Cardiac Activity Report

TECHNICAL SPECIFICATIONS

CorHealth Ontario

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V3.2

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Introduction

The Cardiac Activity Report provides a system-wide view of cardiac services and waitlist trends across Ontario hospitals. It consolidates key metrics from the CorHealth Cardiac Registry, a repository of adult patients (≥18 years of age) who have been referred for select cardiac procedures in Ontario. Regional Cardiac Centres across the province are responsible for contributing, managing, and ensuring the accuracy of their data within the Registry through a web-based application called the CorHealth Data Collection & Information System (DCIS). The Cardiac Activity Report provides key insights on cardiac volumes, waitlists, and wait times to support enhanced situational awareness and identify opportunities to improve cardiac service performance.

Data Source:

CorHealth Cardiac Registry

Reporting Periods:

FY2019/20 to Current

Refresh Frequency:

Monthly

Referrals & Acceptances

Total Referrals

Indicator Description

- The number of referrals for a cardiac procedure.

Inclusion Criteria

- Reporting period is indexed to referral date
- Procedures groupings are based on referral details (i.e. Service Code)
- Waitlist entries with:
    - Valid referral date
- All removal reasons including NULL are included with the exception of 'Data Entry Error (ER)'.

Wait 1 Waitlist Snapshot

Indicator Description

- The number of entries waiting to be accepted for a cardiac procedure (volume of open wait 1 waitlist), as of first day of reporting period

Inclusion Criteria

- Reporting period is indexed to referral date
- Procedures groupings are based on referral details (i.e. Service Code)
- Waitlist entries with:
    - Valid referral date
    - One of the following:
    - Acceptance Date >= start of the reporting period or
    - Acceptance Date is missing and Removal Date >= start of the reporting period, or
    - Acceptance Date and Removal Dates are both missing, i.e., the patient is still on the Wait 1 waitlist

- Wait 1 waitlist volume for each data period is calculated using a historical snapshot as of the first day of that period (i.e. March waitlist volume includes all patients who are waiting as of March 1st)
- Each waitlist entry is included in all snapshots between their Referral Date (not inclusive) and Wait 1 end date (inclusive). Wait 1 end date is defined as:
    - Acceptance Date, if populated
    - Removal Date, if populated when Acceptance Date is not populated (i.e., the entry was closed amid Wait 1)
    - Current date if both Acceptance and Removal Dates are not populated (i.e., the patient is still waiting as of the data pull)
- Entries with an 'end event' date (in this case, the Acceptance Date) matching a snapshot date are included in reporting.
- Entries with a 'start event' date (in this case, the Referral Date) is not included as the snapshot is taken at midnight.
- A single entry can contribute to zero, one, or multiple reporting periods.
    - Example 1: A patient with a Referral Date of January 31, 2023 and an Acceptance Date of March 1, 2023 will be included in the February 2023 and March 2023 monthly snapshots, but will not be included in any quarterly or annual snapshots.
    - Example 2: A patient with a Referral Date of February 1, 2023 and an Acceptance Date of March 1, 2023 will be included only in the March 2023 monthly snapshot and will not be included in any quarterly or annual snapshots.
    - Example 3: A patient with a Referral Date of February 1, 2023 and an Acceptance Date of February 15, 2023 will not be included in any reported volumes (monthly, quarterly, or annual).
- Quarterly and annual snapshots are point-in-time measures taken at start of reporting period; as a result, they frequently match the snapshot for the first month of the quarter or fiscal year.

Total Acceptances in Period

Indicator Description

The number of entries accepted for a cardiac procedure.

Inclusion Criteria

- Reporting period is indexed to acceptance date
- Procedures groupings are based on referral details (i.e. Service Code)
- Waitlist entries with:
    - Valid acceptance date
- All removal reasons including NULL are included with the exception of 'Data Entry Error (ER)'.

Wait 2 Waitlist Snapshot

Indicator Description

- The number of patients waiting for a cardiac procedure (volume of open wait 2 waitlist), as of first day of reporting period.

Inclusion Criteria

- Reporting period is indexed to acceptance date
- Procedures groupings are based on referral details (i.e. Service Code)
- Waitlist entries with:
    - Valid acceptance date
- One of the following:
    - Removal Date >= start of the reporting period or
    - Removal Dates is null, i.e., the patient is still on the Wait 2 waitlist
- Wait 2 waitlist volume for each reporting period is calculated using a historical snapshot as of the first day of that period (i.e. March waitlist volume includes all patients who are waiting as of March 1st)
- Each waitlist entry is included in all snapshots between their Acceptance Date (not inclusive) and Wait 2 end date (inclusive). Wait 2 end date is defined as:
    - Removal Date, if populated
    - Current date if Removal Date is not populated (i.e., the patient is still waiting as of the data pull)
- A single entry can contribute to zero, one, or multiple reporting periods.

- Example 1: A patient with an Acceptance Date of March 31, 2023 and a Removal Date of May 1, 2023 will be included in the April 2023 and May 2023 monthly snapshots, the FY23/24 Q1 quarterly snapshot, and the FY23/24 annual snapshot.
- Example 2: A patient with an Acceptance Date of April 1, 2023 and a Removal Date of May 1, 2023 will be included only in the May 2023 monthly snapshot and will not be included in any quarterly or annual snapshots.
- Example 3: A patient with an Acceptance Date of May 1, 2023 and a Removal Date of May 15, 2023 will not be included in any reported volumes (monthly, quarterly, or annual).
- Example 4: A patient with an Acceptance Date of June 20, 2022 and a Removal Date of January 16, 2023 will be included in seven monthly snapshots (July 2022 through January 2023), three quarterly snapshots (FY22/23 Q2, Q3, and Q4), and one annual snapshot (FY22/23).

- Quarterly and annual snapshots are point-in-time measures taken at start of reporting period; as a result, they frequently match the snapshot for the first month of the quarter or fiscal year.

Procedures Perfomed (Completed Cases)

Volume of procedures performed

Indicator Description

- The number of cardiac procedures performed

Inclusion Criteria

- Reporting period is indexed to removal date
- Procedures groupings are based on actual procedure performed (i.e. Procedure 1 through Procedure 5)
- Closed waitlist entries with:
    - at least one cardiac procedure performed indicated among the five procedure fields on the record, regardless of procedure status value (Volumes are of procedure performed, not procedures identified as completed. Therefore, procedures with completion status = "Not completed" or "NULL" are included)
    - Removal Reason = “Procedure Started (PS)”
    - Removal Date is within the reporting interval
- Entries with procedures mapping to multiple procedure are included in volumes for **each** procedure type (except for two exceptions).
    - E.g., an entry with both Coronary Angiogram and PCI are included in volumes for **both** Coronary Angiogram and PCI
- ***First exception*** are entries with cardiac surgery: Each entry with surgery is included in only one of the below mutually exclusive procedure types:
    - CABG with valve surgery
    - CABG without valve surgery
    - Valve surgery without CABG
    - The remaining surgeries are included in volumes of each recorded instance of the following surgeries: Aneurysmectomy Surgery (ANES), Aortic Surgery (AORS), Arrhythmia Surgery (ARRS), Atrial Septal Defect Closure Surgery (ASDS), Cardiac Tumour Surgery

(CTUS), Myectomy Surgery (MYES), Pericardiectomy Surgery (PERS), Ventricular Septal Defect Closure Surgery (VSDS)

- ***Second exception*** are entries related PCI: Each entry with either of the following is included in only one of the below mutually exclusive procedure types:
  - Scheduled percutaneous coronary intervention (SCHPCI)
  - Staged percutaneous coronary intervention (STGPCI)
  - The remaining PCIs are included in volumes of each recorded instance of the following PCIs: Late Percutaneous Coronary Intervention (LPCI), Pharmacoinvasive Percutaneous Coronary Intervention (PHPCI), Primary Percutaneous Coronary Intervention (PPCI), Rescue Percutaneous Coronary Intervention (RPCI), Same-Sitting Percutaneous Coronary Intervention (SSPCI)
- Entries with both surgery and non-surgery procedures are included in volumes for both surgery and non-surgery procedure types:
  - E.g., an entry with both CABG without valve surgery and PCI is included in volumes for both procedure types

Referrals resulting in No Procedures

Indicator Description

- The number of waitlist entries removed from the waitlist because they did not receive a procedure.

Inclusion Criteria

- Reporting period is indexed to Removal Date
- Waitlist entries with:
    - Valid removal date
    - Removal Reason as "No Procedure"
- Procedures are based on referral details (i.e. Service Code)
- A removal reason of 'No Procedure' includes the decision to not proceed with the procedure, which may be a patient decision, a physician decision, or re-referral.

Proportion of Cases Within Target

Proportion of open waitlist volume within Target

Indicator Description

- Proportion of patients waiting for coronary angiogram, CABG or PCI currently within the wait time access target among open cases
- Reporting period is indexed to acceptance date
- Procedures groupings are based on referral details (i.e. Service Code)

Inclusion Criteria

Denominator:

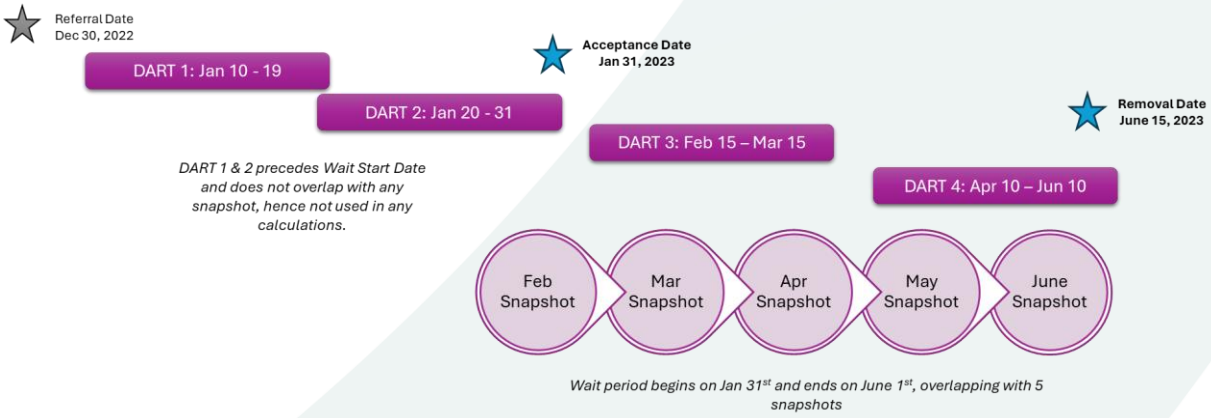
- The number of open wait list entries with referral to procedures that have an Access Target (Coronary Angiogram, CABG without valve surgery or PCI)
- Coronary Angiogram:
    - A valid Referral Date for Coronary Angiogram with Urgent (P2), Semi-Urgent (P3), and Elective (P4) priority levels; Still waiting to be accepted for procedure (i.e. on the open wait 1 waitlist) at snapshot
- CABG without valve surgery or PCI:
    - A valid referral for CABG without valve surgery or PCI with Urgent (P2), Semi-Urgent (P3), and Elective (P4) priority levels; Still waiting for cardiac procedure (i.e. on the open wait 2 waitlist) at snapshot
- Priority 1 entries are excluded because they do not wait long enough to appear on snapshots.
- Null' priority entries are excluded as they do not have a target to compare against.
- Snapshot is defined as the first day of the reporting month.

Numerator:

- Subset of the denominator whose wait time at snapshot is within the Access Target
- Wait time at snapshot is calculated as time between the Wait Start Date and snapshot date minus all Dates Affecting Readiness to Treat (DARTs) days up to snapshot in overlapping DARTs

("overlapping DARTs" refers to those overlapping with snapshots, not DARTS overlapping with each other. This logic assumes that DARTs for the same entry do not overlap with each other.)

- Wait Start Date is defined as:
  - Referral Date for entries with referral for Coronary Angiogram
  - Acceptance Date for entries with referral for CABG without valve surgery or PCI
- The Access Target is applied to total wait (Wait 1 + Wait 2) for Coronary Angiogram but Wait 2 only for CABG without valve surgery and PCI.
- Overlapping DARTs are defined as those with:
  - Wait Start Date <= DART To Date
  - DART From Date < snapshot date (a DART on the snapshot date itself is not considered 'overlapping')
- For each overlapping DART, the DART days up to snapshot is calculated as the difference between DART start and end dates at snapshot plus one (to account for DART periods being inclusive of both the "to" and "from" dates, e.g., a DART from January 1 to 5 is considered a period of five days, not four), where:
- DART start date at snapshot is the later of Wait Start Date and DART From Date
- DART end date at snapshot is the earlier of DART To Date and snapshot date minus one (Since the snapshot is taken at midnight, the snapshot date itself is not considered part of the wait time, and therefore a DART on the snapshot date is excluded from the calculations)



1.

Figure 1. Example of patient journey to receive CABG without Valve Surgery and impact of DARTS

Table 1. Wait Time Targets for Cardiac Procedures

Priority Level	Coronary Angiogram[1]	CABG[2]	PCI[2]
2 (Urgent)	7 days	14 days	7 days
3 (Semi-Urgent)	28 days	42 days	14 days
4 (Elective)	84 days	90 days	28 days

[1] Time from when a patient is referred for the procedure to when the procedure actually occurs

[2] Time from when a patient is accepted for the procedure to when the procedure actually occurs

Proportion of closed waitlist volume within Target

Indicator Description

- Proportion of patients who received a Coronary Angiogram, CABG or PCI within the wait time access target among closed cases
- Reporting period is indexed to removal date

Inclusion Criteria

- Closed waitlist entries where:
  - Referral procedure (Service Code) matches the actual procedure(s) performed (Procedure 1 through 5)
  - At least one cardiac procedure performed indicated among the five procedure fields on the record, regardless of procedure status value (Volumes are of procedures performed, not procedures identified as completed. Therefore, procedures with completion status = "Not completed" or "NULL" are included)
- Removal Reason = “Procedure Started (PS)”
- Removal date is within the reporting interval

Denominator:

- The number of closed wait list entries with referral to procedures that have an Access Target (Coronary Angiogram, CABG without valve surgery or PCI) and have completed procedure that matches referral procedure
- Coronary Angiogram:
    - A valid Referral Date for Coronary Angiogram with Urgent (P2), Semi-Urgent (P3), and Elective (P4) priority levels
    - A valid removal date (completed procedure)
- CABG without valve surgery or PCI:
    - A valid referral for CABG without valve surgery or PCI with Urgent (P2), Semi-Urgent (P3), and Elective (P4) priority levels
    - A valid acceptance date
    - A valid removal date (completed procedure)
- Priority 1 and 'Null' priority entries are excluded

Numerator:

- Subset of the denominator consisting of entries with total wait days to procedure (Removal Date) are within the Access Target (Table 1).
- Total wait is calculated as time between the Wait Start Date and removal date minus all Dates Affecting Readiness to Treat (DARTs)
- Wait Start Date is defined as:
    - Referral Date for entries with referral for Coronary Angiogram
    - Acceptance Date for entries with referral for CABG without valve surgery or PCI
- Missing or Priority 1 wait list entries and entries with misalignment between the referral procedure, and the completed procedures are excluded

Wait Times

Wait 1: Referral to Acceptance

Indicator Description

- The number of days the patient waited to be accepted for the procedure (Referral Date to the Acceptance Date minus any Dates Affecting Readiness to Treat (DART)), using pre-calculated wait times from the cardiac registry with DARTs accounted for.
- Presented as 25th Percentile, Median, 75th Percentile and 90th Percentile, Average
    - 90th Percentile: 90% of patients waited this many days or less, and 10% waited longer.
    - 75th Percentile: 75% of patients waited this many days or less, and 25% waited longer.
    - Median (50th Percentile): Half of the patients waited less than this number of days, and half waited longer.
    - 25th Percentile: 25% of patients waited this many days or less, and 75% waited longer.
    - Mean (Average): The average number of days patients waited.
- Percentiles are calculated using the SQL PERCENTILE_CONT function (continuous percentile). This approach applies linear interpolation when the percentile position falls between two values and may therefore return a calculated value not explicitly present in the underlying data.

Inclusion Criteria

- Reporting period is indexed to removal date
- Closed waitlist entries with:
    - Referral procedure (Service Code) match actual procedure(s) performed (offlisting).
    - at least one cardiac procedure performed indicated among the five procedure fields on the record, regardless of procedure status value (Volumes are of procedures performed, not procedures identified as completed. Therefore, procedures with completion status = "Not completed" or "NULL" are included)
    - Removal Reason = “Procedure Started (PS)”
- Removal Date is within the reporting interval
- Waitlist entries with misalignment between the referral (onlist) procedure and completed (offlist) procedure are excluded from wait time metrics. For example, if a patient is onlisted for scheduled

PCI but offlisted for staged PCI, the entry will not be counted due to the mismatch in procedure types.

- The alignment between referral details to actual procedure ensures that the cohort used for performance measurement remains as homogeneous as possible. Entries where patients were listed for one procedure but ultimately received a different procedure introduces variability that may distort performance results. Such discrepancies often reflect different clinical pathways or priorities, making these cases less comparable to the intended cohort.

Wait 2: Acceptance to Removal

Indicator Description

- The number of days the patient waited for the procedure (Acceptance Date to the Removal Date minus any Dates Affecting Readiness to Treat (DART)) using pre-calculated wait times from the cardiac registry with DARTs accounted for.
- Presented as 25th Percentile, Median, 75th Percentile and 90th Percentile, Average
    - 90th Percentile: 90% of patients waited this many days or less, and 10% waited longer.
    - 75th Percentile: 75% of patients waited this many days or less, and 25% waited longer.
    - Median (50th Percentile): Half of the patients waited less than this number of days, and half waited longer.
    - 25th Percentile: 25% of patients waited this many days or less, and 75% waited longer.
    - Mean (Average): The average number of days patients waited.
- Percentiles are calculated using the SQL PERCENTILE_CONT function (continuous percentile). This approach applies linear interpolation when the percentile position falls between two values and may therefore return a calculated value not explicitly present in the underlying data.

Inclusion Criteria

- Reporting period is indexed to removal date
- Closed waitlist entries with:
    - Referral procedure (Service Code) match to actual procedure(s) performed (offlisting)
    - At least one cardiac procedure performed indicated among the five procedure fields on the record, regardless of procedure status value (Volumes are of procedures performed,

not procedures identified as completed. Therefore, procedures with completion status = "Not completed" or "NULL" are included)

- Removal Reason = “Procedure Started (PS)”
- Removal Date is within the reporting interval
- The alignment between referral details to actual procedure ensures that the cohort used for performance measurement remains as homogeneous as possible. Entries where patients were listed for one procedure but ultimately received a different procedure introduces variability that may distort performance results. Such discrepancies often reflect different clinical pathways or priorities, making these cases less comparable to the intended cohort.

Total Wait Time

Indicator Description

- Number of days the patient has been waiting for the procedure from the Referral Date to the Removal Date minus any Dates Affecting Readiness to Treat (DART), using pre-calculated wait times from the cardiac registry with DARTs accounted for.
- Presented as 25th Percentile, Median, 75th Percentile and 90th Percentile, Avera
  - 90th Percentile: 90% of patients waited this many days or less, and 10% waited longer.
  - 75th Percentile: 75% of patients waited this many days or less, and 25% waited longer.
  - Median (50th Percentile): Half of the patients waited less than this number of days, and half waited longer.
  - 25th Percentile: 25% of patients waited this many days or less, and 75% waited longer.
  - Mean (Average): The average number of days patients waited.
- Percentiles are calculated using the SQL PERCENTILE_CONT function (continuous percentile). This approach applies linear interpolation when the percentile position falls between two values and may therefore return a calculated value not explicitly present in the underlying data.

Inclusion Criteria

- Reporting period is indexed to removal date
- Closed waitlist entries with:
  - Referral procedure (Service Code) match to actual procedure(s) performed (offlisting)
  - At least one cardiac procedure performed indicated among the five procedure fields on the record, regardless of procedure status value (Volumes are of procedures performed,

not procedures identified as completed. Therefore, procedures with completion status = "Not completed" or "NULL" are included)

- Removal Reason = “Procedure Started (PS)”
- Removal Date is within the reporting interval
- The alignment between referral details to actual procedure ensures that the cohort used for performance measurement remains as homogeneous as possible. Entries where patients were listed for one procedure but ultimately received a different procedure introduces variability that may distort performance results. Such discrepancies often reflect different clinical pathways or priorities, making these cases less comparable to the intended cohort.

Cancellations

Indicator Description

- Number of wait list entries that resulted in cancellations

Inclusion Criteria

- Reporting period is indexed to booking date (The date scheduled for the procedure)
- Procedures groupings are based on referral details (i.e. Service Code)
- Wait list entries with:
    - Cancellation Reason and a subsequent booking date
    - All Removal reasons including NULL is taken except 'Data Entry Error (ER)'.
- Only cancellations that were followed by a rebooking are included (cancellations without a subsequent booking are excluded)
- Each cancellation per waitlist entry is counted as a unique event (i.e. one waitlist entry can be counted towards one or many cancellations)
- Cancellations are reported by the reason for the service location cancelling a booking:
    - Resourcing: Due to lack of either physical or human resources (i.e., beds, staff, blood products, medicine).
    - Urgent Patient: Due to another patient presenting requiring an urgent procedure.
    - Equipment Failure: Due to an equipment failure.
    - Patient Not Ready Due to Medical Reason: Due to a clinical contraindication the patient is unavailable to undergo procedure.
    - Patient Not Ready Due to Preference PP Due to the patient preferring to have the procedure done at a later time.
    - Other: Due to a reason not previously defined or listed.

Throughput Ratio

Indicator Description

- The throughput ratio represents the rate at which waitlist entries are closed/completed to entries being added to the waitlist for a cardiac procedure.
- Procedures groupings are based on referral details (All service codes including W.SURG and W.CATHI.PCI are included in the throughput ratio calculation)

Demand: Referrals (Entries added to Wait 1)

- Reporting period is indexed to referral date
- Procedures groupings are based on referral details (i.e. Service Code)
- Waitlist entries with:
    - Valid referral date
    - Referral date within reporting period (fiscal quarter)
    - Acceptance date is missing
- All removal reasons including NULL are included with the exception of 'Data Entry Error (ER)'.
- Certain entries within the Referral (wait 1) cohort do not progress to the Wait 2 cohort due to the absence of an acceptance date. These cases are ultimately closed as 'No Procedure'. Such entries remain part of the referral cohort at the time of referral, as they are reflective of system demand, and are subsequently captured in the completed cohort according to their removal date.

Demand: Acceptances (Entries added to Wait 2)

- Reporting period is indexed to acceptance date
- Waitlist entries with:
    - Valid acceptance date
    - Acceptance date within reporting period (fiscal quarter)
    - Removal Date >= start of the reporting period or Removal Dates is null, i.e., the patient is still on the Wait 2 waitlist
- All removal reasons including NULL are included with the exception of 'Data Entry Error (ER)'.
- If a waitlist entry is accepted for a cardiac procedure in the same quarter as their referral date, they are **ONLY** counted in the acceptance cohort. This ensures that cases added to the referral

(wait 1) and acceptance (wait 2) cohorts are mutually exclusive to avoid double counting the same wait list entry.

- Entries will transition from the Wait 1 to Wait 2 cohort across fiscal quarters if their acceptance date falls in a different fiscal quarter than their referral date.
- Cases waiting at a specific point in time that ultimately did not result in a cardiac procedure are included in the throughput analysis. These cases were added to the queue but later removed when the entry was closed or the reason was noted as 'No Procedure.' Entries that did not proceed due to data entry errors were excluded entirely, as if they had never been entered.
- Actual procedure performed are not considered, as this is a throughput analysis focused on system-level demand and efficiency. The intent is to assess how well the system manages cardiac volumes and waitlists overall, rather than evaluating clinical complexity or individual patient pathways. This approach helps identify bottlenecks, resource constraints, and opportunities for operational improvement across the system, regardless of procedure type.

Closed or Completed Entries

- Reporting period is indexed to removal date
- Wait list entries with:
  - Valid removal date
- Removal Reason not indicated as 'Patient Death' or 'Data Entry Error'
- Entries with removal reason indicated as 'No procedure' or 'Procedure Started' are included

Wait List 2 Queue (Patients waiting at 1st day of Quarter)

- Represents the number of wait list entries added to Wait 2, as of first day of reporting period
- Reporting period is indexed to acceptance date
- Wait list entries with:
  - Valid referral date
  - Valid acceptance date
  - Acceptance Date within reporting period
- One of the following:
  - Removal Date >= start of the reporting period or
  - Removal Date is null, i.e., the patient is still on the Wait 2 waitlist

Each waitlist entry is included in all snapshots between its Acceptance Date (not inclusive) and Wait 2 end date (inclusive). Wait 2 end date is defined as:

- Removal Date, if populated
- Current date if Removal Date is not populated (i.e., the patient is still waiting as of the data pull)
- Entries that were referred, accepted, and removed all within the same quarter are not included in this waitlist queue, because they were not waiting at the start of the quarter. Instead, these entries are considered completed on the date they were removed.

Throughput Ratio Calculation

- The ratio of completed or closed cardiac procedures to the total demand within a given reporting period.

Numerator:

- Volume of completed or closed cardiac procedures (excluding entries removed due to patient death (PD) or data entry errors)

Denominator:

- Volume of "demand" for cardiac procedures, defined as the sum of Referrals (new cases added to queue) and Acceptances (cases accepted for procedure)

Interpretation:

- The throughput ratio compares the number of cases completed to the number of cases added during a reporting period (e.g., a quarter).
  - Ratio = 1: Cases completed and added are approximately equal; the system is keeping pace with incoming demand.
  - Ratio > 1: More cases were completed than added; the backlog is decreasing.
  - Ratio < 1: Fewer cases were completed than added; the backlog is increasing.

Market Share

Indicator Description

- The Market Share report identifies the geographic origins of cardiac patients based on their Home and Community Care Support Services (HCCSS) region (also referred to as OH Detailed Region). Patient residence is assigned using OH Detailed Regions, which are derived from legacy LHIN boundaries with adjustments in the Toronto area to align with current OH Region definitions. Patient postal codes are mapped using the Ministry of Health (MOH) Postal Code Crosswalk File, which assigns each postal code to standardized MOH geographic levels based on Statistics Canada's Postal Code Conversion File (PCCF). The most recent version of the Crosswalk File is used, where available, to ensure consistency over time.
- Market Share data is stratified either by patient home location or facility Home and Community Care Support Services (HCCSS) and reported as following:

    - Facility Breakdown
    - Where patients are coming from (distribution by treating facility location)
    - Where patients receive care (distribution by patient home location)

Inclusion Criteria

- Report period is indexed to removal date
- Procedures groupings are based on actual procedure performed (i.e. Procedure 1 through Procedure 5)
- Closed waitlist entries with:

    - At least one cardiac procedure performed indicated among the five procedure fields on the record, regardless of procedure status value (Volumes are of procedure performed, not procedures identified as completed. Therefore, procedures with completion status = "Not completed" or "NULL" are included)
    - Removal Reason = "Procedure Started (PS)"
    - Removal Date is within the reporting interval

- Entries with procedures mapping to multiple procedure are included in volumes for **each** procedure type (except for two exceptions).
    - E.g., an entry with both Coronary Angiogram and PCI are included in volumes for **both** Coronary Angiogram and PCI
- ***First exception*** are entries with cardiac surgery: Each entry with surgery is included in only one of the below mutually exclusive procedure types:
    - CABG with valve surgery
    - CABG without valve surgery
    - Valve surgery without CABG
    - The remaining surgeries are included in volumes of each record instance of the following surgeries: Aneurysmectomy Surgery (ANES), Aortic Surgery (AORS), Arrhythmia Surgery (ARRS), Atrial Septal Defect Closure Surgery (ASDS), Cardiac Tumour Surgery (CTUS), Myectomy Surgery (MYES), Pericardiectomy Surgery (PERS), Ventricular Septal Defect Closure Surgery (VSDS)
- ***Second exception*** are entries related PCI: Each entry with either of the following is included in only one of the below mutually exclusive procedure types:
    - Scheduled percutaneous coronary intervention (SCHPCI)
    - Staged percutaneous coronary intervention (STGPCI)
    - The remaining PCIs are included in volumes of each recorded instance of the following PCIs: Late Percutaneous Coronary Intervention (LPCI), Pharmacoinvasive Percutaneous Coronary Intervention (PHPCI), Primary Percutaneous Coronary Intervention (PPCI), Rescue Percutaneous Coronary Intervention (RPCI), Same-Sitting Percutaneous Coronary Intervention (SSPCI)
- Entries with both surgery and non-surgery procedures are included in volumes for both surgery and non-surgery procedure types:
    - E.g., an entry with both CABG without valve surgery and PCI is included in volumes for both procedure types

Facility Breakdown

- This indicator represents the distribution of patients receiving cardiac procedures by their home location at each cardiac facility. Patient home location is defined using OH Detailed Regions.
    - After the inclusion criteria is applied, entries are stratified by facility and patient home location (defined using OH Detailed Region). The reported volume represents the number of patients from each home location who received care at the selected facility.

Where patients are coming from (distribution by treating facility location)

- This indicator represents the distribution of facility HCCSS (treating hospital regions) where patients are receiving cardiac procedures by their home location. Patient home location is defined using OH Detailed Regions, while the treating hospital region is based on the hospital's HCCSS.
- **Denominator**
    - After the inclusion criteria is applied, entries are stratified by facility HCCSS
- **Numerator**
    - Subset of denominator, stratified by patient home location and treating hospital HCSS.

Where patients receive care (distribution by patient home location)

- This indicator represents the distribution of patients receiving cardiac procedures by their home location and treating hospital region.
- **Denominator**
    - After the inclusion criteria is applied, entries are stratified by patient OH detailed region
- **Numerator**
    - Subset of denominator, stratified by patient home location and treating hospital HCCSS.

Data Disclaimer

- The market share report uses the current aligned Ontario Health (OH) Regions, effective April 1, 2023. In this definition, OH Toronto, OH Central and OH East Regions were aligned to the City of Toronto municipal boundaries. Results are not directly comparable to those based on the legacy OH Regions in place prior to April 1, 2023, or to analysis aggregated from the legacy Local Health Integration Networks (LHINs).
- Three hospitals were aligned to OH Toronto Region to improve alignment with municipal boundaries:
- OH Central:
    - Humber River Hospital
    - North York General Hospital
- OH East:
    - Scarborough Health Network

Appendix: Procedure Rollup and Group

Rollup	Procedure	DCIS Service Code	DCIS Procedure Code
Ablation	Ablation, standard	• W.EP.ABL.STDABL	• Standard Ablation (STDABL)
	Ablation, complex	• W.EP.ABL.CPXABL	• Complex Ablation (CPXABL)
	Electrophysiology study	• W.EP.DIA.EPSTDY	• Electrophysiology Study (EPSTDY)
	Ablation of unknown indication (Pre-DCIS)	• W.EP.ABL	• N/A
Coronary Diagnostics	Coronary angiogram	• W.CATHD.CORD.CORANG	• Coronary Angiogram (CORANG) •
	Fractional Flow Reserve	• W.CATHD.CORD.FFR	• Fractional Flow Reserve (FFR) •
	Intravascular Ultrasound	• W.CATHD.CORD.IVUS	• Intravascular Ultrasound (IVUS)
	Optical Coherence Tomography	• W.CATHD.CORD.OCT	• Optical Coherence Tomography (OCT)
	Right Heart Catheterization	• W.CATHD.OTH.RHC	• Right Heart Catheterization (RHC)

Rollup	Procedure	DCIS Service Code	DCIS Procedure Code
Devices	Implantable cardioverter defibrillator	• W.EP.DEV.CRTICD • W.EP.DEV.CRTP • W.EP.DEV.DCICD • W.EP.DEV.SCICD	• Single Chamber Implantable Cardioverter Defibrillator (SCICD) • Dual Chamber Implantable Cardioverter Defibrillator (DCICD) • Cardiac Resynchronization Therapy Implantable Cardioverter Defibrillator (CRTICD) • Cardiac Resynchronization Therapy Pacemaker (CRTP)
	Lead extraction with laser	• W.EP.DEV.LEL	• Lead extraction with laser (LEL)
	All other devices	• W.EP.DEV	• N/A
Open Cardiac Surgery	CABG with valve surgery	• W.SURG.CON.CABGV	• Coronary artery bypass graft surgery (CABG) AND • Any Valve surgery
	CABG without valve surgery	• W.SURG.CORS.CABG	• Coronary artery bypass graft surgery (CABG) EXCLUDING entries with any valve surgery

Rollup	Procedure	DCIS Service Code	DCIS Procedure Code
	Valve surgery without CABG	• W.SURG.VS.VRR	• Aortic Valve Surgery (AVS) • Mitral Valve Surgery (MVS) • Pulmonary Valve Surgery (PVS) • Tricuspid Valve Surgery (TVS) EXCLUDING entries with CABG
	All other cardiac surgery	• W.SURG.AOR.AORS • W.SURG.CSS.ASDS • W.SURG.CSS.VSDS • W.SURG	• Aneurysmectomy Surgery (ANES) • Aortic Surgery (AORS) • Arrhythmia Surgery (ARRS) • Atrial Septal Defect Closure Surgery (ASDS) • Cardiac Tumour Surgery (CTUS) • Myectomy Surgery (MYES) • Pericardiectomy Surgery (PERS) • Ventricular Septal Defect Closure Surgery (VSDS)
PCI	All other PCI	• W.CATHI.PCI	• Same-Sitting Percutaneous Coronary Intervention (SSPCI) • Primary Percutaneous Coronary Intervention (PPCI) • Pharmacoinvasive Percutaneous Coronary Intervention (PHPCI) • Late Percutaneous Coronary Intervention (LPCI) • Rescue Percutaneous Coronary Intervention (RPCI)

Rollup	Procedure	DCIS Service Code	DCIS Procedure Code
	Scheduled percutaneous coronary intervention	• W.CATHI.PCI.SCHPCI	• Scheduled Percutaneous Coronary Intervention (SCHPCI)
	Staged percutaneous coronary intervention	• W.CATHI.PCI.STGPCI	• Staged Percutaneous Coronary Intervention (STGPCI)
Structural	Atrial septal defect closure	• W.CATHI.CSI.ASDC	• Atrial Septal Defect Closure (ASDC)
	Left atrial appendage occlusion (LAAO)	• W.CATHI.CSI.LAAO	• Left Atrial Appendage Occlusion (LAAO)
	Patent foramen ovale closure (PFOC)	• W.CATHI.CSI.PFOC	• Patent Foramen Ovale Closure (PFOC)
	Transcatheter aortic valve implantation (TAVI)	• W.CATHI.VI.TAVI	• Transcatheter Aortic Valve Implantation (TAVI)
	Transcatheter mitral edge to edge repair (MTEER)	• W.CATHI.VI.MTEER	• Mitral Valve Clip (MTEER)
	Transcatheter mitral valve replacement (TMVR)	• W.CATHI.VI.TMVI	• Transcatheter Mitral Valve Implantation (TMVI)

Rollup	Procedure	DCIS Service Code	DCIS Procedure Code
	Transcatheter tricuspid edge to edge repair (T-TEER)	• W.CATHI.VI.TTEER	• Tricuspid Valve Clip (TTEER)

Appendix: Indicator Stratifications

Indicator	Location				Procedure		Period			Priority
	Province	Region	OH Detailed Region	Facility	Rollup	Procedure	Fiscal Year	Quarter	Month	
Number of Procedures performed	✓	✓		✓	✓	✓	✓	✓	✓	✓
Number of new Referrals	✓	✓		✓	✓	✓	✓	✓	✓	
Number of open entries in Wait 1 (Wait 1 Waitlist Snapshot)	✓	✓		✓	✓	✓	✓	✓	✓	
Number of new Acceptances	✓	✓		✓	✓	✓	✓	✓	✓	
Number of open entries in Wait 2 (Wait 2 Waitlist Snapshot)	✓	✓		✓	✓	✓	✓	✓	✓	
Proportion of open wait list still within wait time access target	✓	✓		✓		✓	✓	✓	✓	
Proportion of completed procedures seen within wait time access target	✓	✓		✓	✓	✓	✓	✓	✓	
Number of referrals resulting in no procedures	✓	✓			✓		✓			
Wait 1 Metrics: Referral to Acceptance	✓	✓		✓	✓	✓	✓	✓	✓	✓
Wait 2 Metrics: Acceptance to Removal	✓	✓		✓	✓	✓	✓	✓	✓	✓
Total Wait Time Metrics	✓	✓		✓	✓	✓	✓	✓	✓	
Cancellations				✓	✓		✓			
Throughput Ratio	✓	✓		✓	✓		✓	✓		
Market Share			✓	✓	✓	✓	✓			

For questions on the Cardiac Activity Report, please contact the CorHealth Ontario Service Desk:



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Hours: Monday to Friday, 8:30 AM to 4:30 PM