

MOHLTC-LHIN Accountability Agreement
Local Health System Performance Indicators
Technical Information

August 15, 2008

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1. Wait Times (6 Indicators)

- **90th Percentile Wait Times for the Following Priority Areas (5 areas: Cancer Surgery, Coronary Artery Bypass Surgery, Joint Replacement, Cataract Surgery, MRI/CT Scan)**
- **Median Wait Time to Long-Term Care Home Placement**

Definition

Description: The 90th percentile is the time in which 90% of all patients have received the procedure. For surgical procedures, Ontario measures the wait time from when a patient and surgeon decide to proceed with surgery, until the time the procedure is completed. For diagnostic scans (MRI and CT), Ontario measures the wait time from when a diagnostic scan is ordered, until the time the actual exam is completed. This interval is typically referred to as from 'decision to treat' to 'treatment' (Access to Care Informatics 2005).

Median wait time is the point at which half the patients have had their treatment, and the other half are still waiting. For example, if a median wait time is 26 days, this means that half of the patients waited less than 26 days, and half waited more than 26 days. The median is another way of reflecting what a "typical" patient might have experienced in that time period. Unlike the average, the median will not be influenced by one or two very unusual cases (long or short), and is therefore more stable over time (Health Results Team – System Integration, 2005).

(i) Cancer Surgery

Indicator Calculation:

Steps:

1. Wait Days = Procedure Date – Decision to Treat Date – Patient Unavailable Days
2. Sort the records ascending. Patients with short wait days on top and patients with long wait days at the bottom.
3. Count the total number of cases and multiply by 0.90 (let's call this the "90thobs"). If this value has a decimal digit greater than zero then roundup. The 90th percentile wait time is the wait time of the "90thobs" patient. The 90th percentile value is not interpolated.

Example: There are 12 patients with their respective wait days. We want to calculate the 90th percentile wait time of these 12 patients. Take the "90thobs" = $12 * 0.90 = 10.8$. Rounded up, this will now be 11. The 90th percentile wait time is the wait time of the 11th patient. The list has to be sorted ascending by wait days.

Inclusion/Exclusion Criteria:

1. Wait Time is calculated based on closed cases submitted by hospitals through the Wait Time Information System.
2. All closed wait list entries with procedure dates within date range
3. Must be 18 and older on the day the procedure was completed
4. Procedures no longer required are excluded from wait time calculation
5. Includes treatment cancer procedures only. Procedures classified as "NA" are currently included. Diagnostic, palliative and reconstructive cancer procedures are excluded. Procedures on skin - carcinoma, skin-melanoma, and lymphomas are also excluded.
6. Procedures assigned as priority level 1 are excluded from wait time calculation.
7. Wait list entries identified by hospitals as data entry errors are also excluded.

8. If unavailable days fall outside the decision to treat date up to procedure date, unavailable days are not deducted from patients' wait days. These are considered data entry errors.

Methodological Notes:

Hospitals submitting wait time data voluntarily (not required to report) are included in wait time calculation. Calculated 90th percentile wait time is based only on the cases entered in the system. Logically, hospitals not reporting cases promptly are excluded at the time of data extraction. Volumes submitted by hospitals are checked monthly for completeness. Hospital volume is compared against the expected monthly average. Outliers are validated with hospitals if the wait days are accurate. Access to Care Informatics has developed a few comprehensive documentations to assess data quality under four key dimensions: timeliness, validity, reliability and usability. These documentations are available upon request to WTIODataQuality@cancercare.on.ca.

(ii) Cardiac Bypass Surgery

Indicator Calculation: Waiting periods are counted from the date a patient was accepted for bypass surgery by the cardiac service or cardiac surgeon. Waiting periods do not include time spent investigating heart disease before a patient is accepted for a procedure. For example, the time it takes for a patient to have a heart catheterization procedure before being referred to a heart surgeon is not part of the waiting time shown for heart surgery (Access to Care Informatics, 2005). Waiting times for a catheterization done after a patient has been accepted for the surgery are included as acceptance does not equal medically ready.

Inclusion Criteria: Only includes elective patients who are Ontario residents (Access to Care Informatics, 2005).

Exclusion Criteria: None

Methodological Notes:

Hospitals submit data to CCN on a nightly basis through historical submission processes. Monthly statistical reports are produced through a formalized reporting process that includes extracting monthly data submitted by the 5th day of the month for the previous month's submissions. Monthly reporting occurs from this data extraction and all data are reviewed by the CCN Data Management Work Group prior to release. Monthly statistical reporting for the network is aligned with reports going to the Access to Care Informatics and the public. 90th percentile calculations are based on the same extract.

(iii) Cataract Surgery

Indicator Calculation:

Steps:

1. Wait Days = Procedure Date – Decision to Treat Date – Patient Unavailable Days
2. Sort the records ascending. Patients with short wait days on top and patients with long wait days at the bottom.
3. Count the total number of cases and multiply by 0.90 (let's call this the "90thobs"). If this value has a decimal digit greater than zero then roundup. The 90th percentile wait time is the wait time of the "90thobs" patient. The 90th percentile value is not interpolated.

Example: There are 12 patients with their respective wait days. We want to calculate the 90th percentile wait time of these 12 patients. Take the "90thobs" = $12 * 0.90 = 10.8$. Rounded up, this will now be 11. The 90th percentile wait time is the wait time of the 11th patient. The list has to be sorted ascending by wait days.

Inclusion/Exclusion Criteria:

1. Wait Time is calculated based on closed cases submitted by hospitals through the Wait Time Information System.
2. All closed Wait List Entries with procedure dates within date range.
3. Must be 18 and older on the day the procedure was completed.
4. Procedure No Longer Required are excluded from wait time calculation.

5. Procedures assigned as priority level 1 cases are excluded from wait time calculation.
6. Wait list entries identified by hospitals as data entry errors are also excluded.
7. If unavailable days fall outside the decision to treat date up to procedure date, unavailable days are not deducted from patients' wait days. These are considered data entry errors.

Methodological Notes:

Hospitals submitting wait time data voluntarily (not required to report) are included in wait time calculation. 90th percentile wait time is based only on the cases entered in the system. Logically, hospitals not reporting cases promptly are excluded at the time of data extraction. Volumes submitted by hospitals are checked monthly for completeness. Hospital volume is compared against the expected monthly average. Outliers are validated with hospitals if the wait days are accurate. Access to Care Informatics has developed a few comprehensive documentations to assess data quality under four key dimensions: timeliness, validity, reliability and usability. These documentations are available upon request to WTIODataQuality@cancercare.on.ca

(iv) Joint Replacement

Indicator Calculation:

Steps:

1. Wait Days = Procedure Date – Decision to Treat Date – Patient Unavailable Days
2. Sort the records ascending. Patients with short wait days on top and patients with long wait days at the bottom.
3. Count the total number of cases and multiply by 0.90 (let's call this the "90thobs"). If this value has a decimal digit greater than zero then roundup. The 90th percentile wait time is the wait time of the "90thobs" patient. The 90th percentile value is not interpolated.

Example: There are 12 patients with their respective wait days. We want to calculate the 90th percentile wait time of these 12 patients. Take the "90thobs" = $12 * 0.90 = 10.8$. Rounded up, this will now be 11. The 90th percentile wait time is the wait time of the 11th patient. The list has to be sorted ascending by wait days.

Inclusion/Exclusion Criteria:

1. Wait Time is calculated based on closed cases submitted by hospitals through the Wait Time Information System.
2. All closed wait list entries with procedure dates within date range.
3. Must be 18 and older on the day the procedure was completed.
4. Procedures no longer required are excluded from wait time calculation.
5. Procedures assigned as priority level 1 are excluded from wait time calculation.
6. Wait list entries identified by hospitals as data entry errors are also excluded.
7. If unavailable days fall outside the decision to treat date up to procedure date, unavailable days are not deducted from patients' wait days. These are considered data entry errors.

Methodological Notes:

Hospitals submitting wait time data voluntarily (not required to report) are included in the wait time calculation. 90th percentile wait time is based only on the cases entered in the system. Logically, hospitals not reporting cases promptly are excluded at the time of data extraction. Volumes submitted by hospitals are checked monthly for completeness. Hospital volume is compared against the expected monthly average. Outliers are validated with hospitals if the wait days are accurate. Access to Care Informatics has developed a few comprehensive documentations to assess data quality under four key dimensions: timeliness, validity, reliability and usability. These documentations are available upon request to WTIODataQuality@cancercare.on.ca.

(v) Diagnostic (MRI/CT) Scan

Indicator Calculation:

Steps:

1. Wait Days = Procedure Date – Decision to Treat Date – Patient Unavailable Days
2. Sort the records ascending. Patients with short wait days on top and patients with long wait days at the bottom.
3. Count the total number of cases and multiply by 0.90 (let's call this the "90thobs"). If this value has a decimal digit greater than zero then roundup. The 90th percentile wait time is the wait time of the "90thobs" patient. The 90th percentile value is not interpolated.

Example: There are 12 patients with their respective wait days. We want to calculate the 90th percentile wait time of these 12 patients. Take the "90thobs" = $12 * 0.90 = 10.8$. Rounded up, this will now be 11. The 90th percentile wait time is the wait time of the 11th patient. The list has to be sorted ascending by wait days.

Inclusion/Exclusion Criteria:

1. Wait Time is calculated based on closed cases submitted by hospitals through the Wait Time Information System.
2. All closed wait list entries with procedure dates within date range.
3. Must be 18 and older on the day the procedure was completed.
4. Procedures no longer required are excluded from wait time calculation.
5. Procedures assigned as priority level 1 are excluded from wait time calculation.
6. Wait list entries identified by hospitals as data entry errors are also excluded.
7. If unavailable days fall outside the decision to treat date up to procedure date, unavailable days are not deducted from patients' wait days. These are considered data entry errors.

8. As of January 1, 2008, DI cases classified as specified date procedures (timed procedures) are excluded from wait time calculation.

Methodological Notes:

Hospitals submitting wait time data voluntarily (not required to report) are included in wait time calculation. 90th percentile wait time is based only on the cases entered in the system. Logically, hospitals not reporting cases promptly are excluded at the time of data extraction. Volumes submitted by hospitals are checked monthly for completeness. Hospital volume is compared against the expected monthly average. Outliers are validated with hospitals if the wait days are accurate. Access to Care Informatics has developed a few comprehensive documentations to assess data quality under four key dimensions: timeliness, validity, reliability and usability. These documentations are available upon request to WTIODataQuality@cancercare.on.ca.

(vi) Time to Long Term Care Home Placement

Description: This indicator measures the median time that clients in Ontario are waiting for placement in a Long Term Care (LTC) Home.

Indicator Calculation: Time to Placement (TTP) is calculated for each included placement as the time from the earlier of LTC Home Application Date or Consent Date to date of placement. The median TTP is taken for each group / geography for which the measure is reported.

Inclusion Criteria: *All Placements* - All non-crisis clients (includes priority category 1B, 2, 3) placed from locations other than LTC Homes. Includes clients placed from hospitals (acute, rehab, ccc, etc.), supportive housing and retirement homes, home, other.

Placed from Acute - All non-crisis clients placed from acute care hospitals (includes priority category 1B, 2, 3). Includes clients placed from acute care hospitals only. Does not include clients placed from rehab, CCC, etc. *Placed from Community* - All non-crisis clients (priority category 1B, 2, 3) placed from the "Home", Retirement Homes, and Supportive Housing only.

Exclusion Criteria: This does not include clients who transferred from one home to another. Clients whose "Admitted from" and/or "Prior Location Code" is unknown are excluded.

Methodological Notes: No comments at this time.

1. 2. Rationale for Wait Times (6 Indicators)

Reducing wait times for key health services is a priority of the current Provincial government, and is an important part of a greater strategy to transform the province's health system. Wait times are a symptom of a broader problem: the lack of consistent management of how patients get access to care. Ontario's Wait Time strategy is designed to improve access to health care services and reduce the time that Ontarians wait for services in five areas: cancer surgery, selected cardiac procedures, cataract surgery, hip and knee total joint replacements and MRI/CT scans. These areas are associated with a high degree of disease and disability and are of particular concern to Ontarians (Backgrounder: The Wait Times Strategy, 2005).

Under the strategy, wait times will be improved by expanding capacity through targeted volume increases, improved efficiencies and standardizing medical and administrative 'best practices' so that more people can be treated within the same time period. The strategy will help make hospitals accountable for managing access to these services with the development of an information system. Ontario has since developed a Wait Time Information System (WTIS) that is more comprehensive, precise and timely. This single information system is established in approximately 50 Ontario hospitals, representing more than 80 per cent of the total volume for the five health services funded through the Wait Time Strategy. This new system tracks wait times for all surgical procedures in Ontario (Backgrounder: The Wait Times Strategy, 2005).

1.2.1. Cancer Surgery

Surgery is a major component of cancer care and is usually needed to determine if a tumour is cancerous or not. Surgery may also be required to evaluate the stage of disease, and as a definitive treatment to remove a malignant growth. Approximately 80% of patients with cancer

undergo a surgical procedure to diagnose stage or treat cancer. Surgery is the main curative treatment for the majority of cancer patients. Surgery is not most often the first point of entry in the cancer treatment system, waiting for surgery can impact on the entire patient journey (Irish, 2005).

1.2.2. Cardiac Procedures

There is a need for timely and equitable access to cardiac care services in order to meet growing demand in Ontario. Those waiting for advanced cardiac procedures also face the more specific and serious risks of death and myocardial infarction (MI e.g., heart attack or irreversible heart damage). The likelihood of such an event depends on the length of time spent waiting and the particular clinical features of each patient. To fully characterize the burden of waiting for services, a variety of measures are needed, including measures of process (e.g., the median wait time), measures of system performance (e.g., percent of procedures completed within the recommended maximum wait times), and measures of outcome (e.g., mortality or MI rate on the wait list) (Cardiac Care Network, 2005).

1.2.3. Cataract Surgery

Cataracts are caused when the lens of the eye becomes clouded making it difficult for a person to see. Cataracts are the most common cause of reversible vision loss since they develop as part of the aging process. Cataract surgery decreases the functional impairment that happens because of poor vision and increases a person's autonomy and independence. Cataract surgery is a highly successful procedure that costs relatively little compared to major surgeries. Cataract surgery has few complications and excellent functional results, improving visual function in over 95% of cases (Hooper, 2005).

1.2.4. Joint Replacement

Surgery to replace a hip or knee joint occurs when disease or injury causes deterioration of the cartilage and/or bones of the hip or knee to the point where non-surgical treatments do not

adequately reduce a person's pain or disability. Hip and knee joint replacement surgery is a highly effective and cost effective treatment for reducing pain, improving quality of life and restoring the functional ability and mobility. The demand for hip and knee joint replacement is increasing largely due to an aging population that has age-related musculoskeletal diseases. New technologies are also making joint surgery a more viable option for both young and older people (Gross, 2005).

1.2.5. Diagnostic (MRI/CT) Scan

Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) are essential tools for the diagnosis, treatment and follow-up of illness. MRI and CT scans are gradually replacing other imaging procedures. Delays in accessing MRI and CT imaging can lead to delays in timely treatment (Keller, 2005).

1.2.6. Time to Long-Term Care Home Placement

The wait time for long-term care placement is a priority in Ontario because access to appropriate long-term care is necessary for our citizens who do not require acute care or community care. With the increasing age of the population, there will be greater demands for long-term care, thus it is important that we start to collect and disseminate LTC placement wait-time data to inform the public.

1. 3. Limitations for Wait Times (6 Indicators)

1.3.1. Cancer Surgery

No comments at this time.

1.3.2. Coronary Artery Bypass Surgery

No comments at this time.

1.3.3. Cataract Surgery

No comments at this time.

1.3.4. Joint Replacement (Hip and Knee)

No comments at this time.

1.3.5. Diagnostic (MRI/CT) Scan

No comments at this time.

1.3.6. Time to Long-Term Care Home Placement

No comments at this time.

1.4. Data Quality Issues for Wait Times (6 Indicators)

The data quality of the Access to Care Informatics was reviewed by former Senator Kirby following concerns expressed by the Auditor General. Senator Kirby provided an independent review of the wait times information system, as well as recommendations for improvement (Kirby, 2007).

1.4.1 Cancer Surgery

Data Source: Cancer Care Ontario (Access to Care Informatics, 2008).

Accuracy of Data: As part of Access to Care Informatics' on-going data quality improvement effort, accuracy is one of the key areas that have been monitored closely over time and assessed on a regular basis along with other data quality dimensions. Access to Care Informatics has developed two data quality scorecards to assess the quality of data under accuracy, timeliness and usability at three different levels: provincial, LHIN, and facility. Three indicators have also been developed in the scorecards to specifically measure the accuracy of data. More details are provided in the Access to Care Informatics Data Quality Assessment Tool. These documentations are available upon request to WTIODataQuality@cancercare.on.ca.

Potential for Historical Trends: The calculated 90th percentile wait time can be compared with the historical trend published in the Government of Ontario wait times website. All inclusions/exclusions criteria used are similar. It should be noted however, that historical wait times published in the government website are refreshed bi-monthly. The quarterly data capture under the MLAA will have more procedures on which to base the calculated 90th percentile. A logical effect is that wait times based on a quarterly data will "soften" or "dissolve" seasonal variations that may be apparent in a bi-monthly refresh. Also, historical wait time trends for low volume hospitals/LHINs will show as "NV" (no or low volume) instead of a calculated 90th.

Data Limitations: The calculated wait times are based on data submitted by hospitals through the Wait Time Information System (WTIS). On an interim basis, some funded hospitals that are still not capable of submitting wait list entries to WTIS currently use the temporary upload tool. Surgical and DI cases from these non-WTIS hospitals are also included in the calculation of wait times.

1.4.2. Cardiac Bypass Surgery

Data Source: Cardiac Care Network provincial patient wait times registry in place since 1990. (Access to Care Informatics, 2008).

Accuracy of Data: Data accuracy is monitored and managed through a number of activities within CCN. The Data Management Working Group reviews all CCN data on a regular basis and identifies issues that may arise through the data collection methodology and/or reporting procedures. Trends may be monitored and/or discussed with individual sites and any necessary changes are planned as appropriate. Other expert panels are used to help making improvement to the overall effectiveness of the Registry. These groups could include the Clinical Services Committee, or other ad-hoc committees such as the Data Definition Review Working Group. CCN has developed performance scorecards for the hospitals within the network that helps the staff monitor their effectiveness among their peers.

Potential for Historical Trends: Cardiac Surgery wait times have been monitored since 1990 by Cardiac Care Network of Ontario and the data are available for historical trending.

Data Limitations: CCN performs numerous activities to ensure that there are minimal limitations to achieving its goal of acting as an oversight body for monitoring cardiac wait times.

1.4.3. Cataract Surgery

Data Source: Access to Care Informatics (Access to Care Informatics, 2008).

Accuracy of Data: As part of Access to Care Informatics' on-going data quality improvement effort, accuracy is one of the key areas that have been monitored closely over time and assessed on a regular basis along with other data quality dimensions. Access to Care Informatics has developed two data quality scorecards to assess the quality of data under accuracy, timeliness and usability at three different levels: provincial, LHIN, and facility. Three indicators have also been developed in the scorecards to specifically measure the accuracy of data. More details are provided in the Access to Care Informatics Data Quality Assessment Tool. These documentations are available upon request to WTIODataQuality@cancercare.on.ca.

Potential for Historical Trends: The calculated 90th percentile wait time can be compared with the historical trend published in the Government of Ontario wait times website. All inclusions/exclusions criteria used are similar. It should be noted however, that historical wait times published in the government website are refreshed bi-monthly. The quarterly data captured under the MLAA will have more procedures on which to base the calculated 90th percentile. A logical effect is that wait times based on a quarterly data will "soften" or "dissolve" seasonal variations that may be apparent in a bi-monthly refresh. Also, historical wait times trend for low volume hospitals/LHINs will show as "NV" (no or low volume) instead of a calculated 90th.

Data Limitations: The calculated wait times are based on data submitted by hospitals through the Wait Time Information System (WTIS). On an interim basis, some funded hospitals that are still not capable of submitting wait list entries to WTIS currently use the temporary upload tool. Surgical and DI cases from these non-WTIS hospitals are also included in the calculation of wait times.

1.4.4. Joint Replacement (Hip and Knee)

Data Source: Ontario Joint Replacement Registry/Access to Care Informatics (Access to Care Informatics, 2008).

Accuracy of Data: As part of Access to Care Informatics' on-going data quality improvement effort, accuracy is one of the key areas that have been monitored closely over time and assessed on a regular basis along with other data quality dimensions. Access to Care Informatics has developed two data quality scorecards to assess the quality of data under accuracy, timeliness and usability at three different levels: provincial, LHIN, and facility. Three indicators have also been developed in the scorecards to specifically measure the accuracy of data. More details are provided in the Access to Care Informatics Data Quality Assessment Tool. These documentations are available upon request to WTIODataQuality@cancercare.on.ca.

Potential for Historical Trends: The calculated 90th percentile wait time can be compared with the historical trend published in the Government of Ontario wait times website. All inclusions/exclusions criteria used are similar. It should be noted however, that historical wait times published in the government website are refreshed bi-monthly. The quarterly data captured under the MLAA will have more procedures on which to base the calculated 90th percentile. A logical effect is that wait times based on quarterly data will "soften" or "dissolve" seasonal variations that may be apparent in a bi-monthly refresh. Also, historical wait times trend for low volume hospitals/LHINs will show as "NV" (no or low volume) instead of a calculated 90th.

Data Limitations: The calculated wait times are based on data submitted by hospitals through the Wait Time Information System (WTIS). On an interim basis, some funded hospitals that are still not capable of submitting wait list entries to WTIS currently use the temporary upload tool. Surgical and DI cases from these non-WTIS hospitals are also included in the calculation of wait times.

1.4.5. Diagnostic (MRI/CT) Scan

Data Source: Access to Care Informatics (Access to Care Informatics, 2008).

Accuracy of Data: As part of Access to Care Informatics' on-going data quality improvement effort, accuracy is one of the key areas that have been monitored closely over time and assessed on a regular basis along with other data quality dimensions. Access to Care Informatics has developed two data quality scorecards to assess the quality of data under accuracy, timeliness and usability at three different levels: provincial, LHIN, and facility. Three indicators have also been developed in the scorecards to specifically measure the accuracy of data. More details are provided in the Access to Care Informatics Data Quality Assessment Tool. These documentations are available upon request to WTIODataQuality@cancercare.on.ca.

Potential for Historical Trends: The calculated 90th percentile wait time can be compared with the historical trend published in the Government of Ontario wait times website. All inclusions/exclusions criteria used are similar. It should be noted however, that historical wait times published in the government website are refreshed bi-monthly. The quarterly data captured under the MLAA will have more procedures on which to base the calculated 90th percentile. A logical effect is that wait times based on quarterly data will "soften" or "dissolve" seasonal variations that may be apparent in a bi-monthly refresh. Also, historical wait times trend for low volume hospitals/LHINs will show as "NV" (no or low volume) instead of a calculated 90th.

Data Limitations: The calculated wait times are based on data submitted by hospitals through the Wait Time Information System (WTIS). On an interim basis, some funded hospitals that are still not capable of submitting wait list entries to WTIS currently use the temporary upload tool. Surgical and DI cases from these non-WTIS hospitals are also included in the calculation of wait times.

1.4.6. Time to Long-Term Care Home Placement

Data Source: Client Profile Database (CPRO)

Accuracy of Data: High – CCAC staff record application dates, consent dates, and placement dates for all clients as part of their core business process. These data are fed to the Ministry monthly.

Potential for Historical Trends: These data are readily available starting April 1, 2003.

Data Limitations: No comments at this time.

1.5. List of References for Wait Times (6 Indicators)

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2. Readmission Rate for Acute Myocardial Infarction (AMI)

2.1. Definition

Description: Age and sex adjusted rate of unplanned inpatient hospital readmission for AMI or another relevant diagnosis within 28 days of an initial hospitalization for AMI.

Indicator Calculation:

Number of AMI relevant episodes with a readmission within 28 days of an initial hospitalization for AMI within a given time period

x 100

Total number of AMI episodes [I21^, I22^] in a given time period

Inclusion Criteria:

Exclusion Criteria: Initial episodes where the patient had signed out or died; elective subsequent admission or transfer from another facility are also excluded. Patients with a diagnosis of cancer, AIDS/HIV, or violent trauma are excluded. Patients without a valid Ontario Health Insurance Plan (OHIP) number or without an Ontario residence, or those less than 15 or greater than 84 years of age are also excluded (Hospital Report Research Collaborative (HRRC), 2005).

Methodological Notes: Relevant ICD10 diagnoses include: acute myocardial infarction [code: I21^, I22^], other acute and sub-acute forms of ischemic heart disease [code: I20.0, I24^], old myocardial infarction [code: I25.2], angina pectoris [code: I20^], other forms of chronic ischemic heart disease [code: I25^], conduction disorders [code: I44^, I45^], cardiac dysrhythmias [code: I46.0, I46.9, I47^, I48^, I49^], functional disturbances following cardiac surgery [code: I97.0, I97.1, I97.8, I97.9], urinary tract infection [code: N39.0] (HRRC, 2005).

2.2. Rationale

Readmission rates permit some measure of the quality of care provided in an acute care (CIHI, 2005) and community care setting. The assumption is that if care in both settings is good, readmissions would be minimal. However, an acute care facility could do its job well (provide acute care) but still get a readmission because there are no community supports. Or alternatively, an acute care facility may discharge the patient into the community before the acute phase is adequately resolved (potentially due to length of stay challenges, ED congestion, etc.), thus transferring the care to a CCAC which is not resourced (or mandated) to provide home care services to patients who still require the services of an acute care facility. High rates of readmission may require the hospital to examine their discharge policies as well as their relationship with community care providers (CIHI, 2005). Readmission can also be affected by other considerations such as factors relating to the complexity of the case and the nature of the disease.

2.3. Indicator Limitations

The data used in the calculations of readmission rates include only acute care inpatient hospitalization discharge abstracts.

Rates were calculated for three-year time periods to avoid fluctuations in the data.

Caveats regarding the use of these data to generate AA-related performance profiles on a quarterly basis:

- Q1 data will be reported at the same time as Q2 data as there is no Q1 CIHI "close date" for hospitals to submit data in 2006 – 2007.
- Data for the last month of the last quarter are not included.

2.4. Data Quality Issues

Data Source: CIHI Inpatient Discharge Abstract Database (DAD)

Accuracy of Data: Data are not formally audited and have quality concerns.

Potential for Historical Trends: Effected by changes in coding systems. Data are available from 2002, when ICD10 was implemented.

Data Limitations: No comments at this time.

2.5. Data Limitations

No comments at this time.

2.6. List of References

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3. Percentage of Alternate Level of Care (ALC) Days

3.1. Definition

Description: Percentage of inpatient days where a physician (or designated other) has indicated that a patient occupying an acute care hospital bed has finished the acute care phase of his/her treatment.

Indicator Calculation:

$$\frac{\text{Total number of inpatient days designated as ALC in a given time period}}{\text{Total number of inpatient days in a given time period}} \times 100$$

Inclusion Criteria: Data are retrieved from acute care hospitals, including AP hospitals (Acute Hospitals with psychiatric beds) and AT hospitals (Acute hospitals without psychiatric beds).

Exclusion Criteria: Newborns, stillborns, and records with missing or invalid “Discharge Date” are not included in this indicator.

Methodological Notes: All numbers used for calculations are as reported by the hospitals. The information is from each acute site of the hospital and the assignment to a LHIN is based on the postal code of the hospital site.

3.2. Rationale

An alternate level of care (ALC) patient is one who does not require acute care treatment, but is occupying a bed designated for that type of care. The reporting of ALC cases is a clinical decision and must be indicated on the patient's chart by the attending physician (CIHI, DAD

Abstracting Manual 2005-2006 Edition, September, 2005). The patient remains in an acute care bed while his or her needs may be better met in an alternative, less-costly setting such as a long-term care facility (St. Joseph's Health Care, 2005). Patients remain in hospital longer than necessary for various reasons, including no available room in residential facilities or a delay in discharge arrangements. A reduction in ALC days results in more acute care beds being available for those who need acute care treatment.

3.3. Indicator Limitations

The ALC days included are based on hospital discharge information and as such the measure does not include patients occupying ALC beds who have not been discharged.

3.4. Data Quality Issues

Data Source: CIHI Inpatient Discharge Abstract Database (DAD)

Accuracy of Data: Data are not fully audited for accuracy.

Potential for Historical Trends: Data are collected continually so quarterly/annual tracking is possible. Starting in April 2006, adult inpatient cases in designated mental health beds (in AP hospitals) are no longer reported to CIHI DAD. The Ontario Mental Health Reporting System (OMHRS) database captures information on all adult inpatient mental health beds in Ontario.

3.5. Data Limitations:

No comments at this time.

3.6. List of References

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4. Rate of Emergency Department Visits that Could Be Managed Elsewhere

4.1. Definition

Description: Age-standardized rate per 1000 population of emergency department visits for conditions that may be treated in alternative primary care settings.

Indicator Calculation:

Total age-standardized number of emergency department visits for conjunctivitis, cystitis, otitis media, and upper respiratory infections (e.g. common cold, acute or chronic sinusitis and tonsillitis, acute pharyngitis, laryngitis or tracheitis, and other upper respiratory infections) x 1,000

Population aged 1 to 74 years

(Altmayer, Ardal, Woodward and Schull, 2005)

Inclusion Criteria: Unscheduled emergency department visits.

Exclusion Criteria: Persons less than one year of age or older than 74 years of age; ED visits resulting in an inpatient admission; people with a *Canadian Emergency Department Triage and Acuity Scale* (CTAS) of levels I, II, or III (resuscitation, emergent, or urgent); planned emergency department visits.

Methodological Notes: If multiple conditions are diagnosed throughout the emergency department visit, the diagnosis/condition responsible for the greatest resource use is chosen as the most clinically significant reason for the emergency department visit (Altmayer et al., 2005). The following table lists the ICD-10-CA codes used to identify ED cases that could be managed elsewhere.

ICD-10-CA codes (converted from ICD-9):

Conjunctivitis	A740	CHLAMYDIAL CONJUNCTIVITIS
	B309	VIRAL CONJUNCTIVITIS UNSPECIFIED
	H100	MUCOPURULENT CONJUNCTIVITIS
	H101	ACUTE ATOPIC CONJUNCTIVITIS
	H102	OTHER ACUTE CONJUNCTIVITIS
	H103	ACUTE CONJUNCTIVITIS UNSPECIFIED
	H104	CHRONIC CONJUNCTIVITIS
	H105	BLEPHAROCONJUNCTIVITIS
	H108	OTHER CONJUNCTIVITIS
	H109	CONJUNCTIVITIS UNSPECIFIED
	H130	FILARIAL INFECTION CONJUNCTIVA CONJUNCTIVITIS INFECT & PARASIT DIS
	H131	CL/E CONJUNCTIVITIS IN OTHER DISEASES
	H132	CL/E
	H133	OCULAR PEMPHIGOID
Cystitis	N300	ACUTE CYSTITIS
	N301	INTERSTITIAL CYSTITIS (CHRONIC)
	N302	OTHER CHRONIC CYSTITIS
	N303	TRIGONITIS
	N304	IRRADIATION CYSTITIS
	N308	OTHER CYSTITIS
	N309	CYSTITIS UNSPECIFIED
	N330	TUBERCULOUS CYSTITIS
	N390	URINARY TRACT INFECTION SITE NOT SPEC
Otitis Media	H650	ACUTE SEROUS OTITIS MEDIA OTHER ACUTE NONSUPPURATIVE OTITIS
	H651	MEDIA
	H652	CHRONIC SEROUS OTITIS MEDIA
	H653	CHRONIC MUCOID OTITIS MEDIA OTH CHRONIC NONSUPPURATIVE OTITIS
	H654	MEDIA NONSUPPURATIVE OTITIS MEDIA
	H659	UNSPECIFIED
	H660	ACUTE SUPPURATIVE OTITIS MEDIA CHR TUBOTYMPANIC SUPPURATIVE
	H661	OTITIS MEDIA CHR ATTICOANTRAL SUPPURATIVE
	H662	OTITIS MEDIA OTHER CHRONIC SUPPURATIVE OTITIS
	H663	MEDIA

Upper Respiratory
Infections

H664 SUPPURATIVE OTITIS MEDIA UNSPECIFIED
H669 OTITIS MEDIA UNSPECIFIED
OTITIS MEDIA IN BACTERIAL DISEASES
H670 CL/E
H671 OTITIS MEDIA IN VIRAL DISEASES CL/E
H678 OTITIS MEDIA IN OTHER DISEASES CL/E

ACUTE NASOPHARYNGITIS [COMMON
J00 COLD]
J010 ACUTE MAXILLARY SINUSITIS
J011 ACUTE FRONTAL SINUSITIS
J012 ACUTE ETHMOIDAL SINUSITIS
J013 ACUTE SPHENOIDAL SINUSITIS
J014 ACUTE PANSINUSITIS
J018 OTHER ACUTE SINUSITIS
J019 ACUTE SINUSITIS UNSPECIFIED
ACUTE PHARYNGITIS DT OTH SPEC
J028 ORGANISMS
J029 ACUTE PHARYNGITIS UNSPECIFIED
ACUTE TONSILLITIS DT OTH SPEC
J038 ORGANISMS
J039 ACUTE TONSILLITIS UNSPECIFIED
J040 ACUTE LARYNGITIS
J041 ACUTE TRACHEITIS
J060 ACUTE LARYNGOPHARYNGITIS
J068 OTHER ACUTE URTI OF MULTIPLE SITES
J069 ACUTE URTI UNSPECIFIED
J310 CHRONIC RHINITIS
J311 CHRONIC NASOPHARYNGITIS
J312 CHRONIC PHARYNGITIS
J320 CHRONIC MAXILLARY SINUSITIS
J321 CHRONIC FRONTAL SINUSITIS
J322 CHRONIC ETHMOIDAL SINUSITIS
J323 CHRONIC SPHENOIDAL SINUSITIS
J324 CHRONIC PANSINUSITIS
J328 OTHER CHRONIC SINUSITIS
J329 CHRONIC SINUSITIS UNSPECIFIED
J350 CHRONIC TONSILLITIS
J351 HYPERTROPHY OF TONSILS
J352 HYPERTROPHY OF ADENOIDS
J353 HYPERTROPHY TONSILS AND ADENOIDS
OTH CHRONIC DISEASES TONSILS &
J358 ADENOIDS
CHRONIC DISEASE TONSILS &
J359 ADENOIDS NOS

4.2. Rationale

It is estimated that at least 50 percent of emergency room visits are non-urgent according to medical guidelines and criteria (Coleman, 2001). Appropriate dissemination of information may decrease the number of emergency room visits that are non-urgent, since it can make patients more aware of the resources available in the community. Rates of emergency department utilization may reflect health status, as well as the availability, accessibility, and integration of primary health care resources in the community (Chan, 2001). That being said, strategies to divert non-urgent patients from the emergency department may not improve the quality of care received or reduce overall costs and may create an additional strain on the community care aspect of the health system (Altmayer et al., 2005).

4.3. Indicator Limitations

Conditions selected for this indicator are considered common high volume conditions.

4.4. Data Quality Issues

Data Sources:

1. Provincial Health Planning Database (PHPDB) Population Estimates and Projections
2. CIHI National Ambulatory Care Reporting System (NACRS)

Accuracy of Data: Data are not formally audited and there are concerns about data quality and consistency.

Potential for Historical Trends: Inconsistent, few years, probably not reliable for trending. Data using ICD10 codes are available beginning Fiscal Year 2002/03.

4.5 Data Limitations:

No comments at this time.

4.6. List of References

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5. Hospitalization Rate for Ambulatory Care Sensitive Conditions

5.1. Definition

Description: Age-standardized acute care hospitalization rate for conditions where appropriate ambulatory care prevents or reduces the need for admission to hospital, per 100,000 population under age 75 years (Statistics Canada and CIHI, 2006).

Indicator Calculation:

Number of ACSC inpatient separations from acute care hospitals (completed cases: discharges, transfers to other facilities, deaths or sign outs) during the year, standardized by age to 1991 Ontario Population as per the specific condition. x 100,000

Population aged 0 to 74 years

Inclusion Criteria: All discharges from acute care hospitals.

Exclusion Criteria: Discharges where patients are aged 75 or older; death before discharge.

Methodological Notes: Statistics Canada (2006) uses the following ICD-10-CA/CCI codes for most responsible diagnosis:

- Grand mal status and other epileptic convulsions [G40, G41]
- Chronic obstructive pulmonary disease (COPD) [J41, J42, J43, J44, J47]
- Acute bronchitis [J20] only when a secondary diagnosis of COPD [J41, J42, J43, J44, J47] is also present.
- Pneumonia [J12, J13, J14, J15, J16, J18] only when a secondary diagnosis of COPD [J41, J42, J43, J44, J47] is also present

- Asthma [J45]
- Congestive heart failure [I50.0, J81] [excluding cases with the following surgical procedures (CCI)–codes: [1.IJ.50, 1.HZ.85, 1.IJ.76, 1.HB.53, 1.HD.53, 1.HZ.53, 1.HB.55, 1.HD.55, 1.HZ.55, 1.HB.54, 1.HD.54] and procedure is not coded as abandoned after onset;
- Hypertension [I10.0, I10.1, I11] (exclude cases with the following surgical procedures : [1.IJ.50, 1.HZ.85, 1.IJ.76, 1.HB.53, 1.HD.53, 1.HZ.53, 1.HB.55, 1.HD.55, 1.HZ.55, 1.HB.54, 1HD.54] and procedure is not coded as abandoned after onset)
- Angina [I20, I23.82, I24.0, I24.8, I24.9] (exclude cases with a surgical procedure: any one CCI procedure of [1, 2, 5] and procedure is not coded as abandoned after onset)
- Diabetes [E10.1, E10.6, E10.7, R10.9, E11.0, E11.1, E11.6, E11.7, E11.9, E13.0, E13.1, E13.6, E13.7, E13.9, E14.0, E14.1, E14.6, E14.7, E14.9]

5.2. Rationale

A hospitalization rate for ambulatory care sensitive conditions is a measure of access to appropriate medical care. While not all admissions for ACSC are avoidable, it is assumed that appropriate prior ambulatory care could prevent the onset of this type of illness or condition, control an acute episodic illness or condition, or manage a chronic disease or condition (Statistics Canada, 2006).

Lower rates of hospitalization for ambulatory care sensitive conditions (ACSC) are desired as they are potentially less costly and more optimal treatment may be available in the community rather than in a hospital setting (CIHI, 2006). If ACSC are treated in a timely fashion by primary care and then managed properly through outpatient care, most general practitioners concur that these conditions should not advance to the point that they require hospitalization (McCall, 2004). Furthermore, benefits such as improvement to the patient's health, better overall community

health status, and saving money because community-based care usually costs less than hospitalization can also be expected. Optimizing the management and treatment of these conditions will contribute to both improved patient health outcomes and more efficient resource utilization (Statistics Canada and CIHI, 2005).

While not all hospital admissions for ACSC can be avoided, it is presumed that adequate primary care could prevent the onset of the specific condition, control the occurrence of acute episodes of the specific condition, or manage a specific chronic condition (Statistics Canada and CIHI, 2005).

A disproportionately high rate of hospitalization for ACSC is presumed to reflect problems in obtaining access to primary care. Tracking hospitalization rates for these conditions over time can provide an indicator of the impact of community and home-based services.

5.3. Indicator Limitations

No comments at this time.

5.4. Data Quality Issues

Data Source:

1. Provincial Health Planning Database (PHPDB) – Population Estimates and Projections
2. CIHI Inpatient Discharge Abstract (DAD)

Accuracy of Data: Data are not formally audited

Potential for Historical Trends: Rates are not comparable to those published by CIHI/Statistics Canada prior to June 2005 due to a change in the definition. Also, minor changes in definition by

CIHI/Statistics Canada have occurred in subsequent years. Ontario rates can be calculated using ICD10 codes from FY2002 onward.

5.5. Data Limitations

No comments at this time.

5.6. List of References

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