COVID-19 Metric Specifications for Community Collaboration

As stakeholders work to address the COVID-19 outbreak, it's critical that they have accurate, complete data to make informed decisions. In collaboration with the healthcare organizations that use Epic software, we've created the following standard metrics to provide that data. These metrics were specifically designed to assist stakeholders in tracking the spread of the virus, better plan capacity, and monitor testing and screening.

Testing and Screening

Hospital Capacity

To prevent others from needing to reinvent the wheel, we're publishing these detailed metric specifications to help other EHR vendors and data analysts who might want to use them to inform their own data collection efforts. Already, over 15,000 sites are tracking data according to these specifications. These sites can produce data on demand (in Excel or CSV format), at the discretion of the healthcare organization, for combination with data from other sources.

We'll continue to add to and update these metrics based on feedback from the healthcare and standards community. Feedback and recommendations can be sent to COVID-19-Reporting@epic.com.

You can find definitions of key terms as well as a revision history at the end of this document.

COVID-19 Presumptive Positive Tests

Description

This metric counts the total number of patients who were documented with a presumptive positive result for a COVID-19 test during the reporting period.

Age groups: The number of patients documented with a presumptive positive COVID-19 test can be stratified into the following age groups:

- 0-3 years
- 4-18 years
- 19-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 85+ years
- All ages

Example

Consider a patient with COVID-19 symptoms who has an office visit to be tested on March 23. The patient is seen in office, and the healthcare provider places an order for the COVID-19 test. Later, the test indicates a presumptive positive result, and the healthcare provider documents the result in the system.

In this scenario, the patient is included in the metric based on the following information:

- The metric is showing data from a reporting period that includes March 23, which is the date the COVID-19 test was ordered.
- The healthcare provider enters presumptive positive as the patient's COVID-19 test result.

Definitions

Metric Result: Single number

Initial population: All patients who had any type of visit or were admitted during the reporting period.

Numerator: The number of COVID-19 patients during the reporting period with a presumptive positive COVID-19 test result in the given age group.

Denominator: N/A

Exclusions: A patient with only a home health visit is excluded.

Date: Tests are counted on the date they were ordered.

Attribution: Tests are attributed to the location of the visit or admission they were ordered in.

COVID-19 Encounters with a Presumptive Positive Test

Description

This metric calculates the percentage of all visits and admissions during the reporting period in which a patient was identified as a presumptive positive COVID-19 test. This metric is intended to track the trend in healthcare resources being dedicated to treating COVID-19.

Age groups: The number of patients documented with a presumptive positive COVID-19 test can be stratified into the following age groups:

- 0-3 years
- 4-18 years
- 19-44 years
- 45-54 years
- 55-64 years
- 65-74 years
- 85+ years
- All ages

Example

Consider a patient with COVID-19 symptoms who has an office visit to be tested on March 23. The patient is seen in office, and the healthcare provider places an order for the COVID-19 test. Later, the test indicates a presumptive positive result that's documented in the system.

In this scenario, the patient is included in the metric based on the following information:

- The metric is showing data from a reporting period that includes March 23, which is the date the COVID-19 test was ordered.
- The healthcare provider enters presumptive positive as the patient's COVID-19 test result.

Definitions

Metric Result: Percentage

Initial population: All patients who had any type of visit, including telehealth, or were admitted during the reporting period.

Numerator: The number of COVID-19 tests during the reporting period with a presumptive positive COVID-19 test result in the given age group. Note that these patients do not need to have an encounter in the denominator to be included in the numerator—this metric is designed as an estimate for overall resource tracking.

Denominator: All visits and admissions during the reporting period.

Exclusions: Home health visits, visits that were canceled, and visits where the patient either did not show up or left without being seen are excluded.

Date: Tests are counted on the date they were ordered.

Attribution: Tests are attributed to the location of the visit or admission they were ordered in.

COVID-19 Total Tests

Description

This metric counts the number of COVID-19 tests ordered during the reporting period. If an order consists of multiple samples or multiple results, it is counted as a single test. Multiple orders for the same patient on the same day are also counted as a single test.

Example

Consider a patient with COVID-19 symptoms who has an office visit to be tested on March 23. The patient is seen in office, and the healthcare provider places an order for the COVID-19 test. The test includes two samples from the patient, which are sent to the lab to be processed. Later, the results are returned and documented in the patient's chart as negative.

In this scenario, the test is included in the metric based on the following information:

- The metric is showing data from a reporting period that includes March 23, which is the date the COVID-19 test was ordered.
- The test is counted as a single test because the samples are for the same patient on the same day, even though two samples were taken.

Definitions

Metric Result: Single number

Initial population: All patients who had any type of visit, including telehealth, or were admitted during the reporting period.

Numerator: The number of COVID-19 tests during the reporting period.

Denominator: N/A

Exclusions: Subsequent tests for the same patient on the same day are not counted as additional tests.

Date: Tests are counted on the date they were ordered.

Attribution: Tests are attributed to the location of the visit or admission they were ordered in.

COVID-19 Pending Tests

Description

This metric counts the number of COVID-19 tests ordered during the reporting period for which a final test result has not been recorded. If an order consists of multiple samples or multiple results, it is counted as a single test. Multiple orders for the same patient on the same day are also counted as a single test.

Example

Consider a patient with COVID-19 symptoms who has an office visit to be tested on March 23. The patient is seen in office, and the healthcare provider places an order for the COVID-19 test. The test includes two samples from the patient, which are sent to the lab to be processed. Lab staff have not yet entered a final result for these samples.

In this scenario, the test is included in the metric based on the following information:

- The metric is showing data from a reporting period that includes March 23, which is the date the COVID-19 test was ordered.
- The patient is counted as a single test because the samples are for the same patient on the same day, even though they had two samples taken.
- The patient's samples have not yet been resulted, so they are considered pending.

Definitions

Metric Result: Single number

Initial population: All patients who had any type of visit, including telehealth, or were admitted during the reporting period.

Numerator: The number of COVID-19 tests during the reporting period for which a final result has not been recorded.

Denominator: N/A

Exclusions: Subsequent tests for the same patient on the same day are not counted as additional tests.

Date: Tests are counted on the date they were ordered.

Attribution: Tests are attributed to the location of the visit or admission they were ordered in.

COVID-19 Screening Rate

Description

This metric represents the percentage of patient care contacts for which the patient was screened for communicable disease on the day of the contact.

Example

Consider a patient with COVID-19 symptoms who has a telehealth visit with a provider on March 23. The provider asks the patient the following questions and records the answers in the patient's chart:

- Have you been in contact with someone who is sick?
- Have you been in contact with someone who had a presumptive positive test for COVID-19?
- What symptoms of a communicable disease are you experiencing?

In this scenario, the patient is included in the metric based on the following information:

- The metric is showing data from a reporting period that includes March 23, which is the date of the patient's telehealth visit.
- The patient's healthcare provider recorded the patient's responses to at least one of the screening questions in the chart.

Definitions

Metric Result: Percentage

Initial population: All patients who had any type of visit, including telehealth, or were admitted during the reporting period.

Numerator: The number of patients who have a response for at least one question related to COVID-19 communicable disease screening on the day of the visit or admission.

Denominator: The number of patients who had one of the following during the reporting range: a face to face visit (a visit where the patient met with a healthcare provider in person), a telephone visit, a telehealth visit, or a hospital admission.

Exclusions: Visits that were canceled and visits where the patient either did not show up or left without being seen are excluded.

Date: Communicable disease screening is counted on the day it occurs.

Attribution: Patients are attributed to the location of the provider who saw the patient.

Number of ICU Stays Started

Description

This metric the total number of ICU stays that started during the reporting period, regardless of whether the patient has a COVID-19 presumptive positive test.

Example

Consider a patient that is admitted to the ICU department on March 23. The patient is included in the metric because the admission date is within the reporting period and the department is defined as an ICU.

Definitions

Metric Result: Single number

Initial population: All patients who were admitted during the reporting period.

Numerator: The number of ICU stays that were started during the reporting period.

Denominator: N/A

Date: Stays are counted on the date they were started.

Attribution: Stays are attributed to the location of the department (unit).

Open ICU Beds

Description

This metric identifies the total number of open ICU beds at the point of reporting. Individual healthcare organizations define which departments are for intensive and non-intensive acute care.

Example

An organization has 100 beds in ICU departments. 25 patients are currently admitted to those departments. In addition, 10 beds in those departments are either unavailable or blocked. This metric shows 65 available beds.

Definitions

Metric Result: Single number

Initial population: N/A

Numerator: The total number of beds in ICU departments minus the number of unavailable or blocked beds, minus the number of patients in ICU beds.

Denominator: N/A

Exclusions: N/A

Attribution: Beds are attributed to the location of the department (unit).

Open Non-ICU Acute Beds

Description

This metric identifies the total number of open non-intensive, acute care beds at the point of reporting. Individual healthcare organizations define which departments are for intensive and non-intensive acute care.

Example

An organization has 100 beds in departments they've defined as providing non-intensive care. 25 patients are currently admitted to those departments. In addition, 10 beds in those departments are either unavailable or blocked. This metric shows 65 available beds.

Definitions

Metric Result: Single number

Initial population: N/A

Numerator: The total number of non-intensive, acute beds minus the number of unavailable or blocked beds, minus the number of patients in non-intensive, acute beds.

Denominator: N/A

Exclusions: N/A

Attribution: Beds are attributed to the location of the department (unit).

ICU Active Ventilator Episodes

Description

This metric shows the number of patients currently on a ventilator in intensive care units during the reporting period. Nurses document whether a patient is on a ventilator and when it is turned on and turned off.

Example

An admitted patient is placed on a ventilator, which a nurse documents. The patient is still on the ventilator when the metric is calculated, so the patient is counted.

At the end of the day, the patient is still on the ventilator, so the patient is counted in the count for that day. The next day, the patient is taken off the ventilator. The next time the metric is calculated, the patient isn't counted, and the patient isn't counted in the count for that day.

Definitions

Metric Result: Single number

Initial population: All patients who were admitted during the reporting period.

Numerator: The number of active ventilator episodes.

Denominator: N/A

Exclusions: Only active ventilators are counted, so a patient is no longer included in the metric after the patient is documented as no longer using the ventilator.

Attribution: Ventilator episodes are attributed to the location of the department (unit).

ICU Total Ventilators

Description

This metric shows the number of ventilators available for use in ICUs at the time of reporting. Individual healthcare organizations manually specify how many ventilators they have.

Definitions

Metric Result: Single number

Initial population: N/A

Numerator: The number of ventilators specified by the organization. Ventilator counts are supplied for each location.

Denominator: N/A

Exclusions: N/A

Attribution: The current location of the ventilator.

ICU Ventilators Available

Description

This metric shows the number of ventilators not currently in use in ICUs at the time of reporting.

Example

An organization has specified they have 50 total ventilators in intensive care units, and nurses have documented ventilator use on 35 patients. This metric shows 15 available ventilators.

Definitions

Metric Result: Single number

Initial population: N/A

Numerator: The difference between the ICU Total Ventilators and ICU Active Ventilator Episodes metrics.

Denominator: N/A

Exclusions: N/A

Attribution: The current location of the ventilator.

ICU Ventilator Utilization

Description

This metric shows the percentage of ventilators currently in use in intensive care units at the time of reporting.

Example

An organization has specified they have 50 total ventilators in intensive care units, and nurses have documented ventilator usage on 35 patients. This metric shows 70%.

Definitions

Metric Result: Percentage

Initial population: N/A

Numerator: The number of active ventilator episodes specified in the ICU Active Ventilator Episodes metric.

Denominator: The total number of ventilators specified in the ICU Total Ventilators metric.

Exclusions: N/A

Attribution: The current location of the ventilator.

Key Terms

Reporting period

The reporting period is the timeframe for which the report containing the metrics is run.

Location

All data for these metrics is aggregated at the ZIP code level. So the location is the ZIP code that corresponds to the physical location of the related healthcare organization.

COVID-19 test

Individual healthcare organizations define what represents a COVID-19 test in their systems. This is typically a test mapped to LOINC code 94309-2 [SARS coronavirus 2 RNA [Presence] in Unspecified specimen by NAA with probe detection]. Healthcare providers then place orders for these tests in the system.

COVID-19 communicable disease screening

Individual healthcare organizations define what represents a COVID-19 disease screening in their systems. Healthcare providers conduct the screening.

Screening typically consists of questions where the patient:

- Answers Yes or No to questions about whether they have been in contact with someone who is sick.
- Answers Yes or No to questions about whether they have been in contact with anyone who has been tested as presumptive positive for COVID-19.
- Describes any symptoms of a communicable disease that they have.

Presumptive positive COVID-19 test

Individual healthcare organizations define what represents a COVID-19 test in their systems. A presumptive positive COVID-19 test is one where a healthcare provider entered the result as positive. Since tests and results aren't built uniformly across systems, organizations determine what lab result components and values constitute a positive test.

ICU stays

Individual healthcare organizations define what represents an ICU stay in their systems. Typically, this is a stay in a department defined as an ICU, or a stay in a bed defined as an ICU bed in a non-ICU department.

Open bed

An open bed is any unoccupied, unblocked, and available bed. Beds can be blocked or unavailable for many reasons, such as if a room has multiple beds and one of the beds is occupied by a patient who needs to be isolated or has another need for privacy. A bed might also be unavailable after a patient is discharged but the bed still needs to be cleaned.

Revision History

- 3/25: Initial publication