

Measure #361: Optimizing Patient Exposure to Ionizing Radiation: Reporting to a Radiation Dose Index Registry – National Quality Strategy Domain: Patient Safety

2017 OPTIONS FOR INDIVIDUAL MEASURES:
REGISTRY ONLY

MEASURE TYPE:
Structure

DESCRIPTION:
Percentage of total computed tomography (CT) studies performed for all patients, regardless of age, that are reported to a radiation dose index registry that is capable of collecting at a minimum selected data elements

INSTRUCTIONS:
This measure is to be reported **each time** a procedure for a CT imaging report is performed during the performance period. There is no diagnosis associated with this measure. This measure may be reported by eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

Measure Reporting:
The listed denominator criteria is used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure. The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

DENOMINATOR:
All final reports for patients, regardless of age, undergoing a CT procedure

Denominator Criteria (Eligible Cases):

All patients regardless of age

AND

Patient procedure during the performance period (CPT): 70450, 70460, 70470, 70480, 70481, 70482, 70486, 70487, 70488, 70490, 70491, 70492, 70496, 70498, 71250, 71260, 71270, 71275, 72125, 72126, 72127, 72128, 72129, 72130, 72131, 72132, 72133, 72191, 72192, 72193, 72194, 73200, 73201, 73202, 73206, 73700, 73701, 73702, 73706, 74150, 74160, 74170, 74174, 74175, 74176, 74177, 74178, 74261, 74262, 74263, 75571, 75572, 75573, 75574, 75635, 76380, 76497, 77011, 77012, 77013, 77078, 78072, 78814, 78815, 78816, 0042T

NUMERATOR:
CT studies performed that are reported to a radiation dose index registry that is capable of collecting at a minimum all of the following data elements:

- Manufacturer
- Study description
- Manufacturer's model name
- Patient's weight
- Patient's size
- Patient's sex
- Patient's age
- Exposure time
- X-Ray tube current
- Kilovoltage (kV)

- Mean Volume Computed tomography dose index (CTDIvol)
- Dose-length product (DLP)

Detailed information regarding the patient demographic and scanner data elements included in the Digital Imaging and Communication in Medicine (DICOM) header and CT irradiation event data elements included in the DICOM Supplement 127: CT Radiation Dose Reporting (Dose Structured Report) can be found in the Dose Index Registry Data Dictionary available on the American College of Radiology (ACR) Web site: [Dose Index Registry Data Dictionary](#)

Numerator Options:

Performance Met:

CT studies performed reported to a radiation dose index registry that is capable of collecting at a minimum all necessary data elements (**G9327**)

OR

Performance Not Met:

CT studies performed not reported to a radiation dose index registry that is capable of collecting at a minimum all necessary data elements, reason not given (**G9326**)

RATIONALE:

Clinical registries have become an important tool in efforts to improve quality of care. Registries provide a structured mechanism to monitor clinical practice patterns, evaluate healthcare effectiveness and safety, and evaluate patient outcomes. (Gliklich RE, Dreyer NA, 2007) (Bufalino VJ, Masoudi FA, Stranne SK, et al., 2011)

Establishing diagnostic reference levels is vital to helping clinicians determine optimal radiation dosage to produce acceptable image quality. A data registry would allow facilities to compare their CT dose indices to regional and national values enabling imaging providers and the imaging community to measure the effectiveness of dose lowering efforts over time. (ACR, 2008)

CLINICAL RECOMMENDATION STATEMENTS:

The goal in medical imaging is to obtain image quality consistent with the medical imaging task. Diagnostic reference levels are used to manage the radiation dose to the patient. The medical radiation exposure must be controlled, avoiding unnecessary radiation that does not contribute to the clinical objective of the procedure. By the same token, a dose significantly lower than the reference level may also be cause for concern, since it may indicate that adequate image quality is not being achieved. The specific purpose of the reference level is to provide a benchmark for comparison, not to define a maximum or minimum exposure limit. For CT, the diagnostic reference levels are based on the volume CT dose index (CTDIvol). (ACR, 2008)

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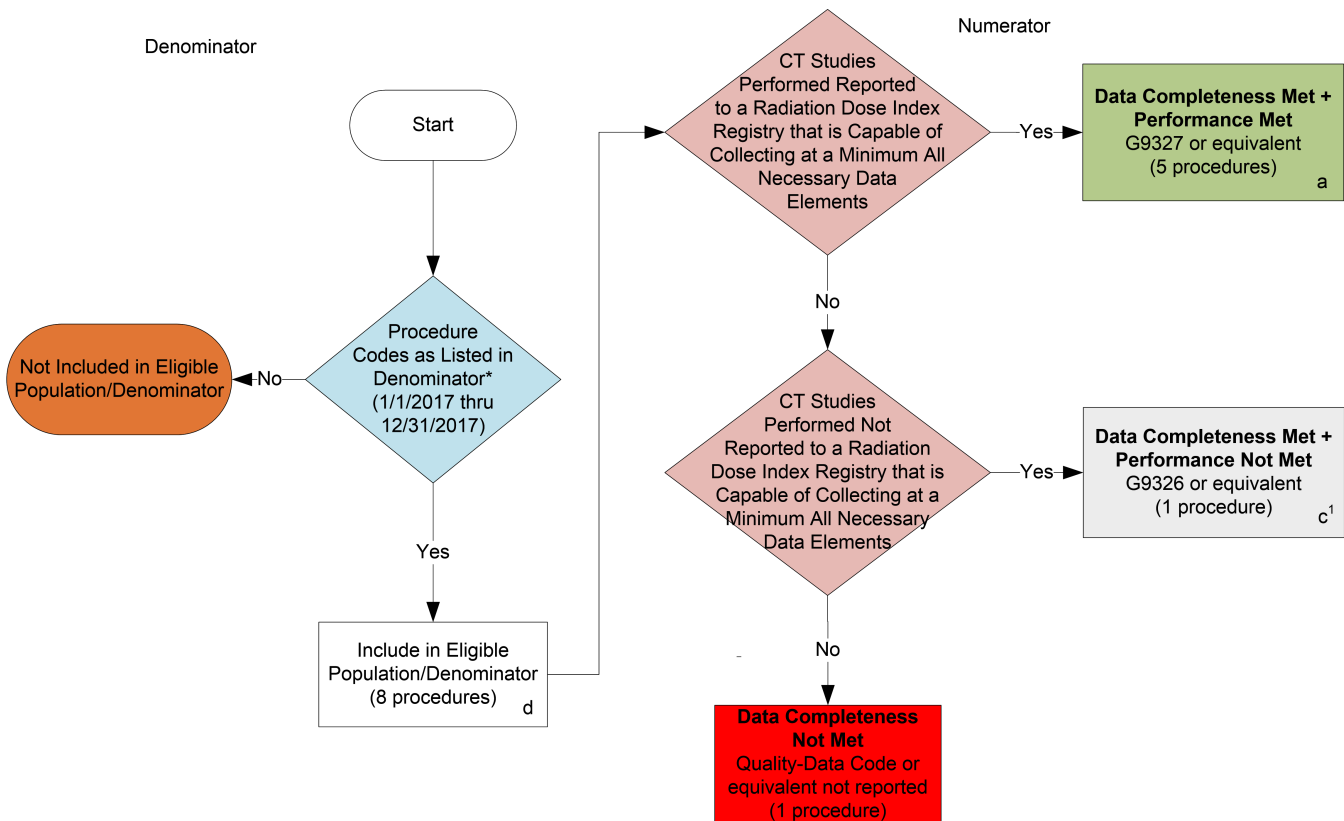
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2017 Registry Individual Measure Flow

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SAMPLE CALCULATIONS:

Data Completeness=

$$\frac{\text{Performance Met (a=5 procedures)} + \text{Performance Not Met (c}^1 + \text{c}^2 = 2 \text{ procedures)}}{\text{Eligible Population / Denominator (d=8 procedures)}} = \frac{7 \text{ procedures}}{8 \text{ procedures}} = 87.50\%$$

Performance Rate=

$$\frac{\text{Performance Met (a=5 procedures)}}{\text{Data Completeness Numerator (7 procedures)}} = \frac{5 \text{ procedures}}{7 \text{ procedures}} = 71.43\%$$

* See the posted Measure Specification for specific coding and instructions to report this measure.

NOTE: Reporting Frequency: Procedure

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The measure diagrams were developed by CMS as a supplemental resource to be used in conjunction with the measure specifications. They should not be used alone or as a substitution for the measure specification.

v1.

2017 Registry Individual Measure Flow
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Please refer to the specific section of the Measure Specification to identify the Denominator and numerator information for use in reporting this Individual Measure.

1. Start with Denominator
2. Check Procedure:
 - a. If Procedure as Listed in the Denominator equals No, do not include in Eligible Population or Denominator. Stop Processing.
 - b. If Procedure as Listed in the Denominator equals Yes, include in the Eligible population or Denominator.
3. Denominator Population:
 - a. Eligible population or Denominator is all Eligible Patients in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 procedures in the sample calculation.
4. Start Numerator
5. Check CT Studies Performed Reported to a Radiation Dose Index Registry that is Capable of Collecting at a Minimum all Necessary Data Elements:
 - a. Check CT Studies Performed Reported to a Radiation Dose Index Registry that is Capable of Collecting at a Minimum all Necessary Data Elements equals Yes, include in Data Completeness Met and Performance Met.
 - b. Data Completeness Met and Performance Met letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 5 procedures in Sample Calculation.
 - c. Check CT Studies Performed Reported to a Radiation Dose Index Registry that is Capable of Collecting at a Minimum all Necessary Data Elements equals No, proceed to Check CT Studies Performed not Reported to a Radiation Dose Index Registry that is Capable at Collecting at a Minimum all Necessary Data Elements.
6. Check CT Studies Performed not Reported to a Radiation Dose Index Registry that is Capable at Collecting at a Minimum all Necessary Data Elements:
 - a. Check CT Studies Performed not Reported to a Radiation Dose Index Registry that is Capable at Collecting at a Minimum all Necessary Data Elements equals Yes, include in Data Completeness Met and Performance Not Met.
 - b. Data Completeness Met and Performance Not Met letter is represented in the Data Completeness in the Sample Calculation listed at the end of this document. Letter c1 equals 1 procedure in the Sample Calculation.
 - c. Check CT Studies Performed not Reported to a Radiation Dose Index Registry that is Capable at Collecting at a Minimum all Necessary Data Elements equals No, proceed to Data Completeness Not Met.

7. Check Data Completeness Not Met:

- a. If Data Completeness Not Met, the Quality Data Code or equivalent was not reported. 1 procedure has been subtracted from the data completeness numerator in sample calculation.

SAMPLE CALCULATIONS:

Data Completeness=

$$\frac{\text{Performance Met (a=5 procedures)} + \text{Performance Not Met (c}^1 + \text{c}^2 = 2 \text{ procedures)}}{\text{Eligible Population / Denominator (d=8 procedures)}} = \frac{7 \text{ procedures}}{8 \text{ procedures}} = 87.50\%$$

Performance Rate=

$$\frac{\text{Performance Met (a=5 procedures)}}{\text{Data Completeness Numerator (7 procedures)}} = \frac{5 \text{ procedures}}{7 \text{ procedures}} = 71.43\%$$