



**Ontario Health**  
CorHealth Ontario

# Stroke Report Technical Specifications

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## Section 1: Cohorts

### Hyperacute Care Episode Cohort

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|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data Source(s)</b>  | Discharge Abstract Database (DAD)<br>National Ambulatory Care Reporting System (NACRS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Cohort creation</b> | <p>Hyperacute Care Episode Cohort creation steps:</p> <p>1) Pull qualifying ED visits with ischemic stroke diagnosis, i.e., NACRS encounters meeting the following inclusion and exclusion criteria:</p> <p><b>Inclusion criteria</b>, i.e., records meeting all the following criteria:</p> <ul style="list-style-type: none"> <li>• Registration dates within reporting period</li> <li>• Patient is an Ontario resident with eligible health card number</li> <li>• Valid person identifier</li> <li>• Patient age <math>\geq 18</math></li> <li>• With main problem diagnosis of I63* (except I636), I64* or H341 except those recorded by the physician as questionable</li> <li>• Visit functional centre (VFC) code is for an ED visit: '71310', '72310', or '73310'</li> <li>• Visit is unscheduled</li> </ul> <p><b>Exclusion criteria</b>, i.e., exclude among records meeting inclusion criteria those with any of the following:</p> <ul style="list-style-type: none"> <li>• Sign-outs against medical advice or left before being seen. <b>Refer to the 'Sign-out' category in Appendix Table 2</b> for details.</li> <li>• Prior diagnosis of palliative care (ICD-10CA = Z515 in any diagnosis field and corresponding diagnosis prefix code = 8)</li> </ul> <p>2) Pull qualifying acute inpatient admissions for ischemic stroke, i.e., DAD encounters meeting the following inclusion and exclusion criteria:</p> <p><b>Inclusion criteria</b>, i.e., records meeting all the following criteria:</p> <ul style="list-style-type: none"> <li>• Discharge dates within reporting period</li> <li>• Patient is an Ontario resident with eligible health card number</li> <li>• Valid person identifier</li> <li>• Patient age <math>\geq 18</math></li> <li>• With any diagnosis of I63* (except I636), I64* or H341 of diagnosis type M, 1, 2, W, X, Y.</li> </ul> <p><i>Note: while other diagnosis types were considered, restricting to the above diagnosis types applies a more specific definition of ischemic stroke. Higher specificity is preferred for measurement purposes.</i></p> <p><b>Exclusion criteria</b>, i.e., exclude among records meeting inclusion criteria those with any of the following:</p> <ul style="list-style-type: none"> <li>• Prior diagnosis of palliative care (ICD-10CA = Z515 in any diagnosis field and corresponding diagnosis prefix code = 8)</li> </ul> |

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | 3) Create patient episodes comprising one or more encounters from steps 1) and 2). Encounters within one day of another are assumed to be part of the same patient episode.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Used for calculation of</b> | <p>The Hyperacute Care Episode Cohort is used to create the following indicators:</p> <ul style="list-style-type: none"> <li>• Thrombolysis Treatment Rate</li> <li>• EVT Treatment Rate</li> <li>• Median Door-to-Needle Time Among Ischemic Stroke Patients who Received Thrombolysis</li> <li>• Median Door-in/Door-out (DIDO) Time</li> <li>• Median Time from Door Time at the EVT Hospital to qualifying CTA, CTP, or MRA</li> <li>• Median Time from Door Time at the EVT Hospital to Arterial Puncture</li> <li>• Median Time from Door Time at the EVT Hospital to First Reperfusion</li> <li>• 30-Day All-Cause Mortality Rate of EVT Patients</li> </ul> |
| <b>Other notes</b>             | <ul style="list-style-type: none"> <li>• Episodes are attributed to fiscal years and quarters based on the latest separation date among all encounters in the episode</li> <li>• Patients' age and postal code are assigned at episode level based on identifiers recorded on the first chronological encounter in the episode</li> </ul>                                                                                                                                                                                                                                                                                                                           |

## Acute Inpatient Episode Cohort

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Data Source(s)</b>          | Discharge Abstract Database (DAD)<br>National Ambulatory Care Reporting System (NACRS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Cohort creation</b>         | <p>Acute Inpatient Episode Cohort creation steps:</p> <ol style="list-style-type: none"> <li>1) Pull qualifying acute inpatient admissions for stroke, i.e., DAD encounters meeting the following inclusion and exclusion criteria: <ul style="list-style-type: none"> <li><b>Inclusion criteria</b>, i.e., records meeting all the following criteria: <ul style="list-style-type: none"> <li>• Discharge dates within reporting period</li> <li>• Patient is an Ontario resident with eligible health card number</li> <li>• Valid person identifier</li> <li>• Patient age <math>\geq 18</math></li> <li>• With most responsible diagnosis (MRDx) as stroke or TIA.</li> </ul> </li> <li><b>Exclusion criteria</b>, i.e., exclude among records meeting inclusion criteria those with any of the following: <ul style="list-style-type: none"> <li>• Prior diagnosis of palliative care (ICD-10CA = Z515 in any diagnosis field and corresponding diagnosis prefix code = 8)</li> </ul> </li> </ul> </li> <li>2) Create patient episodes comprising one or more encounters from step 1). Encounters within one day of another are assumed to be part of the same patient episode.</li> <li>3) Exclude episodes with: <ol style="list-style-type: none"> <li>a. in-hospital (Type 2) stroke unless preceded by a community onset stroke (i.e., ED visit with main unquestionable diagnosis of stroke/TIA)</li> <li>b. an elective admission unless there exists another encounter in the episode indicating urgent admission (i.e., urgent admission category or preceding ED visit with main unquestionable diagnosis of stroke/TIA)</li> </ol> </li> </ol> |
| <b>Technical definitions</b>   | <ul style="list-style-type: none"> <li>• Stroke diagnosis codes are H341, I61, I63, or I64. TIA diagnosis codes are G45 (except G454) and H340. <b>Refer to Appendix Table 1 for details.</b></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Used for calculation of</b> | <p>The Acute Inpatient Episode Cohort is used to create the following indicator(s):</p> <ul style="list-style-type: none"> <li>• Designated Stroke Unit Rate for Stroke/TIA Acute Patients</li> <li>• Risk-Adjusted 90-Day All-Cause Mortality Rate of Stroke/TIA Acute Patients</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Other notes</b>             | <ul style="list-style-type: none"> <li>• As of February 2026, this cohort uses a definition of stroke that was updated with the following changes to more closely align with the patient population cared for by the Ontario stroke system: <ul style="list-style-type: none"> <li>• exclude patients with MRDx of I60: Subarachnoid haemorrhage</li> <li>• include patients with MRDx of I636: Cerebral infarction due to cerebral venous thrombosis, non-pyogenic</li> </ul> </li> <li>• Episodes are attributed to fiscal years and quarters based on the latest discharge date among all encounters in the episode</li> <li>• Patients' age and postal code are assigned at episode level based on identifiers recorded on the first chronological admission in the episode</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## Section 2: Indicator Methodologies

### Hyperacute Care for Ischemic Stroke

#### Thrombolysis Treatment Rate

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | The percentage of ischemic stroke patients who received thrombolysis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Data Source(s)</b>        | Hyperacute Care Episode Cohort                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Denominator</b>           | <p>The denominator cohort are patient episodes defined by the following steps:</p> <ol style="list-style-type: none"> <li>1) In each reported fiscal year, identify patients with at least one stroke episode in the Hyperacute Care Episode Cohort with <i>any</i> of the following: <ol style="list-style-type: none"> <li>a) A cohort-comprising ED visit (i.e., meeting all criteria in step 1 of the Hyperacute Care Episode Cohort creation steps) <i>and without recorded transfer to acute care</i></li> <li>b) A cohort-comprising acute admission (i.e., meeting all criteria in step 2 of the Hyperacute Care Episode Cohort creation steps) <i>and all the following criteria</i>: <ul style="list-style-type: none"> <li>• without type 2 ischemic stroke diagnosis</li> <li>• without elective admission</li> </ul> </li> <li>c) A cohort-comprising ED visit <i>with recorded transfer to acute care</i> and subsequent cohort-comprising acute admission within 1 day</li> </ol> <p><i>Note: this combination of encounters includes patients with both of the following:</i></p> <ol style="list-style-type: none"> <li>i. a community onset stroke presenting in the ED</li> <li>ii. subsequent admission with in-hospital stroke (assumed to be a second stroke distinct from the community onset stroke) or recorded elective admission category (assumed to be miscoded). <b>Under these assumptions, such patients are deemed included within measurement scope.</b></li> </ol> </li> <li>2) Among patients with multiple stroke episodes in a fiscal year meeting criteria in step 1) above, keep only their first chronological episode in the fiscal year.</li> </ol> |
| <b>Numerator</b>             | <p>Number of patient episodes in the denominator cohort with thrombolysis recorded on any encounter in the episode.</p> <p><i>Note: patient episodes with recorded thrombolysis that do not meet the criteria of the denominator cohort are not included in numerators.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Calculation</b>           | Numerator / denominator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>• ED visits with recorded transfer to acute care are NACRS records with visit disposition codes <i>not in the following list</i>: '09', '30', '40', '90', '16', '17', '71', '72', '73', '74'. <b>Refer to Appendix Table 2</b> for definitions of NACRS visit disposition codes.</li> <li>• Encounters with recorded thrombolysis are DAD/NACRS records with a special project number '340' and character in position 3 = 'Y' or 'P'</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Unit of Analysis</b>      | Patient and fiscal year combinations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | <i>Note: this indicator is refreshed on a quarterly basis, but patients can only be reported at most once per fiscal year. Therefore, patients reported in an earlier quarter within a fiscal year are ineligible for subsequent quarterly reporting in the same fiscal year.</i>                                                                                                                                                                                                                                                                  |
| <b>Adjustment</b>         | <p>No</p> <p><i>Note: prior to February 2026, this was a standardized indicator with adjustment for patients with type 2 (in-hospital) stroke. However, such patients are now excluded from measurement scope (except those with an in-hospital stroke preceded by a community onset stroke), so it is no longer necessary to report this indicator with standardization.</i></p>                                                                                                                                                                  |
| <b>Reporting Level(s)</b> | <ul style="list-style-type: none"> <li>Province</li> <li>Patient Ontario Health Region (OHR)</li> <li>Patient “detailed” OHR</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>Postal codes are mapped to OHR definitions as of April 2023, i.e., aligned to the City of Toronto municipal boundaries</li> <li>Patients with invalid or missing postal codes are excluded from OHR and “detailed” OHR-level results but are included in provincial totals</li> <li>Facility-level reporting of this indicator is on pause</li> </ul> |
| <b>Target / Benchmark</b> | Target: 12%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Interpretation</b>     | A higher value is desired                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Other Notes</b>        | <ul style="list-style-type: none"> <li>This indicator does not exclude patients with missing SP340 data from the denominator. With historical improvements in SP340 data entry, most cases with missing data did not receive thrombolysis.</li> </ul>                                                                                                                                                                                                                                                                                              |

## EVT Treatment Rate

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | The percentage of ischemic stroke patients who received endovascular thrombectomy/therapy (EVT).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Data Source(s)</b>        | Hyperacute Care Episode Cohort                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Denominator</b>           | <p>The denominator cohort are patient episodes defined by the following steps:</p> <ol style="list-style-type: none"> <li>1) In each reported fiscal year, identify patients with at least one stroke episode in the Hyperacute Care Episode Cohort with <i>any</i> of the following: <ol style="list-style-type: none"> <li>a) A cohort-comprising ED visit (i.e., meeting all criteria in step 1 of the Hyperacute Care Episode Cohort creation steps) <i>and without recorded transfer to acute care</i></li> <li>b) A cohort-comprising acute admission (i.e., meeting all criteria in step 2 of the Hyperacute Care Episode Cohort creation steps)</li> </ol> </li> <li>2) Among patients with multiple stroke episodes in a fiscal year meeting criteria in step 1) above, keep only their first chronological episode in the fiscal year.</li> </ol> |
| <b>Numerator</b>             | Number of patient episodes in the denominator cohort with at least one admission during their episode of care where EVT was performed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Calculation</b>           | Numerator / denominator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>• ED visits with recorded transfer to acute care are NACRS records with visit disposition codes <i>not in the following list</i>: '09', '30', '40', '90', '16', '17', '71', '72', '73', '74'. <b>Refer to Appendix Table 2</b> for definitions of NACRS visit disposition codes.</li> <li>• Admissions with EVT are identified by the presence of an EVT CCI code in any DAD intervention field that was not performed out of hospital. <b>Refer to Appendix Table 3</b> for a list of EVT codes.</li> </ul>                                                                                                                                                                                                                                                                                                         |
| <b>Unit of Analysis</b>      | <p>Patient and fiscal year combinations</p> <p><i>Note: this indicator is refreshed on a quarterly basis, but patients can only be reported at most once per fiscal year. Therefore, patients reported in an earlier quarter within a fiscal year are ineligible for subsequent quarterly reporting in the same fiscal year.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Adjustment</b>            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Reporting Level(s)</b>    | <ul style="list-style-type: none"> <li>• Province</li> <li>• Patient Ontario Health Region (OHR)</li> <li>• Patient “detailed” OHR</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>• Postal codes are mapped to OHR definitions as of April 2023, i.e., aligned to the City of Toronto municipal boundaries</li> <li>• Patients with invalid or missing postal codes are excluded from OHR and “detailed” OHR-level results but are included in provincial totals</li> <li>• Facility-level reporting of this indicator is on pause</li> </ul>                                                                                                                                                                                                                                                                                              |
| <b>Target / Benchmark</b>    | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Interpretation</b>        | A higher value is desired                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

### Median Door-to-Needle Time Among Ischemic Stroke Patients who Received Thrombolysis

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | The median time, in minutes, between an ischemic stroke patient's registration in the emergency department (ED) and the time intravenous thrombolysis was administered. This indicator is referred to as door-to-needle (DTN) time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Data Source(s)</b>        | <ul style="list-style-type: none"> <li>Hyperacute Care Episode Cohort</li> <li>NACRS</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Cohort</b>                | <p>Cohort creation steps:</p> <ol style="list-style-type: none"> <li>1) Apply <b>step 1 only</b> of <i>Thrombolysis Treatment Rate's</i> denominator cohort. This indicator shares the same cohort criteria as <i>Thrombolysis Treatment Rate's</i> denominator but without restricting to one stroke episode per patient in any fiscal year.</li> <li>2) Restrict to patient episodes with at least one encounter with all the following: <ul style="list-style-type: none"> <li>Recorded thrombolysis</li> <li>Recorded thrombolysis "needle" time that is valid and complete</li> </ul> </li> <li>3) Define a unique thrombolysis "needle" time for each patient episode. For episodes with thrombolysis recorded in multiple encounters, keep only the earliest valid "needle" time.</li> <li>4) Calculate Door-to-Needle (DTN) for the episode: <ol style="list-style-type: none"> <li>a. Pull all ED visits for the same patient within 1 day before the encounter with the unique thrombolysis "needle" time in step 3). For each such ED visit, flag their ED "door time" as earlier of its Registration Time or Triage Time.</li> <li>b. Calculate the episode's Door-to-Needle (DTN) time as the difference between the "needle" time and the latest ED door time <i>before</i> the "needle" time among those in step 4a).<br/> <i>Note: it is possible for the ED encounter with the latest "door time" before the "needle" time in step 4b) to also have recorded the "needle" time in step 3).</i> </li> </ol> </li> <li>5) Exclude patient episodes with any of the following: <ul style="list-style-type: none"> <li>Step 4) could not be completed, i.e., no candidate ED "door time" within 1 previous day could be found, <i>or</i> all candidate ED "door times" are after the "needle" time (resulting in negative DTN)</li> <li>DTN calculated from step 4) is greater than 6 hours</li> </ul> </li> </ol> |
| <b>Calculation</b>           | Median DTN in minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>ED visits within 1 day before the encounter with the unique thrombolysis "needle" time must have all the following on the NACRS record: <ul style="list-style-type: none"> <li>Visit functional centre (VFC) code is for an ED visit: '71310', '72310', or '73310'</li> <li>Visit is unscheduled</li> </ul> </li> <li>Encounters with recorded thrombolysis are DAD/NACRS records with a special project number (SPF) '340' and character in position 3 = 'Y' or 'P'</li> <li>Thrombolysis "needle" time is identified in SPF 340 fields 04 – 11 (MMDDHHMM format). <i>Note: since the year of the thrombolysis "needle" time is not coded on SPF 340, it is necessary to back-calculate this using the entry date of the encounter with recorded SPF 340.</i></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Unit of Analysis</b>      | Patient episode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Adjustment</b>            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <b>Reporting Level(s)</b> | <p>Province, Site and corresponding Hospital Ontario Health Region</p> <p>Notes on Site-level reporting:</p> <ul style="list-style-type: none"> <li>• Site-level results are reported for designated and “walk-in only” thrombolysis sites. A small number of patients who received thrombolysis at other sites are included in provincial and Hospital OH Region results. Refer to Appendix Table List of Stroke Hospitals in Ontario for site-level classification.</li> <li>• Site-level results are reported annually and quarterly for designated thrombolysis sites, but only annually for “walk-in only” thrombolysis sites.</li> <li>• Patient episodes are attributed to the hospital site whose ED door time was used to calculate DTN. This site is assumed to be the one where thrombolysis was administered and may differ from the one where SPF 340 was recorded.</li> </ul> |
| <b>Target / Benchmark</b> | <ul style="list-style-type: none"> <li>• Target: 30 minutes</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Interpretation</b>     | <ul style="list-style-type: none"> <li>• A lower value is desired</li> <li>• This indicator provides information on hospital response time following patient arrival at an ED with symptoms of stroke. Median values are compared to the provincial DTN target recommendation of 30 minutes.</li> <li>• Reference: Quality of Stroke Care in Canada. Stroke Key Quality Indicators and Stroke Case Definitions. Update 2016. Canadian Stroke Best Practices. Stroke Quality Advisory Committee. Heart and Stroke Foundation. August 2016.</li> </ul>                                                                                                                                                                                                                                                                                                                                        |
| <b>Limitation(s)</b>      | <ul style="list-style-type: none"> <li>• This indicator excludes patient episodes whose documentation of thrombolysis in SPF 340 occurred on a record without qualifying ischemic stroke diagnosis.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Other Notes</b>        | <ul style="list-style-type: none"> <li>• CIHI special project 340 was mandated in Ontario as of April 1, 2012. Refer to CIHI coding directives for information on coding of 340 data.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Median Door-in/Door-out (DIDO) Time

|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                      |                          |               |                                                                                                      |                |                          |
|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------------------------------|--------------------------|---------------|------------------------------------------------------------------------------------------------------|----------------|--------------------------|
| Indicator Definition                                                                                 | The median time, in minutes, between the entry and exit time in the emergency department at a hospital with designated thrombolysis status (i.e., thrombolysis site) among ischemic/unspecified stroke patients transferred to an EVT site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |                                                                                                      |                          |               |                                                                                                      |                |                          |
| Data Sources                                                                                         | <ul style="list-style-type: none"><li>Hyperacute Care Episode cohort</li><li>DAD</li><li>NACRS</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |                                                                                                      |                          |               |                                                                                                      |                |                          |
| Cohort                                                                                               | <p><b>Cohort creation steps:</b></p> <ol style="list-style-type: none"><li>1) Pull stroke episodes from Hyperacute Care Episode Cohort with at least one cohort-comprising ED visit (i.e., meeting all criteria in step 1 of the Hyperacute Care Episode Cohort creation steps) that <i>also</i> meets all the following criteria:<ul style="list-style-type: none"><li>• ED visit is at a designated thrombolysis site that is not also an EVT site</li><li>• The patient was subsequently transferred to an EVT hospital within 24 hours of presenting at the ED of the thrombolysis site. Put another way, the ED “door in” time (earlier of Registration and Triage Time on the thrombolysis site’s ED record) must be followed by an EVT “door in” time (earlier of Registration and Triage time if a subsequent ED visit at the EVT site is found, and Admission time at the EVT site if no such ED visit is found) within 24 hours.</li></ul></li><li>2) Among episodes with multiple ED visits meeting criteria in step 1, keep only the ED visit with the shortest gap between its ED “door in” time and the subsequent EVT “door in” time.</li><li>3) From step 2), exclude ED visits with a missing or invalid “door out” time (earlier of disposition time and time left ED) <i>only at thrombolysis sites that transfer patients to EVT sites by air transport</i>. It is not necessary to apply this exclusion to thrombolysis sites that transfer patients to EVT sites by land transport. Refer to the “Calculation” section for further details.</li></ol> <p><i>Note: refer to <b>List of Stroke Hospitals in Ontario</b> in the Appendix for a complete list of EVT sites, thrombolysis sites, and their transport method to EVT sites.</i></p> |  |  |                                                                                                      |                          |               |                                                                                                      |                |                          |
| Calculation                                                                                          | <p>Median DIDO (see calculation details below) in minutes</p> <p>DIDO is calculated using one of two methods depending on the thrombolysis site whose ED the patient presented at:</p> <table><tr><td>Does the thrombolysis site transfer patients to EVT sites by <b>air transport or land transport?</b></td><td>DIDO calculation method:</td></tr><tr><td>Air transport</td><td>Method 1 (default):<br/>Thrombolysis site ED “Door Out” time<br/>– Thrombolysis site ED “Door In” time</td></tr><tr><td>Land transport</td><td>Method 2 (proxy method):</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  | Does the thrombolysis site transfer patients to EVT sites by <b>air transport or land transport?</b> | DIDO calculation method: | Air transport | Method 1 (default):<br>Thrombolysis site ED “Door Out” time<br>– Thrombolysis site ED “Door In” time | Land transport | Method 2 (proxy method): |
| Does the thrombolysis site transfer patients to EVT sites by <b>air transport or land transport?</b> | DIDO calculation method:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |                                                                                                      |                          |               |                                                                                                      |                |                          |
| Air transport                                                                                        | Method 1 (default):<br>Thrombolysis site ED “Door Out” time<br>– Thrombolysis site ED “Door In” time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |  |                                                                                                      |                          |               |                                                                                                      |                |                          |
| Land transport                                                                                       | Method 2 (proxy method):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |                                                                                                      |                          |               |                                                                                                      |                |                          |

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                     |  |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--|
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | (EVT site “Door In” time - Thrombolysis site ED “Door In” time) – estimated ambulance drive time between Thrombolysis and EVT sites |  |
|                              | <p><i>Note: Recorded values of ED “Door Out” time at thrombolysis sites were incorrect for a significant proportion of the DIDO cohort, indicating potential data quality issues with this element. For this reason:</i></p> <ul style="list-style-type: none"> <li><i>DIDO is calculated using a proxy method (Method 2) that does not rely on ED “Door Out” time for thrombolysis sites that transfer patients to EVT sites by land ambulance (&gt; 90% of the DIDO cohort).</i></li> <li><i>Method 2 estimates ambulance driving times between thrombolysis and EVT sites and subtracts this from the difference between the “Door In” times at the two sites. Ambulance driving times were estimated based on historical driving times in low traffic scenarios (e.g., at 3 AM on a weekday) to simulate modest time savings in normal scenarios from the use of lights and sirens to bypass traffic and speed limits.</i></li> </ul> |                                                                                                                                     |  |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>ED visits at the EVT site from which EVT “door times” are calculated must have all the following on the NACRS record: <ul style="list-style-type: none"> <li>Visit functional centre (VFC) code is for an ED visit: ‘71310’, ‘72310’, or ‘73310’</li> <li>Visit is unscheduled</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                     |  |
| <b>Unit of Analysis</b>      | Patient episodes with transfer from a thrombolysis site’s ED to an EVT site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                     |  |
| <b>Adjustment</b>            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                     |  |
| <b>Reporting Level(s)</b>    | Province, transferring thrombolysis site and their corresponding Hospital Ontario Health Region                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                     |  |
| <b>Target / Benchmark</b>    | Target is 45 minutes. Reference: Heart and Stroke. (2022). Canadian Stroke Best Practices: Quality of Stroke Care in Canada Key Quality Indicators for Acute Stroke Management 7 <sup>th</sup> Edition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                     |  |
| <b>Interpretation</b>        | A lower value is desired                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                     |  |
| <b>Limitations</b>           | <ul style="list-style-type: none"> <li>In absence of transfer purpose data, transfers from thrombolysis sites to EVT sites are assumed to be for EVT, however it is possible that some transfers may be for reasons other than EVT (e.g., stroke unit care) where timeliness may not be as critical.</li> <li>Actual ambulance driving times vary from patient to patient and differ from the estimated constants used in Method 2 described in the “Calculation” section. This method will overestimate (underestimate) DIDO values for patients whose actual driving times are longer (shorter) than these estimates. Despite this limitation, Method 2 is still believed to be more accurate than Method 1 in most cases.</li> </ul>                                                                                                                                                                                                   |                                                                                                                                     |  |

### Median Time from Door Time at the EVT Hospital to qualifying CTA, CTP, or MRA

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | The median time, in minutes, between door time at the EVT hospital and qualifying CTA, CTP or MRA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Data Source(s)</b>        | <ul style="list-style-type: none"> <li>Hyperacute Care Episode Cohort</li> <li>DAD</li> <li>NACRS</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Cohort</b>                | <p>Number of patient episodes in Hyperacute Care Episode Cohort with both of the following:</p> <ul style="list-style-type: none"> <li>at least one admission where EVT was performed</li> <li>first chronological EVT admission in the episode meeting all the following criteria: <ul style="list-style-type: none"> <li>there is no type 2 ischemic stroke diagnosis on the admission record</li> <li>EVT scan was performed</li> <li>EVT scan time is valid, i.e., does not contain missing or invalid time values (e.g. 99', hours not between '00' and '24')</li> <li>Time from EVT "door time" to scan is within 6 hours, where EVT "door time" is the: <ul style="list-style-type: none"> <li>earlier of the recorded Registration Time and Triage Time on the latest ED visit preceding – and located at the same site as – the EVT admission, if such an ED visit exists</li> <li>admission time of the EVT admission, if no such preceding ED visit exists</li> </ul> </li> </ul> </li> </ul>        |
| <b>Calculation</b>           | Median (EVT Scan time - EVT Door time) in minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>Admissions with EVT are identified by the presence of an EVT CCI code in any DAD intervention field that was not performed out of hospital. <b>Refer to Appendix Table 3</b> for a list of EVT codes.</li> <li>ED visits at the EVT site from which EVT "door times" are calculated must have all the following on the NACRS record: <ul style="list-style-type: none"> <li>Visit functional centre (VFC) code is for an ED visit: '71310', '72310', or '73310'</li> <li>Visit is unscheduled</li> </ul> </li> <li>Admissions where EVT scan was performed are DAD records with a special project number (SPF) '440' and character in position 1 (CTA, CTP or MRA Scan Performed Prior to Start of Endovascular Thrombectomy Intervention) = 'Y'</li> <li>EVT scan time is identified in SPF 440 fields 02 – 09 (MMDDHHMM format). <i>Note: since EVT scan year is not coded on SPF 440, it is necessary to back-calculate this using EVT admission date.</i></li> </ul> |
| <b>Unit of Analysis</b>      | Patient episodes with EVT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Adjustment</b>            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Reporting Level(s)</b>    | Province and EVT site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Target / Benchmark</b>    | Target is 15 minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Interpretation</b>        | A lower value is desired                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

### Median Time from Door Time at the EVT Hospital to Arterial Puncture

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | The median time, in minutes, between door time at the EVT hospital and time the arterial access point is punctured.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Data Source(s)</b>        | <ul style="list-style-type: none"> <li>Hyperacute Care Episode Cohort</li> <li>DAD</li> <li>NACRS</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Cohort</b>                | <p>Number of patient episodes in Hyperacute Care Episode Cohort with both of the following:</p> <ul style="list-style-type: none"> <li>at least one admission where EVT was performed</li> <li>first chronological EVT admission in the episode meeting all the following criteria: <ul style="list-style-type: none"> <li>there is no type 2 ischemic stroke diagnosis on the admission record</li> <li>EVT puncture time is valid, i.e., does not contain missing or invalid time values (e.g. 99', hours not between '00' and '24')</li> <li>Time from EVT "door time" to puncture is within 6 hours, where EVT "door time" is the: <ul style="list-style-type: none"> <li>earlier of the recorded Registration Time and Triage Time on the latest ED visit preceding – and located at the same site as – the EVT admission, if such an ED visit exists</li> <li>admission time of the EVT admission, if no such preceding ED visit exists</li> </ul> </li> </ul> </li> </ul> |
| <b>Calculation</b>           | Median (EVT Puncture time - EVT Door time) in minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>Admissions with EVT are identified by the presence of an EVT CCI code in any DAD intervention field that was not performed out of hospital. <b>Refer to Appendix Table 3</b> for a list of EVT codes.</li> <li>ED visits at the EVT site from which EVT "door times" are calculated must have all the following on the NACRS record: <ul style="list-style-type: none"> <li>Visit functional centre (VFC) code is for an ED visit: '71310', '72310', or '73310'</li> <li>Visit is unscheduled</li> </ul> </li> <li>EVT Puncture time is identified in special project number (SPF) '440' fields 10 – 15 (DDHHMM format). <i>Note: since EVT puncture month and year are not coded on SPF 440, it is necessary to back-calculate these using EVT admission date.</i></li> </ul>                                                                                                                                                            |
| <b>Unit of Analysis</b>      | Patient episodes with EVT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Adjustment</b>            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Reporting Level(s)</b>    | Province and EVT site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Target / Benchmark</b>    | Target is 60 minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Interpretation</b>        | A lower value is desired but should be higher than time from hospital arrival to CTA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

### Median Time from Door Time at the EVT Hospital to First Reperfusion

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | The median time, in minutes, between door time at the EVT hospital and first reperfusion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Data Source(s)</b>        | <ul style="list-style-type: none"> <li>Hyperacute Care Episode Cohort</li> <li>DAD</li> <li>NACRS</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Cohort</b>                | <p>Number of patient episodes in Hyperacute Care Episode Cohort with both of the following:</p> <ul style="list-style-type: none"> <li>at least one admission where EVT was performed</li> <li>first chronological EVT admission in the episode meeting all the following criteria: <ul style="list-style-type: none"> <li>there is no type 2 ischemic stroke diagnosis on the admission record</li> <li>EVT first reperfusion was achieved</li> <li>EVT first reperfusion time is <i>valid</i>, i.e., does not contain missing or invalid time values (e.g. 99', hours not between '00' and '24')</li> <li>Time from EVT "door time" to first reperfusion is within 6 hours, where EVT "door time" is the: <ul style="list-style-type: none"> <li>earlier of the recorded Registration Time and Triage Time on the latest ED visit preceding – and located at the same site as – the EVT admission, if such an ED visit exists</li> <li>admission time of the EVT admission, if no such preceding ED visit exists</li> </ul> </li> </ul> </li> </ul> |
| <b>Calculation</b>           | Median (EVT First Reperfusion time - EVT Door time) in minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>Admissions with EVT are identified by the presence of an EVT CCI code in any DAD intervention field that was not performed out of hospital. <b>Refer to Appendix Table 3</b> for a list of EVT codes.</li> <li>ED visits at the EVT site from which EVT "door times" are calculated must have all the following on the NACRS record: <ul style="list-style-type: none"> <li>Visit functional centre (VFC) code is for an ED visit: '71310', '72310', or '73310'</li> <li>Visit is unscheduled</li> </ul> </li> <li>Admissions where EVT first reperfusion was achieved are DAD records with a special project number (SPF) '440' and character in position 16 (First Reperfusion Achieved) = 'Y'</li> <li>EVT first reperfusion time is identified in SPF 440 fields 17 – 22 (DDHHMM format).<br/><i>Note: since EVT first reperfusion month and year are not coded on SPF 440, it is necessary to back-calculate these using EVT admission date.</i></li> </ul>                                               |
| <b>Unit of Analysis</b>      | Patient episodes with EVT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Adjustment</b>            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Reporting Level(s)</b>    | Province and EVT site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Target / Benchmark</b>    | Target is 90 minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Interpretation</b>        | A lower value is desired but should be higher than time from hospital arrival to arterial puncture time.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Limitations</b>           | Time from door to <i>final</i> reperfusion is preferred for performance monitoring, but SP440 only collects time of <i>first</i> reperfusion.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

### 30-Day All-Cause Mortality Rate of EVT Patients

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | Mortality rate within 30 days after an EVT procedure per 100 patients.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Data Source(s)</b>        | <ul style="list-style-type: none"> <li>Hyperacute Care Episode Cohort</li> <li>Decedent Cohort</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Denominator</b>           | <p>The denominator in each reported fiscal year is the number of unique people with at least one episode in the Hyperacute Care Episode Cohort with EVT performed.</p> <p><b>Additional criteria:</b></p> <ol style="list-style-type: none"> <li>Among patients with multiple episodes in the Hyperacute Care Episode Cohort with EVT in the same fiscal year, keep in the denominator cohort only their first such episode in the fiscal year</li> <li>Exclude from the denominator cohort patients with a death date erroneously recorded as before the EVT date</li> </ol> |
| <b>Numerator</b>             | Number of patients in the denominator who died within 30 days following EVT procedure date.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Calculation</b>           | Numerator / Denominator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Unit of Analysis</b>      | EVT patient and fiscal year combinations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Technical Definitions</b> | <p>Death date is sourced from Decedent Cohort, an internal Ontario Health information asset that identifies patient death using the following data assets:</p> <ul style="list-style-type: none"> <li>DAD</li> <li>NACRS</li> <li>Continuing Care Reporting System (CCRS)</li> <li>National Rehabilitation Reporting System (NRS)</li> <li>Ontario Mental Health Reporting System (OMHRS)</li> <li>Registered Persons Database (RPDB)</li> </ul>                                                                                                                              |
| <b>Adjustment</b>            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Reporting Level(s)</b>    | Province and EVT Site                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Target / Benchmark</b>    | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Interpretation</b>        | A lower value is desired                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Limitations</b>           | Ideally this indicator would be risk-adjusted, however the low number of deaths limit ability to apply risk adjustment.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Outcomes for Stroke and TIA

### Designated Stroke Unit Rate for Stroke/TIA Acute Patients

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | Proportion of stroke patients treated in a designated stroke unit (DSU) among those admitted into an acute care hospital with a stroke.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Data Source(s)</b>        | <ul style="list-style-type: none"> <li>Acute Inpatient Episode Cohort</li> <li>Discharge Abstract Database (DAD)</li> <li>National Ambulatory Care Reporting System (NACRS)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Denominator</b>           | <p><b>For Province, Patient OHR and Patient “detailed” OHR reporting:</b></p> <ul style="list-style-type: none"> <li>All stroke episodes in the Acute Inpatient Episode Stroke cohort except those where the patient spent their entire time in ICU</li> </ul> <p><b>For DSU Site reporting:</b><br/>Total of:</p> <ul style="list-style-type: none"> <li>admissions at that DSU site*, <i>and</i></li> <li>patients admitted at a non-SU site* associated with that DSU site who were not admitted at any DSU site during their episode</li> </ul> <p><i>*except admissions where the patient spent their entire time in ICU</i></p> <p>Notes:</p> <ul style="list-style-type: none"> <li>A patient admitted at multiple DSU sites during an episode will be counted in the denominator of all DSU sites. Hence, while each episode is uniquely counted in Province, Patient OHR and Patient “detailed” OHR denominators, the same episode can be counted in multiple DSU sites’ denominators.</li> <li>A patient who was never admitted at any DSU site during their episode is attributed to the DSU site associated with the <i>first</i> non-DSU site at which they were admitted.</li> </ul> |
| <b>Numerator</b>             | <p><b>For Province, Patient OHR and Patient “detailed” OHR reporting:</b></p> <ul style="list-style-type: none"> <li>All episodes in the denominator where the patient was treated in a DSU at <i>any</i> DSU Site during the episode.</li> </ul> <p><b>For DSU Site reporting:</b></p> <ul style="list-style-type: none"> <li>All admissions in the denominator during which the patient was treated in the DSU of that DSU Site.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Calculation</b>           | Numerator / Denominator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Technical definitions</b> | <ul style="list-style-type: none"> <li>Encounters during which stroke unit care was provided are DAD records with a special project number (SPF) ‘340’ and character in position 2 = ‘Y’</li> <li>Patients who spent their entire admission in ICU are those whose recorded ICU hours match or exceed time between their admission and discharge times.</li> </ul> <p>Note: Step-down units are not considered ICU. <b>Refer to Appendix Table 4 for a comprehensive list of Special Care Units deemed as ICU.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Limitations</b>           | <ul style="list-style-type: none"> <li>This indicator is unadjusted for the duration and intensity of stroke unit care.</li> <li>The denominator cohort was updated July 2026 to align more closely to the patient population who would benefit from stroke unit care and excludes patients for whom alternative pathways are appropriate. Despite these updates, there remain a small proportion of patients in the denominator cohort – due to limitations in data</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | <p>specifications – for whom stroke unit care may not be appropriate, e.g., patients discharged from an ICU ward but kept in a higher acuity bed for monitoring. The target of 90% access reflects the reality that stroke unit care is not feasible nor appropriate for every single patient in the denominator cohort.</p> <ul style="list-style-type: none"> <li>Non-SU sites are associated with DSU sites based on the validated feedback from Stroke Networks. A small number of non-SU sites are associated with multiple DSU sites; for these, admission volumes at the non-SU sites are divided in equal proportions and attributed to each associated DSU site accordingly. Overall, the method used to attribute patients admitted at non-SU sites to DSU sites may not always reflect real patient flow patterns.</li> </ul> |
| <b>Unit of Analysis</b>        | <p><b>For Province, Patient OHR and Patient “detailed” OHR reporting:</b> patient episodes</p> <p><b>For DSU Site reporting:</b> admissions</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Adjustment</b>              | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Reporting Level(s)</b>      | <ul style="list-style-type: none"> <li>Province</li> <li>Patient Ontario Health Region (OHR)</li> <li>Patient “detailed” OHR</li> <li>DSU Hospital Site (with complementary indicator – see below)</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>Postal codes are mapped to OHR definitions as of April 2023, i.e., aligned to the City of Toronto municipal boundaries</li> <li>Patients with invalid or missing postal codes are excluded from OHR and “detailed” OHR-level results but are included in provincial totals</li> </ul>                                                                                                                                                                                                                                                                                 |
| <b>Complementary indicator</b> | <p>The complementary indicator reports for each DSU site additional information on attributed patients who did not receive DSU access (i.e., the difference between the DSU site’s denominator and numerator):</p> <ul style="list-style-type: none"> <li>number of admissions at the DSU site during which the patient was not treated in their DSU</li> <li>number of patients admitted at each non-SU site associated with that DSU site who were not admitted at any DSU site during their episode</li> </ul> <p>Note: the complementary indicator is intended to support DSU Sites with data to identify opportunities for stroke unit access improvement. It is not reported at any other level where the main indicator is reported.</p>                                                                                          |
| <b>Target / Benchmark</b>      | <ul style="list-style-type: none"> <li>Target: 90%</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Interpretation</b>          | A higher value is desired                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### Risk-Adjusted 90-Day All-Cause Mortality Rate of Stroke/TIA Acute Patients

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Indicator Definition</b>  | Risk-adjusted mortality rate within 90 days of admission for acute stroke or transient ischemic attack (TIA) per 100 patients.                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Data Source(s)</b>        | <ul style="list-style-type: none"> <li>Acute Inpatient Episode Cohort</li> <li>DAD</li> <li>NACRS</li> <li>Decedent Cohort</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Denominator</b>           | <p>The denominator in each reported fiscal year is the number of unique people with at least one episode in the Acute Inpatient Episode Cohort.</p> <p><b>Additional criteria:</b></p> <ol style="list-style-type: none"> <li>Among patients with multiple episodes in the Acute Inpatient Episode Cohort in the same fiscal year, keep in the denominator cohort only their first episode in the fiscal year</li> <li>Exclude from the denominator cohort patients with a death date erroneously recorded as before the earliest admission date in the episode</li> </ol> |
| <b>Numerator</b>             | Number of patient episodes in the denominator who died within 90 days of the first admission in the episode.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Calculation</b>           | <p><b>Crude (unadjusted) rate</b> = Numerator / Denominator * 100</p> <p><b>Model-based risk-adjusted rate (indirect standardization)</b> =<br/>           (Crude Rate/Expected Rate) × Reference Crude Rate</p>                                                                                                                                                                                                                                                                                                                                                           |
| <b>Unit of Analysis</b>      | Patient and fiscal year combinations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Technical Definitions</b> | <p>Death date is sourced from Decedent Cohort, an internal Ontario Health information asset that identifies patient death using the following data assets:</p> <ul style="list-style-type: none"> <li>DAD</li> <li>NACRS</li> <li>Continuing Care Reporting System (CCRS)</li> <li>National Rehabilitation Reporting System (NRS)</li> <li>Ontario Mental Health Reporting System (OMHRS)</li> <li>Registered Persons Database (RPDB)</li> </ul>                                                                                                                           |
| <b>Adjustment</b>            | <p>Indirect adjustment was applied using logistic regression models for hemorrhagic stroke, ischemic stroke and TIA with the following factors and significant interactions:</p> <ul style="list-style-type: none"> <li>age</li> <li>ambulance arrival</li> <li>medical history of AFIB</li> <li>medical history of hypertension</li> <li>a Charlson Index score of 6+</li> </ul>                                                                                                                                                                                          |
| <b>Reporting Level(s)</b>    | <ul style="list-style-type: none"> <li>Province</li> <li>Patient Ontario Health Region (OHR)</li> <li>Patient “detailed” OHR</li> </ul> <p>Notes:</p> <ul style="list-style-type: none"> <li>Postal codes are mapped to OHR definitions as of April 2023, i.e., aligned to the City of Toronto municipal boundaries</li> </ul>                                                                                                                                                                                                                                             |

|                           |                                                                                                                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | <ul style="list-style-type: none"> <li>Patients with invalid or missing postal codes are excluded from OHR and “detailed” OHR-level results but are included in provincial totals</li> </ul> |
| <b>Target / Benchmark</b> | N/A                                                                                                                                                                                          |
| <b>Interpretation</b>     | A lower rate is desired                                                                                                                                                                      |

## Reporting Considerations

### Data Suppression

Data suppression is the masking of results as a requirement of Ontario's Personal Health Information Protection Act (PHIPA). There are two scenarios where data suppression is applied to Stroke Report indicators included in this document:

1. Low Volumes (LV): Volumes (counts) are between 1-5 ("small cell") in the denominator (cohort) or numerator of the original unmasked results. Masked results will appear as 'LV'.
2. Supplementary Suppression (SS): in some instances, additional cells with volumes greater than 5 must be suppressed to prevent back-calculation of 'LV' cells from sub-totals. Results suppressed for this reason will appear as 'SS'.

## Appendix

### Disclaimers and Acknowledgements

*The aggregate data incorporated in the indicator reports and/or analytics products were provided by Ontario Health, a crown agency under the Ministry of Health. These reports, including any underlying source data or supplemental data and/or information, should not be shared with or disclosed to any individual or organization outside your regional stroke network partners, or re-printed or published, without seeking Ontario Health's prior written approval.*

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## List of Stroke Hospitals in Ontario

| Institution name                                             | Ambulatory (AM) number | Acute Treatment (AT) number | EVT status* | RSC, EDSC or DSC* | Thrombolysis Status* | Transfer method to EVT Site* (for Thrombolysis Sites only) | Stroke Unit Status* |
|--------------------------------------------------------------|------------------------|-----------------------------|-------------|-------------------|----------------------|------------------------------------------------------------|---------------------|
| Alexandra Marine and General Hospital                        | 4082                   | 1206                        |             |                   | Y                    | Land                                                       |                     |
| Bluewater Health - Sarnia General                            | 4109                   | 4415                        |             | DSC               | Y                    | Land                                                       | Y                   |
| Brant Community Healthcare System - Brantford                | 4679                   | 4675                        |             | DSC               | Y                    | Land                                                       | Y                   |
| Brightshores Health System - Owen Sound                      | 4131                   | 3944                        |             | DSC               | Y                    | Land                                                       | Y                   |
| Brockville General Hospital - Charles St.                    | 4186                   | 1273                        |             |                   | Y                    | Land                                                       | Y                   |
| Chatham-Kent Health Alliance - Chatham                       | 4870                   | 4871                        |             | DSC               | Y                    | Land                                                       | Y                   |
| Cornwall Community Hospital                                  | 4452                   | 4451                        |             | DSC               | Y                    | Land                                                       | Y                   |
| Dryden Regional Health Centre                                | 4248                   | 2103                        |             |                   | Y                    | Air                                                        |                     |
| Guelph General Hospital                                      | 4044                   | 1946                        |             |                   | Y                    | Land                                                       | Y                   |
| Halton Healthcare Services Corporation - Georgetown          | 4624                   | 4622                        |             |                   | Walk-in only         |                                                            |                     |
| Halton Healthcare Services Corporation - Milton              | 4193                   | 4022                        |             |                   | Walk-in only         |                                                            |                     |
| Halton Healthcare Services Corporation - Oakville            | 4192                   | 3926                        |             |                   | Walk-in only         |                                                            | Y                   |
| Hamilton Health Sciences - General                           | 4231                   | 1982                        | Y           | RSC               | Y                    |                                                            | Y                   |
| Hawkesbury and District General Hospital                     | 4268                   | 1777                        |             |                   | Y                    | Land                                                       |                     |
| Health Sciences North - Laurentian                           | 4063                   | 4059                        | Y           | RSC               | Y                    |                                                            | Y                   |
| Hopital Montfort                                             | 4130                   | 1661                        |             |                   |                      |                                                            | Y                   |
| Humber River Health - Wilson                                 | 4802                   | 4799                        |             |                   |                      |                                                            | Y                   |
| Huron Perth Healthcare Alliance - Stratford General Hospital | 7557                   | 7558                        |             | DSC               | Y                    | Land                                                       | Y                   |
| Joseph Brant Hospital                                        | 4144                   | 1160                        |             |                   | Y                    | Land                                                       | Y                   |
| Kingston Health Sciences Centre - General                    | 4832                   | 4831                        | Y           | RSC               | Y                    |                                                            | Y                   |
| Lake-Of-The-Woods District Hospital                          | 4200                   | 2110                        |             |                   | Y                    | Air                                                        |                     |
| Lakeridge Health - Ajax                                      | 4845                   | 4844                        |             |                   | Walk-in only         | Land                                                       |                     |
| Lakeridge Health - Oshawa                                    | 4171                   | 3932                        |             | DSC               | Y                    | Land                                                       | Y                   |

|                                                  |      |      |   |      |   |      |   |
|--------------------------------------------------|------|------|---|------|---|------|---|
| London Health Sciences Centre - University       | 4310 | 3850 | Y | RSC  | Y |      | Y |
| Mackenzie Health - Cortellucci Vaughan Hospital  | 5468 | 5469 |   | DSC  | Y | Land | Y |
| Muskoka Algonquin Healthcare - Huntsville        | 4618 | 4616 |   | DSC  | Y | Land | Y |
| Niagara Health System - Marotta Family Hospital  | 4045 | 4224 |   |      |   |      | Y |
| Niagara Health System - Niagara Falls Hospital   | 3982 | 4213 |   | DSC  | Y | Land | Y |
| North Bay Regional Health Centre                 | 4734 | 4730 |   | DSC  | Y | Land | Y |
| North York General Hospital                      | 4233 | 1330 |   |      |   |      | Y |
| Northumberland Hills Hospital                    | 4237 | 3860 |   |      |   |      | Y |
| Notre Dame Hospital (Hearst)                     | 4169 | 2082 |   |      | Y | Air  |   |
| Oak Valley Health - Markham Stouffville Hospital | 4235 | 3587 |   |      |   |      | Y |
| Orillia Soldiers' Memorial Hospital              | 4108 | 1853 |   |      |   |      | Y |
| Pembroke Regional Hospital                       | 4071 | 1804 |   | DSC  | Y | Land | Y |
| Peterborough Regional Health Centre              | 4073 | 1768 |   | DSC  | Y | Land | Y |
| Queensway - Carleton Hospital                    | 3970 | 1681 |   |      |   |      | Y |
| Quinte Healthcare Corporation - Belleville       | 4097 | 3988 |   | DSC  | Y | Land | Y |
| Riverside Health Care Facility - La Verendrye    | 4124 | 2150 |   |      | Y | Air  |   |
| Ross Memorial Hospital                           | 4177 | 1893 |   |      |   |      | Y |
| Royal Victoria Regional Health Centre            | 3987 | 1825 |   | EDSC | Y | Land | Y |
| Sault Area Hospital - Sault Ste Marie            | 3972 | 4407 |   | DSC  | Y | Air  | Y |
| Scarborough Health Network - Birchmount          | 4841 | 4842 |   |      |   |      | Y |
| Sioux Lookout Meno-Ya-Win Health Centre          | 4137 | 4353 |   |      | Y | Air  |   |
| Southlake Health                                 | 4001 | 2038 |   |      |   |      | Y |
| St. Thomas-Elgin General Hospital                | 4076 | 1059 |   | DSC  |   |      | Y |
| Sunnybrook Health Sciences Centre                | 4205 | 3936 | Y | RSC  | Y |      | Y |
| Temiskaming Hospital                             | 4264 | 2207 |   |      | Y | Air  |   |
| The Ottawa Hospital - Civic                      | 4079 | 4046 | Y | RSC  | Y |      | Y |
| The Sensenbrenner Hospital                       | 4147 | 2088 |   |      | Y | Air  |   |
| Thunder Bay Regional Health Sciences Centre      | 4315 | 3853 | Y | RSC  | Y |      | Y |
| Timmins and District General Hospital            | 4123 | 3414 |   | DSC  | Y | Air  | Y |
| Toronto East Health Network - Michael Garron     | 4209 | 1302 |   |      |   |      | Y |

|                                                   |      |      |   |      |              |      |   |
|---------------------------------------------------|------|------|---|------|--------------|------|---|
| Trillium Health Partners - Credit Valley          | 4751 | 4747 |   |      | Walk-in only |      |   |
| Trillium Health Partners - Mississauga            | 4756 | 4752 | Y | RSC  | Y            |      | Y |
| Unity Health Toronto - St. Joseph's Health Centre | 4857 | 4858 |   |      |              |      | Y |
| Unity Health Toronto - St. Michael's Hospital     | 4864 | 4865 | Y | RSC  | Y            |      | Y |
| University Health Network - Toronto Western       | 4266 | 3910 | Y | RSC  | Y            |      | Y |
| Weeneebayko Area Health Authority - Moose Factory | 4699 | 4698 |   |      | Y            | Air  |   |
| William Osler Health System - Brampton (Civic)    | 4685 | 4681 |   |      | Walk-in only | Land | Y |
| William Osler Health System - Etobicoke           | 4245 | 3929 |   |      | Walk-in only | Land | Y |
| Windsor Regional Hospital - Ouellette Campus      | 4774 | 4773 | Y | EDSC | Y            |      | Y |
| WRHN @ Midtown                                    | 4107 | 3734 |   | DSC  | Y            | Land | Y |

*\*as of FY 2025/26*

## Technical Appendix

**Appendix Table 1: Stroke Diagnosis ICD-10CA Codes**

| Stroke Type | Code | Diagnosis Description                                      |
|-------------|------|------------------------------------------------------------|
| Hemorrhagic | I61  | Intracerebral haemorrhage                                  |
| Ischemic    | H341 | Central retinal artery occlusion                           |
| Ischemic    | I63  | Cerebral infarction                                        |
| TIA         | G45  | Transient cerebral ischaemic attacks and related syndromes |
| TIA         | H340 | Transient retinal artery occlusion                         |
| Unspecified | I64  | Stroke, not specified as haemorrhage or infarction         |
| Excluded    | G454 | Transient global amnesia                                   |

**Appendix Table 2: Discharge and Visit Disposition Codes\***

| Disposition    | Data source | Code | Discharge or Visit Disposition Description                                                                                                                                      |
|----------------|-------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Transfer       | NACRS       | 09   | Transfer to another non-acute care facility directly from ambulatory care functional centre (e.g. stand-alone rehab, mental health)                                             |
| Transfer       | DAD         | 10   | Inpatient Care                                                                                                                                                                  |
| Transfer       | DAD         | 20   | Transfer to reporting or another facility for ED, day surgery or ambulatory care; includes nursing stations, although on occasion inpatients are also treated in such settings. |
| Transfer       | DAD&NACRS   | 30   | Residential Care                                                                                                                                                                |
| Transfer       | DAD&NACRS   | 40   | Group/Supportive Living                                                                                                                                                         |
| Transfer       | DAD&NACRS   | 90   | Correctional Facility                                                                                                                                                           |
| Discharge home | NACRS       | 16   | Home with Support/Referral                                                                                                                                                      |
| Discharge home | NACRS       | 17   | Private Home                                                                                                                                                                    |
| Death          | NACRS       | 71   | Death on Arrival                                                                                                                                                                |
| Death          | DAD&NACRS   | 72   | Died in Facility                                                                                                                                                                |
| Death          | DAD&NACRS   | 73   | Medical Assistance in Dying (MAID)                                                                                                                                              |
| Death          | DAD&NACRS   | 74   | Suicide in Facility                                                                                                                                                             |
| Sign-out       | DAD         | 61   | Absent without leave                                                                                                                                                            |
| Sign-out       | DAD         | 62   | Left against medical advice                                                                                                                                                     |
| Sign-out       | DAD         | 65   | Did not return from a pass                                                                                                                                                      |
| Sign-out       | DAD         | 66   | Died While on Pass/Leave                                                                                                                                                        |
| Sign-out       | DAD         | 67   | Suicide out of Facility                                                                                                                                                         |
| Sign-out       | NACRS       | 61   | Leave Post Registration                                                                                                                                                         |
| Sign-out       | NACRS       | 62   | Leave Post Initial Treatment                                                                                                                                                    |
| Sign-out       | NACRS       | 63   | Left after Triage                                                                                                                                                               |
| Sign-out       | NACRS       | 64   | Left After Initial Assessment                                                                                                                                                   |

\*as of FY 2018/19 and onward

**Appendix Table 3: EVT CCI codes and description**

- 1.JE.57.GQ\* (Extraction, carotid artery using percutaneous transluminal approach Includes mechanical thrombectomy, carotid artery)
- 1.JW.57.GP.GX (Extraction, other vessels of head, neck and spine NEC, using percutaneous transluminal approach and device NEC)
- 1.JW.57.GQ\* (Extraction, intracranial vessels using percutaneous transluminal approach and device NEC Includes mechanical thrombectomy, intracranial artery)
- 1.JX.57.GP\* (Extraction, other vessels of head, neck and spine NEC, using percutaneous transluminal approach and device NEC, Includes Mechanical Thrombectomy, extracranial vessels of head neck and spine)

**Appendix Table 4: Intensive Care Units (ICU) by Special Care Unit Codes**

| Special Care Units (SCU) Deemed as "ICU"                      | Special Care Unit (SCU) Code |
|---------------------------------------------------------------|------------------------------|
| Medical Intensive Care Nursing Unit                           | 10                           |
| Surgical Intensive Care Nursing Unit                          | 20                           |
| Trauma Intensive Care Nursing Unit                            | 25                           |
| Combined Medical/Surgical Intensive Care Nursing Unit         | 30                           |
| Burn Intensive Care Nursing Unit                              | 35                           |
| Cardiac Intensive Care Nursing Unit Surgery (CCU)             | 40                           |
| Coronary Intensive Care Nursing Unit Medical (CCU)            | 45                           |
| Neonatal Intensive Care Nursing Unit Undifferentiated/General | 50                           |
| Neonatal Intensive Care Nursing Unit Level 1                  | 51                           |
| Neonatal Intensive Care Nursing Unit Level 2                  | 52                           |
| Neonatal Intensive Care Nursing Unit Level 3                  | 53                           |
| Neurosurgery Intensive Care Nursing Unit                      | 60                           |
| Paediatric Intensive Care Nursing Unit                        | 70                           |
| Respirology Intensive Care Nursing Unit                       | 80                           |