composites and the overall rating of care (question 57) may be weaker, one should not conclude that such variables are unimportant. For example, communication about medications does not appear to have a significant impact on the overall rating of care; however, it is important for other reasons.

xxxxiv Not included in the computation of the composite because dropping it improved internal consistency reliability.



6.2 Staff care and communication composite

This section monitors variation and identifies changes in the staff care and communication composite over time at both the provincial aggregate and individual site levels.

Table 4: Staff care and communication composite questions

Core questions included in the calculation
Q22: While you were in the Emergency Department, did a doctor or nurse explain your condition and treatment in a way you could understand?
Q27: While you were in the Emergency Department, how much information about your condition or treatment was given to you?
Q23: If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?
Q21: Did the doctors and nurses listen to what you had to say?
Q25: In your opinion, did the doctors and nurses in the Emergency Department know enough about your condition or treatment?
Q24: Did you have confidence and trust in the doctors and nurses examining and treating you?
Q32: Were you involved as much as you wanted to be in decisions about your care and treatment?
Q20: Did you have enough time to discuss your health or medical problem with the doctor or nurse?
Notes:
Core questions included in the calculation of the composite are listed in order of influence on the composite score
Composites are scored on a scale from 0 to 100, where 100 is the best possible score
Provincial aggregate data are weighted to adjust for cluster sampling at the site level

Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level

2007 Site-level reliability (GRIP macro): 0.93; 2007 Standardized Scale Alpha (Cronbach's): 0.90

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with the exception of an unsustained change toward lower average ratings of staff care and communication that occurred from April to August 2012. Average staff care and communication ratings consistently decreased during this time period, which would not be expected if the results had been stable.

Alberta Children's Hospital exhibited random variation throughout the study period, with no
evidence of unsustained or sustained changes. Results were stable with respect to average
ratings of staff care and communication, essentially maintaining the status quo throughout the
duration of the study period.

xxxv Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website: (<u>http://hqca.ca/surveys/emergency-department-patient-experience/emergency-department-patient-experience-survey/</u>).



 At Stollery Children's Hospital, an unsustained change toward higher average ratings of staff care and communication occurred from April to May 2013. Results in April and May were in the outer one-third of the control limits above the centreline, indicating that average staff care and communication ratings were substantially higher than expected given the otherwise stable results.

Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.^{xxxvi}

 Over the study period, the Alberta Children's Hospital exhibited slightly higher overall average ratings of staff care and communication than the Stollery Children's Hospital. The Alberta Children's Hospital, on average, scored 87/100, while the Stollery Children's Hospital, on average, scored 85/100 on staff care and communication.

xxxvi The centreline represents a weighted overall average rating of staff care and communication. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 10: Staff care and communication composite - Provincial aggregate and site-level results



6.2.1 If you needed attention, were you able to get a member of staff to help you?

This section monitors variation and identifies changes in patients' ability to get staff to help (question 30), when needed. Results are presented over time at both the provincial aggregate and individual site levels. Question 30 asks respondents:

Q30: If you needed attention, were you able to get a member of staff to help you?

These charts present the percentage of patients who, if needing attention, were **<u>not</u>** always able to get a member of staff to help, and excludes those who reported not needing attention during their emergency department visit. As previously mentioned, the ability to get staff to help (question 30) is not included in the calculation of the staff care and communication composite;^{xxxvii} however, it is shown to be associated with the composite and its constituent items.⁹ More importantly, it has been shown to have a significant influence on patients' overall ratings of care.

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with no evidence of unsustained or sustained changes. Results were stable with respect to the percentage of patients who reported they were not always able to get a member of staff to help when they needed attention, essentially maintaining the status quo throughout the duration of the study period.

Both the Alberta Children's Hospital and the Stollery Children's Hospital exhibited random
variation throughout the study period, with no evidence of unsustained or sustained changes. At
both sites, results were stable with respect to the percentage of patients who reported they
were not always able to get a member of staff to help when they needed attention, essentially
maintaining the status quo throughout the duration of the study period.

Additionally, by comparing the centrelines (percentage who reported they were not always able to get a member of staff to help for the whole study period)^{xxxviii} of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.

Over the study period, the Alberta Children's Hospital exhibited slightly lower percentages of
patients who reported they were not always able to get a member of staff to help than the
Stollery Children's Hospital. At the Alberta Children's Hospital, on average, 34 per cent of
patients reported they were not always able to get a member of staff to help. Meanwhile, on
average, 39 per cent of patients reported they were not always able to get a member of staff to
help at the Stollery Children's Hospital.

xxxvii Being able to get staff to help (question 30) was not included in the computation of the composite because dropping it improved internal consistency reliability.

xxxviii In practice, the centreline is calculated for the first two years of stable data and then extended to apply to the final year of data. For more information on the centreline calculation for *P* charts, see <u>Appendix VIII</u>.





Figure 11: If needed attention, were not always able to get a member of staff to help – Provincial aggregate and site-level results



6.3 Wait time and crowding composite

This section monitors variation and identifies changes in the wait time and crowding composite over time at both the provincial aggregate and individual site levels.

Table 5: Wait time and crowding composite questions

Core questions included in the calculation
Q7: How crowded was the emergency department waiting room when you first arrived there?
Q18: Overall, how long did your visit to the emergency department last?
Q13: From the time you first arrived at the emergency department, how long did you wait before being examined by a doctor?
Q10: How long did you wait before you first spoke to the triage nurse, that is, the person who first asked you about your health problem?
Q8: Were you able to find a comfortable place to sit in the waiting area?
Notes:
Core questions included in the calculation of the composite are listed in order of influence on the composite score
Composites are scored on a scale from 0 to 100, where 100 is the best possible score
Provincial aggregate data are weighted to adjust for cluster sampling at the site level
Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level
2007 Site-level reliability (GRIP macro): 0.99; 2007 Standardized Scale Alpha (Cronbach's): 0.73

Results highlights

The provincial aggregate run chart cycled above and below the median, and three instances of unsustained change occurred over the study period. From September 2010 to June 2011 an unsustained change toward lower average ratings of wait time and crowding occurred; results during this time period were below the median, indicating that average wait time and crowding results were substantially lower than expected had the results been stable. Conversely, an unsustained change toward higher average ratings of wait time and crowding occurred from April to November 2012; results during this time period were above the median, indicating that average wait time and crowding ratings were substantially higher than expected had the results been stable. Another unsustained change toward higher average ratings of wait time and crowding occurred from February to July 2013; average ratings consistently increased during this time period, which would not be expected if the results had been stable. Finally, the application of the runs rule revealed that there were too few runs on the run chart to conclude that the data were varying randomly (see <u>Appendix III</u> and <u>Appendix IV</u> for more information regarding tests for change on a run chart and the runs rule).

^{xxxix} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/emergency-department-patient-experiencesurvey/</u>).



- At Alberta Children's Hospital, five instances of unsustained change occurred. From November 2010 to June 2011 an unsustained change toward lower average ratings of wait time and crowding occurred; results during this time period were below the centreline, indicating that average wait time and crowding ratings were substantially lower than expected had the results been stable. Similarly, unsustained changes toward lower average ratings of wait time and crowding occurred from October 2012 to May 2013 and in February 2013. From October 2012 to May 2013 results were below the centreline. In February 2013 the average wait time and crowding rating was below the lower control limit. Both of these changes indicate that average wait time and crowding occurred from February to August 2011 and in June 2012. From February to August 2011 results were consistently increasing, which would not be expected if the results had been stable. In June 2012 the average rating was substantially higher than expected had the results been stable.
- At Stollery Children's Hospital, a sustained change to higher average ratings of wait time and crowding occurred from March 2012 through the end of the study period. Multiple and successive periods of positive change were identified (see <u>Appendix XII</u>), prompting a shift of the control limits to indicate that a sustained improvement had occurred relative to historical norms. The observed improvement of wait time and crowding ratings coincides with the opening of the Stollery Children's Hospital's emergency department (separated from the University of Alberta Hospital's emergency department).

Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.^{xl}

 After an observed improvement, the Stollery Children's Hospital exhibited slightly higher overall average ratings of wait time and crowding than the Alberta Children's Hospital. The Stollery Children's Hospital, on average, scored 76/100, while the Alberta Children's Hospital, on average, scored 71/100 on wait time and crowding.

^{xl} The centreline represents a weighted overall average rating of wait time and crowding. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 12: Wait time and crowding composite – Provincial aggregate and site-level results



6.3.1 How long did you wait before being examined by a doctor?

This section monitors variation and identifies changes in patients' perceived wait time to be examined by a doctor (question 13). Results are presented over time at both the provincial aggregate and individual site levels. Question 13 asks respondents:

Q13: From the time you first arrived at the emergency department, how long did you wait before being examined by a doctor?

These charts present the percentage of patients who self-reported waiting more than two hours to be examined by a doctor. As previously mentioned, perceived wait time to be examined by a doctor (question 13) is used in the calculation of the wait time and crowding composite; however, it has also been shown to have a significant influence on the overall rating of care on its own.

Results highlights

The provincial aggregate run chart cycled above and below the median, and three instances of unsustained change occurred over the study period. From September 2010 to May 2011 and November 2011 to March 2012 unsustained changes toward worse patient experience occurred. From September 2010 to May 2011 results were above the median, indicating that the percentage of patients who reported they waited more than two hours to be examined by a doctor was substantially higher than expected had the results been stable. From November 2011 to March 2012 results consistently increased, which would not be expected if the results had been stable. Conversely, an unsustained change toward better patient experience occurred from April to September 2012. During this time period results were below the median, indicating that the percentage of patients who reported they waited more than two hours to be examined by a doctor was substantially lower than expected had the results been stable. Finally, the application of the runs rule revealed that there were too few runs on the run chart to conclude that the data were varying randomly (see <u>Appendix III</u> and <u>Appendix IV</u> for more information regarding tests for change on a run chart and the runs rule).

- Alberta Children's Hospital exhibited random variation throughout the study period, with no
 evidence of unsustained or sustained changes. Results were stable with respect to the
 percentage of patients who reported they waited more than two hours to be examined by a
 doctor, essentially maintaining the status quo throughout the duration of the study period.
- At Stollery Children's Hospital, a sustained change to better patient experience occurred from March 2012 through the end of the study period. Multiple and successive periods of positive change (lower percentage of patients who reported they waited more than two hours to be examined by a doctor) were identified (see <u>Appendix XII</u>), prompting a shift of the control limits to indicate that a sustained improvement had occurred, relative to historical norms. The observed improvement in the percentage of patients who reported they waited more than two hours to be examined by a doctor coincides with the opening of the Stollery Children's Hospital's



emergency department (separated from the University of Alberta Hospital's emergency department).

Additionally, by comparing the centrelines (percentage who reported waiting more than two hours to be examined by a doctor for the whole study period)^{xli} of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.

 After an observed improvement (as well as prior to the improvement), the Stollery Children's Hospital exhibited lower percentages of patients who reported they waited more than two hours to be examined by a doctor than the Alberta Children's Hospital. At the Stollery Children's Hospital, on average, 18 per cent of patients reported they waited more than two hours to be examined by a doctor (after the improvement). Meanwhile, on average, 36 per cent of patients reported they waited more than two hours to be examined by a doctor at the Alberta Children's Hospital.

xⁱⁱ In practice, the centreline is calculated for the first two years of stable data and then extended to apply to the final year of data. For more information on the centreline calculation for *P* charts, see <u>Appendix VIII</u>.





Figure 13: Waited more than two hours to be examined by a doctor (self-reported) – Provincial aggregate and site-level results



6.4 Pain management composite

This section monitors variation and identifies changes in the pain management composite over time at both the provincial aggregate and individual site levels.

Table 6: Pain management composite questions

Core questions included in the calculation Q41: How many minutes after you requested pain medicine did it take before you got it?
Q42: Do you think the emergency department staff did everything they could to help control your pain?
Notes:
Core questions included in the calculation of the composite are listed in order of influence on the composite score xili
Composites are scored on a scale from 0 to 100, where 100 is the best possible score
Provincial aggregate data are weighted to adjust for cluster sampling at the site level
Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level
2007 Site-level reliability (GRIP macro): 0.99; 2007 Standardized Scale Alpha (Cronbach's): 0.78

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with the exception of an unsustained change toward higher average ratings of pain management that occurred from June 2012 to January 2013. Average pain management ratings were above the median during this time period, indicating that average pain management ratings were substantially higher than expected had the results been stable.

- At Alberta Children's Hospital, an unsustained change occurred from March to May 2011. Average pain management ratings in March and May were in the outer one-third of the control limits (March above the centreline, May below the centreline). This was interpreted as a negative change in that the variability between months was not being controlled effectively, relative to the otherwise stable results.
- Stollery Children's Hospital exhibited random variation throughout the study period, with no
 evidence of unsustained or sustained changes. Results were stable with respect to average
 ratings of pain management, essentially maintaining the status quo throughout the duration of
 the study period.

x^{thi} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).



Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.xliii

 Over the study period, the Alberta Children's Hospital exhibited slightly higher overall average ratings of pain management than the Stollery Children's Hospital. The Alberta Children's Hospital, on average, scored 70/100, while the Stollery Children's Hospital, on average, scored 66/100 on pain management.

x^{liii} The centreline represents a weighted overall average rating of pain management. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.









6.4.1 Did staff do everything they could to help control your pain?

This section monitors variation and identifies changes in patients' perception of whether emergency department staff did all they could to help control their pain (question 42). Results are presented over time at both the provincial aggregate and individual site levels. Question 42 asks respondents:

Q42: Do you think the emergency department staff did everything they could to help control your pain?

These charts present the percentage of patients who believed that emergency department staff **did not** do everything they could to help control their pain, and excludes respondents who reported not being in pain during their visit. As previously mentioned, perceptions of whether staff did all they could to help control the patient's pain (question 42) is used in the calculation of the pain management composite; however, it has also been shown to have a significant influence on the overall rating of care on its own.

Results highlights

The provincial aggregate run chart indicates that three instances of unsustained change occurred over the study period. From April to October 2011 results were above the median, indicating that the percentage of patients who believed staff did not do everything they could to help control their pain was substantially higher than expected had the results been stable. Conversely, unsustained changes toward better patient experience occurred from July to December 2011 and from August 2012 to January 2013. The percentage of patients who believed staff did not do everything they could to help control their pain consistently decreased from July to December 2011. Also, from August 2012 to January 2013 results were below the median, indicating that the percentage of patients who believed staff did not do everything they could to help control their pain was substantially lower than expected had the results been stable.

- At Alberta Children's Hospital, an unsustained change occurred from March to May 2011. The
 percentages of patients who believed staff did not do everything they could to help control their
 pain in March and May were in the outer one-third of the control limits (March below the
 centreline, May above the centreline). This was interpreted as a negative change in that the
 variability between months was not being controlled effectively, relative to the otherwise stable
 results.
- At Stollery Children's Hospital, an unsustained change toward better patient experience occurred from June 2012 to May 2013. During this time period results were below the centreline, indicating that the percentage of patients who believed staff did not do everything they could to help control their pain was substantially lower than expected, given the otherwise stable results.



Additionally, by comparing the centrelines (percentage who believed staff did not do all they could to help control their pain for the whole study period)^{xliv} of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.

Over the study period, the Alberta Children's Hospital exhibited slightly lower percentages of
patients who believed staff did not do everything they could to help control their pain compared
to the Stollery Children's Hospital. At the Alberta Children's Hospital, on average, 43 per cent of
patients believed staff did not do everything they could to help control their pain. Meanwhile, on
average, 46 per cent of patients believed staff did not do everything they could to help control
their pain at the Stollery Children's Hospital.

x^{liv} In practice, the centreline is calculated for the first two years of stable data and then extended to apply to the final year of data. For more information on the centreline calculation for *P* charts, see <u>Appendix VIII</u>.





Figure 15: Did not believe that staff did everything they could to help control their pain - Provincial aggregate and site-level results



6.5 Respect composite

This section monitors variation and identifies changes in the respect composite over time at both the provincial aggregate and individual site levels.

Table 7: Respect composite questions

Core questions included in the calculation
Q26: Did doctors or nurses talk in front of you as if you weren't there?
Q31: Sometimes in a hospital, a member of staff will say one thing and another will say something quite different. Did this happen to you in the emergency department?
Q35: Was your family member or friend allowed to join you in the treatment area when you wanted?
Q16: Overall, did you think the order in which patients were seen was fair?
Q11: How would you rate the courtesy of the emergency department triage nurse, that is, the person who first asked you about your health problem?
Notes:
Core questions included in the calculation of the composite are listed in order of influence on the composite score
Composites are scored on a scale from 0 to 100, where 100 is the best possible score
Provincial aggregate data are weighted to adjust for cluster sampling at the site level
Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level
2007 Site-level reliability (GRIP macro): 0.92; 2007 Standardized Scale Alpha (Cronbach's): 0.59

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with no evidence of unsustained or sustained changes. Results were stable regarding average ratings of respect, essentially maintaining the status quo throughout the duration of the study period.

- Alberta Children's Hospital exhibited random variation throughout the study period, with no
 evidence of unsustained or sustained changes. Results were stable regarding average ratings of
 respect, essentially maintaining the status quo throughout the duration of the study period.
- At Stollery Children's Hospital, two instances of unsustained change occurred. From February to April 2011 a change toward lower average ratings of respect occurred; results in February and April were in the outer one-third of the control limits below the centreline, indicating that average respect ratings were substantially lower than expected had the results been stable. Conversely, from February to November 2012 a change toward higher average ratings of respect occurred; results were above the centreline during this time period, indicating that average respect ratings were substantially higher than expected had the results been stable.

x^{lv} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).



Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.xlvi

 Over the course of the study period, the two pediatric sites exhibited remarkably similar overall average ratings of respect. The Alberta Children's Hospital, on average, scored 90/100, while the Stollery Children's Hospital, on average, scored 89/100 on respect.

x^{lvi} The centreline represents a weighted overall average rating of respect. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 16: Respect composite – Provincial aggregate and site-level results



6.5.1 Did doctors and nurses introduce themselves?

This section monitors variation and identifies changes in patient reports of whether doctors and nurses introduced themselves (question 19). Results are presented over time at both the provincial aggregate and individual site levels. Question 19 asks respondents:

Q19: Did the doctors and nurses treating and assessing you introduce themselves?

These charts present the percentage of patients who reported that **<u>none</u>**, **or only some**</u>, of the doctors and nurses treating and assessing them introduced themselves. As previously mentioned, whether or not doctors and nurses introduced themselves to patients (question 19) is not included in the calculation of the respect composite;^{xlvii} however, it is shown to be associated with the composite and its constituent items.⁹ More importantly, it has been shown to have a significant influence on patients' overall rating of care.

Results highlights

The provincial aggregate run chart indicates that three instances of unsustained change occurred over the study period. Unsustained changes toward worse patient experience occurred from July 2010 to February 2011 and from November 2011 to March 2012. From July 2010 to February 2011 results were above the median, indicating that the percentage of patients who reported that none, or only some, of the doctors and nurses treating and assessing them introduced themselves was substantially higher than expected had the results been stable. From November 2011 to March 2012 the percentage of patients who reported that none, or only some, of the doctors and nurses treating and assessing them introduced themselves consistently increased, which would not be expected if results had been stable. Conversely, an unsustained change toward better patient experience occurred from September 2012 to May 2013. During this time period results were below the median, indicating that the percentage of patients who reported that none, or only some, of the doctors and nurses treating and assessing them introduced themselves was substantially lower than expected had the results been stable.

- At Alberta Children's Hospital, an unsustained change toward better patient experience occurred from July 2012 to March 2013; during this time period results were below the centreline, indicating that the percentage of patients who reported that none, or only some, of the doctors and nurses treating and assessing them introduced themselves was substantially lower than expected, given the otherwise stable historical results.
- At Stollery Children's Hospital, four instances of unsustained change occurred over the study period. Three unsustained changes toward worse patient experience occurred from September to October 2010, December 2010 to July 2011, and October 2011 to March 2012. Results in September and October 2010 were in the outer one-third of the control limits above the centreline, and results from December 2010 to July 2011 were above the centreline. Both of these patterns indicate that the percentage of patients who reported that none, or only some, of

xtvii Doctors and nurses introducing themselves (question 19) was not included in the computation of the composite because dropping it improved internal consistency reliability.



the doctors and nurses treating and assessing them introduced themselves was substantially higher than expected had the results been stable. Also, from October 2011 to March 2012 the percentage of patients who reported that none, or only some, of the doctors and nurses treating and assessing them introduced themselves consistently increased. Conversely, an unsustained change toward better patient experience occurred in September 2012; the result for this month was below the lower control limit, indicating that the percentage of patients who reported that none, or only some, of the doctors and nurses treating and assessing them introduced themselves was substantially lower than expected, given the historical results.

Additionally, by comparing the centrelines (percentage reporting that none, or only some, of the doctors and nurses treating and assessing them introduced themselves for the whole study period)^{xlviii} of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.

Over the study period, the Stollery Children's Hospital exhibited slightly lower percentages of
patients who reported that none, or only some, of the doctors and nurses introduced themselves
compared to the Alberta Children's Hospital. At the Stollery Children's Hospital, on average, 20
per cent of patients reported that none, or only some, of the doctors and nurses introduced
themselves. Meanwhile, on average, 24 per cent of patients reported that none, or only some, of
the doctors and nurses introduced themselves at the Alberta Children's Hospital.

xiviii In practice, the centreline is calculated for the first two years of stable data and then extended to apply to the final year of data. For more information on the centreline calculation for *P* charts, see <u>Appendix VIII</u>.





Figure 17: None or only some of the doctors and nurses introduced themselves – Provincial aggregate and site-level results



6.6 Facility cleanliness composite

This section monitors variation and identifies changes in the facility cleanliness composite over time at both the provincial aggregate and individual site levels.

Table 8: Facility cleanl	iness composite	questions
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Core questions included in the calculation		
Q44: How clean were the toilets in the emergency department?		
Q43: In your opinion, how clean was the emergency department?		
Notes:		
Core questions included in the calculation of the composite are listed in order of influence on the composite score		
Composites are scored on a scale from 0 to 100, where 100 is the best possible score		
Provincial aggregate data are weighted to adjust for cluster sampling at the site level		
Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level		
2007 Site-level reliability (GRIP macro): 0.98; 2007 Standardized Scale Alpha (Cronbach's): 0.79		

Results highlights

The provincial aggregate run chart indicates that three instances of unsustained change occurred over the study period. From August 2010 to February 2011 a change toward lower average ratings of facility cleanliness occurred; results consistently decreased during this time period, which would not be expected if results had been stable. Similarly, from September 2010 to May 2011 results were below the median, indicating that average facility cleanliness ratings were substantially lower than expected had the results been stable. Conversely, from June 2012 to January 2013 a change toward higher average ratings of facility cleanliness occurred; results were above the median during this time period, indicating that average facility cleanliness were substantially higher than expected had the results been stable.

At Alberta Children's Hospital, two instances of unsustained change occurred. From October 2010 to March 2011 a change toward lower average ratings of facility cleanliness occurred; average facility cleanliness ratings consistently decreased during this time period, which would not be expected had results been stable. Similarly, a change toward lower average ratings of facility cleanliness occurred in February 2013; during this month, the result was below the lower control limit, indicating that the average facility cleanliness rating was substantially lower than expected, given the historical results.

x^{lix} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).



At Stollery Children's Hospital, a sustained change to higher average ratings of facility cleanliness occurred from February 2012 through the end of the study period. Multiple and successive periods of positive change were identified (see <u>Appendix XII</u>), prompting a shift of the control limits to indicate that a sustained improvement had occurred relative to historical norms. The observed improvement of facility cleanliness ratings coincides with the opening of the Stollery Children's Hospital's emergency department (separated from the University of Alberta Hospital's emergency department).

Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.¹

 After an observed improvement at the Stollery Children's Hospital, the two pediatric sites exhibited remarkably similar overall average ratings of facility cleanliness, each scoring 86/100.

¹ The centreline represents a weighted overall average rating of facility cleanliness. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 18: Facility cleanliness composite – Provincial aggregate and site-level results



6.7 Wait time communication composite

This section monitors variation and identifies changes in the wait time communication composite over time at both the provincial aggregate and individual site levels.

Table 9: Wait time communication composite questions

Core questions included in the calculation
Q15: Were you told why you had to wait to be examined?
Q14: Were you told how long you would have to wait to be examined?
Q17: Did a member of staff check on you while you were waiting?
Notes:
Core questions included in the calculation of the composite are listed in order of influence on the composite score
Composites are scored on a scale from 0 to 100, where 100 is the best possible score
Provincial aggregate data are weighted to adjust for cluster sampling at the site level
Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level
2007 Site-level reliability (GRIP macro): 0.95; 2007 Standardized Scale Alpha (Cronbach's): 0.78

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with no evidence of unsustained or sustained changes. Results were stable with respect to average ratings of wait time communication, essentially maintaining the status quo throughout the duration of the study period.

- At Alberta Children's Hospital, an unsustained change toward lower average ratings of wait time communication occurred from July to August 2011; results in July and August were in the outer one-third of the control limits below the centreline, indicating that average wait time communication ratings were substantially lower than expected, given the historically stable results.
- At Stollery Children's Hospital, three instances of unsustained change occurred over the study period. An unsustained change toward lower average ratings of wait time communication occurred in February 2012; during this month the result was below the lower control limit, indicating that the average wait time communication rating was substantially lower than expected had the results been stable. Conversely, instances of unsustained change toward higher average ratings of wait time communication occurred from July to September 2012 and from June to July 2013. Results for July, August, and September 2012 as well as June and July

^{II} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).



2013 were in the outer one-third of the control limits above the centreline, indicating that average wait time communication ratings were substantially higher than expected had the results been stable during these time periods.

Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.^{lii}

 Over the study period, the Alberta Children's Hospital exhibited slightly higher overall average ratings of wait time communication than the Stollery Children's Hospital. The Alberta Children's Hospital, on average, scored 42/100, while the Stollery Children's Hospital, on average, scored 40/100 on wait time communication.

^{III} The centreline represents a weighted overall average rating of wait time communication. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 19: Wait time communication composite – Provincial aggregate and site-level results



6.7.1 Did a member of staff check on you while you were waiting?

This section monitors variation and identifies changes in patient reports of whether emergency department staff checked on them while they waited (question 17). Results are presented over time at both the provincial aggregate and individual site levels. Question 17 asks respondents:

Q17: Did a member of staff check on you while you were waiting?

These charts present the percentage of patients who reported they were **not checked on, or were not checked on frequently enough**, by staff while they waited (excludes those who did not mind not being checked on). As previously mentioned, staff checking on patients while they waited (question 17) is used in the calculation of the wait time communication composite; however, it has also been shown to have a significant influence on the overall rating of care on its own.

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with the exception of an unsustained change toward better patient experience that occurred from May to September 2012. The percentage of patients who reported they were not checked on, or were not checked on frequently enough, by staff while they waited consistently decreased during this time period, which would not be expected if the results had been stable.

- At Alberta Children's Hospital, an unsustained change occurred from September to November 2012. Results in September and November were in the outer one-third of the control limits (September below the centreline, November above the centreline). This was interpreted as a negative change in that the variability between months was not being controlled effectively, given the otherwise stable results.
- Stollery Children's Hospital exhibited random variation throughout the study period, with no
 evidence of unsustained or sustained changes. Results were stable with respect to the
 percentage of patients who reported they were not checked on, or were not checked on
 frequently enough, by staff while they waited, essentially maintaining the status quo throughout
 the duration of the study period.

Additionally, by comparing the centrelines (percentage who reported they were not checked on, or were not checked on frequently enough, while they waited for the whole study period)^{liii} of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.

Over the course of the study period, the two pediatric sites exhibited remarkably similar percentages of patients who reported they were not checked on, or were not checked on frequently enough, while they waited. At the Alberta Children's Hospital, on average, 49 per cent of patients reported they were not checked on, or were not checked on frequently enough, by staff while they waited. Meanwhile, on average, 48 per cent of patients reported they were not

^{IIII} In practice, the centreline is calculated for the first two years of stable data and then extended to apply to the final year of data. For more information on the centreline calculation for *P* charts, see <u>Appendix VIII</u>.



checked on, or were not checked on frequently enough, by staff while they waited at the Stollery Children's Hospital.



Figure 20: Patients not checked on, or not checked on frequently enough, by staff while they waited – Provincial aggregate and site-level results




6.8 Privacy composite

This section monitors variation and identifies changes in the privacy composite over time at both the provincial aggregate and individual site levels.

Table 10: Privacy composite questions

Core questions included in the calculation
Q29: Were you given enough privacy when being examined or treated?
Q28: Were you given enough privacy when discussing your condition or treatment?
Notes:
Core questions included in the calculation of the composite are listed in order of influence on the composite score
Composites are scored on a scale from 0 to 100, where 100 is the best possible score
Provincial aggregate data are weighted to adjust for cluster sampling at the site level
Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level
2007 Site-level reliability (GRIP macro): 0.93; 2007 Standardized Scale Alpha (Cronbach's): 0.78

Results highlights

The provincial aggregate run chart exhibited random variation throughout the study period, with the exception of an unsustained change toward lower average ratings of privacy that occurred from January to May 2011. Average privacy ratings consistently decreased during this time period, which would not be expected if the results had been stable.

- At Alberta Children's Hospital, three unsustained changes toward lower average ratings of privacy occurred over the study period. From January to August 2012 results were below the centreline, indicating that average privacy ratings were substantially lower than expected had the results been stable. Similarly, an unsustained change toward lower average privacy ratings occurred in August 2012; during this month, the result was below the lower control limit, indicating that the average privacy rating was substantially lower than expected had the results been stable. A third unsustained change toward lower average privacy ratings occurred from December 2012 to February 2013; results in December and February were in the outer one-third of the control limits below the centreline, indicating that average privacy ratings were substantially lower than expected had results been stable.
- Stollery Children's Hospital exhibited random variation throughout the study period, with no evidence of unsustained or sustained changes. Results were stable with respect to average

^{liv} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).



ratings of privacy, essentially maintaining the status quo throughout the duration of the study period.

Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.¹V

• Over the course of the study period, the two pediatric sites exhibited remarkably similar overall average ratings of privacy, each scoring 94/100.

^{Iv} The centreline represents a weighted overall average rating of privacy. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 21: Privacy composite - Provincial aggregate and site-level results



6.9 Medication communication composite

This section monitors variation and identifies changes in the medication communication composite over time at both the provincial aggregate and individual site levels.

Table 11: Medication communication composite questions

Core questions included in the calculation
Q49: Did a member of staff explain to you how to take the new medications?
Q50: Did a member of staff tell you about medication side effects to watch for?
Q48: Did a member of staff explain the purpose of the medications you were to take at home in a way you could understand?
Notes:
Core questions included in the calculation of the composite are listed in order of influence on the composite score ^{1/vi}
Composites are scored on a scale from 0 to 100, where 100 is the best possible score
Provincial aggregate data are weighted to adjust for cluster sampling at the site level
Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level
2007 Site-level reliability (GRIP macro): 0.81: 2007 Standardized Scale Alpha (Cronbach's): 0.75

Results highlights

The provincial aggregate run chart indicates that three instances of unsustained change occurred over the study period. An unsustained change toward higher average medication communication ratings occurred from March to November 2011; results were above the median during this time period, indicating that average medication communication ratings were substantially higher than expected had the results been stable. Similarly, an unsustained change toward higher average medication communication ratings occurred from July to November 2011; average medication communication ratings consistently increased during this time period, which would not be expected had the results been stable. Conversely, an unsustained change toward lower average medication communication ratings occurred from December 2011 to May 2012; results were below the median during this time period, indicating that average medication communication ratings were substantially lower than expected had the results been stable.

 At Alberta Children's Hospital, two instances of unsustained change occurred over the study period. An unsustained change toward higher average medication communication ratings occurred from February to November 2011; results were above the centreline during this time period, indicating that average medication communication ratings were substantially higher than expected had the results been stable. Conversely, an unsustained change toward lower

^{lvi} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).



average medication communication ratings occurred in April 2013; during this month the result was below the lower control limit, indicating that the average medication communication rating was substantially lower than expected had the results been stable.

Stollery Children's Hospital exhibited random variation throughout the study period, with no
evidence of unsustained or sustained changes. Results were stable with respect to average
ratings of medication communication, essentially maintaining the status quo throughout the
duration of the study period.

Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.^{1vii}

 Over the study period, the Alberta Children's Hospital exhibited slightly higher overall average ratings of medication communication than the Stollery Children's Hospital. The Alberta Children's Hospital, on average, scored 81/100, while the Stollery Children's Hospital, on average, scored 77/100 on medication communication.

^{lvii} The centreline represents a weighted overall average rating of medication communication. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 22: Medication communication composite - Provincial aggregate and site-level results



6.10 Discharge communication composite

This section monitors variation and identifies changes in the discharge communication composite over time at both the provincial aggregate and individual site levels.

Table 12: Discharge communication composite questions

Core questions included in the calculation

Q54_b: Did a member of staff ask about any of the following when you left the emergency department: If you had someone at home to assist you?

Q54_a: Did a member of staff ask about any of the following when you left the emergency department: How you were getting home?

Q54_c: Did a member of staff ask about any of the following when you left the emergency department: If there were any other concerns about your safety and comfort at home?

Q54_d: Did a member of staff ask about any of the following when you left the emergency department: If you knew what to do for follow-up care?

Q53: Did a member of staff tell you what to do if you were worried about your condition or treatment after you left the emergency department?

Q52: Did a member of staff tell you about what danger signals regarding your illness or treatment to watch for after you went home?

Q51: Did a member of staff tell you when you could resume your usual activities, such as when to go back to work or drive a car?

Notes:

Core questions included in the calculation of the composite are listed in order of influence on the composite score/will

Composites are scored on a scale from 0 to 100, where 100 is the best possible score

Provincial aggregate data are weighted to adjust for cluster sampling at the site level

Site-level data are unweighted; sample sizes were determined to achieve a representative sample at the site level

2007 Site-level reliability (GRIP macro): 0.87; 2007 Standardized Scale Alpha (Cronbach's): 0.87

Results highlights

The provincial aggregate run chart indicates that two instances of unsustained change occurred over the study period. An unsustained change toward higher average discharge communication ratings occurred from February to June 2011; average discharge communication ratings consistently increased during this time period, which would not be expected had the results been stable. Similarly, an unsustained change toward higher average discharge communication ratings occurred from February to July 2012; results were above the median during this time period, indicating that average discharge communication ratings were substantially higher than expected had the results been stable.

^{lviii} Order of influence on the composite score was determined from a principle components factor analysis, conducted in the HQCA's 2007 *Emergency Department Patient Experience Survey* report. Factor loadings were used to determine the strength of association between each question and its overarching factor. This work can be found on the HQCA website (<u>http://hqca.ca/surveys/emergency-department-patient-experience/</u>).



- Alberta Children's Hospital exhibited random variation throughout the study period, with no
 evidence of unsustained or sustained changes. Results were stable with respect to average
 ratings of discharge communication, essentially maintaining the status quo throughout the
 duration of the study period.
- At Stollery Children's Hospital, an unsustained change toward higher average discharge communication ratings occurred from March to May 2013. Results in March, April, and May were in the outer one-third of the control limits above the centreline, indicating that average discharge communication ratings were substantially higher than expected, given the otherwise stable results.

Additionally, by comparing the centrelines (overall averages) of the site-level control charts, it was possible to assess how the pediatric sites performed compared to each other.^{lix}

• Over the course of the study period, the two pediatric sites exhibited remarkably similar overall average ratings of discharge communication, each scoring 64/100.

^{lix} The centreline represents a weighted overall average rating of discharge communication. The term 'weighted' refers to the fact that average composite scores for months with larger sample sizes more heavily influence the calculation of the centreline or overall average. For more information on the overall average, see <u>Appendix VIII</u> for control chart calculation formulas.





Figure 23: Discharge communication composite – Provincial aggregate and site-level results



SECTION B: SURVEY SAMPLE DESCRIPTIVE INFORMATION

Promoting and improving patient safety and health service quality across Alberta



7.0 PROFILE OF RESPONDENTS

Patients' visits to emergency departments may be influenced by a number of factors. Some of these factors include patients' characteristics and the context of patients' need (or lack of need) for emergency medical treatment. This section outlines a profile of respondents,^{lx} including a breakdown of demographic characteristics, health characteristics, and healthcare use prior to patients' emergency department visits. This profile of respondents includes surveyed patients presenting to one of Alberta's two pediatric emergency department sites over the study period. See <u>Appendix VI</u> for a breakdown of the following descriptive statistics at the site level.

7.1 Demographic characteristics

Table 13 displays the demographic characteristics of all respondents during the study period (June 2010 to July 2013):

- Almost 6 out of 10 respondents (57%) were male.
- The average respondent was 4 years old.
- The vast majority, more than 8 in 10 respondents (84%), reported English as their primary language.

Table 13: Respondent characteristics

Male or Female (administrative data)	
Age (administrative data)	
Q71: What language do you mainly speak at home?	
	June 2010-July 2013 (n=3,063)
Gender	
Female	43%
Male	57%
Mean Age (years)	4.1
Language	
English	84%
Other	16%
Note: These results are not weighted and reflect respondents only	

^{lx} For the pediatric version of the HQCA's emergency department survey, those who actually completed the survey were proxy respondents for the pediatric patients (12 years of age and younger) who visited the emergency department at one of Alberta's two Children's Hospitals.



7.2 Respondents compared to those not surveyed or not included

As shown in the following tables, characteristics of patients for whom a survey was completed match those for whom a survey was not completed or who were not included in the survey sample (no survey);^{lxi} as described by administrative data elements for gender, age, CTAS score,^{lxii} and discharge disposition for the entire sample frame of patients. Table 14 shows that the proportions of males and females were not significantly different between surveyed patients and those not surveyed or not included in the survey sample (chi-squared = 0.110).^{lxiii}

Survey compared to no survey over the study period June 2010-July 2013 (administrative data)		
	June 2010	-July 2013
Gender	No Survey	Survey
Female	44%	43%
Male	56%	57%
	242,491	3,063
Count	245	,554
p value	Chi-squared = 0.1	10 Phi = 0.0032
Note: 'No survey' category includes non-respondents as well as those not included in the sample Data are not weighted		

Table 14: Gender by sample category

^{IM} The 'no survey' category includes those who were sent a survey but did not respond, as well as those who were not included in the survey sample (i.e., were not sent a survey). Individuals were not included in the survey sample either because they were not randomly selected to participate or they were excluded. Individuals could be excluded for a number of reasons. See Section 3.1 for exclusion details.

kii Canadian Triage Assessment Score (CTAS): triage priority with 1 being the most urgent and 5 being the least urgent.

^{kriii} This was supported by both the Phi and Cramer's V statistics. Both Phi and Cramer's V were 0.0032, indicating a very weak (essentially no relationship) association between gender and whether or not an individual was a respondent. Phi was reported because it is preferred when both variables are dichotomous.



 Table 15: Mean age by sample category

Survey compared to no survey over the study period June 2010-July 2013 (administrative data)		
June 2010-July 2013		-July 2013
value	No Survey	Survey
	4 years	4 years
Mean Age	4 ye	ears
p value	t-test = 0.193	
Note: 'No survey' category includes non-respondents as well as those not included in the sample Data are not weighted		

Table 15 shows that the average age of patients who completed a survey was identical to those who did not complete a survey, or who were not included in the survey sample, at four years of age. Given that there was no difference in the average ages of those who completed a survey and those who did not complete a survey, or who were not included in the survey sample, it was not surprising that there was no significant difference in average age between these two groups (t-test = 0.193).

Table 16: CTAS score by sample category

Survey compared to no survey over the study period June 2010-July 2013 (administrative data)		
	June 2010-July 2013	
CTAS score	No Survey	Survey
CTAS 1	0.4%	0.3%
CTAS 2	13%	14%
CTAS 3	48%	50%
CTAS 4	36%	33%
CTAS 5	3%	3%
	242,020	3,052
Count	245,072	
p value	Chi-squared = 0.002	Cramer's V = 0.0083
Note: 'No Survey' category includes Data are not weighted	non-respondents as well as those not included in	the sample

Looking at CTAS scores in Table 16, the chi-squared statistic of 0.002 indicates that there was no significant difference in the distribution of CTAS designations between survey respondents and those not surveyed or not included in the survey sample. This was supported by a Cramer's V of 0.0083, indicating a very weak association between CTAS scores and whether an individual was a respondent or not.



Table 17: Discharge status by sample category

Survey compared to no survey over the study period		
June 2010-July 2013 (administrative data)		
	June 2010-July 2013	
Discharge disposition	No Survey	Survey
Not Admitted	92%	91%
Admitted	8%	9%
	235,365	3,053
Count	23	8,418
p value	Chi-squared = 0.	016 Phi = 0.0049
Note: 'No Survey' category includes non-respondents as well as those not included in the sample Data are not weighted		

Considering discharge status (Table 17), there was no significant difference in proportions of admitted patients between survey respondents and those not surveyed or not included in the survey sample (chi-squared = 0.016).^{lxiv}

Overall, this comparison suggests that the survey sample was not significantly different than the remaining population not surveyed regarding administrative data elements for gender, age, CTAS score, and discharge disposition. These results suggest that the HQCA's survey sampling methodology effectively captured these characteristics of the pediatric patient population. Results have not been weighted or standardized according to population age and gender proportions, as results may be impacted by a number of additional factors not available in administrative data.

^{kiv} This was supported by both the Phi and Cramer's V statistics. Both Phi and Cramer's V were 0.0049, indicating a very weak association (essentially no relationship) between discharge disposition and whether or not an individual was a respondent. Phi was reported because it is preferred when both variables are dichotomous.



7.3 Self-reported health characteristics

It has been shown that certain patient characteristics, such as health status, can impact patient experience. Additionally, the health status of emergency department patients can impact comparability between different sites and illustrates the characteristics that should be considered when making fair comparisons between sites that might have different patient populations.^{lxv}

Respondents were asked to rate their health during the four weeks preceding their emergency department visit (see Table 18).

- Overall, 9 in 10 respondents (90%) reported that their health was at least *good* in the past four weeks, including almost 4 in 10 respondents (37%) indicating it was *excellent*.
- Conversely, less than 1 in 20 respondents (3%) reported that their health was *poor* or *very poor* in the past four weeks.

Q63: Overall, how would you rate your health during the past 4 weeks?		
	June 2010-July 2013 (n=3,006)	
Health during past four weeks		
Excellent	37%	
Very good	32%	
Good	21%	
Fair	8%	
Poor	2%	
Very poor	0.5%	
Note: Data are weighted for cluster sample at site I	evel	

Table 18: Self-reported health characteristics

^{lxv} See <u>Appendix VI</u> for site-level results of self-reported health characteristics.



7.4 Prior use of personal family doctor or emergency department services

Respondents were asked to provide information about their use of selected healthcare services, including their personal family doctor and emergency department services, in the past 12 months.

More than nine in 10 respondents (93%) reported that they currently have a personal family doctor or specialist that they see for most of their healthcare needs. Among the respondents with a personal family doctor or specialist, almost all (96%) reported visiting them at least once in the past 12 months, including more than one in four (26%) who visited more often (five or more visits in the past 12 months). Five in 10 respondents (50%) visited the emergency department more than once in the past 12 months, and slightly more than one in 20 (6%) have visited five or more times. Table 19 provides a breakdown of the responses to these questions.

Table 19: Visits to personal family doctor or emergency department services

Q65: In the past 12 months, approximately how m	any times in total have you visited your
personal family doctor or your specialist for	your own care?
Q66: In the past 12 months, approximately how ma department for your own care?	any times have you visited an emergency
	June 2010-July 2013
Has a personal family doctor	(n=3,036)
Yes	93%
In the past twelve months, how many times have y	/ou visited
Your personal family doctor*	(n=2,785)
None	4%
1 time	17%
2 to 4 times	53%
5 to 10 times	20%
More than 10 times	6%
An omorgonou dopartment	(n-3,002)
	(1=3,003)
1 time	51%
2 to 4 times	44%
5 to 10 times	5%
More than 10 times	1%



8.0 THE EMERGENCY DEPARTMENT VISIT AND RELATED HEALTH ISSUES

This section examines reasons for surveyed patients' visits to the emergency department. It also includes information about the decision to go to the emergency department, patients' means of getting there, and the urgency of patients' healthcare problems.

8.1 Decision to go to the emergency department

As Table 20 indicates, respondents' decisions to go to the emergency department were influenced by a variety of factors:^{lxvi}

- About 1 in 4 respondents (25%) reported that a family member or friend advised them to go to the emergency department.
- More than 4 in 10 respondents (41%) decided on their own to go to the emergency department.^{lxvii}
- Similarly, more than 4 in 10 respondents (43%) were advised to go to the emergency department by a healthcare professional (personal family doctor, Health Link nurse, doctor at a walk-in clinic, or specialist doctor). They were most often advised by a Health Link nurse (20%) or their personal family doctor (11%).

^{kwi} The results of this question are difficult to interpret for the pediatric sample of emergency department patients. For children unable to complete the survey on their own, an adult present at the emergency department with the child completed the survey from the child's point of view. Given that patients are 12 years of age or younger, it is unlikely they were the ones who made the decision to go to the emergency department. Therefore, some responses likely reflect the decision-making process of the adult completing the survey on the pediatric patient's behalf.

kvii Responses are not mutually exclusive; it is possible that some of those who said they decided on their own also indicated that others influenced them.



Table 20: Who advised respondent to go to emergency department

Q1: Please identify all those who advised you to go to the emergency department.	
	June 2010-July 2013 (n=3,008)
Decided on my own	41%
Friend or family member	25%
Health Link phone-line nurse	20%
Personal family doctor	11%
Other	9%
Doctor at walk-in clinic	8%
Specialist doctor	4%
Note: Data are weighted for cluster sample at site level Respondents could choose more than one answer, so the total sum can be more than 100 per cent	

While the decision to go to the emergency department was often made in consultation with others, many respondents chose to go to the emergency department instead of somewhere else because they felt they had no other option.^{Ixviii} According to Table 21, the most common reasons for choosing to go to the emergency department were:

- The emergency department was perceived to be the only choice available at the time for almost 4 in 10 respondents (39%).
- More than 5 in 10 respondents (52%) believed the emergency department was the best place to go given their medical problem.
- Almost 3 in 10 respondents (27%) reported they were told to go to the emergency department rather than somewhere else.
- Almost 1 in 10 respondents (9%) reported the emergency department was the most convenient place to go to seek medical care.

Many respondents indicated that more than one of these reasons was relevant in their decision; however, the vast majority believed they had no other option because the emergency department was the only medical service available, their medical condition dictated it, or they were told to go there.

^{lxviii} Given that patients are 12 years of age or younger, it is unlikely they were the ones who made the decision to go to the emergency department. Therefore, some responses likely reflect the decision-making process of the adult completing the survey on the pediatric patient's behalf.



Table 21: Why patients chose the emergency department

Q2: Why did you choose to go to the emergency department, instead of somewhere else such as a doctor's office?ReasonJune 2010-July 2013 (n=3,028)Emergency department was only choice available at time39%Emergency department was the best place for my medical problem52%Told to go to the emergency department rather than somewhere else27%Emergency department was the most convenient place to go9%Note: Data are weighted for cluster sample at site level
Respondents could choose more than one answer, so the total sum can be more than 100 per cent



8.2 Getting to the emergency department

Typically, respondents report that they arrived at the emergency department by car, after a trip that lasted 30 minutes or less. As shown in Table 22:

- Exactly 9 in 10 respondents (90%) traveled to the emergency department by car.
- Slightly more than 7 in 10 respondents (72%) traveled to the emergency department in 30 minutes or less.

Table 22: Travelling to the emergency department

Q4: How did you travel to the emergency department? Q5: When you went to the emergency department, how long did it take you to get there?	
Mode of transportation	
Car	90%
Ambulance	7%
Taxi	2%
Foot	0.1%
Bus/train	1%
Other	0.1%
Time to get to emergency department	·
Up to 30 minutes	72%
More than 30 minutes, but less than 1 hour	20%
More than 1 hour	8%
Note: Data are weighted for cluster sample at site level Sample size (n) is reported for mode of transportation (Q4)	·



8.3 Urgency of healthcare problem

Respondents were asked to provide their own assessment of the seriousness of the health problem that brought them to the emergency department.^{lxix} Table 23 shows that:

- Almost 2 in 10 respondents (18%) believed that the health problem for which they visited the emergency department was *life threatening* or *possibly life threatening*.
- Almost 3 in 10 respondents (26%) stated that their visit was urgent in nature, that is, they believed there was a risk of permanent damage.
- Almost 6 in 10 respondents (56%) reported that their visit was *somewhat urgent* (needed to be seen today) or *not urgent*.

Q3: Would you have described your health problem as?	
Urgency Rating	June 2010-July 2013 (n=3,000)
Life threatening	2%
Possibly life threatening	16%
Urgent	26%
Somewhat urgent	51%
Not urgent	5%
Note: Data are weighted for cluster sample at site level	

Table 23: Self-rated urgency

Triage priority is assessed by emergency department staff for patients in most emergency department facilities using the Canadian Triage and Acuity Scale (CTAS). CTAS scores are reported in Table 24.

- More than 1 in 10 respondents (13%) were identified as CTAS 1 or 2, the two most urgent acuity designations.
- Almost 1 in 2 respondents (48%) were identified as CTAS 3.
- Almost 4 in 10 respondents (38%) were identified as CTAS 4 or 5, the two least urgent acuity designations.

^{kdx} The self-reported urgency question (Q3) was designed to provide a patient reported "proxy" for CTAS urgency, which is the Canadian Emergency Department Triage and Acuity Scale developed by the Canadian Association of Emergency Physicians (CAEP).



From administrative data				
CTAS Level	June 2010-July 2013 (n=3,052)			
CTAS 1	0.2%			
CTAS 2	13%			
CTAS 3	48%			
CTAS 4	35%			
CTAS 5	3%			
Note: Data are weighted for cluster sample at site level In the CTAS score, 1 is most urgent, and 5 is least urgent				

Comparing self-rated urgency with CTAS scores allows limited evaluation of how accurately patients may have viewed the urgency of their medical problem compared to the CTAS score they were assigned by emergency department staff during triage. The response scale used for self-rated urgency (question 3) was designed to approximate the meaning of the CTAS score. In Table 25, CTAS has been subtracted from self-rated urgency, hence a value of (-2) indicates that CTAS urgency was two degrees less urgent than self-rated urgency was. Likewise, a value of (+2) indicates that CTAS urgency was two degrees more urgent than self-rated urgency.



CTAS subtracted from Q3 for each respondent				
(Q3) Relative Difference		Q3 (-) CTAS	June 2010-July 2013 (n=2,989)	
		-4	0%	
CTAS is less Urgent		-3	0.4%	
	↑	-2	5%	
		-1	19%	
Identical	>	0	39%	
		1	30%	
CTAS is more Urgent	\downarrow	2	6%	
		3	0.4%	
		4	0%	
Kappa (un-weighted) ^{lxx(11)} 0.0905				
Note: Data are weighted for cluster sample at site level				
Kappa statistic is un-weighted Kappa Kappa is calculated for CTAS score versus self-rated urgency (Q3) within patient				

Table 25: Degree of difference between self-rated urgency (Q3) and administrative CTAS

In general there was poor correspondence between CTAS and self-rated urgency, with only 39 per cent of cases agreeing completely. The Kappa statistic supports this conclusion; an un-weighted Kappa of 0.0905 suggests there was only slight correspondence between CTAS and self-rated urgency.

Table 26 focuses specifically on patients who were classified as CTAS 1 or 2 (the two most urgent categories) at triage:

- Almost 7 in 10 respondents (66%) rate their acuity in the three most urgent categories (life threatening, possibly life threatening, or urgent).
- More importantly, slightly more than 1 in 3 respondents (34%) rate their acuity as only somewhat urgent or not urgent, substantially underestimating the urgency of their health problem.

^{bax} Kappa is a measure of inter-rater reliability; in this case the triage nurse versus the patient. Although the scales are different, self-reported urgency was intended to serve as a "proxy" for CTAS.



Table 26: Self-rated urgency (Q3) for CTAS 1 or 2 respondents

Self-rated urgency	June 2010-July 2013 (n=432)
Life-threatening/or possibly life threatening	39%
Urgent, risk of permanent damage	27%
Somewhat urgent, needed to be seen today	31%
Not urgent, but I wanted to be seen today	3%



8.4 Reasons for the emergency department visit

Respondents were asked to indicate if the health problem that brought them to the emergency department was the result of a new injury or illness, or related to previous problems. Table 27 shows the following with respect to reasons for patients' visits:

- Exactly 3 in 4 respondents (75%) stated that the medical problem that brought them to the emergency department was unrelated to a previous illness or injury; it was either a new illness or condition (49%) or a new injury or accident (26%).
- Almost 1 in 4 respondents (24%) said that the medical problem that brought them to the emergency department was due to a previous health problem. This included: worsening of a pre-existing illness or condition (13%), complications or problems following recent medical care (7%), routine care of a pre-existing illness or condition (2%), or follow-up care (2%).

Q6: Thinking about the medical problem that brought you to the emergency department, would you say that your problem was				
	June 2010-July 2013 (n=2,992)			
New illness or injury				
New illness/condition unrelated to previous illness/condition	49%			
New injury/accident unrelated to previous injury/accident	26%			
Related to previous illness or injury				
Worsening of pre-existing chronic illness/condition	13%			
Complications or problems following recent medical care	7%			
Routine care of a pre-existing chronic illness/condition	2%			
Told to return to the emergency department for follow-up care	2%			
Other	2%			
Note: Data are weighted for cluster sample at site level				

Table 27: The reason for visiting an emergency department



9.0 PATIENTS WHO CONSIDERED LEAVING BEFORE TREATMENT

Patients leaving before treatment can be an important issue for emergency departments. Included are patients that may leave prior to a diagnosis or prior to receiving recommended treatment. These patients may be putting themselves at risk of potentially suffering adverse events (including death) by leaving before receiving treatment for their health problem. As previous results have demonstrated, patients' assessments of urgency often differ from the acuity score (CTAS) assigned to them by emergency department staff. Although patients who left before treatment were excluded from the survey, to better understand this issue, question 13 asked whether the respondent considered leaving before they had been seen.

Table 28 shows whether respondents considered leaving, stratified by discharge status and CTAS level. In this survey sample, there were a number of patients who were either admitted or were classified as CTAS 2 (the second-most urgent triage acuity designation), and considered leaving before they had been seen. For example:

- Almost 1 in 10 respondents (7%), who were ultimately admitted, either definitely considered leaving (4%) or considered leaving to some extent (3%).
- None of the respondents who were classified as CTAS 1 (most urgent) considered leaving. About 1 in 10 respondents (9%) who were classified as CTAS 2 (second-most urgent) considered leaving. About 2 in 10 respondents (21%) who were classified as CTAS 3 considered leaving.

The results indicate that respondents who were not admitted were significantly more likely to consider leaving before being seen or treated compared to respondents who were admitted; however, this was a very weak association (Cramer's V < 0.15). Table 28 also indicates that respondents who were classified in the lower-urgency CTAS levels (i.e., CTAS 4 or 5) were significantly more likely to consider leaving before being seen or treated compared to respondents classified as more urgent with respect to acuity at triage (i.e., CTAS 1 or 2); however, this was also a very weak association (Cramer's V < 0.15).



Table 28: Considered leavin	g before be	ing seen or treated b	y discharge status and CTAS
		0	, , , , , , , , , , , , , , , , , , , ,

Q9: During your visit to the emergency department, did you consider leaving before you had been seen and treated?								
		Discharge status		CTAS level				
	Considered Leaving	Admitted (column%)	Not admitted	CTAS 1	CTAS 2	CTAS 3	CTAS 4	CTAS 5
		n=3,004		n=3,002				
June 2010-	Yes, definitely	4%	7%	0%	3%	7%	9%	7%
July 2013	To some extent	3%	15%	0%	6%	14%	17%	11%
	No	92%	79%	100%	91%	79%	75%	83%
p value		Cramer's V	′ = 0.0919	Cramer's V = 0.0805				
Note: Data are weighted for cluster sample at site level								

Chi-squared is significant at p = 0.000 where Cramer's V is shown

While it is unclear as to why these respondents ultimately decided to stay, it is reasonable to surmise that they may have been at some risk of harm if they had left. Leaving prior to the completion of assessment or treatment is a risky option for all emergency department patients. Therefore, it is important to learn more about the individuals who contemplate leaving early, and what factors may predispose them to leaving prior to seeing a physician or receiving full treatment.

In order to further explore both the factors that influence patients to leave the emergency department before being assessed or treated and the potential health risks associated with leaving, the HQCA is currently undertaking a focused study of these patients.^{1xxi} The HQCA has surveyed a matched sample of patients who left the emergency department prior to completing their visit and patients with similar characteristics that ultimately decided to stay and complete their assessment and treatment. This study will seek to illustrate who the patients leaving the emergency department are (both demographically and in terms of their health characteristics) and how they differ from patients who stayed for assessment and treatment. To the extent possible, the study will assess the emergency department experience of patients who left. This will include an exploration of the factors that led to patients leaving, as well as the factors which might encourage patients to remain in the emergency department to receive treatment.

^{lxxi} This study excludes patients younger than 16 years of age.



SECTION C: APPENDICES

Promoting and improving patient safety and health service quality across Alberta

9



APPENDIX I: SURVEY METHODOLOGY

Selection of survey tool, validation, and testing

The 2007 working group and the HQCA reviewed the relevant literature, previously developed emergency department survey tools, and survey material from both the public and private domain. As a result, several well validated survey tools were identified as options. It was determined that the HQCA should use a public domain survey tool that could be available to stakeholders without proprietary restrictions. The *British Emergency Department Patient Experience Survey* tool was ultimately selected based on multiple criteria. This survey instrument was developed by Picker Europe (a non-profit organization) for the British National Health Service and the Healthcare Commission. It was used as the core set of questions for the HQCA survey with written permission from the Healthcare Commission.

Building on the British emergency department survey, the HQCA developed additional items to reflect the unique Alberta context. In 2006, these new items and selected original items underwent several rounds of cognitive testing, after which a pilot test involving 480 emergency department patients was conducted. The pilot test conducted by the HQCA involved adults and children who visited an emergency department in one of two Alberta hospitals during December of 2006. The pilot test helped to identify ambiguous survey questions, uncover challenges in conducting the survey, set expectations, and establish the survey methodology.

The final HQCA emergency department survey involved two slightly different questionnaires: the adult version (for respondents 16 years of age and older) and the pediatric version (for proxy respondents for patients 12 years of age and younger). Both versions of the survey underwent several rounds of cognitive testing and were pilot tested. The pediatric version of the survey, which was used to collect the data in this report, excludes several demographic questions, but otherwise is the same as the adult version. Parents of children who had recently visited a pediatric emergency department, and were contacted to participate in this survey, were instructed that if their child was unable to complete the survey on their own, the person who visited the emergency department with the child should complete the survey from the child's point of view. Because of this, throughout the report results are presented as if the child was the one who completed the survey.

A full survey was run in 2007 and further evaluation of psychometric properties, validity, reliability at both the patient and facility level, and evaluation of structure and validity of possible composite factors were conducted using this data set. A more detailed description of this multi-stage validation process, as well as results from cognitive testing, the pilot test, and validation studies are provided in the 2007 *Emergency Department Patient Experience Survey* technical report.⁹ As a result of the findings from the 2007 survey and to accommodate additional questions, several items considered to be of lower value^{lxxii} were dropped from the 2009 and 2010-2013 versions of the survey.

^{lxxii} This included questions targeting information outside the scope of the current initiative (e.g., the journey of patients prior to ED visit). No core questions were dropped.



Privacy impact assessment

As a custodian under the *Health Information Act of Alberta*, the HQCA submitted a privacy impact assessment (PIA) to conduct this survey and related data matching and analysis. The PIA was submitted to, and was accepted by, the Office of the Information and Privacy Commissioner of Alberta in 2007. The survey and data matching process was carried out in 2007, 2009, and 2010-2013. Whereas data from 2007 and 2009 were extracted at a point in time, data from 2010-2013 were extracted in two-week intervals.

RFP and selection of survey vendor

The HQCA selected and engaged the services of a national research firm, Prairie Research Associates Incorporated (PRA), to conduct the emergency department patient experience survey. PRA conducted the original 2007 survey, and to maintain consistency in methods this firm was selected again for the 2009 and 2010-2013 surveys.

Preparation of data

Substantial assistance was provided by Alberta Health Services personnel in extracting and preparing data files from regional data sets and emergency department information systems. These data provided the basis for sample creation as well as reporting of administrative data measures and parameters. Subsequent cleaning and manipulation of these data was conducted by the HQCA to generate a consolidated sample frame database.

Sample design and selection

The HQCA provided PRA with random samples of patients drawn from each of the 15 urban and regional emergency department sites, including the two pediatric sites, every two weeks, such that lag time from the actual emergency department visit was controlled between samples. Site-level samples for the 2010-2013 survey were set at the level required to report reliable zone-level results on a quarterly basis, and site-level results annually.

To achieve the desired sample size, patients were selected randomly from the entire population of patients seen in an emergency department during the sample period. Sample sizes were determined by predicted response rates (based on the previous surveys) to achieve a representative sample at the facility level. Sample sizes were proportionately larger for smaller facilities, requiring the calculation of cluster sample weights to adjust for the higher probability of patient selection in low volume sites.^{lxxiii}

Pediatric patient samples (12 years of age and younger) were generated for the facilities surveyed, and excluded anyone older than 12 years of age, patients who left before being seen or treated, and patients who died in the context of their emergency department stay. Patients without contact information, and a small number of sensitive cases, such as domestic abuse, were also excluded from the sample and were

^{lxxiii} Cluster weights are applied to the provincial aggregate results but not site-level results, because samples were selected to be representative at the site level.



randomly replaced with eligible cases. A rigorous four-stage survey protocol was used to maximize the response rate and quality of the final sample.

Parents of children who had recently visited a pediatric emergency department, and were contacted to participate in this survey, were instructed that if their child was unable to complete the survey on their own, the person who visited the emergency department with the child should complete the survey from the child's point of view. The survey instrument for these pediatric samples was separately field-tested along with the adult version and was modified to facilitate responses from a third party rather than the actual patient. Data from this survey group often represent proxy responses; therefore, results were reported separately from the adult report.

Survey methodology

Table 29 shows the timeline of the mailings and follow-up calls.

- *First survey mailing*: The first mailing included a cover letter, a copy of the questionnaire, and a postage-paid return envelope (<u>Appendix VII</u>). This package of materials was addressed to the parent or guardian of the patients included in the HQCA's sample.
- Reminder postcard: The reminder postcard (<u>Appendix VII</u>) was sent approximately two weeks after the first mailing to the parent or guardian of those patients who had not returned their completed questionnaire at the time of this mailing. Participants who indicated that they did not want to participate were excluded from this reminder, as were individuals whose initial package had been returned as undeliverable or not at this address.
- **Telephone reminders and surveys:** PRA monitored the response rate by facility throughout the data collection period. To increase the response rate, PRA, in consultation with the HQCA, conducted reminder calls with those people who had not returned their questionnaire. The main purpose of the reminder calls was to emphasize to participants the importance of the survey and thus increase the likelihood of participation. If participants preferred, they were given the option to complete the survey over the phone. Telephone calls started approximately three weeks after the initial mailing (just after the reminder postcard was mailed) and ended approximately 10 weeks after the initial mailing.
- Second survey mailing: The second survey mailing contained the same documents as the first
 mailing, with slight revisions to the cover letter (<u>Appendix VII</u>). The second mailing was sent
 approximately two weeks after the reminder postcard and four weeks after the first mailing to
 those participants who had not yet responded. Again, this excluded those who had indicated that
 they did not want to participate and those whose correct address information was unavailable.



Table 29: Survey protocol timelines

Timeline			
Two week sample period ends (discharged)	Sunday		
Extraction of random samples	Friday (+5 days)		
First survey mailing	Monday (+8 days)		
Postcard mailing	+22 days		
Telephone reminders (and surveys)	+25 days		
Second survey mailing	+36 days		
Survey cut-off	+75 days		


Overall response rate from June 2010 to July 2013

Table 30 shows a breakdown of the outcomes for the survey process over the June 2010 to July 2013 study period.^{lxxiv}

Quitcome	June 2010-July 2013		
Outcome	n	%	
Total sample	53,963	100%	
Total completed	24,181	44.8%	
By mail	21,508	39.9%	
By phone	2,673	5.0%	
Non-respondents (protocol complete)	23,473	43.5%	
Refused	1,417	2.6%	
Refused by mail	161	0.3%	
Refused by phone	1,256	2.3%	
Returned survey blank	15	<0. 1%	
Works for hospital/ED	8	<0. 1%	
Language barrier	713	1.3%	
Unable due to illness	659	1.2%	
Incorrect contact information	2,788	5.2%	
Deceased	478	0.9%	
Denied visiting emergency department	137	0.3%	
Duplicate	94	0.2%	

body Note that Table 30 includes patients older than 12 and patients seen at adult sites, who are excluded from analyses elsewhere in this report, as previously mentioned.



- Of the 53,963 survey packages that were distributed to emergency department patients during the study period, 24,181 were completed, ^{lxxv} for an overall response rate of 44.8 per cent. Of those who completed a questionnaire, 88.9 per cent completed it by mail and 11.1 per cent completed it by phone.
- 43.5 per cent of the sample received the two mailings and the reminder postcard, but did not complete the survey.
- 5.2 per cent of the sample had incorrect contact information, meaning they did not receive the mailings. Of these, almost all were contacted by phone to complete the survey by telephone.
- 2.6 per cent of the sample refused to participate in the survey.
- 0.9 per cent of the sample was deceased at the time of the survey.^{lxxvi}

base A completed questionnaire was defined as a questionnaire with a valid response to at least one question.

^{havi} While individuals who passed away during their emergency department visit were removed from the sample, it was not feasible to identify individuals who died afterwards.



Response rate by site

Table 31 shows the response rates by site,^{bxxvii} which ranged from 32.8 per cent to 54.4 per cent, with an overall response rate of 44.8 per cent. The raw response rates were 54.4 per cent at the Alberta Children's Hospital and 47.1 per cent at the Stollery Children's Hospital.

Facility	Sample size	0	Complete	5	Raw Response	Refusals	Incorrect contact info	Language barrier or too sick
	(n)	Mail	(n) Phone	Total	rate (%)	(n)	(n)	(n)
Alberta Children's Hospital	2,889	1,440	131	1,571	54.4%	39	47	61
Stollery Children's Hospital	3,389	1,489	108	1,597	47.1%	44	127	27
Chinook Regional Hospital	4,357	1,739	216	1,955	44.9%	118	219	106
Foothills Medical Centre	3,018	1,372	152	1,524	50.5%	82	129	100
Grey Nuns/Edmonton General	3,209	1,394	158	1,552	48.4%	75	118	113
Medicine Hat Regional Hospital	3,161	1,363	171	1,534	48.5%	86	171	71
Misericordia Hospital	3,261	1,324	162	1,486	45.6%	101	174	99
Northern Lights Health Centre	4,544	1,206	286	1,492	32.8%	155	309	67
Peter Lougheed Centre	3,572	1,325	193	1,518	42.5%	101	173	154
Queen Elizabeth II Hospital	4,762	1,648	290	1,938	40.7%	159	289	53
Red Deer Regional Hospital	4,305	1,718	218	1,936	45.0%	138	221	93
Rockyview General Hospital	3,198	1,454	153	1,607	50.3%	76	124	92
Royal Alexandra Hospital	3,566	1,256	172	1,428	40.0%	91	327	168
Sturgeon Community Hospital	3,073	1,356	166	1,522	49.5%	95	111	77
University of Alberta Hospital	3,641	1,424	97	1,521	41.8%	57	249	91
Blank	18	0	0	0	0.0%	0	0	0
TOTAL	53,963	21,508	2,673	24,181	44.8%	1,417	2,788	1,372

Table 31: Response rate by site – June 2010 to July 2013

becvii Note that Table 31 includes patients older than 12 and patients seen at adult sites, who are excluded from analyses elsewhere in this report.



Definition of compared groups

While the primary goal of this study was to produce actionable information at the site level, results were also analyzed at a provincial aggregate level. This aggregate result should not be interpreted as a true provincial result because the survey excludes all pediatric patients who visited a site other than the Alberta Children's Hospital and the Stollery Children's Hospital. In general, the 15 large urban or regional hospital emergency departments surveyed (including the two pediatric sites) are routinely faced with some of the most severe challenges in the province.

While examination of the results at the provincial aggregate level provides useful insights about emergency department patient experience across similar high volume pediatric emergency departments, this type of high-level comparison masks important between-site differences. Provinciallevel analyses assume that patients presenting to different sites all enter the same provincial emergency department care delivery system; and this is not the case. Emergency department facilities are diverse regarding the programs and initiatives they implement to improve care. Thus, site-level results are the source of actionable information in terms of improvement opportunities.

Statistical significance and strength of association

Traditional tests of significance, such as those outlined below, were applied to the descriptive statistics presented in Section B, but <u>not</u> to the data presented over time in run and control charts in Section A. Identifying meaningful changes in run and control charts requires alternative probability-based tests specifically suited for examining data over time.

Statistical significance for the chi-square measure of association is more easily achieved with large sample sizes.^{lxxviii} In view of this, the HQCA suggests the standard for designating whether a relationship can be termed statistically significant be raised from the typical significance level of 0.01 to a more stringent 0.001. In addition, Phi or Cramer's V coefficients are sometimes reported to provide a measure of the strength of association.^{lxxix} While a Phi or Cramer's V of less than 0.15 suggests the strength of association is extremely weak, significantly different proportions may still be important in the context of the study objectives. For mean comparisons using ordinal or continuous data, a t-test was used to measure significance of the observed difference.

based in the null hypothesis is rejected and the two variables are assumed to be associated beyond what is expected by chance alone.

^{lxxix} Phi or Cramer's V may be interpreted as the strength of association between two variables – as a percentage of their maximum possible variation. Phi is preferred when both variables are dichotomous; that is, they only have two categories.



Table 32: Tests for statistical significance and strength of association

Test	Value
Pearson's chi square (sig.)	0.001
t-test (sig.)	0.001
Phi or Cramer's V	0.150 or higher



APPENDIX II: MEASUREMENT AND ANALYTICAL METHODOLOGY

In order to provide emergency department stakeholders with data to inform the improvement of patient experience, quality of care, and patient safety, the HQCA collected data every two weeks which supported the monitoring of variation and the detection of meaningful changes^{1xxx} in emergency department patient experience over time. In comparison, data collected cross-sectionally (at a single point-in-time) offers limited ability to detect change over time, and it is impossible to monitor these data for seasonal changes or for the effects of changes made to the delivery of emergency department care on patient experience. The HQCA began reporting on patient experience in emergency departments in 2007, but because of the limitations of cross-sectional data, in 2010 the organization replaced cross-sectional data collection with sampling every two weeks (using smaller samples). This shift in data collection methods necessitated the adoption of different analytical methods to report these data.

Borrowing a term from statistical theory, the 2007 and 2009 emergency department patient experience reports would be classified as *enumerative* because they were cross-sectional and their aim was descriptive.^{12,13} For example, they aimed to provide stakeholders and Albertans with an overview of emergency department patient experience in the province by reporting percentage breakdowns of the distribution of patient responses to different questions about their emergency department experience. These types of studies are valuable in terms of increasing understanding of emergency department patient experience at a single point in time. However, they do not allow for the monitoring of variation or detection of change in emergency department patient experience over time; nor do they offer insight as to why changes in emergency department patient experience occur and why patient experience varies over time and across sites.

Sampling patients every two weeks allows for the ability to conduct *analytic* studies. Unlike enumerative studies, analytic studies accept that systems (producing outputs such as emergency department patient experience) are constantly changing;^{12,13} and this requires measuring and reporting on data over time. Analytic studies are better able to monitor variation in emergency department patient experience over time, and can help in assessing why changes may have occurred by relating those changes to concurrent conditions, events, or initiatives. Reflecting this theoretical perspective, this report employs statistical process control (SPC) methods, and in particular both run and control charts, to monitor and detect meaningful changes in different aspects of patient experience over time.

To summarize, by sampling patients who were seen in the 15 large urban and regional emergency department sites (including the two pediatric sites) every two weeks, it is possible to:

 Understand seasonal variation by tracking emergency department patient experience information over the course of a three-year period. In emergency department measurement activities it is important to understand how repetitive and predictable trends over the course of a year (i.e.,

^{boxx} Used in this context, "meaningful changes" refers to instances of non-random variability in the data over time. These instances of non-random variability are termed "meaningful" because they represent periods of change that can be attributed to an unexpected cause (something that is not inherent to the system and would not normally be expected to influence results).



seasonal variation) might influence patient experience measures. Many of these seasonal effects fall outside of the influence of care providers, yet may still have either a positive or negative impact on patient experience. Because of seasonal variability, some sites may be predisposed to report better or worse patient experience simply as a consequence of seasonal influences specific to the site.

- Detect meaningful changes in emergency department patient experience (i.e., either improving or diminishing patient experience). Stakeholders can observe how patient experience results differ (or not) between time points pre- and post-initiative implementation to evaluate an initiative's impact on patient experience. Detecting positive or negative changes in patient experience should be an integral component of evaluating initiatives' effectiveness as well as identifying potential quality and safety issues. When conducted in real time, plotting data using SPC methods becomes a valuable tool for detecting and eliminating causes of undesirable change.
- Identify consistently higher-performing emergency departments so that stakeholders can learn from best practices. Despite the fact that there are many differences between sites that influence emergency department patient experience, the HQCA acknowledges that comparing results between sites can be worthwhile. Comparisons aid in the identification of weak or strong aspects of emergency department care delivery. This allows stakeholders to identify which sites tend to achieve better patient experience scores, and should encourage discussion and shared learning between sites regarding best practices.

Statistical quality control

Statistical quality control (SQC) methods refer to a broad set of statistical tools used to identify quality problems in production processes and the products of these processes.¹ These methods are often further subdivided into the following three very broad categories:

- Descriptive statistics
- Statistical Process Control (SPC)
- Acceptance sampling

This report uses both descriptive statistics and SPC methods to monitor variation and detect changes in emergency department patient experience.

Run charts

The run chart is a widely accepted tool for displaying simple descriptive statistics, such as means (averages), percentages (for categorical or attribute data), and standard deviations, over time. By definition, a run chart is a graphical presentation of data (usually descriptive statistics) in some type of order.² For the purpose of this report, run charts plot pediatric emergency department patient experience data over time, from June 2010 to July 2013.

Run charts are a valuable tool for assessing and improving the quality of the process for which data are displayed. Importantly, run charts allow for observing the performance of a process (e.g., the delivery of emergency department care) by examining variation in an output of the process (e.g., emergency department patient experience). A key component of this evaluation involves identifying instances of non-random variation (which represent meaningful changes) in patient experience, and then



determining whether these changes represent improving or declining patient experience. Finally, run charts also determine whether or not changes in patient experience have been sustained.

Statistical process control and control charts (\overline{X} , S, and P)

Similar to run charts, SPC methods involve analyzing a random sample of the output of a process, to evaluate the performance of that process. In this report, the process is the delivery of emergency department care, and the output is emergency department patient experience.

The most common application of SPC methods involves the construction of control charts. An added benefit of using control charts instead of run charts is that, in addition to observing the performance and changes of a process over time, control charts provide the ability to use historical data to determine whether the process is functioning within normally expected limits.

In order to decide whether a process is functioning within the normally expected limits, SPC methods measure variation within the data collected (the process output) and identify two different causes of observed variation. *Common* or *random* causes of variation can be described as variation due to causes inherent in the system, process, or product, and that affect all outcomes of the system.¹⁴ An example of a random cause of variation is differences in symptoms and complexity with which patients present to the emergency department. Meanwhile, *assignable* or *special* causes of variation refer to variation not part of the system, process, or product all of the time, and arise because of specific circumstances.¹⁴ Examples of special causes of variation include implementing new strategies for dealing with overcapacity, introducing an initiative to help improve emergency department flow, or adding additional physician shifts to address volume issues. These assignable causes of variation can be identified and eliminated through an intervention in the process,¹ or maintained if the resultant change is desired. Control charts showing only common or random causes of variation in patient experience depict *stable* systems or processes, whereas control charts with evidence for both random and special causes of variation in patient experience depict *unstable* systems or processes.²

Evaluating emergency department performance through the lens of patient experience requires determining the range of expected random variation inherent in the process. The range of expected random variation is defined by control limits; the upper control limit (UCL) is the maximum acceptable variation above the centreline (an overall average) for a process in a state of control, and the lower control limit (LCL) is the maximum acceptable variation below the centreline for a process in control.¹ These control limits are exceeded when variability in patient experience is large enough it cannot be random, and therefore must be from a *special* cause. Although control limits are useful for detecting when the process is out of control, they are not the only tool used to detect special causes of variation in control charts. In total, six rules were used in this analysis to detect special causes (adapted from several established control chart guidelines^{2,4,5} – see Section 3.2 for a detailed description).

Health system quality characteristics, such as measures of patient experience, can be broadly classified as either variables or attributes, based on how data for each characteristic are collected, coded, and presented. Control charts employed to monitor information about variables differ from those used to



present information about attributes. Variable data, which are continuous and have a measurement scale, are presented by charting means (averages; i.e., \bar{X} charts) and standard deviations (i.e., S charts).^{lxxxi} Both \bar{X} and S charts are generally examined together because a process is considered unstable or 'out of control' if the mean moves too far away from the centreline or there is too much variability.^{lxxxii,2,5} These signals do not always occur at the same time. Variable data in this report include the composites, which are essentially summary scores for the quality characteristics represented by groups of responses from questions with common underlying quality constructs. These composites are presented as a standardized score from zero to 100, where 100 is the best possible score.^{lxxxii} See <u>Appendix VIII</u> for \bar{X} and S chart formulas.

Attribute data are presented using percentages (i.e., *P* charts). Attribute data are discrete (i.e., they can be counted or classified into categories). *P* charts are used to monitor the percentage of emergency department patients who reported being in one of two categories over time. Many of the emergency department patient experience survey questions provide respondents with categorical response options, which are easily dichotomized for use in *P* charts. See <u>Appendix VIII</u> for *P* chart formulas.

Lexi *S* (standard deviation) charts used in place of *R* (range) charts because subsample sizes were large, making the range a poor statistic to summarize dispersion of the subsamples.

^{kaxii} S (standard deviation) charts that accompany \overline{X} (mean) charts are reported in <u>Appendix IX</u> because interpreting the results of S charts is more complex and not as commonly understood as \overline{X} chart interpretations.

bxxxiii See Section 6.1 for more information regarding composite variables.



APPENDIX III: RUN CHART AND CONTROL CHART INTERPRETATION

In this report, run charts are used to display the provincial aggregate patient experience results, but not the site-level results. In contrast, control charts are used to track emergency department performance with respect to patient experience at the site level, but not at the provincial level. The reasons for this discrepancy are:

- Monthly provincial aggregate results are calculated from a larger pool of patients than site-level
 results. The larger provincial aggregate sample size results in the construction of more sensitive
 control limits.^{lxxxiv} This can inflate the risk of erroneously concluding that meaningful changes to
 patient experience have occurred, when, in fact, they are the result of random variation.²
- An important criterion for using control charts is having *rational subgroups*, meaning that reported groups are relatively homogeneous.² Whereas data from a single site are relatively homogeneous, different sites are quite diverse, especially with respect to the programs and initiatives implemented to try to improve quality of care and patient experience (see Section 4.2 and <u>Appendix V</u>). Thus, an aggregation of sites should not be presented using control charts. By combining heterogeneous site-level results into monthly provincial aggregate results, important between-site differences get masked and useful actionable information is lost.

Displaying provincial aggregate results on run charts helps mitigate the risk of drawing inaccurate conclusions regarding change in patient experience at the provincial level (e.g., speaking about how a highly variable provincial system was functioning). Instead, the provincial aggregate run charts monitor different aspects of patient experience over time at the provincial level and identify when changes occur in aggregate patient experience. Investigating the causes of these changes was incredibly difficult given the inconsistencies with respect to initiative implementation between sites identified in Section 4.2 and Appendix V.

Though the HQCA recognizes the potential value in drilling down to examine emergency department patient experience within specific patient populations (e.g., those who were admitted versus those who were discharged), the current sampling strategy restricts the creation of these kinds of control charts. Specifically, the subgroup sample sizes would not have been sufficient to produce reliable monthly estimates or control limits at the site level. By stratifying the control chart analyses by site and plotting results on a monthly basis, subgroup sizes are sufficiently large (but not too large) to create useful control limits. With this strategy, the data within each subgroup are sufficiently similar, and produce reliable monthly patient experience results at the site level.

bexe because the subgroup size, *n*, being in the denominator of the control limit calculations (see Appendix VIII).



Interpretation and evaluation guidelines

The monthly patient experience results are presented in graphical format only. Provincial aggregate run charts and site-level control charts are displayed using a format called *small multiples*. This presentation technique requires that a set of charts are all presented together. Each chart displays data for the same variable, but represents results for a unique population. For this report, results are stratified by site. As much as possible, all charts are presented with the same scale in order to facilitate visual comparison of the sites.²

For all charts, plotted results represent pooled patient-level results, collected for a specific month. For instance, the point corresponding to July 2010 represents the combined patient experience results for a particular site based on all those who presented to that site's emergency department in July 2010.^{lxxxv}

Both run and control charts contain a great deal of information. In this report they are presented similarly and share many characteristics. To facilitate interpretation, note the following chart characteristics:

- Provincial aggregate run chart titles clearly identify the variable being reported.
- Site-level control chart titles clearly identify which site is being reported. Note: Since charts are
 presented using the small multiples technique, site-level control charts will be presented
 alongside the provincial aggregate run chart, which clearly identifies the variable being
 reported.
- The statistic being reported is indicated in the left margin (beside the y axis), e.g., Average Score, Percentage (%), Standard Deviation. Note: The statistic being reported will vary. Composite factors are reported using means (averages) and standard deviations (in <u>Appendix IX</u>), and individual survey questions are reported using percentages.
- The time order is indicated in the lower margin, beneath the x axis (e.g., Aug., Sep., etc.). Note: The study period for this report ranges from June 2010 to July 2013.^{lxxxvi}
- The blue solid line represents the monthly patient experience results.

Run Charts

Run charts differ from control charts in several important ways:

A median line is plotted on the run chart to represent the centre of the distribution of monthly
patient experience results. The median represents the middle data point in the distribution
when the data are organized from smallest to largest. Put another way, it is the value that
separates the higher half of the distribution from the lower half.

^{beexv} Data was collected to be representative at the site level; exclusions still apply. Exclusions included patients older than 12 years of age, those who left without being seen or treated, patients who died in the context of their emergency department stay, and privacy sensitive cases such as domestic abuse.

^{lacxvi} Data collection began in late June 2010, however due to very small sample sizes and the fact that patients surveyed in June would only represent a partial month, the HQCA has chosen not to report on June 2010 in the charts.



 Unlike control charts, run charts do not contain upper and lower bounds defining the range of expected random variability for the quality characteristic being measured.

Run charts and control charts also differ in the rules employed for detecting non-random variation or meaningful changes in the behaviour of the data. The HQCA has adopted the following rules to identify changes in run charts:^{2,lxxxvii(3)}

- 1. *A shift*: Six or more consecutive points above or below the median.
- 2. *A trend*: Five or more consecutive points increasing or decreasing.
- 3. *Too many or too few runs*: A run is a series of consecutive points falling on one side of the median. This rule is based on a complex probability-based test for detecting non-random patterns of data; essentially it tests to see if data clusters above or below the median too often to conclude the data are behaving randomly. The specifics of this probability-based test will not be discussed because of its complexity. However, refer to <u>Appendix IV</u> for a table depicting the minimum and maximum number of runs required to decide if run chart data vary randomly or not.
- 4. *An astronomical data point*: A data point that is obviously or blatantly different than the rest of the data; sometimes referred to as an outlier.

Please see Figure 24 for a visual depiction of a run chart's characteristics.^{lxxxviii} This example represents the charts used to display patient experience results at the provincial aggregate level:

Ixxxvii Rules one and three for run charts are violations of random patterns and are based on a probability of less than a 5% chance (p<.05) of occurring just by chance when there is no real change.

^{becxviii} Note: The data presented in the sample run chart on the next page has been randomized (i.e., these are not actual staff care and communication results for the provincial aggregate sample of emergency department patients; the results have been distorted so that they do not represent true responses from this study's sample of patients).



Figure 24: Run chart characteristics – a visual depiction





Notice that in this sample run chart, two periods of change have been detected using the rules identified above. These were both unsustained changes, because the data revert back to varying randomly around the median following the change. The staff care and communication variable is a composite variable that is scored on a scale from zero to 100, where 100 is the best possible score. With this in mind, it's concluded that an unsustained change toward higher average ratings of staff care and communication occurred from July to November 2011; average staff care and communication ratings consistently increased during these five consecutive months (trend), which would not be expected if the system was behaving randomly. Also, an unsustained change toward lower average ratings of staff care and communication occurred from November 2012 to April 2013; six consecutive average staff care and communication ratings were below the median (shift), which would not be expected if the system was behaving randomly.

The remaining two rules for detecting change in a run chart (i.e., too few or too many runs and an astronomical data point) are not represented on this sample run chart. Note, that according to the complex probability-based rule used to define too few or too many runs on a run chart (Table 33 in Appendix IV), the number of runs (i.e., consecutive points falling on one side of the median) falls within the range defining random variation and *does not* signal that a change in patient experience has occurred. Also, there were no data points that appear to be outliers (i.e., astronomically different than the rest). Therefore, with the exception of the detected unsustained changes from July to November 2011 and November 2012 to April 2013, it appears that average staff care and communication ratings vary randomly over most of the study period.

Control Charts

Several characteristics, specific to control charts, should be highlighted as well. These are:

- An overall average of the patient experience measure is calculated and plotted as the centreline of the distribution of monthly results. Note: The calculation of an overall average for the centreline will vary depending on the kind of control chart being produced (see <u>Appendix VIII</u> for centreline calculation formulas).
- A dotted green line represents the upper control limit (UCL), or maximum acceptable variation above the centreline for a system that is stable. A dotted red line represents the lower control limit (LCL), or maximum acceptable variation below the centreline for a system that is stable. These control limits define the range of expected random variability for a given patient experience measure based on historical norms. Note: The calculation of control limits will vary depending on the kind of control chart being produced (see <u>Appendix VIII</u> for control limit calculation formulas).

Please note, the HQCA urges caution when interpreting control limits. Control limits should not be used to determine where patient experience *should be* or what level of satisfaction is achievable, but rather whether emergency department patient experience has clearly changed compared to stable historical data. However, control limits do allow sites and managers to monitor whether patient experience is impacted by changes or initiatives implemented in the emergency department. Achievable performance targets can also be determined through comparison with top performing sites or time periods where higher ratings of patient experience were achieved while taking into consideration the factors which may have contributed to that performance.



Identifying meaningful changes in control charts requires a different set of rules than those used for run charts. Although the control limits define the range of expected variability for a process that is stable or in a state of control, they are not the only tool the HQCA used to detect special causes of variation in control charts. In total, the HQCA has adopted six rules to detect non-random variability or special causes (adapted from several established control chart guidelines):^{2,4,5}

- 1. A single point outside of the control limits.
- 2. A run of eight or more consecutive points above or below the centreline.
- 3. Six consecutive points increasing or decreasing.^{lxxxix(2)}
- 4. Two out of three consecutive points near, but not outside (outer one-third) the control limits.
- 5. Fifteen consecutive points close to the centreline (inner one-third).
- 6. An unusual or non-random pattern of points.xc(2,6,7)

Please see Figure 25 for a visual depiction of a control chart's characteristics.^{xci} This example represents the charts used to display patient experience results at the site level:

hexaix Because the control charts in this report have variable control limits (due to varying numbers of patients surveyed per month), rule three for control charts should be interpreted with caution. According to strict theory, it is not correct to use this rule; however, in practice this rule is quite useful for identifying meaningful change.

^{xc} This rule seems to be somewhat subjective, but is included because special circumstances may warrant the use of other tests for nonrandom variation, such as tests from Nelson (1984) or the Western Electric Handbook (1956).

^{xci} Note: The data presented in the sample control chart on the next page has been randomized (i.e., these are not actual self-reported wait time to see a physician results for the sample of emergency department patients at a particular site. The results have been distorted so that they do not represent true responses from this study's sample of patients).



Figure 25: Control chart characteristics - a visual depiction





Using the rules for detecting non-random variability in control charts (listed above), the sample control chart indicates that three unsustained meaningful changes occurred during the study period. Recall that this question asked patients to self-report how long they waited to be examined by a doctor, and the chart depicts the percentage of patients who self-reported waiting more than two hours. The control chart indicates that an unsustained change toward lower ratings of perceived wait times occurred from October 2010 to March 2011; the percentage of patients self-reporting they waited more than two hours to be examined by a doctor consistently increased during these six consecutive months, which would not be expected if the system was behaving randomly. A second unsustained change, this time toward better perceived wait times, occurred from May to July 2011. The points at May and July were both in the outer one-third of the control limits below the centreline, and given the historical behaviour of the system, indicate that a substantially lower percentage of patients self-reported waiting more than two hours to be examined by a doctor than expected. Lastly, an unsustained change toward lower ratings of perceived wait times occurred in February 2013. During this month, the percentage of patients self-reporting they waited more than two hours to be examined by a doctor than expected. Lastly a doctor was above the upper control limit, substantially higher than expected given the historical behaviour of the system.

The three other rules for identifying meaningful changes and special causes in control charts (i.e., eight or more consecutive points above or below the centreline, 15 consecutive points within the inner one-third of the control limits, and an unusual or non-random pattern of points) are not represented on this sample control chart.

Variation over time

The function of emergency departments and the experience of patients who attend them are impacted by a large number of factors, some of which are not under the direct control of the emergency departments. These factors may be reflected in the variability of patient experience over time at both the provincial aggregate and site levels. In the provincial aggregate run charts, it may be possible to evaluate the impact or influence of such things as seasonal variation or periods of infectious disease (e.g., "flu season"). However, evaluating the impact of factors such as periods of high hospital occupancy or reduced access to primary care on overall emergency department performance as it relates to patient experience is much more complex and requires investigation at the site level.

Similarly, factors that are under the direct control of the emergency departments, such as programs or initiatives meant to impact emergency department patient experience and performance, are highly variable between sites (see Section 4.2 and <u>Appendix V</u>) and will likely only be detectable when analyzing the results at the site level.

Operational definition of improvement

It is important to note that change in emergency department patient experience is directional and can be either postive or negative relative to historical norms. A negative change is one that results in declining patient experience, while a positive change is one that results in an enhanced patient experience. However, not every positive change should be deemed an improvement, nor should every negative change be deemed a regression.



To differentiate improvements from changes, the HQCA has adopted an operational definition of improvement that is well aligned with this report's data collection and analysis methods. According to this operational definition of improvement, four criteria must be fulfilled in order to conclude that an improvement has occurred:⁸

- 1. Alter how the work is done... Improvement is the result of some design or redesign of the system.^{xcii}
- 2. Produce visible, positive differences in results relative to historical norms (defined by control limits).
- 3. Produce *lasting* or *sustained* impact.
- 4. The impact must be on measures *that matter* to the organization.

See Figure 26 for a visual depiction of improvement, according to the operational definition the HQCA has adopted:

Figure 26: Operational definition of improvement⁸



^{xcii} This first criterion refers to the fact that detected changes using SPC methods are the result of assignable or special causes, and not the result of random variation. Thus, observed changes in patient experience are the result of some change affecting the care delivery process.



APPENDIX IV: TESTING FOR CHANGE ON A RUN CHART – THE RUNS RULE

The runs rule can be described as follows:

"A nonrandom pattern is signaled by too few or too many runs, or crossings of the median line. A run is a series of points in a row on one side of the median. Some points fall right on the median, which makes it hard to decide which run these points belong to. So, an easy way to determine the number of runs is to count the number of times the line connecting the data points crosses the median and add one. The data line must actually cross the median in order to signify that a new run has begun... After counting the number of runs we can determine whether we have a nonrandom signal of change due to too few or too many runs using the table (below)."²

The next step is to count the total number of data points that do not fall on the median. As an example, assume there are ten data points that do not fall on the median. To determine whether there are too few or too many runs, locate the row for ten data points that do not fall on the median. Following the row across to the right, locate the minimum and maximum number of runs the chart can have without indicating a signal of change. For this example, the chart can have a minimum of three runs and a maximum of nine runs. This means that any fewer than three runs indicates a nonrandom pattern or change, and any more than nine runs indicates a nonrandom pattern or change (see Table 33).



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Total number of data points on the run chart that do not fall on the median	Lower limit for the number of runs (< than this number of runs is 'too few')	Upper limit for the number of runs (> than this number of runs is 'too many')	Total number of data points on the run chart that do not fall on the median	Lower limit for the number of runs (< than this number of runs is 'too few')	Upper limit for the number of runs (> than this number of runs is 'too many')
10	3	9	36	13	25
11	3	10	37	13	25
12	3	11	38	14	26
13	4	11	39	14	26
14	4	12	40	15	27
15	5	12	41	15	27
16	5	13	42	16	28
17	5	13	43	16	28
18	6	14	44	17	29
19	6	15	45	17	30
20	6	16	46	17	31
21	7	16	47	18	31
22	7	17	48	18	32
23	7	17	49	19	32
24	8	18	50	19	33
25	8	18	51	20	33
26	9	19	52	20	34
27	10	19	53	21	34
28	10	20	54	21	35
29	10	20	55	22	35
30	11	21	56	22	36
31	11	22	57	23	36
32	11	23	58	23	37
33	12	23	59	24	38
34	12	24	60	24	38
35 12 24					
Note: Table is based on a 5% risk of failing the run test for random patterns of data					

Table 33: Checking for too many or too few runs on a run chart¹⁵
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APPENDIX V: PROVINCIAL EMERGENCY DEPARTMENT PROGRAMS AND INITIATIVES TIMELINE

In addition to the site-level emergency department programs and initiatives timelines presented in Section 4.2, this appendix displays the full provincial aggregate emergency department programs and initiatives timeline (including information on the non-pediatric sites). Figure 27 represents the complete information the HQCA was able to collect through consultation with emergency department stakeholders at the site, zone, and provincial levels.

Figure 27: Full provincial aggregate emergency department programs and initiatives timeline



APPENDIX V



Continued on next page







APPENDIX VI: DESCRIPTIVE STATISTICS BY SITE

Demographic characteristics

Table 34: Respondent characteristics – Alberta Children's Hospital

Male or Female (administrative data)		
Age (administrative data)		
Q71: What language do you mainly speak at home?		
	June 2010-July 2013 (n=1,499)	
Gender		
Female	42%	
Male	58%	
Mean Age (years)	4.3	
Language		
English	80%	
Other	20%	
Note: These results are not weighted and reflect respondents only		

Table 35: Respondent characteristics – Stollery Children's Hospital

Male or Female (administrative data)		
Age (administrative data)		
Q71: What language do you mainly speak at home?		
	June 2010-July 2013 (n=1,564)	
Gender		
Female	44%	
Male	56%	
Mean Age (years)	4.0	
Language		
English	87%	
Other	13%	
Note: These results are not weighted and reflect respondents only		



Respondents compared to those not surveyed or not included

Alberta Children's Hospital

 Table 36: Gender by sample category – Alberta Children's Hospital

Survey compared to no survey over the study period			
June 2010-July 2013 (administrative data)			
	June 2010-July 2013		
Gender	No Survey	Survey	
Female	44%	42%	
Male	56%	58%	
	155,601	1,499	
Count	157,100		
p value	Chi-squared = 0.083 Phi = 0.0044		
Note: 'No survey' category includes non-respondents as well as those not included in the sample			

Table 37: Mean age by sample category – Alberta Children's Hospital

Survey compared to no survey over the study period June 2010-July 2013 (administrative data)				
June 2010-July 2013				
Value	No Survey Survey			
	4.3 years	4.3 years		
Mean Age 4.3 years				
p value	t-test = 0.739			
Note: 'No survey' category includes non-respondents as well as those not included in the sample				



Survey compared to no su June 2010-July 2013 (adm	rvey over the study period inistrative data)		
	June 2010-July 2013		
CTAS score	No Survey	Survey	
CTAS 1	0.4%	0.3%	
CTAS 2	10%	9%	
CTAS 3	46%	46%	
CTAS 4	41%	42%	
CTAS 5	3%	2%	
	155,673	1,499	
Count	157,172		
p value	Chi-squared = 0.518	Cramer's V = 0.0045	
Note: 'No Survey' category includes	s non-respondents as well as those not included in	the sample	

Table 38: CTAS score by sample category – Alberta Children's Hospital

 Table 39: Discharge status by sample category – Alberta Children's Hospital

Survey compared to no survey over the study period June 2010-July 2013 (administrative data)				
June 2010-July 2013				
Discharge disposition	No Survey	Survey		
Not Admitted	94%	94%		
Admitted	6%	6%		
150,431 1,491				
Count	151,922			
p value	Chi-squared = 0.264 Phi = 0.0029			
Note: 'No Survey' category includes non-respondents as well as those not included in the sample				



Stollery Children's Hospital

Table 40: Gender by sample category – Stollery Children's Hospital

Survey compared to no survey over the study period June 2010-July 2013 (administrative data)			
	June 2010-July 2013		
Gender	No Survey	Survey	
Female	45%	44%	
Male	55%	56%	
	86,890	1,564	
Count	88,454		
p value	Chi-squared = 0.4	177 Phi = 0.0024	
Note: 'No survey' category includes non-respondents as well as those not included in the sample			

Table 41: Mean age by sample category – Stollery Children's Hospital

Survey compared to no survey over the study period June 2010-July 2013 (administrative data)			
	June 2010-July 2013		
Value	No Survey	Survey	
	4.0 years	4.0 years	
Mean Age	4.0 years		
p value	t-test = 0.794		
Note: 'No survey' category includes non-respondents as well as those not included in the sample			



Survey compared to no survey over the study period June 2010-July 2013 (administrative data)			
	June 2010-July 2013		
CTAS score	No Survey	Survey	
CTAS 1	0.4%	0.3%	
CTAS 2	18%	19%	
CTAS 3	52%	53%	
CTAS 4	26%	24%	
CTAS 5	4%	4%	
	86,347	1,553	
Count	87,900		
p value	Chi-squared = 0.137	Cramer's V = 0.0089	
Note: 'No Survey' category includes non-respondents as well as those not included in the sample			

Table 42: CTAS score by sample category – Stollery Children's Hospital

Table 43: Discharge status by sample category – Stollery Children's Hospital

Survey compared to no survey over the study period			
	June 2010-July 2013		
Discharge disposition	No Survey	Survey	
Not Admitted	89%	87%	
Admitted	11%	13%	
	84,934	1,562	
Count	86,496		
p value	Chi-squared = 0.048 Phi = 0.0067		
Note: 'No Survey' category includes non-respondents as well as those not included in the sample			



Self-reported health characteristics

Q63: Overall, how would you rate your health during the past 4 weeks?			
	June 2010-July 2013 (n=1,473)		
Health during past four weeks			
Excellent	38%		
Very good	32%		
Good	20%		
Fair	7%		
Poor	3%		
Very poor	0.4%		
Note: Data are not weighted	· · · ·		

Table 44: Self-reported health characteristics – Alberta Children's Hospital

Table 45: Self-reported health characteristics – Stollery Children's Hospital

Q63: Overall, how would you rate your health during the past 4 weeks?		
	June 2010-July 2013 (n=1,533)	
Health during past four weeks		
Excellent	36%	
Very good	32%	
Good	21%	
Fair	9%	
Poor	2%	
Very poor	0.4%	
Note: Data are not weighted		



Prior use of personal family doctor or emergency department services

Table 46: Visits to personal family doctor or emergency department services – Alberta Children's

 Hospital

Q64: Do you currently have a personal family doc health care needs?	tor or specialist whom you see for most of your	
Q65: In the past 12 months, approximately how many times in total have you visited your personal family doctor or your specialist for your own care?		
Q66: In the past 12 months, approximately how m department for your own care?	any times have you visited an emergency	
	June 2010-July 2013	
Has a personal family doctor	(n=1,486)	
Yes	93%	
In the past twelve months, how many times have you visited		
Your personal family doctor*	(n=1,365)	
None	4%	
1 time	17%	
2 to 4 times	52%	
5 to 10 times	21%	
More than 10 times	6%	
An emergency department	(n=1,472)	
1 time	53%	
2 to 4 times	42%	
5 to 10 times	4%	
More than 10 times 0.4%		
Note: Data are not weighted * Respondents who indicated that they do not have a personal fam	ily doctor (Q64) were not asked this question	



Table 47: Visits to personal family doctor or emergency department services – Stollery Children's

 Hospital

Q64: Do you currently have a personal family doctor or specialist whom you see for most of your health care needs?

Q65: In the past 12 months, approximately how many times in total have you visited your personal family doctor or your specialist for your own care?

Q66: In the past 12 months, approximately how many times have you visited an emergency department for your own care?

	June 2010-July 2013
Has a personal family doctor	(n=1,550)
Yes	93%
	·
In the past twelve months, how many times have	/ou visited
Your personal family doctor*	(n=1,420)
None	3%
1 time	17%
2 to 4 times	52%
5 to 10 times	19%
More than 10 times	8%
An emergency department	(n=1,531)
1 time	50%
2 to 4 times	44%
5 to 10 times	5%
More than 10 times	1%



Decision to go to the emergency department

Alberta Children's Hospital

Table 48: Who advised respondent to go to emergency department – Alberta Children's Hospital

Q1: Please identify all those who advised you to go to the emergency department.		
	June 2010-July 2013 (n=1,471)	
Decided on my own	42%	
Friend or family member	24%	
Health Link phone-line nurse	21%	
Personal family doctor	11%	
Other	8%	
Doctor at walk-in clinic	7%	
Specialist doctor	3%	
Note: Data are not weighted Respondents could choose more than one answer, so the total sum can be more than 100%		

Table 49: Why patient chose the emergency department – Alberta Children's Hospital

Q2: Why did you choose to go to the emergency department, instead of somewhere else such as a doctor's office?		
Reason	June 2010-July 2013 (n=1,481)	
Emergency department was the best place for my medical problem	52%	
Emergency department was only choice available at time	39%	
Told to go to the emergency department rather than somewhere else	26%	
Emergency department was the most convenient place to go	9%	
Note: Data are not weighted Respondents could choose more than one answer, so the total sum can be more than 100%		



Stollery Children's Hospital

Table 50: Who advised	d respondent to go	o to emergency department -	Stollery Children's Hospital
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Q1: Please identify all those who advised you to go to the emergency department.		
	June 2010-July 2013 (n=1,537)	
Decided on my own	36%	
Friend or family member	27%	
Health Link phone-line nurse	19%	
Personal family doctor	14%	
Other	10%	
Doctor at walk-in clinic	9%	
Specialist doctor	6%	
Note: Data are not weighted Respondents could choose more than one answer, so the total s	sum can be more than 100%	

Table 51: Why patient chose the emergency department – Stollery Children's Hospital

Q2: Why did you choose to go to the emergency department, instead of somewhere else such as a doctor's office?		
Reason	June 2010-July 2013 (n=1,547)	
Emergency department was the best place for my medical problem	50%	
Emergency department was only choice available at time	38%	
Told to go to the emergency department rather than somewhere else	32%	
Emergency department was the most convenient place to go	7%	
Note: Data are not weighted Respondents could choose more than one answer, so the total sum can be more than 100%		



Getting to the emergency department

Q4: How did you travel to the emergency department?			
Q5: When you went to the emergency department, how long did it take you to get there?			
	June 2010-July 2013 (n=1,477)		
Mode of transportation			
Car	92%		
Ambulance	6%		
Taxi	1%		
Foot	0%		
Bus/train	1%		
Other	0.1%		
Time to get to emergency department			
Up to 30 minutes	72%		
More than 30 minutes, but less than 1 hour	20%		
More than 1 hour	7%		
Note: Data are not weighted Sample size (n) is reported for mode of transportation (Q4)			

Table 52: Traveling to the emergency department – Alberta Children's Hospital

Table 53: Traveling to the emergency department – Stollery Children's Hospital

Q4: How did you travel to the emergency department? Q5: When you went to the emergency department, how long did it take you to get there?			
Mode of transportation			
Car	85%		
Ambulance	10%		
Taxi	2%		
Foot	0.5%		
Bus/train	2%		
Other	0.2%		
Time to get to emergency department			
Up to 30 minutes	72%		
More than 30 minutes, but less than 1 hour	19%		
More than 1 hour	8%		
Note: Data are not weighted Sample size (n) is reported for mode of transportation (Q4)	•		



Urgency of healthcare problem

Alberta Children's Hospital

 Table 54: Self-rated urgency – Alberta Children's Hospital

Q3: Would you have described your health problem as?			
Urgency Rating	June 2010-July 2013 (n=1,464)		
Life threatening	2%		
Possibly life threatening	14%		
Urgent	27%		
Somewhat urgent	51%		
Not urgent	6%		
Note: Data are not weighted			

Table 55: CTAS (triage) score – Alberta Children's Hospital

From administrative data		
CTAS Level	June 2010-July 2013 (n=1,499)	
CTAS 1	0.3%	
CTAS 2	9%	
CTAS 3	46%	
CTAS 4	42%	
CTAS 5	2%	
Note: Data are not weighted In the CTAS score, 1 is most urgent, and 5 is least urgent		



Table 56: Degree of difference between self-rated urgency (Q3) and administrative CTAS – Alberta

 Children's Hospital

CTAS subtracted from Q3 for each respondent				
(Q3) Relative Differ	ence	Q3 (-) CTAS	June 2010-July 2013 (n=1,464)	
CTAS is less Urgent		-4	0%	
	↑	-3	0.3%	
		-2	5%	
		-1	19%	
Identical	>	0	42%	
CTAS is more Urgent		1	29%	
	\downarrow	2	5%	
		3	0.1%	
		4	0%	
Kappa (un-weighted)		0.0949		
Note: Data are not weight Kappa statistic is un-weig Kappa is calculated for C	ed hted Kappa TAS score versus se	lf-rated urgency (Q3) within patient		

Table 57: Self-rated urgency (Q3) for CTAS 1 or 2 respondents – Alberta Children's Hospital

Self-rated urgency	June 2010-July 2013 (n=136)
Life-threatening/or possibly life threatening	39%
Urgent, risk of permanent damage	32%
Somewhat urgent, needed to be seen today	29%
Not urgent, but I wanted to be seen today	0%


Stollery Children's Hospital

Table 58: Self-rated urgency – Stollery Children's Hospital

Q3: Would you have described your health problem as?				
Urgency Rating	June 2010-July 2013 (n=1,536)			
Life threatening	3%			
Possibly life threatening	19%			
Urgent	28%			
Somewhat urgent	46%			
Not urgent	4%			
Note: Data are not weighted				

Table 59: CTAS (triage) score – Stollery Children's Hospital

From administrative data				
CTAS Level	June 2010-July 2013 (n=1,553)			
CTAS 1	0.3%			
CTAS 2	19%			
CTAS 3	53%			
CTAS 4	24%			
CTAS 5	4%			
Note: Data are not weighted In the CTAS score, 1 is most urgent, and 5 is least urgent				



Table 60: Degree of difference between self-rated urgency (Q3) and administrative CTAS – Stollery

 Children's Hospital

CTAS subtracted from Q3 for each respondent						
(Q3) Relative Difference		Q3 (-) CTAS	June 2010-July 2013 (n=1,525)			
		-4	0.1%			
CTAS is less		-3	0.3%			
Urgent	↑	-2	5%			
		-1	20%			
Identical	>	0	35%			
		1	32%			
CTAS is more	\downarrow	2	7%			
Urgent		3	1%			
		4	0%			
Kappa (un-weighted) 0.0777						
Note: Data are not weighted Kappa statistic is un-weighted Kappa Kappa is calculated for CTAS score versus self-rated urgency (Q3) within patient						

Table 61: Self-rated urgency (Q3) for CTAS 1 or 2 respondents – Stollery Children's Hospital

Self-rated urgency	June 2010-July 2013 (n=296)			
Life-threatening/or possibly life threatening	43%			
Urgent, risk of permanent damage	25%			
Somewhat urgent, needed to be seen today	29%			
Not urgent, but I wanted to be seen today	4%			



Reasons for the emergency department visit

Table 62: The reason for visiting an emergency department – Alberta Children's Hospital

Q6: Thinking about the medical problem that brought you to the emergency department, would you say that your problem was					
	June 2010-July 2013 (n=1,461)				
New illness or injury					
New illness/condition unrelated to previous illness/condition	48%				
New injury/accident unrelated to previous injury/accident	27%				
Related to previous illness or injury					
Worsening of pre-existing chronic illness/condition	12%				
Complications or problems following recent medical care	8%				
Routine care of a pre-existing chronic illness/condition	1%				
Told to return to the emergency department for follow-up care	2%				
Other	1%				
Note: Data are not weighted					

Table 63: The reason for visiting an emergency department – Stollery Children's Hospital

	June 2010-July 2013 (n=1,531)
New illness or injury	
New illness/condition unrelated to previous illness/condition	49%
New injury/accident unrelated to previous injury/accident	24%
Related to previous illness or injury	
Worsening of pre-existing chronic illness/condition	14%
Complications or problems following recent medical care	7%
Routine care of a pre-existing chronic illness/condition	2%
Told to return to the emergency department for follow-up care	2%
Other	2%



Overall questions about care

Alberta Children's Hospital

Table 64: Overall care received in the emergency department - Alberta Children's Hospital

Q57: Overall, how would you rate the care you received in the emergency department?
Q55: Was the main reason you went to the emergency department dealt with to your satisfaction?
Q56: Overall, did you feel you were treated with respect and dignity while you were in the emergency department?

	June 2010-July 2013
Overall rating of care	(n=1,474)
Excellent	47%
Very good	33%
Good	13%
Fair	5%
Poor	1%
Very poor	1%
Main reason for visit dealt with to satisfaction	(n=1,470)
Yes completely	69%
Yes to some extent	25%
No	6%
Overall, treated with respect and dignity	(n=1,474)
Yes all of the time	83%
Yes some of the time	16%
No	2%
Note: Data are not weighted	

Table 65: Overall care received in the emergency department (dichotomous) by discharge disposition – Alberta Children's Hospital

Q57: Overall, how would you rate the care you received in the emergency department?				
Overall rating of care	June 2010-July 2013			
Admitted	(n=82)			
Less than Excellent or Very Good	5%			
Excellent or Very Good	95%			
Discharged	(n=1,384)			
Less than Excellent or Very Good	21%			
Excellent or Very Good	79%			
p value	Chi-squared = 0.000 Phi = 0.0929			
Note: Data are not weighted				



Stollery Children's Hospital

Table 66: Overall care received in the emergency department – Stollery Children's Hospital

Q57: Overall, how would you rate the care you received in the emergency department?					
Q55: Was the main reason you went to the emergency department dealt with to your satisfaction? Q56: Overall, did you feel you were treated with respect and dignity while you were in the emergency department?					
Overall rating of care	(n=1,544)				
Excellent	46%				
Very good	33%				
Good	14%				
Fair	4%				
Poor	2%				
Very poor	1%				
Main reason for visit dealt with to satisfaction	(n=1,538)				
Yes completely	69%				
Yes to some extent	24%				
No	7%				
Overall, treated with respect and dignity	(n=1,537)				
Yes all of the time	83%				
Yes some of the time	14%				
No	2%				
Note: Data are not weighted					

Table 67: Overall care received in the emergency department (dichotomous) by discharge disposition – Stollery Children's Hospital

Q57: Overall, how would you rate the care you received in the emergency department?						
Overall rating of care June 2010-July 2013						
Admitted	(n=199)					
Less than Excellent or Very Good	18%					
Excellent or Very Good	82%					
Discharged	(n=1,344)					
Less than Excellent or Very Good	21%					
Excellent or Very Good	79%					
p value Chi-squared = 0.259 Phi = 0.028						
Note: Data are not weighted						



Patients who considered leaving before treatment

Table 68: Considered leaving before being seen or treated by discharge status and CTAS – Alberta

 Children's Hospital

Q9: During your visit to the emergency department, did you consider leaving before you had been seen and treated?								
		Discharge status		CTAS level				
	Considered Leaving	Admitted (column%)	Not admitted	CTAS 1	CTAS 2	CTAS 3	CTAS 4	CTAS 5
June 2010- July 2013		n=1,460		n=1,468				
	Yes, definitely	2%	8%	0%	3%	7%	9%	10%
	To some extent	1%	15%	0%	2%	15%	17%	10%
	No	96%	77%	100%	95%	78%	74%	80%
p value Cramer's V = 0.1064		Cramer's V = 0.1015						
Note: Data are not weighted Chi-squared is significant at $p = 0.001$ where Cramer's V is shown								

Table 69: Considered leaving before being seen or treated by discharge status and CTAS – Stollery

 Children's Hospital

Q9: During your visit to the emergency department, did you consider leaving before you had been seen and treated?

		Discharg	Discharge status CTAS level					
	Considered Leaving	Admitted (column%)	Not admitted	CTAS 1	CTAS 2	CTAS 3	CTAS 4	CTAS 5
June 2010- July 2013		n=1,	544	n=1,534				
	Yes, definitely	5%	7%	0%	4%	7%	7%	4%
	To some extent	6%	13%	0%	9%	13%	14%	9%
	No	89%	80%	100%	87%	79%	79%	87%
p value Chi-squared = 0.007		Chi-squared = 0.131						
Note: Data are not weighted Chi-squared is significant at p = 0.001 where Cramer's V is shown								



APPENDIX VII: SURVEY MATERIALS



Emergency Department Questionnaire

Taking part in this survey is voluntary

Who should complete the questionnaire?

We are surveying children and parents who have recently visited an emergency department. If you have not recently visited an emergency department, please fill-in this bubble O and return the blank questionnaire using the postage-paid envelope.

If you feel your child is mature enough to answer the questions, he or she can complete the survey. You can provide assistance and support as needed.

If the child is not able to answer the questions, the person who visited the emergency department with the child should complete the survey from the child's point of view.

Completing the questionnaire

For each question, please fill-in one bubble,
using a black or blue pen, or a soft-led pencil.
Don't worry if you make a mistake; simply cross out or erase the mistake, and fill-in the correct bubble.

Sometimes you will find the bubble you have filled-in has an instruction to go to another question.

For example: O Yes → Go to 48 (Question 48)

By following the instructions, you will only complete questions that apply to you.

Questions or help?

If you have any questions about this survey, please call PRA Inc. at 1-888-877-6744 (toll-free) and ask to speak with the Emergency Department Survey Manager.

Your answers will be confidential.

Your data is protected under the Health Information Act of Alberta and will only be used or disclosed in non-identifying form. The information is collected under the authority of the Health Quality Council of Alberta Regulation, section 7(2)(d) and will be used to identify areas of improvement in emergency departments.

COPYRIGHT INFORMATION

This questionnaire is based on the NHS Emergency Department Questionnaire provided by the Care Quality Commission (UK). Use of this copyrighted material by any other individual or organization for any other purpose requires written permission from the Care Quality Commission.





Please remember, this survey should be completed from the point of view of the person referred to in the cover letter (the patient), or by the patient.

BEFORE YOUR ARRIVAL AT THE EMERGENCY DEPARTMENT

 Please identify all those who advised you to go to the Emergency Department:

My personal family doctor	O Yes	O No
My specialist doctor	O Yes	O No
A doctor at a walk-in clinic	O Yes	O No
A friend or family member	O Yes	O No
The Health Link phone-line nurse	O Yes	O No
No one, I decided on my own	⊖ Yes	O No
Other (please specify):		

- Why did you choose to go to the Emergency Department, instead of somewhere else such as a doctor's office? FILL-IN <u>ALL</u> THAT APPLY
 - The Emergency Department was the only choice available at the time.
 - The Emergency Department was the most convenient place to go.
 - I (we) thought the Emergency Department was the best place for my medical problem.
 - I was told to go to the Emergency Department rather than somewhere else.
 - O Other:
- 3. Would you have described your health problem as:
 - O Life-threatening
 - O Possibly life-threatening
 - O Urgent, risk of permanent damage
 - O Somewhat urgent, needed to be seen today
 - O Not urgent, but I wanted to be seen today

- 4. How did you travel to the Emergency Department?
 O In an ambulance
 O By car
 O By taxi
 O On foot
 - O By bus or train

O Other

- 5. When you went to the Emergency Department, how long did it take you to get there?
 - O Up to 30 minutes
 - O More than 30 minutes, but no more than 1 hour
 - O More than 1 hour
 - O Don't know / Can't remember
- Thinking about the medical problem that brought you to the Emergency Department; Would you say that your problem was . . .
 - A new injury or accident not related to a previous injury or accident
 - A new illness or condition not related to a previous illness or condition
 - Complications or problems following recent medical care
 - Worsening of pre-existing chronic illness or condition
 - Routine care of a pre-existing chronic illness or condition
 - I was told to return to the Emergency Department for follow-up care

Other





YOUR VISIT

- How crowded was the Emergency Department waiting room when you first arrived there?
 - O Extremely crowded
 - O Very crowded
 - O Somewhat crowded
 - O Not at all crowded
 - O I did not see the waiting room
 - O Don't know / Can't remember
- 8. Were you able to find a comfortable place to sit in the waiting area?
 - O Yes, I found a comfortable place to sit
 - O I found somewhere to sit, but it was not comfortable
 - O No, I could not find a place to sit
 - O I did not want or need a place to sit
 - O I did not see the waiting room
 - O Don't know / Can't remember
- During your visit to the Emergency Department, did you consider leaving before you had been seen and treated?
 - O Yes, definitely
 - O Yes, to some extent
 - O No

In your Emergency Department visit, you probably met a few different staff members.

The "receptionist" is the person who checks your health-care card and address, and who gives you a wristband or hospital card. The "triage nurse" is a different person - who asks you about your health problem in detail and decides on your priority for treatment.

The next two questions are about the "triage nurse."

- 10.How long did you wait before you FIRST SPOKE to the triage nurse, that is, the person who first asked you about your health problem?
 - 0 to 15 minutes
 → Go to 11

 16 to 30 minutes
 → Go to 11

 31 to 60 minutes
 → Go to 11

 More than 60 minutes
 → Go to 11

 Don't know / Can't remember
 → Go to 11
 - I did not see a triage nurse → Go to 13
- 11.How would you rate the courtesy of the Emergency Department *triage nurse*, that is, the person who first asked you about your health problem?
 - O Excellent
 - O Very good
 - O Good
 - O Fair
 - O Poor
 - O Very poor
- 12. When you first arrived at the Emergency Department, did you see the *triage nurse* before the *receptionist*?

O Yes

- O No
- O Don't know / Can't remember





WAITING	17.Did a member of staff check on you while you were waiting?
13. From the time you first arrived at the Emergency Department, how long did you wait BEFORE BEING EXAMINED by a doctor?	O Yes, definitely
	O Yes, but I would have liked them to check more often
O I did not have to wait	O No, but I would have liked them to check
○ 1 to 30 minutes	O No, but I did not mind
O 31 to 60 minutes	O Don't know / Can't remember
\bigcirc More than 1 hour but no more than 2 hours	
O More than 2 hours but no more than 4 hours O More than 4 hours	18.Overall, how long did your visit to the Emergency Department last?
O Don't know / Can't remember	O Up to 1 hour
O I did not see a doctor	O More than 1 hour but no more than 2 hours
	O More than 2 hours but no more than 4 hours
14. Were you told how long you would have to	O More than 4 hours but no more than 8 hours
O Yes but the wait was shorter	O More than 8 hours but no more than 12 hours
\bigcirc Yes, and I had to wait as long as I was told	O More than 12 hours but no more than 24 hours
	O More than 24 hours
O Ne Luce estated	O Can't remember
O No, I was not told	
O Don't know / Can't remember	DOCTORS AND NURSES
15. Were you told WHY YOU HAD TO WAIT to be examined?	19.Did the doctors and nurses treating and assessing you introduce themselves?
O Yes	O Yes, all of them introduced themselves
○ No, but I would have liked an explanation	O Some of them introduced themselves
O No, but I did not need an explanation	O Very few or none of them introduced themselves
○ Don't know / Can't remember	⊖ Can't remember
16.Overall, did you think the order in which patients were seen was fair? O Yes	 20.Did you have enough time to discuss your health or medical problem with the doctor or nurse? O Yes, definitely O Yes, to some extent

O Can't say / Don't know

O No





21. Did the doctors and nurses listen to what you had to say?	26.Did doctors or nurses talk in front of you as if you weren't there?	
O Yes, definitely	○ Yes, definitely	
O Yes, to some extent	O Yes, to some extent	
O No	O No	
22. While you were in the Emergency Department, did a doctor or nurse explain your condition and treatment in a way you could understand?	YOUR CARE AND TREATMENT 27.While you were in the Emergency Department, how	
O Yes, completely	much information about your condition or treatment	
O Yes, to some extent	O Not enough	
O No	O Right amount	
O I did not need an explanation	O Too much	
23. If you had any anxieties or fears about your condition or treatment, did a doctor or nurse discuss them with you?	O I was not given any information about my treatment or condition	
O Yes, completely	28.Were you given enough privacy when discussing	
O Yes, to some extent	your condition or treatment?	
O No	O Yes, definitely	
O I did not have anxieties or fears	O Yes, to some extent	
	O No	
24. Did you have confidence and trust in the doctors and nurses examining and treating you?		
O Yes, definitely	29. Were you given enough privacy when being examined or treated?	
O Yes, to some extent	O Yes, definitely	
O No	O Yes, to some extent	
25. In your opinion, did the doctors and nurses in the Emergency Department know enough about your condition or treatment?	O No	
○ All of them knew enough	30. If you needed attention, were you able to get a member of staff to help you?	
○ Most of them knew enough	⊖ Yes, always	
Only some of them knew enough	O Yes, sometimes	
○ None of them knew enough	\bigcirc No, I could not find a member of staff to help me	
O Don't know / Can't say	\bigcirc A member of staff was with me all the time	
-	○ I did not need attention	
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	Page 5	



31. Sometimes in a hospital, a member of staff will say one thing and another will say something quite different. Did this happen to you in the Emergency Department?	The "treatment area" is the area inside the Emergency Department where patients have a bed and are examined and treated by the doctor.	
O Yes, definitely	35.Was your family member or friend allowed to join you in the treatment area when you wanted?	
O Yes, to some extent	O Yes, definitely	
O No	O Yes, to some extent	
	O No	
32. Were you involved as much as you wanted to be in decisions about your care and treatment? O Yes, definitely	O I did not want them there	
O Yes, to some extent	TESTS (e.g., X-rays or scans)	
O No	36.Did you have any tests (such as X-rays, scans, or blood tests) during this visit to the Emergency Dependence	
 I was not well enough to be involved in decisions about my care 	O Yes → Co to 37	
-		
33.Did a family member or friend come with you or join you in the Emergency Department?	37. Did a member of staff explain the results of the tests in a way you could understand?	
\bigcirc Yes, someone came with the \rightarrow Go to 34	O Yes, definitely	
O Yes, someone joined me there - Go to 34	O Yes, to some extent	
O Yes, but he / she needed to leave Go to 34 Go to 34	O No	
○ N0 → Go to 36	O Not sure / Can't remember	
	O I was told the test result would be given to me later	
34. How much information about your condition or treatment was given to your family or someone	PAIN	
Close to you?	38. Were you in any pain while you were in the	
	O Yes → Go to 39	
O My family did not want or need information	0110 - 00 10 43	
O I did not want family or friends to have information	39.While you were in the Emergency Department.	
	how much of the time were you in pain?	
	O All or most of the time	
	O Occasionally	
Pa	12938 Ige 6	







- 49. Did a member of staff explain to you how to take the new medications?
 - O Yes, completely
 - O Yes, to some extent
 - O No
 - O I did not need an explanation
- 50. Did a member of staff tell you about medication side effects to watch for?
 - O Yes, completely
 - O Yes, to some extent
 - O No
 - O I did not need this type of information

INFORMATION

- 51. Did a member of staff tell you when you could resume your usual activities, such as when to go back to work or drive a car?
 - O Yes, definitely
 - O Yes, to some extent
 - O No
 - O I did not need this type of information
- 52. Did a member of staff tell you about what danger signals regarding your illness or treatment to watch for after you went home? O Yes, completely
 - O Yes, to some extent
 - O No
 - O I did not need this type of information
- 53.Did a member of staff tell you what to do if you were worried about your condition or treatment after you left the Emergency Department?
 - O Yes, completely
 - O Yes, to some extent
 - O No
 - O Don't know / Don't remember

- 54. Did a member of staff ask about any of the following when you left the Emergency Department
 - a) How you were getting home?

O Yes O No O Not needed

- b) If you had someone at home to assist you?
 O Yes
 O No
 O Not needed
- c) If there were any other concerns about your safety and comfort at home?

O Yes O No O Not needed

- d) If you knew what to do for follow-up care?
 - Yes No Not needed

OVERALL

- 55. Was the main reason you went to the Emergency Department dealt with to your satisfaction?
 - O Yes, completely
 - O Yes, to some extent
 - O No
- 56. Overall, did you feel you were treated with respect and dignity while you were in the Emergency Department?
 - O Yes, all of the time
 - O Yes, some of the time
 - O No
- 57. Overall, how would you rate the care you received in the Emergency Department?
 - O Excellent
 - O Very good
 - O Good
 - O Fair
 - O Poor
 - O Very poor

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ABOUT YOU

- 58. Do you currently have a personal family doctor or specialist whom you see for most of your health-care needs?
 - Yes → Go to 59
 - No → Go to 60
- 59. In the past 12 months, how many times in total have you visited your personal family doctor or your specialist FOR YOUR OWN CARE?
 - O 0 times
 - O 1 time
 - O 2 to 4 times
 - O 5 to 10 times
 - O More than 10 times
- 60. In the past 12 months, how many times have you visited an Emergency Department FOR YOUR OWN CARE? (please include this visit)
 - O 0 times
 - O 1 time
 - O 2 to 4 times
 - O 5 to 10 times
 - O More than 10 times

61.Overall, how would you rate your health during the past 4 weeks?

- O Excellent
- O Very good
- O Good
- O Fair
- O Poor
- O Very poor
- 62. Do you receive home-care services at present? O Yes

No, but I am waiting for home-care services
 No

- 63. What language do you mainly speak at home?
 - O English

O Other

- 64. How was this questionnaire completed?
 - By the child (the patient)
 - By the child with assistance from a family member or parents
 - By a family member or parent who was there, but from the child's point of view.
- 65. Do you have any additional comments, concerns or issues? If so, please explain.

THANK YOU VERY MUCH FOR YOUR HELP. Your response will help to improve Emergency Department Care in Alberta.

Please return using the pre-paid envelope provided to you.

Do you have urgent concerns about your health?
 Health Link Alberta
 Nurse advice and health service information 24 hours a day
 In Calgary (403) 943-LINK (5465) In Edmonton (780) 408-LINK (5465)
 OR Toll-Free 1-866-408-5465





<DATE>

To the Parent or Guardian of: <FIRST NAME> <LAST NAME> <ADDRESS> <CITY>, <PROV> <POSTAL CODE> <SURVEY NUMBER>

Dear Parent or Guardian,

We would like to invite you to take part in a survey about the quality of care in Alberta Emergency Departments. This confidential survey is intended to obtain your feedback about your child's most recent visit to <FACILITY> between <DATE RANGE OF SAMPLE>. The important information you and others provide will assist emergency departments to identify areas for improvement. The questionnaire should only take about 15 minutes to complete and a pre-paid return envelope is enclosed for you to return the questionnaire.

The survey is being conducted by the Health Quality Council of Alberta (HQCA) in partnership with Alberta Health Services. The HQCA is an independent organization legislated under the Regional Health Authorities Act. The HQCA monitors and reports on the quality, safety, and performance of the health system and helps health-care providers to improve the quality of the care and services they provide. The HQCA is monitoring patient experience in Alberta Emergency Departments on an ongoing basis.

Your participation is entirely voluntary and you need not answer all of the questions. We hope you will participate and provide as much information as possible. We want to give you every opportunity to participate in this study. All answers will be kept strictly confidential and will be combined with those of others in the final report. Individual survey answers will not be shared with anyone. We would appreciate if you could take the time now to complete and return the questionnaire. If we do not receive anything from you by <DATE>, we may contact you by phone or send a reminder notice.

To manage the survey process and to ensure confidentiality, we have engaged the services of Prairie Research Associates (PRA) Inc. PRA is an independent, national research firm who is under contract to the HQCA to follow the Alberta health information privacy legislation.

If you would like more information about the survey or have questions on how to complete the questionnaire please do not hesitate to call Nicholas Borodenko of PRA Inc. at 1-888-877-6744 (toll free) or by e-mail at HQCAsurvey@pra.ca.

Thank you in advance for your participation!	How should we complete the survey?
Sincerely,	If you feel the child is mature enough to answer the questions, they can complete the survey. You can
John Coursel	provide assistance and support as needed.
John Cowell, MD Chief Executive Officer Health Quality Council of Alberta	If the child is not capable of answering the questions, the person who visited the emergency department with the child should complete the survey from the child's point of view .





Recently the Health Quality Council of Alberta sent you a questionnaire. If you have already completed and returned it to us, please accept our sincere thanks. If not, please do so at your earliest convenience.

The survey was sent to only a small group of individuals so it is extremely important that your responses are included. The information collected from this study will assist emergency departments in Alberta to identify areas for improvement.

If, by some chance, you did not receive the questionnaire or it was misplaced, please call Nicholas Borodenko of PRA at 1-888-877-6744 and another package will be sent to you.

Sincerely,

ohn Cowell

John Cowell, MD Chief Executive Officer Health Quality Council of Alberta



To the Parent or Guardian of: <FIRST NAME> <LAST NAME> <ADDRESS> <CITY>, <PROV> <POSTAL CODE> <Survey number>

Dear Parent or Guardian,

We recently sent you a survey regarding the quality of care your child received during their most recent visit to <FACILITY> between <DATE RANGE OF SAMPLE>.

Your views are very important and as we have not received your response, we have provided you with a second copy of the questionnaire. The questionnaire should only take about 15 minutes to complete. If you have already replied, please ignore this letter and accept our thanks for your participation.

While your participation in the survey is entirely voluntary, and you need not answer all the questions, we hope you will participate and provide as much information as possible. We want to ensure you have the opportunity to participate in this study. If we do not receive anything from you within a week or so, a representative from our contracted research firm (PRA Inc.) may follow up with a phone call to determine your interest and to confirm that you received the survey.

Your answers will be kept in strict confidence and will be combined with those of others in the final report. Individual survey answers will not be shared with anyone.

If you would like more information about the survey, or if you have any questions about completing the questionnaire, please call Nicholas Borodenko of PRA Inc. at 1-888-877-6744 (toll free) or by e-mail at HQCAsurvey@pra.ca.

Sincerely,

Curel

John Cowell, MD Chief Executive Officer Health Quality Council of Alberta

How should we complete the survey?

If you feel your child is mature enough to answer the questions, they can complete the survey. You can provide assistance and support as needed.

If your child is not capable of answering the questions, the person who visited the emergency department with the child should complete the survey **from the child's point of view**.



How was your emergency department experience?

The Health Quality Council of Alberta in partnership with Alberta Health Services and select facilities in Alberta are conducting a survey of the care patients have recieved in the emergency department.

> Randomly selected patients will be sent a survey by mail. Participation is voluntary and answers are confidential. Your health information and feedback is protected under the Health Information Act (HIA) of Alberta.

Your survey responses will help to improve and shape emergency care in the future. The full results of all surveys will be posted at www.hqca.ca. If you have any questions about the survey, please contact the HQCA at 403.297.8162 or info@hqca.ca

WE NEED YOUR FEEDBACK

The Health Quality Council of Alberta is an independent organization legislated with a mandate to promote patient safety and health service quality across Alberta.

www.hqca.ca



APPENDIX VIII: CONTROL CHART FORMULAS

In accordance with best practice,² centrelines on the control charts presented in Sections 5.2 through 6.10 are calculated for the first two years (24 months) of patient experience data. If the data are stable (i.e., they only exhibited random variability) over this initial two-year period, the centreline is frozen and extended to apply to the final 14 months of data. However, if the data are unstable (i.e., they exhibited evidence for change), the centreline is recalculated without using the data associated with the detected changes and then extended over the rest of the study period.

The reason for doing this is that changes or special causes in the new data being added to the chart (the final 14 months) will be detected more rapidly than it would if the centreline was calculated from all of the data. This is because the new patient experience data do not influence the calculation of the centreline or control limits, and thus is evaluated relative to historical norms defined by the first two years of data.²

\overline{X} Chart

Upper control limit (UCL) = $\bar{x} + z\sigma_{\bar{x}}$ Centreline = \bar{x} Lower control limit = $\bar{x} - z\sigma_{\bar{x}}$

Where, because n_i is variable,

$$\bar{x} = \frac{\sum_{i=1}^{m} (n_i \bar{x}_i)}{\sum_{i=1}^{m} n_i}$$

and,

z = standard normal variable (3 for 99.74% confidence) $\sigma_{\bar{x}}$ = standard deviation of the distribution of sample means, computed as $\frac{\sigma}{\sqrt{n_i}}$ σ = population (process) standard deviation n_i = sample size (number of observations per sample)

The population (process) standard deviation is estimated using $\frac{\bar{s}}{c_4}$ because it is an unbiased estimator of σ (i.e., $\sigma = \frac{\bar{s}}{c_4}$).

Where, because n_i is variable,

$$\bar{s} = \frac{\sum_{i=1}^{m} (n_i s_i)}{\sum_{i=1}^{m} n_i}$$



Also,

 c_4 = gamma function constant that is dependent on n_i

$$= \sqrt{\frac{2}{\pi(2k-1)}} \left(\frac{2^{2k-2}(k-1)!^2}{(2k-2)!}\right) , \text{ if } n = 2k$$
$$= \sqrt{\frac{\pi}{k}} \left(\frac{(2k-1)!}{2^{2k-1}(k-1)!^2}\right) , \text{ if } n = 2k+1$$

Then, using substitution:

 $UCL = \bar{\bar{x}} + \frac{3\bar{s}}{c_4 \sqrt{n_i}}$ Centreline = $\bar{\bar{x}}$ LCL = $\bar{\bar{x}} - \frac{3\bar{s}}{c_4 \sqrt{n_i}}$

S Chart

The sample standard deviation *s* is not an unbiased estimator of σ . Assuming the underlying distribution is normal, *s* estimates $c_4\sigma$ and the standard deviation of *s* is $\sigma\sqrt{1-c_4^2}$. If the value of σ was known, the three-sigma control limits for *S* charts would be:

UCL = $c_4\sigma + 3\sigma\sqrt{1-c_4^2}$ Centreline = $c_4\sigma$ LCL = $c_4\sigma - 3\sigma\sqrt{1-c_4^2}$

However, the population (process) standard deviation is not known, so it is estimated with $\frac{s}{c}$.

Using substitution, the control limits for the *S* chart become:

UCL = $\bar{s} + 3\frac{\bar{s}}{c_4}\sqrt{1-c_4^2}$ Centreline = \bar{s} LCL = $\bar{s} - 3\frac{\bar{s}}{c_4}\sqrt{1-c_4^2}$

P Chart

UCL = $\bar{p} + z\sigma_p$ Centreline = \bar{p} LCL = $\bar{p} - z\sigma_p$

Where,

$$\bar{p} = \left(\frac{\sum_{i=1}^m D_i}{\sum_{i=1}^m n_i}\right) \times 100$$



and,

 D_i = Nonconforming units in each sample z = standard normal variable (3 for 99.74% confidence)

$$\sigma_p = \sqrt{\frac{\bar{p}(100 - \bar{p})}{n_i}}$$

Then, using substitution:

UCL =
$$\bar{p} + 3\sqrt{\frac{\bar{p}(100-\bar{p})}{n_i}}$$

Centreline = \bar{p}
LCL = $\bar{p} - 3\sqrt{\frac{\bar{p}(100-\bar{p})}{n_i}}$



APPENDIX IX: COMPOSITE VARIABLE S CHARTS



Figure 28: Staff care and communication composite – Provincial aggregate and site-level results (S charts)





Figure 29: Wait time and crowding composite – Provincial aggregate and site-level results (S charts)





Figure 30: Pain management composite – Provincial aggregate and site-level results (S charts)





Figure 31: Respect composite – Provincial aggregate and site-level results (S charts)





Figure 32: Facility cleanliness composite – Provincial aggregate and site-level results (S charts)





Figure 33: Wait time communication composite – Provincial aggregate and site-level results (S charts)





Figure 34: Privacy composite – Provincial aggregate and site-level results (S charts)





Figure 35: Medication communication composite – Provincial aggregate and site-level results (S charts)





Figure 36: Discharge communication composite – Provincial aggregate and site-level results (S charts)



APPENDIX X: VOLUMES, LOS, AND CTAS RUN CHARTS WITH MEDIAN

Section 4.1 employs run charts to present monthly emergency department volumes, average length of stay (LOS), and volumes by CTAS level for the entire population of patients presenting to each of the pediatric emergency department sites. Many of these run charts are presented with trend lines instead of the usual median.

The charts in this appendix represent only those run charts presented with trend lines in Section 4.1 and displays them with their original median and highlighted signals of change.





Figure 37: Volumes, LOS, and CTAS run charts with median at Alberta Children's Hospital









Figure 38: Volumes, LOS, and CTAS run charts with median at Stollery Children's Hospital






APPENDIX XI: RESULTS TABLES

The following tables present the monthly patient experience results that are displayed via provincial aggregate run charts and site-level control charts in Sections 5.2 to 6.10.

Emergency department site names are shown in their abbreviated form, where:

- PROV Provincial aggregate
- ACH Alberta Children's Hospital
- SCH Stollery Children's Hospital



Percentage of patients rating their emergency department care as excellent or very good			
	PROV	ACH	SCH
July '10	81.8	78.1	89.5
August	74.9	80.4	64.0
September	69.7	64.6	81.1
October	78.4	80.0	75.0
November	71.7	72.5	70.0
December	80.3	82.9	74.4
January '11	83.1	83.3	82.5
February	75.8	77.5	72.2
March	83.8	86.1	78.8
April	71.4	74.0	65.6
May	75.7	75.0	77.1
June	87.8	91.3	80.4
July	81.7	86.1	73.0
August	80.5	80.5	80.4
September	78.5	77.8	80.0
October	86.9	87.0	86.7
November	84.9	86.5	81.3
December	86.1	90.9	75.5
January '12	76.3	82.4	62.5
February	77.6	78.4	76.2
March	74.5	74.3	75.0
April	82.0	80.9	84.3
Мау	85.7	85.4	86.4
June	83.3	82.9	83.9
July	76.8	77.8	75.6
August	84.6	85.7	82.4
September	83.5	81.0	85.7
October	79.7	71.4	84.1
November	80.8	75.0	91.7
December	81.0	84.6	74.5
January '13	81.0	78.7	85.0
February	76.4	80.5	69.8
March	69.4	62.2	82.5
April	77.9	65.6	88.9
May	88.7	100.0	86.0
June	80.0	78.1	83.3
July	81.3	71.4	96.3

Table 70: (Q57) Overall rating of care – Provincial aggregate and site-specific chart results



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	85.6	84.1	88.7
August	85.6	86.4	83.8
September	86.9	86.9	86.9
October	86.9	89.2	82.2
November	84.2	84.8	82.8
December	85.5	84.8	87.2
January '11	89.0	90.0	86.9
February	83.4	85.1	79.9
March	85.5	87.2	81.7
April	87.2	89.0	83.5
Мау	84.4	84.1	84.9
June	89.7	90.7	87.4
July	83.7	86.0	78.8
August	89.0	90.5	86.0
September	84.4	83.2	86.9
October	88.5	89.9	85.5
November	85.5	84.6	87.7
December	88.8	89.5	87.4
January '12	84.8	86.7	80.6
February	88.2	91.5	82.2
March	85.7	84.9	87.0
April	89.1	89.2	89.0
Мау	87.3	86.5	88.8
June	86.9	87.8	85.3
July	84.9	85.9	83.6
August	82.9	80.0	89.0
September	87.4	87.9	87.0
October	88.2	88.1	88.2
November	87.4	86.2	89.6
December	88.5	90.6	84.9
January '13	85.5	84.1	88.0
February	82.7	82.4	83.3
March	87.3	86.5	88.6
April	87.3	80.5	93.4
Мау	89.4	84.4	90.6
June	84.7	83.7	86.4
July	84.3	79.8	91.1

Table 71: Staff care and communication composite – **Average scores** (\bar{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	15.9	16.6	14.2
August	17.7	17.3	18.6
September	16.2	16.2	16.7
October	18.7	16.6	22.0
November	17.6	18.8	15.0
December	18.9	19.3	18.2
January '11	14.5	12.3	18.4
February	20.3	17.9	24.5
March	16.3	13.9	20.4
April	17.3	14.7	21.7
Мау	18.9	19.1	18.8
June	16.9	16.7	17.4
July	20.1	18.3	23.0
August	14.6	13.6	16.3
September	21.4	23.0	18.1
October	15.2	13.8	17.7
November	19.5	21.5	14.0
December	14.8	13.2	17.9
January '12	17.0	16.0	18.5
February	16.8	11.4	22.5
March	22.6	25.4	17.0
April	15.0	14.0	16.9
Мау	18.4	18.7	18.1
June	16.6	15.7	18.3
July	18.5	15.8	21.8
August	22.4	24.5	16.0
September	18.2	18.3	18.5
October	12.9	11.9	13.8
November	15.8	16.6	14.3
December	16.6	16.1	17.4
January '13	18.2	19.8	15.0
February	19.4	19.7	19.1
March	15.8	16.0	15.8
April	15.5	18.7	8.2
Мау	17.2	22.1	17.3
June	18.4	18.8	18.0
July	20.6	23.1	14.0

Table 72: Staff care and communication composite - Standard deviations (S chart results)



Table 73: (Q30) If needed, could you get staff to help you? – Provincial aggregate and site-specific chart results

Percentage of patients who, if needed, could not always get staff to help			
	PROV	ACH	SCH
July '10	35.9	38.7	29.6
August	36.8	36.8	36.6
September	35.9	35.1	37.5
October	36.1	25.0	54.8
November	44.5	45.2	42.9
December	33.6	31.0	38.7
January '11	36.1	38.5	31.4
February	40.0	31.0	56.7
March	26.7	22.6	36.4
April	32.8	30.8	38.1
Мау	39.1	38.9	39.4
June	27.3	23.7	35.1
July	36.3	32.3	44.4
August	20.1	18.5	22.9
September	38.4	38.9	37.5
October	31.5	28.9	36.6
November	36.0	34.5	39.5
December	32.2	26.7	43.6
January '12	39.1	35.7	46.9
February	34.2	35.7	31.0
March	42.3	41.4	44.1
April	37.5	41.7	30.2
Мау	41.9	45.7	34.4
June	30.4	29.0	32.6
July	36.5	27.6	46.0
August	30.1	34.4	22.6
September	26.5	15.4	34.2
October	48.3	60.0	42.4
November	44.9	48.3	38.5
December	47.8	47.1	48.8
January '13	44.3	50.0	35.5
February	44.6	50.0	34.4
March	30.7	25.9	38.7
April	40.0	50.0	33.3
Мау	29.3		18.4
June	44.9	46.2	43.3
July	33.6	34.8	31.8



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	73.8	74.6	72.1
August	71.2	74.9	63.5
September	66.6	68.1	63.3
October	68.8	74.5	57.2
November	66.5	67.7	63.9
December	67.3	69.5	62.4
January '11	68.7	69.6	66.6
February	63.1	65.5	58.2
March	67.4	67.8	66.7
April	66.3	67.9	62.8
Мау	65.5	68.2	60.0
June	68.5	70.4	64.3
July	71.7	72.8	69.3
August	75.4	77.3	71.4
September	68.5	70.9	63.3
October	70.1	71.4	67.4
November	67.8	67.8	67.9
December	71.1	71.8	69.5
January '12	69.8	71.2	66.8
February	70.2	70.1	70.3
March	70.3	69.9	71.0
April	77.3	77.1	77.6
Мау	75.3	74.3	77.1
June	78.6	79.4	77.0
July	75.5	75.7	75.3
August	77.1	75.4	80.7
September	75.3	74.4	76.1
October	71.7	64.9	75.4
November	72.4	69.1	78.5
December	69.5	68.0	72.1
January '13	71.2	68.0	76.9
February	64.5	60.1	71.9
March	70.9	69.0	74.1
April	73.2	69.8	76.3
Мау	73.4	53.7	78.0
June	74.6	74.3	75.2
July	76.3	74.3	79.3

Table 74: Wait time and crowding composite – **Average scores** (\bar{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	15.1	16.0	13.2
August	18.4	16.4	20.1
September	16.3	16.0	16.8
October	19.0	15.1	21.1
November	15.2	16.3	12.7
December	16.6	14.0	20.7
January '11	17.1	15.5	20.1
February	17.3	17.2	16.7
March	16.3	15.7	17.8
April	19.7	18.5	21.9
May	16.5	14.5	19.2
June	16.4	16.2	16.2
July	16.1	16.6	15.0
August	14.9	14.7	14.7
September	17.2	16.0	18.8
October	14.5	13.0	17.3
November	14.5	14.5	15.0
December	15.5	15.7	15.3
January '12	17.0	16.3	18.4
February	17.2	18.2	15.8
March	13.3	13.7	12.7
April	12.7	13.0	12.5
Мау	13.7	14.6	11.8
June	11.7	11.1	12.8
July	17.6	18.0	17.4
August	14.4	15.2	11.9
September	13.2	13.4	13.3
October	15.4	14.5	15.1
November	14.4	15.2	10.6
December	16.7	16.7	17.0
January '13	15.8	17.3	10.8
February	15.8	15.5	13.7
March	16.1	14.2	18.8
April	14.6	15.0	13.8
Мау	14.6	1.6	12.2
June	13.5	13.5	13.6
July	12.9	13.5	11.8

Table 75: Wait time and crowding composite - Standard deviations (S chart results)



Table 76: (Q13) How long did you wait to be examined by a doctor? – Provincial aggregate and site-specific chart results

Percentage of patients who reported they waited more than two hours to be examined by a doctor			
	PROV	ACH	SCH
July '10	22.0	25.0	15.8
August	30.9	34.6	22.9
September	40.6	46.8	27.0
October	34.9	31.1	42.9
November	42.1	42.5	41.4
December	37.9	42.9	26.3
January '11	35.4	41.7	21.1
February	38.5	37.5	40.5
March	38.6	40.5	34.4
April	36.9	36.2	38.2
May	44.4	44.4	44.4
June	31.3	28.3	37.8
July	27.9	25.0	34.3
August	25.7	26.3	24.4
September	37.2	40.9	29.6
October	38.4	41.5	31.8
November	29.4	29.7	28.6
December	32.4	37.8	19.6
January '12	33.7	38.8	22.5
February	36.3	36.1	36.6
March	38.0	44.1	27.1
April	20.1	23.3	14.3
Мау	29.2	35.4	16.7
June	20.0	25.6	9.3
July	21.4	25.6	15.9
August	20.6	25.6	9.7
September	23.3	23.8	22.9
October	40.1	85.7	15.9
November	36.5	51.3	8.6
December	42.5	54.6	24.0
January '13	29.9	38.3	15.0
February	47.1	55.8	32.6
March	40.2	48.5	26.3
April	26.2	32.3	20.6
Мау	33.5	100.0	18.0
June	22.0	23.8	18.9
July	19.9	25.9	11.1



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	78.8	80.2	76.4
August	65.8	63.3	68.6
September	70.0	70.0	70.0
October	69.1	77.2	50.0
November	54.0	59.3	44.0
December	67.2	63.9	75.0
January '11	57.0	61.5	50.0
February	66.5	63.7	72.4
March	77.1	87.3	57.4
April	69.0	66.2	73.1
May	52.6	50.4	56.5
June	63.5	63.7	63.2
July	65.4	63.4	69.3
August	76.0	79.4	66.7
September	68.9	67.0	74.0
October	67.1	67.7	65.9
November	69.4	73.0	60.7
December	72.1	75.0	65.4
January '12	70.0	71.0	67.6
February	64.8	65.7	63.2
March	78.1	78.9	76.7
April	75.3	76.4	73.5
May	67.3	70.7	58.8
June	76.8	84.3	65.2
July	71.4	68.6	75.0
August	73.9	69.9	80.7
September	78.6	90.0	68.2
October	77.3	75.0	78.3
November	74.4	80.7	64.8
December	74.9	76.5	71.9
January '13	76.7	79.2	69.8
February	59.2	53.0	69.6
March	81.0	86.1	75.0
April	67.0	59.4	76.4
Мау	79.9		79.9
June	65.9	66.7	64.8
July	77.7	78.1	77.4

Table 77: Pain management composite – **Average scores** (\bar{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	30.2	30.1	31.6
August	36.9	39.9	34.3
September	36.2	36.4	37.3
October	39.9	36.0	43.5
November	41.3	42.5	39.0
December	36.8	37.7	35.1
January '11	35.7	34.8	37.7
February	36.4	40.8	26.9
March	34.7	27.7	39.2
April	29.4	27.0	33.1
Мау	42.1	39.5	47.6
June	37.7	37.8	38.8
July	32.5	36.3	24.9
August	28.4	24.3	37.2
September	35.2	37.0	30.5
October	34.3	36.7	30.4
November	34.5	35.5	32.0
December	34.5	34.3	35.7
January '12	31.3	33.1	27.7
February	36.5	35.6	39.8
March	32.8	34.6	30.9
April	31.3	29.8	34.6
Мау	39.8	37.0	46.2
June	32.9	26.8	38.5
July	35.9	34.8	38.1
August	33.2	34.5	31.0
September	29.9	17.5	35.1
October	24.8	35.4	24.4
November	35.4	30.7	40.7
December	37.0	40.6	32.3
January '13	31.6	31.8	31.5
February	36.3	36.3	35.3
March	28.4	21.2	34.9
April	35.0	41.6	22.7
Мау	33.7		33.7
June	35.7	38.4	32.6
July	27.6	25.3	30.6

Table 78: Pain management composite – Standard deviations (S chart results)



Table 79: (Q42) Did staff do everything they could to help control your pain? – Provincial aggregate and site-specific chart results

Percentage of patients who did not believe staff did everything they could to help control their pain			
	PROV	ACH	SCH
July '10	34.1	31.3	38.9
August	48.2	53.3	42.3
September	33.1	30.0	40.0
October	40.0	30.4	62.5
November	59.4	52.9	71.4
December	44.4	47.6	36.8
January '11	63.5	61.5	66.7
February	48.7	50.0	46.2
March	28.9	14.3	58.8
April	42.7	47.4	35.3
Мау	59.7	68.4	44.4
June	50.1	52.9	45.8
July	54.8	55.6	53.3
August	42.6	44.4	37.5
September	41.7	40.9	43.8
October	40.9	40.9	40.9
November	40.3	35.3	52.4
December	39.8	35.3	50.0
January '12	46.8	47.8	44.4
February	48.9	46.7	52.9
March	35.7	35.3	36.4
April	32.8	33.3	31.8
May	43.3	40.7	50.0
June	33.2	27.8	42.3
July	41.0	47.1	33.3
August	39.3	47.4	27.3
September	26.7	10.0	42.9
October	38.5	50.0	33.3
November	36.5	31.3	44.4
December	32.8	27.3	42.9
January '13	33.6	29.2	46.2
February	58.0	68.8	41.2
March	25.1	22.2	28.6
April	44.5	53.3	33.3
May	25.9		25.9
June	50.0	50.0	50.0
July	35.8	36.4	35.3



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	90.7	89.4	93.5
August	90.5	92.2	87.0
September	87.5	87.0	88.7
October	90.5	92.3	86.8
November	86.0	86.5	85.0
December	85.4	85.6	84.9
January '11	89.4	89.0	90.3
February	85.5	87.2	81.9
March	90.3	92.1	86.5
April	87.3	89.4	82.9
Мау	86.8	87.5	85.2
June	90.2	90.4	89.8
July	89.8	90.1	89.3
August	91.5	91.9	90.7
September	86.1	84.3	90.0
October	89.8	90.1	89.2
November	90.1	90.1	90.3
December	91.0	92.3	88.2
January '12	87.4	88.2	85.7
February	90.9	91.5	89.9
March	89.4	89.2	89.9
April	91.8	91.7	91.9
Мау	90.9	90.5	91.7
June	91.1	91.7	90.0
July	89.9	90.3	89.3
August	89.5	89.6	89.4
September	90.9	91.0	90.8
October	89.2	88.0	89.9
November	90.7	89.4	93.2
December	86.9	86.5	87.6
January '13	90.8	90.7	91.0
February	89.3	89.1	89.5
March	88.0	88.8	86.7
April	88.5	84.9	91.8
Мау	92.9	100.0	91.2
June	87.4	89.3	84.1
July	86.5	84.8	89.0

Table 80: Respect composite – **Average scores** (\bar{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	13.7	14.1	12.4
August	11.8	10.3	13.9
September	14.6	14.8	14.3
October	13.2	12.3	14.4
November	18.2	18.9	17.3
December	18.0	18.4	17.7
January '11	13.3	14.1	11.7
February	16.2	15.2	17.8
March	12.3	11.2	14.0
April	14.6	12.7	17.4
Мау	14.0	14.2	13.5
June	12.0	12.3	11.7
July	14.1	15.3	11.6
August	12.1	11.3	13.8
September	18.9	20.3	15.1
October	13.7	13.3	14.7
November	12.8	12.9	12.7
December	12.1	10.5	14.7
January '12	15.5	16.2	13.7
February	12.3	12.2	12.8
March	14.1	14.6	13.4
April	11.4	11.1	12.3
Мау	13.1	13.3	12.8
June	14.0	15.1	11.7
July	12.8	14.0	11.2
August	13.8	13.3	15.1
September	12.5	10.0	14.4
October	11.7	13.4	11.2
November	11.4	12.4	9.2
December	18.5	20.2	15.6
January '13	13.7	14.6	12.0
February	12.2	11.1	14.1
March	14.7	14.3	15.4
April	14.2	16.4	11.3
Мау	12.5	0.0	13.3
June	13.8	14.0	12.9
July	17.4	19.3	14.2

Table 81: Respect composite - Standard deviations (S chart results)



Table 82: (Q19) Did doctors and nurses introduce themselves? – Provincial aggregate and site-specific chart results

Percentage of patients who reported that <u>none or only some</u> of the doctors and nurses introduced themselves			
	PROV	ACH	SCH
July '10	27.0	25.6	29.7
August	23.1	25.5	18.4
September	32.9	31.9	35.1
October	24.6	20.0	34.3
November	30.1	35.0	20.0
December	34.5	35.7	31.6
January '11	26.0	27.7	22.5
February	28.8	25.6	35.1
March	17.2	14.0	24.2
April	28.0	31.3	21.2
Мау	27.5	30.4	21.6
June	20.3	19.6	21.7
July	17.0	14.6	21.6
August	18.5	18.0	19.6
September	22.5	26.7	13.6
October	15.3	17.3	11.1
November	11.3	10.8	12.2
December	19.8	20.9	17.3
January '12	21.7	21.3	22.5
February	26.8	28.6	23.8
March	29.4	32.4	23.9
April	21.0	24.4	14.3
Мау	19.7	21.7	15.9
June	24.4	25.6	22.2
July	15.4	14.0	17.5
August	22.1	23.8	18.2
September	7.9	14.3	2.1
October	17.1	14.3	18.6
November	17.7	13.5	25.0
December	14.9	17.4	10.6
January '13	20.0	21.7	17.1
February	19.9	18.2	22.7
March	19.5	24.2	12.2
April	21.6	31.0	13.9
Мау	20.8	50.0	14.0
June	29.3	28.6	30.6
July	26.6	29.6	22.2



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	83.0	85.9	77.0
August	83.9	87.5	76.5
September	83.7	84.8	81.2
October	82.9	87.1	74.0
November	82.0	86.0	74.0
December	80.2	84.3	70.8
January '11	79.1	83.5	69.8
February	78.3	82.6	69.2
March	79.0	81.9	72.9
April	78.1	83.5	66.7
May	80.5	82.4	76.7
June	86.0	89.0	79.5
July	83.9	88.5	74.5
August	84.8	89.5	74.6
September	81.0	85.3	72.3
October	81.1	85.6	71.2
November	85.3	90.2	73.9
December	85.1	88.3	77.8
January '12	80.4	85.1	69.8
February	82.4	82.1	83.1
March	82.8	83.4	81.7
April	89.2	88.8	90.0
Мау	83.7	82.4	86.1
June	86.5	86.1	87.3
July	86.1	83.1	90.1
August	86.1	84.6	89.3
September	90.7	93.4	88.4
October	84.1	81.1	85.7
November	83.9	82.2	87.2
December	86.4	88.1	83.5
January '13	85.7	88.3	81.1
February	79.1	75.9	84.6
March	82.4	79.9	86.6
April	86.4	83.0	89.4
Мау	88.5	83.3	89.8
June	86.2	88.7	82.1
July	85.5	84.1	87.7

Table 83: Facility cleanliness composite – **Average scores** (\overline{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	17.8	17.6	17.0
August	19.3	17.2	21.3
September	18.0	17.4	19.2
October	19.5	17.3	21.1
November	20.2	16.3	24.7
December	20.3	15.9	25.8
January '11	18.5	16.5	19.2
February	23.7	20.9	26.8
March	22.2	22.0	22.0
April	23.6	20.7	25.7
May	18.7	18.0	19.8
June	16.6	14.6	18.9
July	17.9	15.5	19.0
August	19.6	16.5	22.0
September	22.1	20.4	23.3
October	19.7	17.0	21.8
November	18.1	13.7	21.7
December	19.4	16.6	23.1
January '12	18.9	17.6	17.7
February	19.4	19.3	19.9
March	21.2	20.9	22.0
April	16.2	15.0	18.4
Мау	19.4	19.4	19.6
June	15.9	16.7	14.4
July	16.1	16.5	14.7
August	14.1	13.7	14.6
September	14.7	12.4	16.1
October	17.1	14.8	18.5
November	18.5	19.3	16.8
December	17.1	15.4	19.7
January '13	15.1	14.4	15.5
February	19.3	19.8	17.3
March	16.6	16.1	16.9
April	16.1	16.0	15.9
Мау	15.5	23.7	14.9
June	16.6	15.0	18.5
July	16.5	15.9	17.6

Table 84: Facility cleanliness composite - Standard deviations (S chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	42.8	44.0	40.3
August	45.2	42.5	51.0
September	44.6	43.8	46.4
October	40.7	43.1	35.4
November	35.6	37.3	31.9
December	43.1	45.9	36.6
January '11	37.3	34.2	44.0
February	43.1	45.0	39.3
March	42.7	43.1	41.9
April	43.3	44.0	41.9
May	43.9	43.3	45.1
June	37.1	39.1	32.8
July	32.7	27.5	42.3
August	34.2	28.5	45.5
September	49.6	52.1	44.3
October	38.6	41.5	32.8
November	40.7	42.9	35.3
December	38.9	40.5	35.5
January '12	38.5	36.5	42.9
February	36.6	45.2	21.3
March	40.1	45.5	30.9
April	44.4	43.3	46.5
May	39.6	41.3	36.9
June	37.6	33.7	44.8
July	42.3	36.4	50.6
August	46.2	41.7	56.1
September	52.2	50.8	53.5
October	31.7	8.3	44.1
November	39.5	37.3	43.5
December	46.3	44.3	49.6
January '13	38.5	38.6	38.4
February	41.9	43.7	39.2
March	42.3	37.7	50.7
April	46.4	44.2	48.5
Мау	37.9	37.5	38.0
June	50.1	48.2	53.6
July	48.6	43.2	58.0

Table 85: Wait time communication composite – **Average scores** (\bar{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	34.0	34.9	32.4
August	37.6	38.8	34.6
September	33.6	32.1	37.1
October	37.5	38.7	34.9
November	33.0	33.4	32.7
December	36.2	37.0	34.3
January '11	34.4	34.5	34.0
February	34.0	35.3	31.7
March	37.0	37.4	36.9
April	33.9	34.6	33.2
Мау	34.7	36.0	32.5
June	35.1	35.5	34.5
July	34.2	33.6	33.9
August	33.6	32.3	33.7
September	35.9	36.0	35.8
October	36.7	37.8	34.4
November	36.2	35.7	37.6
December	34.1	34.0	34.8
January '12	34.0	32.9	36.5
February	40.3	43.3	29.3
March	37.7	38.6	34.8
April	39.6	39.6	40.1
Мау	38.2	38.5	38.1
June	36.4	34.4	39.2
July	36.5	34.5	38.1
August	41.1	41.0	40.4
September	38.3	38.7	38.6
October	38.8	14.4	42.0
November	35.0	36.0	33.4
December	38.5	37.8	40.3
January '13	37.7	37.5	38.6
February	34.1	31.7	38.1
March	37.3	35.4	39.9
April	38.0	37.1	39.2
Мау	32.9	17.7	36.2
June	38.9	40.2	37.1
July	36.2	36.9	33.8

Table 86: Wait time communication composite - Standard deviations (S chart results)



Table 87: (Q17) Did a member of staff check on you while you were waiting? – Provincial aggregate and site-specific chart results

Percentage of patients who reported they were not checked on, or were not checked on enough, by staff while				
they waited				
	PROV	ACH	SCH	
July '10	47.3	51.9	36.4	
August	48.9	50.0	46.7	
September	49.9	56.3	31.6	
October	38.3	33.3	47.8	
November	57.3	53.3	65.2	
December	43.6	38.5	53.6	
January '11	60.1	69.0	42.3	
February	39.0	33.3	52.0	
March	43.7	34.8	59.1	
April	48.7	47.1	52.0	
May	47.6	42.9	55.6	
June	47.7	41.9	58.8	
July	57.8	78.3	28.6	
August	50.7	56.5	40.0	
September	42.6	43.8	40.0	
October	48.2	48.2	48.3	
November	37.9	37.0	40.0	
December	49.6	47.6	52.8	
January '12	48.0	47.1	50.0	
February	53.4	44.4	70.0	
March	53.9	52.2	57.7	
April	49.8	60.0	31.4	
Мау	51.9	52.2	51.5	
June	47.6	52.0	40.0	
July	44.8	50.0	39.3	
August	43.1	52.4	29.2	
September	34.3	20.0	48.4	
October	54.1	100.0	37.0	
November	64.9	79.2	44.8	
December	54.9	61.5	45.2	
January '13	47.8	61.9	29.2	
February	64.6	69.7	53.9	
March	56.7	66.7	40.9	
April	52.5	70.0	35.0	
May	38.0		45.2	
June	40.6	38.5	44.0	
July	38.6	60.0	15.0	



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	93.1	91.7	96.1
August	94.1	95.2	92.0
September	94.3	95.7	91.2
October	95.2	95.6	94.4
November	91.5	93.1	87.9
December	94.5	94.6	94.2
January '11	96.4	95.8	97.5
February	95.0	96.9	91.2
March	93.7	92.6	96.2
April	93.0	94.0	90.9
May	89.3	89.4	89.2
June	93.5	93.8	92.9
July	94.9	95.5	93.8
August	94.5	93.8	96.1
September	94.2	95.5	91.7
October	95.1	94.9	95.6
November	91.7	90.4	94.9
December	97.5	98.3	95.8
January '12	92.3	91.5	93.9
February	93.3	90.0	98.8
March	94.0	91.2	99.0
April	93.8	93.1	95.1
Мау	93.3	93.2	93.3
June	91.5	91.5	91.5
July	91.5	90.2	93.3
August	88.4	85.5	94.9
September	97.8	97.6	97.9
October	94.2	92.9	94.9
November	93.6	91.7	97.2
December	89.0	85.0	96.0
January '13	92.8	92.6	93.1
February	90.0	87.5	94.2
March	94.1	93.9	94.5
April	94.0	88.3	99.3
May	98.4	100.0	98.0
June	89.5	87.8	92.4
July	94.1	90.7	99.1

Table 88: Privacy composite – **Average scores** (\overline{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	17.3	20.1	9.2
August	17.2	15.7	19.8
September	13.9	10.8	18.8
October	15.6	14.4	18.0
November	21.5	18.8	26.4
December	12.7	13.0	12.1
January '11	14.7	16.6	9.5
February	13.3	10.1	17.9
March	18.1	20.6	11.0
April	18.1	17.9	18.6
Мау	23.1	24.3	20.9
June	18.5	18.2	19.5
July	13.7	12.4	16.2
August	16.7	16.7	16.8
September	18.7	18.1	19.9
October	14.8	16.4	11.0
November	19.6	21.9	12.5
December	10.3	8.3	13.6
January '12	18.1	20.0	13.4
February	18.4	22.0	7.6
March	15.6	18.3	7.2
April	17.4	17.8	16.6
Мау	17.6	19.1	14.5
June	20.9	20.8	21.5
July	20.6	21.4	19.5
August	25.4	29.0	13.5
September	8.1	7.5	8.8
October	13.8	12.2	14.8
November	17.6	20.9	8.0
December	21.3	25.0	10.5
January '13	18.7	20.1	16.0
February	21.2	23.8	15.3
March	15.3	14.9	16.3
April	16.9	22.9	4.2
Мау	6.2	0.0	6.9
June	23.6	26.9	16.7
July	18.4	23.2	4.8

Table 89: Privacy composite – Standard deviations (S chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	79.4	80.3	78.0
August	72.1	72.5	70.4
September	82.1	79.2	88.9
October	76.1	82.1	60.9
November	80.5	84.3	75.8
December	78.2	81.1	70.8
January '11	75.8	72.2	84.0
February	80.0	81.0	77.5
March	83.1	87.8	66.7
April	80.4	82.4	75.8
Мау	89.8	91.0	87.0
June	85.1	85.2	84.8
July	80.4	85.9	72.2
August	81.9	88.5	75.0
September	84.2	86.9	79.2
October	84.7	84.8	84.4
November	85.9	86.7	84.4
December	76.7	78.3	73.2
January '12	74.6	76.9	70.1
February	76.9	78.8	71.7
March	73.5	72.7	75.0
April	78.2	78.0	78.6
Мау	76.9	73.5	83.3
June	87.2	89.6	81.1
July	71.6	78.6	61.5
August	91.7	93.9	83.3
September	83.3	83.3	83.3
October	74.8	83.3	66.7
November	80.9	83.3	74.1
December	82.1	83.3	80.2
January '13	77.2	72.0	88.3
February	78.7	76.2	82.3
March	72.2	61.5	83.3
April	71.5	51.2	83.3
Мау	93.0		93.0
June	84.8	95.0	73.1
July	84.5	85.0	83.3

Table 90: Medication communication composite – **Average scores** (\overline{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	24.6	24.5	26.1
August	31.0	32.2	28.6
September	22.6	24.7	16.4
October	29.5	27.1	31.1
November	25.3	17.9	32.8
December	27.1	26.3	28.9
January '11	28.1	30.0	23.2
February	28.5	29.1	28.9
March	24.3	21.3	28.9
April	25.5	24.6	28.2
May	16.3	17.5	13.9
June	19.7	17.6	24.1
July	24.0	17.8	30.0
August	23.6	13.3	29.8
September	22.0	21.9	22.4
October	19.8	21.7	18.3
November	23.5	21.9	27.8
December	26.4	27.1	26.1
January '12	27.7	27.7	28.7
February	28.1	26.0	34.3
March	28.6	28.2	31.0
April	24.2	22.4	28.1
May	27.0	28.3	24.3
June	22.5	20.1	28.1
July	33.8	25.7	42.2
August	16.1	13.5	23.6
September	20.6	28.9	15.4
October	27.2	23.6	30.0
November	22.9	22.7	23.7
December	23.3	25.5	22.1
January '13	23.9	25.7	15.8
February	28.3	29.0	28.2
March	25.7	24.0	23.6
April	25.7	19.5	21.3
Мау	17.0		17.0
June	24.4	11.2	30.1
July	17.7	16.6	21.5

Table 91: Medication communication composite - Standard deviations (S chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	67.8	64.4	75.1
August	63.4	65.7	56.9
September	63.8	59.9	71.9
October	63.4	64.5	61.3
November	59.6	61.5	55.6
December	58.8	53.7	70.4
January '11	66.8	64.3	73.0
February	59.5	61.6	54.5
March	61.2	63.3	56.0
April	61.4	64.5	53.9
Мау	62.1	61.5	64.2
June	69.5	71.9	63.9
July	67.6	70.4	60.0
August	63.6	66.1	57.9
September	66.2	65.4	67.9
October	64.8	62.5	71.1
November	67.1	70.4	59.8
December	71.7	73.7	67.3
January '12	60.0	60.8	58.1
February	69.1	67.5	72.3
March	64.8	66.3	61.9
April	67.7	67.8	67.6
Мау	65.6	62.1	72.6
June	65.8	67.7	61.8
July	69.3	65.1	75.5
August	64.5	63.1	67.6
September	75.9	77.8	74.0
October	60.1	54.3	63.6
November	64.5	64.6	64.3
December	70.1	70.3	69.9
January '13	60.6	59.9	62.0
February	59.1	54.9	66.1
March	62.4	55.3	77.2
April	69.9	62.8	76.5
Мау	70.8	50.0	76.2
June	68.7	68.4	69.2
July	69.2	64.9	76.8

Table 92: Discharge communication composite – **Average scores** (\overline{X} chart results)



Provincial aggregate and site-specific chart results			
	PROV	ACH	SCH
July '10	33.8	34.6	31.8
August	33.7	33.2	35.0
September	33.1	32.8	32.8
October	33.8	31.0	39.3
November	31.7	31.5	32.4
December	31.4	31.3	29.3
January '11	32.2	32.5	31.2
February	34.4	34.6	34.1
March	35.5	34.3	38.7
April	34.2	33.8	34.5
May	33.5	33.7	33.5
June	34.2	33.5	35.8
July	29.6	29.6	28.8
August	34.9	33.8	37.3
September	33.4	33.9	32.7
October	33.3	33.9	31.7
November	34.9	35.4	33.6
December	27.9	23.7	35.5
January '12	35.0	35.4	34.7
February	34.1	33.3	36.0
March	33.9	33.7	34.9
April	31.4	29.2	36.0
Мау	34.2	34.8	32.7
June	33.7	32.3	37.0
July	31.4	31.1	31.2
August	31.2	32.5	28.9
September	31.8	28.7	35.1
October	33.7	32.8	35.0
November	32.9	30.7	38.0
December	31.3	32.5	30.1
January '13	32.1	30.2	35.5
February	35.5	34.8	36.1
March	32.0	31.8	27.4
April	32.3	32.6	31.0
Мау	35.9	70.7	28.6
June	30.2	32.8	24.7
July	35.9	35.6	36.0

Table 93: Discharge communication composite – Standard deviations (S chart results)



APPENDIX XII: IMPROVEMENT CHARTS PRIOR TO LIMIT SHIFT

Sections 5.2 to 6.10 present patient experience results over time at both the provincial aggregate and site levels. The provincial aggregate results and most of the site-level results exhibited either random variation or some unsustained or temporary periods of change over the study period. However, three site-level charts depicted evidence for a sustained or lasting improvement.

In Sections 5.2 to 6.10 improvements were displayed by shifting the centreline and control limits to indicate that a more positive patient experience occurred, relative to historical norms. The charts in this appendix display the multiple and successive periods of positive change that signaled these improvements had occurred and resulted in shifting the limits.



Figure 39: Changes indicating improvement in wait time and crowding at Stollery Children's Hospital





Figure 40: Changes indicating improvement in the percentage of patients who reported waiting more than two hours to be examined by a doctor at Stollery Children's Hospital







APPENDIX XIII: ACKNOWLEDGEMENTS

This survey and report were made possible through the contributions of numerous individuals.

The process for this work was developed in 2007. Thus, everyone who participated in the 2007 working group inherently facilitated the 2009 and 2010-2013 surveys and reports. Members of the 2007 working group contributed at different times and in different ways according to their expertise and availability. No one individual was involved in all aspects of the initiative and may not have had the opportunity to provide their perspective on all aspects of this work. These individuals are identified in Appendix A of the 2007 report.⁹

For the 2010-2013 survey, the survey process engaged administrative and medical leads at each emergency department site and within each of the geographic zones within Alberta Health Services (AHS) for support and internal communication. Staff at each site were responsible for the placement of posters to inform patients about the survey and for communication with clinical personnel. AHS and emergency department data managers were engaged to extract data files from each emergency department data system for generation of survey samples. Additionally, during the analysis phase of the 2010-2013 report, the HQCA engaged emergency department stakeholders at the site, zone, and provincial levels to ensure their perspective was included in the HQCA's presentation and interpretation of the results.

The HQCA also wants to acknowledge all of the patients and their families (for pediatric patients) who gave their time to participate in the emergency department patient experience survey.

The Health Quality Council of Alberta greatly thanks all of you for your contributions.



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210, 811 – 14 Street NW Calgary, Alberta, Canada T2N 2A4 T: 403.297.8162 F: 403.297.8258 E: info@hqca.ca **www.hqca.ca**