FOCUS ON HEALTHCARE:
HOSPITAL CARE
Data Dictionary

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Improving Healthcare Together

Health Quality
Alberta

Health Quality Alberta is a provincial agency that has a legislated mandate to promote and improve patient safety, person-centred care, and health service quality for Albertans. We engage with Albertans to gather information about their experiences and collaborate with health system partners to identify and drive actionable improvements. Our responsibilities are set forth in the *Health Quality Council of Alberta Act.*

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Technical Data Definitions and Data Sourcing[1,2]

IDENTIFYING INFORMATION	
Name:	**Hospital occupancy**
Calculation:	Hospital occupancy = $$\left(\frac{\text{Average number of acute care inpatients in hospital during the reporting period}}{\text{Average number of staffed beds in the hospital during the reporting period}} \right) \times 100$$ Metric: Percentage of a facility's total staffed beds that are occupied by inpatients.

Description:	All patients admitted as inpatients are included in the numerator regardless of whether they are in day surgery areas, surgical suites, emergency, etc. Therefore, the hospital occupancy calculation can be over 100%.
	
	 Numerator – Inclusions:
	
	 ▪ Adult and child acute care inpatients
	 ▪ Emergency inpatients (EIPs) (i.e., admitted patients in the emergency department waiting for an inpatient bed)
	 ▪ Post-anesthetic recovery patients (PARs)
	 ▪ Admitted day-of procedure patients (ADOPs)
	 ▪ Patients in operating room (OR location as an inpatient)
	 ▪ Patients in special care units (e.g. ICU, NICU, CCU, CVICU)
	 ▪ Inpatients in all spaces (including holding beds)
	 ▪ Patients on passes (out of hospital but still flagged as an inpatient)
	 ▪ Maternity patients
	
	 Denominator – Inclusions:
	
	 ▪ Staffed beds (i.e., beds that have designated nursing staff). This is reported in the Bed Survey as "staffed and in operation."
	
	     o Labour and delivery rooms
	     o Special care units
	     o Acute care units
	     o Subacute units (transition/rehab)

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[1] Documentation and sourcing for the reported emergency department measures is the result of collaborative work between members of Health Quality Alberta's Health System Analytics team and members of AHS' Analytics team. Credit regarding determining the appropriate data definitions should be attributed to the AHS Analytics team for most of the measures below.

[2] While Health Quality Alberta used all reasonable efforts to ensure the accuracy, completeness, and reliability of the data used in this website, data continues to expand in scope and completeness. As such, the values reported may change over time.

Data source:	**Numerator:** Admit/Discharge/Transfer (ADT) source systems: • Connect Care • Emergency Department Information System (EDIS) • Regional Emergency Department Information System (REDIS) • Sunrise Clinical Manager (SCM) • Clinibase • Tandem/Vax • MediTech **Denominator:** • AHS Bed Survey (bed tracker tool) The bed tracker data relies on bed count information recorded daily via the online AHS Bed Survey. Staff at each acute care facility are responsible for submitting the number of staffed beds in operation on a daily basis via this tool. Beds are counted as staffed and in operation unless they will be closed for more than 24 hours (i.e., beds are counted if they will be available at any point during a 24 hour period.
Assumptions:	1. There are different information systems capturing this data in different hospitals. It is assumed the data is comparable between the different ADT source systems. 2. Beds that will be open at some point during a 24 hour period are considered open for the entire 24 hour period.
Exclusions:	**Numerator:** • Day procedures, day medicine • Outpatient (ambulatory) registrations • Newborns in bassinets (per above, all patients in the NICU are included) **Denominator:** • Over complement/overcapacity/overflow spaces (e.g., beds located in lounges, shower rooms, hallways, etc. to handle surge capacity) • Closed beds (i.e., permanent closures physically ready to open if staffing and funding were available) • Operating rooms • Blocked beds (i.e., beds closed temporarily for more than 24 hours due to staffing, isolation, weekends, holidays, maintenance, renovations, special patient care needs, etc.) • Bassinets Results from May and June 2016 are not reported for the Northern Lights Regional Health Centre due to the forest fire that affected Fort McMurray and forced the closure of the Northern Lights Regional Health Centre.

Limitations:	The bed tracker data is updated on a daily basis, with no adjustments being made throughout the day. It is fairly common practice for beds to be opened and closed throughout the course of a day, as required to meet patient demand. Capturing bed counts once-a-day implies that the number of open beds for a given day is static, when in reality this may be fluid over the course of a day.

Alberta Health Services, Analytics. "Acute Care Occupancy." (2018) [Dashboard of monthly and quarterly hospital occupancy by facility]. *AHS Tableau Reporting Platform.* Retrieved from https://tableau.ahs.ca

IDENTIFYING INFORMATION	
Name:	**Length of patient hospital stay compared to Canadian average length of hospital stay**
Calculation:	The number of acute days in acute care hospitals compared to expected length of stay in acute care hospitals[3] = $$\left(\frac{\text{Total number of acute days in hospital for acute care inpatients}}{\text{Total number of expected inpatient days as determined by CMG Plus}^4 \text{ groupers from CIHI}}\right)$$ $\times\ 100$ Metric: Acute (actual) LOS (ALOS) as a percentage shorter or longer than the expected LOS (ELOS)
Description:	This measure compares the acute LOS to the Canadian Institute for Health Information (CIHI) expected/anticipated LOS for Canadian acute care patients with similar disease complexity. **Inclusion criteria:** All typical[5] inpatient cases from acute care hospitals, as determined by CIHI. **Inpatient length of stay (LOS):** The number of days from the date of admission to the hospital to the date of discharge, indicated in a hospital record (Statistics Canada, 2012). These include acute care inpatient days and alternate level of care (ALC) days (see *Hospital patients who require an alternate level of care* measure). Only the acute portion of the inpatient LOS is included in the calculation of this measure.
Data source:	AHS Provincial Discharge Abstract Database (DAD)
Assumptions:	If acute LOS is shorter than the expected LOS it may suggest efficiencies in overall inpatient length of stay. If acute LOS is longer that the expected LOS it may indicate an opportunity to reduce inpatients' acute LOS.

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[3] Statistics Canada (2000)

[4] The Case Mix Group Plus (CMG+) assignment is a grouping of patient stays with similar clinical and resource utilization for comparison of hospital resource use. It also takes into account the reason for hospitalization, age, comorbidity, and complications. The CMG+ assignment is based on the patient's Most Responsible Diagnosis (MRDx); the diagnosis that, at discharge, is determined to have been responsible for the greatest portion of the patient's length of stay (LOS) in hospital or resource use (Alberta Health, 2015).

[5] In case mix classification systems, patients are categorized as typical or atypical, based on several criteria. A typical patient is one who has a normal length of stay, whose treatment is completed in a single facility, and whose resource use is relatively homogeneous within their case mix classification. Typical patients can be assigned a relative resource weight according to their case mix classification. An atypical patient is one where the hospitalization involves a transfer, sign-out against medical advice, ends in death, includes non-acute days, or has a length of stay beyond the trim point established by CIHI (additional days are deemed outliers). An atypical patient has a different resource use within the hospital relative to a typical patient (Alberta Health, 2015).

Exclusions:	**Exclusion criteria:**
	▪ Atypical[22] inpatient cases, as determined by CIHI
	Acute care inpatient days classified as alternate level of care (ALC)
Limitations:	1. Excluded atypical cases include long-stay patients, where acute (actual) LOS greatly exceeds the expected LOS or cut-off established by CIHI. This may result in the ALOS:ELOS result not being sensitive to frequent long-stay cases and resource implications for this patient population.
	2. ALC days are based on a retrospective count from the DAD data source. Therefore, the measure should be interpreted as the percentage of hospital beds that were occupied by an ALC patient *discharged* within the reported time period. This means that the number of days subtracted because they are designated as ALC is not a true count of ALC days during the reporting time period, but rather the number of ALC days accrued by patients discharged during the reporting time period.
	3. CIHI's CMG Plus groupers are updated on a yearly basis and applied retrospectively to historical data. This results in slight changes to the results reported in previous report iterations every year. The process of applying this update historically was established by CIHI in order to minimize historical change of reported results (due to different CMG Plus groupers being applied to different years of data) and to allow for the reliable comparison of Alberta results with results from other provinces across Canada.

Alberta Health Services, Analytics. "Provincial ELOS vs ALOS Dashboard." (2018) [Dashboard showing monthly and quarterly results for the ratio of acute length of stay versus expected length of stay (for typical inpatient cases), by facility]. *AHS Tableau Reporting Platform.* Retrieved from https://tableau.ahs.ca

Alberta Health. Performance Measure Definition: Acute LOS to Expected LOS Ratio (February 2015). Available at: http://www.health.alberta.ca/documents/PMD-Acute-Expected-LOS-Ratio.pdf

Statistics Canada: Health Indicators (December 2000). Available at: http://www.statcan.gc.ca/pub/82-221-x/4060874-eng.htm.

Statistics Canada (Johansen and Finès). Acute care hospital days and mental diagnoses (November 2012). Available at: http://www.statcan.gc.ca/pub/82-003-x/2012004/article/11761-eng.pdf.

	IDENTIFYING INFORMATION
Name:	**Patients who returned to the emergency department within 7 Days**
Calculation:	Patients who returned to an emergency department or urgent care centre within 7 days of discharge from the hospital = $$\left(\frac{\text{Total number of patients that have a return visit within 7 days of discharge}}{\text{Total number of hospital discharges}}\right) \times 100$$ Metric: Percentage of hospital patients who return within 7 days.
Description:	All patients discharged from the emergency department who return, whether planned or unplanned, within 7 days to *any* emergency department or urgent care centre in Alberta are included.[6]
Data source:	National Ambulatory Care Reporting System (NACRS)
Assumptions:	None
Exclusions:	None
Limitations:	1. Patients who seek other healthcare services within 7 days of being discharged from the emergency department (e.g., primary care/family physician). 2. Patients are excluded if their visit to the emergency department (initial or return) or urgent care centre (return only) was not a face-to-face interaction between the patient and provider. 3. For patients returning to a different emergency department than the one they last sought care in, matching is done on ULI or PHN. Occasionally these unique identifiers are recorded incorrectly, resulting in being unable to identify a return visit. 4. Return visits for patients in the emergency department during the last three days of March, June, September, and December may not be captured due to the unavailability of the NACRS data for the subsequent month (i.e., the return visit may have occurred after the end of the month). As such, the values reported for March, June, September, and December (and quarters ending in these months) may change when the data is available and updated for the next quarter.

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[6] Return visits to the emergency department are sometimes split to separate out planned and unplanned return visits within 72 hours of discharge from the emergency department; however, this measure includes both planned and unplanned return visits.

IDENTIFYING INFORMATION	
Name:	**Unplanned Readmission to hospital within 7 days**
Calculation:	Hospital Readmission Percentage = $\left(\dfrac{\text{Number of discharged patients readmitted to the hospital within 7 days}}{\text{Number of patients discharged}}\right) \times 100$ Note: based on the discharging site; a readmission can occur anywhere but if the readmission occurs, it is attached to the initial discharging site, not the site to which the patients return to.
Description:	Readmission percentage is calculated as the number of subsequent unplanned readmissions less than or equal to 7 days from the initial discharges between acute care hospitals out of the number of initial discharges. **Inclusion criteria** **Numerator:** 1. Residents in Alberta. 2. Admission day of a subsequent admission is less than or equal to 7 days of discharge from an acute hospital. 3. Unplanned readmission (Admit Category = 'U' - Urgent/Emergent) **Denominator:** 1. Residents in Alberta. 2. Discharges from acute care hospitals.
Data source:	AHS Provincial Discharge Abstract Database (DAD)
Rationale:	The risk of readmission following an in-patient stay may be related to the type of drugs prescribed at discharge, patient compliance with post-discharge therapy, the quality of follow-up care in the community, or the availability of appropriate diagnostic or therapeutic technologies during the initial hospital stay. Although readmission for medical conditions may involve factors outside the direct control of the hospital, high rates of readmission act as a signal to hospitals to look more carefully at their practices, including the risk of discharging patients too early and the relationship with community physicians and community-based care.
Exclusions:	**Numerator** 1. Records with an invalid or missing ULI number (e.g. a null or zero ULI, or a newborn with the same ULI as his/her mother.) 2. Records with invalid admission or discharge date/time (e.g. the initial admit and discharge dates overlap with another discharge's admit and discharge dates). 3. Transfer from another inpatient care, emergency department, ambulatory care, residential care, group/supportive living, or correctional facility (Discharge Disposition = '10', '20'. '30'. '40' or '90') 4. The previous admission is being discharged as sign-out.

	Denominator
	1. Records with an invalid or missing ULI number.
	2. Records with invalid admission or discharge date/time.
	3. Transfer to another inpatient care, emergency department, ambulatory care, residential care, group/supportive living, or correctional facility (Discharge Disposition = '10', '20'. '30'. '40' or '90')
	4. Leave (Discharge Disposition = '61', '62', '65', '66', or '67')
	5. Deaths (Discharge Disposition = '72', '73', or '74')
	6. Cadavers (Discharge Disposition = '08')
	7. Stillbirths (Discharge Disposition = '09')
Limitations:	**Data Reliability:**
	1. Since transfer is excluded from readmission and there are several non-standardized ways to determine whether a transfer has occurred, the readmission rates published elsewhere could have different values.
	2. Since the unplanned admission is not well defined, readmission rates published elsewhere might vary because of different ways to determine unplanned admissions.
	Validity:
	1. Since the abstract health records are available only after the patients discharged, potentially some patients readmitted could be still in acute hospitals and are not being counted as part of the numerator.
	2. There is no definite way to determine patient transfers between acute sites. Possible options are:
	a. Use "transfer to" and "transfer from" fields to determine transfer. Since these fields are optional, potentially the fields might not be filled out correctly.
	b. Use admission time of current admission comparing to discharge time of previous admission between two different acute sites. The cut-off time between readmission and transfer is based on educated estimation.
	3. Unplanned admission is defined as admit category = 'U' which is urgent/emergent admission. The data accuracy is highly dependent on the accuracy of this field.

IDENTIFYING INFORMATION	
Name:	**Unplanned Readmission to hospital within 30 days**
Calculation:	Hospital Readmission Percentage = $$\left(\frac{\text{Number of discharged patients readmitted to the hospital within 30 days}}{\text{Number of patients discharged}}\right) \times 100$$ Note: based on the discharging site; a readmission can occur anywhere but if the readmission occurs, it is attached to the initial discharging site, not the site to which the patients return to.
Description:	Readmission percentage is calculated as the number of subsequent unplanned readmissions less than or equal to 30 days from the initial discharges between acute care hospitals out of the number of initial discharges. **Inclusion criteria** **Numerator:** 1. Residents in Alberta. 2. Admission day of a subsequent admission is less than or equal to 30 days of discharge from an acute hospital. 3. Unplanned readmission (Admit Category = 'U' - Urgent/Emergent) **Denominator:** 1. Residents in Alberta. 2. Discharges from acute care hospitals.
Data source:	AHS Provincial Discharge Abstract Database (DAD)
Rationale:	The risk of readmission following an in-patient stay may be related to the type of drugs prescribed at discharge, patient compliance with post-discharge therapy, the quality of follow-up care in the community, or the availability of appropriate diagnostic or therapeutic technologies during the initial hospital stay. Although readmission for medical conditions may involve factors outside the direct control of the hospital, high rates of readmission act as a signal to hospitals to look more carefully at their practices, including the risk of discharging patients too early and the relationship with community physicians and community-based care.
Exclusions:	**Numerator** 1. Records with an invalid or missing ULI number (e.g. a null or zero ULI, or a newborn with the same ULI as his/her mother.) 2. Records with invalid admission or discharge date/time (e.g. the initial admit and discharge dates overlap with another discharge's admit and discharge dates). 3. Transfer from another inpatient care, emergency department, ambulatory care, residential care, group/supportive living, or correctional facility (Discharge Disposition = '10', '20'. '30'. '40' or '90') 4. The previous admission is being discharged as sign-out.

	Denominator
	1. Records with an invalid or missing ULI number.
	2. Records with invalid admission or discharge date/time.
	3. Transfer to another inpatient care, emergency department, ambulatory care, residential care, group/supportive living, or correctional facility (Discharge Disposition = '10', '20'. '30'. '40' or '90')
	4. Leave (Discharge Disposition = '61', '62', '65', '66', or '67')
	5. Deaths (Discharge Disposition = '72', '73', or '74')
	6. Cadavers (Discharge Disposition = '08')
	7. Stillbirths (Discharge Disposition = '09')
Limitations:	**Data Reliability:**
	1. Since transfer is excluded from readmission and there are several non-standardized ways to determine whether a transfer has occurred, the readmission rates published elsewhere could have different values.
	2. Since the unplanned admission is not well defined, readmission rates published elsewhere might vary because of different ways to determine unplanned admissions.
	Validity:
	1. Since the abstract health records are available only after the patients discharged, potentially some patients readmitted could be still in acute hospitals and are not being counted as part of the numerator.
	2. There is no definite way to determine patient transfers between acute sites. Possible options are:
	a. Use "transfer to" and "transfer from" fields to determine transfer. Since these fields are optional, potentially the fields might not be filled out correctly.
	b. Use admission time of current admission comparing to discharge time of previous admission between two different acute sites. The cut-off time between readmission and transfer is based on educated estimation.
	3. Unplanned admission is defined as admit category = 'U' which is urgent/emergent admission. The data accuracy is highly dependent on the accuracy of this field.

IDENTIFYING INFORMATION	
Name:	**Patient experience with communication with nurses and doctors**
Survey question(s):	Each of the following questions were asked about different aspects of communication with patients by hospital staff. These questions were asked separately for nurses and doctors: During this hospital stay, how often did <u>nurses/doctors treat you with</u> <u>courtesy and</u> <u>respect</u>? ○ Always ○ Usually ○ Sometimes ○ Never During this hospital stay, how often did <u>nurses/doctors listen carefully to you</u>? ○ Always ○ Usually ○ Sometimes ○ Never During this hospital stay, how often did <u>nurses/doctors explain things in a way you</u> <u>could understand</u>? ○ Always ○ Usually ○ Sometimes ○ Never
Calculation:	Results for those who responded "always": $$\left(\frac{\text{Number of respondents that reported 'always'}}{\text{Total number of respondents during the reporting period}}\right) \times 100$$
Description:	Percentage of patients who reported "always" when asked if nurses/doctors: a) treated them with courtesy and respect, b) listened carefully to them, c) explained things in a way they could understand.

Data source:	Canadian Patient Experiences Survey – Inpatient Care (CPES-IC)
Assumptions:	None
Exclusions:	General exclusion criteria for the CPES-IC include the following: ▪ Patients who are under 18 years of age at the time of hospital discharge. ▪ Patients who remain in hospital for less than 24 hours (e.g. day surgery cases, other short-stay cases). ▪ Patients who died during their inpatient stay. ▪ Patients without valid contact information (phone number). ▪ Patients who are unable to communicate in English (as the survey is administered in English only).
Limitations:	A random sample of patients is surveyed within six weeks of their discharge from hospital. Sample sizes are determined at the site level each quarter. At the largest 14 hospitals, approximately 10% of eligible patients are surveyed, with a minimum sample of 300 surveys obtained at each site. The number of patients surveyed per site per month may not be statistically representative of the population treated at each site for that given time period; the sample is statistically representative at the site-level every quarter – caution is urged when interpreting specific data points.

IDENTIFYING INFORMATION	
Name:	**Patient experience with involvement in care decisions**
Survey question(s):	Were you involved as much as you wanted to be in decisions about your care and treatment during this hospital stay? ○ Always ○ Usually ○ Sometimes ○ Never
Calculation:	Results for those who responded "always": $$\left(\frac{\text{Number of respondents that reported 'always'}}{\text{Total number of respondents during the reporting period}}\right) \times 100$$
Description:	Percentage of patients who reported being "always" involved in care decisions.
Data source:	Canadian Patient Experiences Survey – Inpatient Care (CPES-IC)
Assumptions:	None
Exclusions:	General exclusion criteria for the CPES-IC include the following: ▪ Patients who are under 18 years of age at the time of hospital discharge. ▪ Patients who remain in hospital for less than 24 hours (e.g. day surgery cases, other short-stay cases). ▪ Patients who died during their inpatient stay. ▪ Patients without valid contact information (phone number). ▪ Patients who are unable to communicate in English (as the survey is administered in English only).
Limitations:	A random sample of patients is surveyed within six weeks of their discharge from hospital. Sample sizes are determined at the site level each quarter. At the largest 14 hospitals, approximately 10% of eligible patients are surveyed, with a minimum sample of 300 surveys obtained at each site. The number of patients surveyed per site per month may not be statistically representative of the population treated at each site for that given time period; the sample is statistically representative at the site-level every quarter – caution is urged when interpreting specific data points.

IDENTIFYING INFORMATION	
Name:	**Patient experience with information about condition and treatment**
Survey question(s):	During this hospital stay, did you get all the information you needed about your condition and treatment? ○ Always ○ Usually ○ Sometimes ○ Never
Calculation:	Results for those who responded "always": $$\left(\frac{\text{Number of respondents that reported 'always'}}{\text{Total number of respondents during the reporting period}}\right)\times100$$
Description:	Percentage of patients who reported "always" receiving information about their condition and treatment.
Data source:	Canadian Patient Experiences Survey – Inpatient Care (CPES-IC)
Assumptions:	None
Exclusions:	General exclusion criteria for the CPES-IC include the following: ▪ Patients who are under 18 years of age at the time of hospital discharge. ▪ Patients who remain in hospital for less than 24 hours (e.g. day surgery cases, other short-stay cases). ▪ Patients who died during their inpatient stay. ▪ Patients without valid contact information (phone number). ▪ Patients who are unable to communicate in English (as the survey is administered in English only).
Limitations:	A random sample of patients is surveyed within six weeks of their discharge from hospital. Sample sizes are determined at the site level each quarter. At the largest 14 hospitals, approximately 10% of eligible patients are surveyed, with a minimum sample of 300 surveys obtained at each site. The number of patients surveyed per site per month may not be statistically representative of the population treated at each site for that given time period; the sample is statistically representative at the site-level every quarter – caution is urged when interpreting specific data points.

IDENTIFYING INFORMATION	
Name:	**Patient experience with staff helping with pain**
Survey question(s):	During this hospital stay, how often did hospital staff do everything they could to help you with your pain? ○ Always ○ Usually ○ Sometimes ○ Never
Calculation:	Results for those who responded 'always': $$\left(\frac{\text{Number of respondents that reported 'always'}}{\text{Total number of respondents during the reporting period}^7}\right) \times 100$$
Description:	Percentage of patients who reported hospital staff "always" helped them with pain.
Data source:	Canadian Patient Experiences Survey – Inpatient Care (CPES-IC)
Assumptions:	None
Exclusions:	1. General exclusion criteria for the CPES-IC include the following: ▪ Patients who are under 18 years of age at the time of hospital discharge. ▪ Patients who remain in hospital for less than 24 hours (e.g. day surgery cases, other short-stay cases). ▪ Patients who died during their inpatient stay. ▪ Patients without valid contact information (phone number). ▪ Patients who are unable to communicate in English (as the survey is administered in English only). 2. Those who reported they were not in pain while in hospital are not asked this question, as it is not applicable.
Limitations:	A random sample of patients is surveyed within six weeks of their discharge from hospital. Sample sizes are determined at the site level each quarter. At the largest 14 hospitals, approximately 10% of eligible patients are surveyed, with a minimum sample of 300 surveys obtained at each site. The number of patients surveyed per site per month may not be statistically representative of the population treated at each site for that given time period; the sample is statistically representative at the site-level every quarter – caution is urged when interpreting specific data points.

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[7] This question was only asked of respondents who reported they were in pain while they were in the hospital; therefore, the denominator consists of all patients who were in pain while in hospital with valid responses to this question.

Identifying Information	
Name:	**Patient Experience Overall rating of care**
Survey question(s):	Using any number from 0 to 10, where 0 is the worst care possible and 10 is the best care possible, what number would you use to rate your care during this emergency department visit? ○ 0 Worst care possible ○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7 ○ 8 ○ 9 ○ 10 Best care possible
Calculation:	Patients' average overall rating of care = $$Avg(ORC) = \left(\frac{\sum(ORC_i)}{\text{Total number of respondents during the reporting period}^8} \right) \times 10$$ Where ORC_i represents each respondent's rating of their overall emergency department care and $Avg(ORC)$ is the average rating of patients' overall emergency department care experiences.
Description:	Average rating of patients' overall emergency department care experiences. Patients' average ratings (0-10 scale) are multiplied by 10 to create a 0-100 scale, which facilitates reporting consistency between patient experience measures.
Data source:	HQCA Emergency Department Patient Experience of Care (EDPEC) Survey
Assumptions:	None

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[8] This question was asked of all respondents; therefore, the denominator consists of all patients with a valid response to this question.

Exclusions:	General exclusion criteria for the <mark>HQCA EDPEC</mark> Survey include the following: • Children aged 0 to 15 for the 14 large urban and regional adult emergency department sites. • Patients older than 12 for the two Children's Hospital emergency department sites. • Patients who left the emergency department before being seen or treated. • Patients who died in the context of their emergency department or inpatient stay. • Patients without contact information (phone number). • Privacy-sensitive cases (e.g., domestic abuse, attempted suicide, etc.)
Limitations	1. Sampling for the <mark>HQCA EDPEC</mark> Survey purposely excludes patients in specific age groups at specific sites (see Exclusions section). As a result, data collected for these sites does not represent the experiences of all patients treated at these emergency department sites, but does represent the majority. 2. Sample sizes per site, per month have been determined to reflect the principles of statistical process control (SPC) methods, and allows for the monitoring of patient experience over time.[9] The number of patients surveyed per site per month/quarter are not statistically representative of the population treated at each site for that given time period; the sample is statistically representative at the site-level every 6 months[10] – caution is urged when interpreting specific data points.

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[9] See Appendix A for an explanation of the sample size determination and the principles of SPC methods.
[10] More information about the statistical representativeness calculation (with finite population correction) can be found at: http://www.sut.ac.th/im/data/read6.pdf.

IDENTIFYING INFORMATION	
Name:	**Patient experience with talking with staff about help needed at home**
Survey question(s):	During this hospital stay, did doctors, nurses, or other hospital staff talk with you about whether you would have the help you needed when you left the hospital? ○ Yes ○ No
Calculation:	Results for those who responded "yes": $$\left(\frac{\text{Number of respondents that reported 'yes'}}{\text{Total number of respondents during the reporting period}^{11}}\right) \times 100$$
Description:	Percentage of patients who reported "yes" when asked if they talked with hospital staff about whether they would have the help they needed at home.
Data source:	Canadian Patient Experiences Survey – Inpatient Care (CPES-IC)
Assumptions:	None
Exclusions:	1. General exclusion criteria for the CPES-IC include the following: ▪ Patients who are under 18 years of age at the time of hospital discharge. ▪ Patients who remain in hospital for less than 24 hours (e.g. day surgery cases, other short-stay cases). ▪ Patients who died during their inpatient stay. ▪ Patients without valid contact information (phone number). ▪ Patients who are unable to communicate in English (as the survey is administered in English only). 2. Those who reported they did not go home/to someone else's home when they left the hospital are not asked this question, as it is not applicable.
Limitations:	A random sample of patients is surveyed within six weeks of their discharge from hospital. Sample sizes are determined at the site level each quarter. At the largest 14 hospitals, approximately 10% of eligible patients are surveyed, with a minimum sample of 300 surveys obtained at each site. The number of patients surveyed per site per month may not be statistically representative of the population treated at each site for that given time period; the sample is statistically representative at the site-level every quarter – caution is urged when interpreting specific data points.

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[11] This question was only asked of respondents who reported they went home or to someone else's home when they left the hospital; therefore, the denominator consists of all patients who reported going home/to someone else's home with valid responses to this question.

Appendix A – Sample size and the principles of statistical process control (SPC) methods

Determining appropriate sample sizes for improvement projects is less well-defined than traditional research projects, primarily because data is often collected over time.[12] As a result, there is no "industry consensus" regarding how to determine appropriate sample size.

Donald J. Wheeler proposes the following questions about sample sizes:[13]

- Are the data collected in a manner that will allow the charts to detect process changes that are large enough to be of interest?

- Do the data give us the appropriate information needed to take action on our process?

Additional considerations for determining sample size include, but are not limited to, the following:[12]

- project objectives

- data type

- expected rate of meaningful change in the data

- availability of data

- availability of resources to collect the data

- project importance/visibility

The most desirable methodological solution from the point of view of detecting process shifts for improvement projects would be to take large samples very frequently; however, this is not economically feasible.[14] Sample size issues in improvement efforts are often a balance between resources and the clarity of the results desired.[12] I.e., the sample size determination depends on how many respondents are needed to observe changes in the data (non-random variation), without being so expensive that the project is unsustainable.

This issue of appropriately allocating sampling effort often results in the following choice: take smaller samples at shorter intervals or take larger samples at longer intervals. Industry practice favours smaller, more frequent samples because it allows for quicker corrective action when a process shift occurs.[14] Similarly, healthcare providers and quality improvement personnel benefit from more frequent reporting because it enables iterative improvement (causes of positive changes can be reinforced, while causes of negative changes could lead to corrective action). These benefits support Health Quality Alberta's decision to survey fewer patients than is required for the sample to be statistically representative of the population treated at each site for a given time period (month/quarter).

Many applications of SPC methods use sample sizes as small as 5 or 10 observations to monitor the quality of a process.[12,14] Health Quality Alberta's previous work with emergency department patient experience surveys and the application of SPC methods to this historical data suggests that a sample size of 30 to 50 emergency department patients per site, per month, is sufficient to detect

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[12] Provost L.P., Murray S.K. The Health Care Data Guide: Learning From Data for Improvement. San Francisco, CA: Jossey-Bass; 2011.
[13] Wheeler D.J. Rational Sampling. Accessed from http://www.qualitydigest.com/inside/statistics-column/070115-rational-sampling.html.
[14] Montgomery D.C. Introduction to Statistical Quality Control. 6th ed. Hoboken, NJ: John Wiley & Sons; 2009.

meaningful (non-random) changes in patient experience.[15] For this iteration of Health Quality Alberta's emergency department survey, the sample size has been inflated to between 60 and 80 patients per site, per month. This change should result in process shifts being detected more efficiently than in Health Quality Alberta's previous application of these methods.

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[15] For more information on Health Quality Alberta's previous application of SPC methods to the analysis of emergency department patient experience data, please see Health Quality Alberta's *Urban and Regional Emergency Department Patient Experience Report (2010-2013)*, accessible at: http://hqa.ca/surveys/emergency-department-patient-experience/.

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