American College of Radiology National Radiology Data Registry

Qualified Clinical Data Registry Measures

January 2023

QCDR Measure Number	ACRad 15
Measure Title:	Report Turnaround Time: Radiography

Measure Description	Mean radiography report turnaround time (RTAT). (Does not include mammography.) This measure has been harmonized with MSN QCDR.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient Hospital, Inpatient hospital Imaging facility, ED, Other
Meaningful Measure Area	Patient's Experience of Care
Meaningful Measure Area Rationale	This measure is meant to ensure radiology reports are being written and completed in a reasonable timeframe from the completion of the exam. This means patients spend less time waiting for results and receive their reports promptly.
Denominator	Total number of radiography exams completed
Denominator Elements	Exam modality or CPT/HCPCS Code or ICD-10 PCS Code; Date/time of exam completion
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Mean time from exam completion to final signature on report, in hours
Numerator Exclusions	None
Numerator Data Elements	Date/time of exam completion; Date/time of report signed
Number of performance rates to be submitted	1
Performance Rate Descriptions	N/A
Indicate an Overall Performance Rate if more than 1	N/A
Measure Type (Process/Outcome)	Outcome
High Priority Measure	Yes
Outcome Measure	Yes

Inverse Measure	Yes
Proportion Measure	No
Continuous Measure	Yes
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	0.00-9999.00
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	This measure was approved by CMS for QCDR inclusion in 2014. The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification.
Rationale	This measure is modified to exclude mammography, because mammography is clinically distinct from other kinds of radiography procedures - it is overwhelmingly performed for screening asymoptomatic patients.) The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care

	to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification. ACR Practice Guideline for Communication of Diagnostic Imaging Findings
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 16
Measure Title:	Report Turnaround Time: Ultrasound (Excluding Breast US)

Measure Description	Mean ultrasound report turnaround time (RTAT). This measure has been harmonized with MSN QCDR.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital, Imaging facility, ED, Other
Meaningful Measure Area	Patient's Experience of Care
Meaningful Measure Area Rationale	This measure is meant to ensure radiology reports are being written and completed in a reasonable timeframe from the completion of the exam. This means patients spend less time waiting for results and receive their reports promptly.
Denominator	Total number of ultrasound exams completed (excluding breast US)
Denominator Elements	Exam modality or CPT/HCPCS Code or ICD-10 PCS Code; Date/time of exam completion
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Mean time from exam completion to final signature on report, in hours
Numerator Exclusions	None
Numerator Data Elements	Date/time of exam completion; Date/time of report signed
Number of performance rates to be submitted	1
Performance Rate Description	N/A
Indicate an Overall Performance Rate if more than 1	N/A
Measure Type (Process/Outcome)	Outcome
High Priority Measure	Yes
Outcome Measure	Yes

Inverse Measure	Yes
Proportion Measure	No
Continuous Measure	Yes
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	0.00-9999.00
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	This measure was approved by CMS for QCDR inclusion in 2014. The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification.
Rationale	The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and

	improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification. ACR Practice Guideline for Communication of Diagnostic Imaging Findings
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 17
Measure Title:	Report Turnaround Time: MRI

Measure Description	Mean MRI report turnaround time (RTAT). This measure has been harmonized with MSN QCDR.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital, Imaging facility, ED, Other
Meaningful Measure Area	Patient's Experience of Care
Meaningful Measure Rationale	This measure is meant to ensure radiology reports are being written and completed in a reasonable timeframe from the completion of the exam. This means patients spend less time waiting for results and receive their reports promptly.
Denominator	Total number of MRI exams completed
Denominator Elements	Exam modality or CPT/HCPCS Code or ICD-10 PCS Code; Date/time of exam completion
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Mean time from exam completion to final signature on report, in hours
Numerator Exclusions	None
Numerator Data Elements	Date/time of exam completion; Date/time of report signed
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A
Measure Type (Process/Outcome)	Outcome
High Priority Measure	Yes
Outcome Measure	Yes
Inverse Measure	Yes
Proportion Measure	No

Continuous Measure	Yes
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	0.00-9999.00
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	This measure was approved by CMS for QCDR inclusion in 2014. The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification.
Rationale	The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics,

	using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification. Additional information is provided in Appendix. ACR Practice Guideline for Communication of Diagnostic Imaging Findings
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 18
Measure Title:	Report Turnaround Time: CT

Measure Description	Mean CT report turnaround time (RTAT). This measure has been harmonized with MSN QCDR.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital, Imaging facility, ED, Other
Meaningful Measure Area	Patient's Experience of Care
Meaningful Measure Area Rationale	This measure is meant to ensure radiology reports are being written and completed in a reasonable timeframe from the completion of the exam. This means patients spend less time waiting for results and receive their reports promptly.
Denominator	Total number of CT exams completed
Denominator Elements	Exam modality or CPT/HCPCS Code or ICD-10 PCS Code; Date/time of exam completion
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Mean time from exam completion to final signature on report, in hours
Numerator Exclusions	None
Numerator Data Elements	Date/time of exam completion; Date/time of report signed
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A
Measure Type (Process/Outcome)	Outcome
High Priority Measure	Yes
Outcome Measure	Yes
Inverse Measure	Yes

Proportion Measure	No
Continuous Measure	Yes
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	0.00-9999.00
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	This measure was approved by CMS for QCDR inclusion in 2014. The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification.
Rationale	The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings,

	enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification. Additional information is provided in Appendix. ACR Practice Guideline for Communication of Diagnostic Imaging Findings
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 19
Measure Title:	Report Turnaround Time: PET

Measure Description	Mean PET report turnaround time (RTAT). This measure has been harmonized with MSN QCDR.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital, Imaging facility, ED, Other
Meaningful Measure Area	Patient's Experience of Care
Meaningful Measure Area Rationale	This measure is meant to ensure radiology reports are being written and completed in a reasonable timeframe from the completion of the exam. This means patients spend less time waiting for results and receive their reports promptly.
Denominator	Total number of PET exams completed
Denominator Elements	Exam modality or CPT/HCPCS Code or ICD-10 PCS Code; Date/time of exam completion
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Mean time from exam completion to final signature on report, in hours
Numerator Exclusions	None
Numerator Data Elements	Date/time of exam completion; Date/time of report signed
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A
Measure Type (Process/Outcome)	Outcome
High Priority Measure	Yes
Outcome Measure	Yes
Inverse Measure	Yes

Proportion Measure	No
Continuous Measure	Yes
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	0.00-9999.00
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	This measure was approved by CMS for QCDR inclusion in 2014. The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification.
Rationale	The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings,

	enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification. ACR Practice Guideline for Communication of Diagnostic Imaging Findings
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 25
Measure Title:	Report Turnaround Time: Mammography

Measure Description	Mean mammography report turnaround time (RTAT). This measure has been harmonized with MSN QCDR.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital, Imaging facility, ED, Other
Meaningful Measure Area	Patient's Experience of Care
Meaningful Measure Area Rationale	This measure is meant to ensure radiology reports are being written and completed in a reasonable timeframe from the completion of the exam. This means patients spend less time waiting for results and receive their reports promptly.
Denominator	Total number of mammography exams completed
Denominator Elements	Exam modality or CPT/HCPCS Code or ICD-10 PCS Code; Date/time of exam completion
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Mean time from exam completion to final signature on report, in hours
Numerator Exclusions	None
Numerator Data Elements	Date/time of exam completion; Date/time of report signed
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A
Measure Type (Process/Outcome)	Outcome
High Priority Measure	Yes
Outcome Measure	Yes

Inverse Measure	Yes
Proportion Measure	No
Continuous Measure	Yes
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	0.00-9999.00
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	This measure was approved by CMS for QCDR inclusion in 2017. The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification.
Rationale	The written imaging report is a key method for providing diagnostic interpretation to referring clinicians from radiologists. Timely final imaging reports support informed and efficient decision making for treatment plans by referring physicians, and ultimately the delivery of care to patients. While important to timely treatment and potentially better health outcomes, short turnaround of reports also improves patients' experience with care, cuts input costs, and improves the throughput of imaging exams. Rapid turnaround time (TAT) of reports is especially

	important to patient care provided in the emergency department (ED). These measures encompass all settings, enabling quality improvement in each. While the definition of timeliness depends on setting or site characteristics, using comparative benchmarks from registry data provides radiologists with transparent feedback to optimize TAT at their sites. The American Board of Radiology includes "turnaround time" as one category from which radiologists may select to conduct a practice quality improvement (Part IV) for continued Maintenance of Certification. ACR Practice Guideline for Communication of Diagnostic Imaging Findings
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 34
Measure Title:	Multi-strata weighted average for 3 CT Exam Types: Overall Percent of CT exams for which Dose Length Product is at or below the size-specific diagnostic reference level (for CT Abdomen-pelvis with contrast/single phase scan, CT Chest without contrast/single phase scan and CT Head/Brain without contrast/single phase scan)
Measure Description	Weighted average of 3 former QCDR measures, ACRad 31, ACRad 32, ACRad 33.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	NQF #3621
NQS Domain	Patient Safety
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital, Imaging facility
Meaningful Measure Area	Preventable Healthcare Harm
Meaningful Measure Area Rationale	The rationale for including this measure in the Preventable Healthcare Harm area is based on the measure quality action as shown below: Quality action for a group: to implement and monitor CT protocols to ensure dose optimization.
Denominator	Number of CT Abdomen-pelvis exams with contrast (single phase scans), CT Chest exams without contrast (single phase scans), and CT Head/Brain (single phase scans)
Denominator Elements	Study description; Exam date; Acquisition protocol
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Number of CT Abdomen-Pelvis exams with contrast (single phase scan), CT Chest exams without contrast (single phase scan), and CT Head/Brain exams without contrast (single phase scan) for which Dose Length Product is at or below the size-specific exam-specific diagnostic reference level.
Numerator Exclusions	None
Numerator Data Elements	Dose length product; CTDIw Phantom Type; Effective Diameter (calculated from localizer image)
Number of performance rates to be submitted	3
Indicate an Overall Performance Rate if more than 1	Weighted average

Performance Rate Description	This measure will be calculated using the weighted average of three performance rates: Rate 1: Percent of CT Abdomen-pelvis exams with contrast (single phase scan) for which Dose Length Product is at or below the size-specific diagnostic reference level Rate 2: Percent of CT Chest exams without contrast (single phase scan) for which Dose Length Product is at or below the size-specific diagnostic reference level Rate 3: Percent of CT Head/brain exams without contrast (single phase scan) for which Dose Length Product is at or below the size-specific diagnostic reference level
Measure Type (Process/Outcome)	Outcome
High Priority Measure	Yes
Outcome Measure	Yes
Inverse Measure	No
Proportion Measure	Yes
Continuous Measure	No
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	N/A
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (Dose Index Registry)
Clinical Recommendation Statement	This measure is a composite of three previously approved QCDR measures, ACRad 31, ACRad 32, and ACRad 33. There has been a considerable rise in use of Computed Tomography (CT) over the past 10 years. With that, there is also a significant increase in the population's cumulative exposure to ionizing radiation. A CT study should use as little radiation as possible, while still meeting the image quality needs of the exam. Dose Length Product (DLP) is a standardized parameter to measure scanner radiation output to a patient and is a useful index to compare protocols across different practices and scanners. Providing comparative data across exam types to a physician or site will help adjust imaging protocols to obtain diagnostic images using the lowest reasonable dose. This measures the CT scanner

radiation output specific to a patient and exam, comparing and benchmarking the actual dose index delivered to patients. While DLP itself is not a measure or estimate of actual patient radiation dose, it is closely related to doses received by patients. DLP is a measure of scanner output received and experienced by patients and not simply documentation of whether DLP was recorded. This measure is calculated at the facility level because protocol optimization is the combined effort of physicians, medical physicists and technologists in the practice, and change needs to be driven by the interpreting physicians as a team. Physicians see this information when interpreting an image and can participate actively with the rest of their team to manage the dose while maintaining diagnostic quality images.

The determination of ionizing radiation dose to a living human is very complex and poses many challenges for referring physicians, radiologists, radiologic technologists, medical physicists, equipment vendors, regulators, and patients. To determine the absorbed radiation dose, the initial x- ray beam exposure and the absorption in each organ must be known. It is the latter quantity that complicates this determination. This absorption is dependent on the amount and properties of each tissue encountered by the x-ray beam, and these parameters vary widely among patients. The situation is further complicated because it is not practical to insert radiation detectors into each organ of every patient. It is important to understand that the reported numerical values for individual radiation doses may vary by factors of 5 to 10 depending on individual patients and the manner of image acquisition.

There are many challenges in dose monitoring, including collection of accurate data with minimal effort on the part of the facility, standardization of procedure names so that benchmarks can be applied appropriately, and adjustment for patient sizes. Dose registries would enable facilities to compare their radiation doses to those delivered in other facilities for the same exam, and such comparisons over time could assist in optimizing patient radiation doses for medical imaging. The goals of tracking imaging exams and the associated radiation exposure include: (1) providing information at the point-of-care for the referring practitioner (i.e. supporting justification); (2) promoting development and use of diagnostic reference levels (DRLs) (i.e. supporting optimization); (3) providing information for assessment of radiation risks; and (4) establishing a tool for use in research and epidemiology.

References:
1. Amis ES Jr, Butler PF, Applegate KE, et al; American College of Radiology. American College of Radiology white paper on radiation dose in medicine J AM Coll Radiol. 2007;4(5):272-

284.
2. Bindman-Smith R, Lipson J, Marcus R, et al. Radiation Dose Associated with Common Computed Tomography Examinations and the Associated Lifetime Attributable Risk of Cancer. Arch Intern Med 2009; 169 (22)2078-2085.
3. ACR–AAPM PRACTICE GUIDELINE FOR DIAGNOSTIC REFERENCE LEVELS AND ACHIEVABLE DOSES IN MEDICAL X-RAY IMAGING Rev. 2013 http://www.acr.org/~/media/ACR/Documents/PGTS/guidelines/Reference_Levels.pdf
4. The Joint Commission Sentinel Alert Issue 47 – Radiation risks of diagnostic imaging, August 24 2011 http://www.jointcommission.org/sea_issue_47/
5. The Joint Commission Standards: Diagnostic Imaging Services; August 10, 2015 http://www.jointcommission.org/assets/1/18/AHC_DiagImagingRpt_MK_20150806.pdf
6. Bindman-Smith R, Lipson J, Marcus R, et al. Radiation Dose Associated with Common Computed Tomography Examinations and the Associated Lifetime Attributable Risk of Cancer. Arch Intern Med 2009; 169 (22)2078-2085.
7. Brody AS, Frush DP, Huda W, et al. Radiation risk to children from computed tomography. Pediatrics 2007; 120:677-682.
8. Radiation Risks and Pediatric Computed Tomography (CT): A Guide for Health Care Providers -from NCI and SPR. Www.nci.nih.gov/cancertopics/causes/radiation-risks-pediatric-CT.
9. U.S. Food and Drug Administration Initiative to Reduce Unnecessary Radiation Exposure from Medical Imaging. March 2010 http://www.fda.gov/downloads/RadiationEmittingProducts/RadiationSafety/RadiationDoseReduction/UCM200087.pdf
10. Frush D, Denham CR, Goske MJ, Brink JA, Morin RL, Mills TT, Butler PF, McCollough C, Miller DL. Radiation protection and dose monitoring in medical imaging: a journey from awareness, through accountability, ability and action…but where will we arrive? J Patient Saf. 2013 Dec;9(4):232-8. doi: 10.1097/PTS.0b013e3182a8c2c4.
11. Goske MJ, Strauss KJ, Coombs LP et al. Diagnostic reference ranges for pediatric abdominal CT. Radiology 2013;268:208-18.
12. Escalon JG, Chatfield MB, Sengupta D, Loftus ML. Dose length products for the 10 most commonly ordered CT examinations in adults: analysis of three years of the ACR dose index registry. Journal of the American College of Radiology. 2015 Aug 31;12(8):815-23.
13. Kanal K, Butler PF, Sengupta D, Chatfield MB, Coombs LP, Morin RL. United States Diagnostic Reference Levels and Achievable Doses for Ten Adult CT Examinations, Radiology, 2017, ahead of print. (http://pubs.rsna.org/doi/abs/10.1148/radiol.2017161911?journalCode=radiology)

Rationale	There has been a considerable rise in use of Computed Tomography (CT) over the past 10 years. With that, there is also a significant increase in the population's cumulative exposure to ionizing radiation. A CT study should use as little radiation as possible, while still meeting the image quality needs of the exam. Dose Length Product (DLP) is a standardized parameter to measure scanner radiation output to a patient and is a useful index to compare protocols across different practices and scanners. Providing comparative data across exam types to a physician or site will help adjust imaging protocols to obtain diagnostic images using the lowest reasonable dose. This measures the CT scanner radiation output specific to a patient and exam, comparing and benchmarking the actual dose index delivered to patients. While DLP itself is not a measure or estimate of actual patient radiation dose, it is closely related to doses received by patients. DLP is a measure of scanner output received and experienced by patients and not simply documentation of whether DLP was recorded. This measure is calculated at the facility level because protocol optimization is the combined effort of physicians, medical physicists and technologists in the practice, and change needs to be driven by the interpreting physicians as a team. Physicians see this information when interpreting an image and can participate actively with the rest of their team to manage the dose while maintaining diagnostic quality images.
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 36
Measure Title:	Incidental Coronary Artery Calcification Reported on Chest CT

Measure Description	Percentage of final reports for male patients aged 18 years through 50 and female patients aged 18 through 65 years undergoing noncardiac noncontrast chest CT exams or with and without contrast chest CT exams that note presence or absence of coronary artery calcification or not evaluable.
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital
Meaningful Measure Area	Preventive Care
Meaningful Measure Area Rationale	The purpose of this measure is to ensure that radiology reports make mention of any incidental coronary artery calcification found in a radiological scan. Capturing this information in the report can lead to early detection and prevention of more severe cardiovascular problems in the future.
Denominator	All final reports for male patients aged 18 years through 50 and female patients aged 18 through 65 years undergoing noncardiac noncontrast chest CT exams or with and without contrast chest CT exams
Denominator Elements	Patient age; Patient gender; Modality procedure; Body region; Contrast usage
Denominator Exclusions	Patients who have received prior coronary artery bypass grafts or prior percutaneous coronary intervention with stent
Denominator Exceptions	None
Numerator	Final reports that note presence or absence of coronary artery calcification or not evaluable
Numerator Exclusions	None
Numerator Data Elements	Final report findings
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A

Performance Rate Description	N/A
Measure Type (Process/Outcome)	Process
High Priority Measure	Yes
Outcome Measure	No
Inverse Measure	No
Proportion Measure	Yes
Continuous Measure	No
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	N/A
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	The following evidence statements are quoted verbatim from the referenced clinical guidelines and other sources, where applicable: [Coronary Artery Calcium (CAC)] should be evaluated and reported on all noncontrast chest CT examinations (Class I Recommendation) (SCCT/STR, 2016) 1. Hecht HS, Cronin P, Blaha MJ, et al. 2016 SCCT/STR guidelines for coronary artery calcium scoring of noncontrast noncardiac chest CT scans: A report of the Society of Cardiovascular Computed Tomography and Society of Thoracic Radiology. J Cardiovasc Comput Tomogr. 2017 Jan - Feb;11(1):74-84. doi: 10.1016/j.jcct.2016.11.003. Epub 2016 Nov 10. 3. Jairam PM, Gondrie MJA, Grobbee DE, Mali WP, Jacobs PCA, van der Graaf Y. Incidental imaging findings from routine chest CT used to identify subjects at high risk of future cardiovascular events. Radiology. 2014;3:700-708. 4. Chiles C, Duan F, Gladish GW, Ravenel JG, Baginski SG, Snyder BS, et al. Association of coronary artery calcification and mortality in the national lung screening trial: A comparison of three scoring methods. Radiology. 2015;276:82-90. 5. Uretsky S, Chokshi N, Kobrinski T, Agarwal SK, Po JR, Awan H, et al. The interplay of physician awareness and reporting of incidentally found coronary artery calcium on the clinical management of patients who underwent noncontrast chest computed tomography. Am J Cardiol.

2015;115:1513-1517.
6. Balakrishan R, Nguyen B, Raad R, Donnino R, Naidich DP, Jacobs JE, Reynolds HR. Coronary artery calcification is common on nongated chest computed tomography imaging. Clin Cardiol. 2017. https://doi.org/10.1002/clc.22685.

Rationale

Coronary artery calcium scoring predicts cardiovascular risk. Any calcification that is present is a predictor of cardiovascular disease and can be described without specific scoring. In cases where CAC is present, a standard referral for clinical evaluation can be made. While patients undergoing noncardiac chest CTs are not undergoing an evaluation for coronary artery calcium scoring, there are cases where coronary artery calcifications are found. Studies have shown that these incidental findings have value and can be used to stratify patient cardiovascular risk based on findings in conjunction with patient history, which can lead to improved prognosis and outcome.

Documentation of the presence of coronary artery calcium on noncardiac chest CTs is often underreported in radiology reports, even though primary physicians would likely use this information to inform treatment decisions. In a retrospective review of non-gated noncontrast chest CTs, researchers found approximately one-third of the time, the presence of coronary artery calcium was not documented, even though it was present on the chest CT. This measure aims to improve the communication of CAC findings to referring physicians to improve patient's cardiovascular care management.

Specialty this measure applies to

Radiology

Measure Funding Source (Steward)

American College of Radiology

QCDR Measure Number	ACRad 37
Measure Title:	Interpretation of CT Pulmonary Angiography (CTPA) for Pulmonary Embolism

Measure Description	Percentage of final reports for patients aged 18 years and older undergoing CT pulmonary angiography (CTPA) with a finding of PE that specify the branching order level of the most proximal level of embolus (i.e. main, lobar, interlobar, segmental, subsegmental)
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Ambulatory, Outpatient hospital, Inpatient hospital, ED
Meaningful Measure Area	Transfer of Health Information and Interoperability
Meaningful Measure Area Rationale	This measure is meant to ensure that vital data is captured on the radiology report; physicians who perform well on this measure will be ensuring that important information about a patient's pulmonary embolus is recorded in the medical record.
Denominator	All final reports for patients aged 18 years and older undergoing CT pulmonary angiography (CTPA) with a finding of pulmonary embolism
Denominator Elements	Patient age; Modality Procedure; Modality Modifier; Body Region; Anatomy; Final Report Findings
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Final reports that specify that branching order level of the most proximal level of embolus (i.e. main, lobar, interlobar, segmental, subsegmental)
Numerator Exclusions	None
Numerator Data Elements	Final Report Findings; PE Documentation
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A

Measure Type (Process/Outcome)	Process
High Priority Measure	Yes
Outcome Measure	No
Inverse Measure	No
Proportion Measure	Yes
Continuous Measure	No
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	N/A
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	The following evidence statements are quoted verbatim from the referenced clinical guidelines and other sources, where applicable: Normal CT angiography safely excludes PE in patients with low or intermediate clinical probability or PE-unlikely. (Class I Recommendation; Level of Evidence A) (ESC, 2014) Normal CT angiography may safely exclude PE in patients with high clinical probability or PE -likely. (Class IIa Recommendation; Level of Evidence B) (ESC, 2014) CT angiography showing a segmental or more proximal thrombus confirms PE. (Class I Recommendation; Level of Evidence B) (ESC, 2014) Further testing to confirm PE may be considered in case of isolated sub-segmental clots. (Class IIb Recommendation; Level of Evidence C) (ESC, 2014)
Rationale	CoAn estimated 290,000 events of fatal pulmonary embolism (PE) and 230,000 events of nonfatal PE occur in the United States every year. CT pulmonary angiography (CTPA) is the primary imaging modality for evaluating patients suspected of having acute PE. Identification of the embolus and documentation of the location of the embolus influence treatment decisions. Massive central PE increases the risk for right ventricular overload and PE-related mortality. In contrast, subsegmental pulmonary emboli are often noted on CTPA but may not require treatment or

	follow-up. More appropriate treatment stratification can occur to potentially reduce unnecessary costs and risks for bleeding. Additional level of specification at the subsegmental level will support avoidance of over treatment due to greater degree of prognosis. Variation in care: The practice for reporting CTPA varies between reporting only positive or negative PE finding without specifying proximal level of embolus, and inclusion of a more specific level of embolus. A retrospective analysis of CTPA reports found that of 2,151 consecutive reports, 10% were definitively positive for PE but did not specifically describe the location of the PE. Also, 27% of the reports specifically documented the absence of PE down to the segmental artery level but did not specifically address the presence or absence of subsegmental PE. Anticoagulation treatment is recommended if PE is located proximal to the subsegmental level, whereas anticoagulation is controversial and not always recommended if the only level of PE is subsegmental. One study (1) found patterns of reporting (from 2151 CTPA reports) varies on the basis of radiologists' subspecialties, experience and other factors as follows: " (1) PE conclusively positive (10%), (2) PE conclusively negative (29%), (3) PE negative to segmental arteries (27%), (4) PE negative to central pulmonary arteries (21%), (5) PE negative but suboptimal examination (8%), and (6) nondiagnostic examination (5%)" Another study (2) indicated that "the location of emboli seems to be more important in predicting short-term mortality than the percent embolic obstruction of the pulmonary arterial bed. The study also found that specificity of pulmonary hypertension "increases to 100% if accompanied by findings of a segmental artery-to-bronchus ratio greater than one in three of four pulmonary lobes". (1) Abujudeh HH, Kaewlai R, Farsad K, Orr E, Gilman M, Shepard JO. Computed tomography pulmonary angiography: an assessment of the radiology report. Acad Radiol. 2009;16:1309-1315 (2) Doğan H, de Roos A, Geleijins J, Huisman MV, Kroft LJM. The role of computed tomography in the diagnosis of acute and chronic pulmonary embolism. Diagn Interv Radiol. 2015;21:307-316.
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 38
Measure Title:	Use of Low Dose Cranial CT or MRI Examinations for Patients with Ventricular Shunts

Measure Description	Percentage of patients aged less than 18 years with a ventricular shunt undergoing cranial imaging exams to evaluate for ventricular shunt malfunction undergoing either low dose cranial CT exams or MRI
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Patient Safety
Care Setting	Outpatient hospital, Inpatient hospital
Meaningful Measure Area	Preventable Healthcare Harm
Meaningful Measure Area Rationale	The purpose of this measure is to encourage low dose CT in pediatric patients with ventricular shunts. Because this patient population often requires multiple CT imaging studies, it is essential to reduce their radiation exposure as much as possible in order to prevent potential adverse outcomes.
Denominator	All patients aged less than 18 years with a ventricular shunt undergoing cranial imaging exams to evaluate for ventricular shunt malfunction
Denominator Elements	Patient Age; Body Region; Clinical Focus
Denominator Exclusions	Patients with an active diagnosis or history of cancer, Patients with a diagnosis of meningitis, Trauma patients
Denominator Exceptions	None
Numerator	Patients undergoing either low dose cranial CT exams or MRI Numerator Definitions: For this measure, "low-dose cranial CT" is defined as dose length product (DLP) < 300 mGy for patients aged 2 years and younger; DLP < 405 for patients aged 3 through 6; DLP < 492 for patients aged 7 through 10, DLP < 604 for patients aged 11 through 14, and DLP < 739 for patients aged 15 and up. *Note: The DLP value included within the measure definition is based on the median value for such procedures found within the ACR's Dose Index Registry.*

Numerator Exclusions	None
Numerator Data Elements	Procedure Modifier; Modality Procedure
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A
Measure Type (Process/Outcome)	Process
High Priority Measure	Yes
Outcome Measure	No
Inverse Measure	No
Proportion Measure	Yes
Continuous Measure	No
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	N/A
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	The following evidence statements are quoted verbatim from the referenced clinical guidelines and other sources, where applicable: Automated dose reduction techniques available on imaging equipment should be used whenever appropriate. If such technology is not available, appropriate manual techniques should be used. (ACR, 2015) CT examinations should be performed only for a valid medical reason and with the minimum exposure that provides the image quality necessary for adequate diagnostic information. (ACR, 2014) More aggressive dose reduction may be used for examinations that can tolerate higher noise, eg shunt evaluation. (AAPM, 2015)
Rationale	Advances in computed tomography (CT) technology that allow for faster scanning have led to an increase in CT scans as a modality of choice for many indications in children.

	However, studies have also suggested a greater risk of cumulative effects of ionizing radiation in children compared to adults. This risk is of particular concern in children with chronic or complex disorders that require multiple follow up scans, such as VP shunt monitoring in hydrocephalus. It has been demonstrated that patients with shunted hydrocephalus receive an average of 2 head CT scans per year. In an effort to mitigate the potential effects of repeated exposure to radiation, low-dose CT protocol studies have been developed and have demonstrated a reduction in radiation dose without the tradeoff of reduction in diagnostic yield that impacts management. However, many facilities do not make adjustments in CT scanning techniques, such as dose reduction, in pediatric patients. Single-sequence MRI has also been demonstrated as a useful technique to rule out VP shunt malfunction. This measure aims to decrease both patient and population radiation doses in VP shunt malfunction evaluations by substituting the use of low-dose CT or MRI examinations in place of standard head CT examinations. Gap: More than 40,000 CSF shunts are placed annually in the United States, the majority of which are for the treatment of hydrocephalus [1]. Shunt failure occurs in 40–50% of patients during the first 2 years after shunt surgery [2]. The initial study for evaluating the size of the ventricles, shunt location, and integrity of the visualized components varies by institution. Unenhanced CT is a common choice but exposes the patient to ionizing radiation. Low-dose shunt protocols, which reduce tube current, result in suboptimal image quality compared with standard-dose CT but are diagnostically acceptable in the evaluation of shunt failure
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 40
Measure Title:	Use of Structured Reporting in Prostate MRI

Measure Description	Percentage of final reports for male patients aged 18 years and older undergoing prostate MRI for prostate cancer screening or surveillance that include reference to a validated scoring system such as Prostate Imaging Reporting and Data System (PI-RADS)
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Outpatient hospital, Inpatient hospital
Meaningful Measure Area	Transfer of Health Information and Interoperability
Meaningful Measure Area Rationale	This measure is meant to encourage the use of structured reporting in MRI scans of the prostate. Structured reporting improves communication between radiologists and referring physicians and therefore increases efficiency in the transfer of health information from one provider to another..
Denominator	All final reports for male patients aged 18 years and older undergoing prostate MRI for prostate cancer screening or surveillance
Denominator Elements	Patient Age; Patient Gender; Modality Procedure; Anatomy; Clinical Focus
Denominator Exclusions	None
Denominator Exceptions	Medical reason(s) for not including reference to a validated scoring system (e.g. scenarios in which the study is non-diagnostic)
Numerator	Final reports that include reference to a validated scoring system such as Prostate Imaging Reporting and Data System (PI-RADS)
Numerator Exclusions	None
Numerator Data Elements	Structured Scoring System Method
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A

Measure Type (Process/Outcome)	Process
High Priority Measure	Yes
Outcome Measure	No
Inverse Measure	No
Proportion Measure	Yes
Continuous Measure	No
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	N/A
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	The following evidence statements are quoted verbatim from the referenced clinical guidelines and other sources, where applicable: Effective communication is a critical component of diagnostic imaging. Quality patient care can only be achieved when study results are conveyed in a timely fashion to those responsible for treatment decisions. An effective method of communication should: a) promote optimal patient care and support the ordering physician/health care provider in this endeavor; b) be tailored to satisfy the need for timeliness; and c) minimize the risk of communication errors. (ACR, 2014) The report should use appropriate anatomic, pathologic, and radiologic terminology to describe the findings. (ACR, 2014) Current guidelines strongly encourage radiologists to use the PI-RADSTM v2 to report prostate mpMRI findings. It is clear that prostate mpMRI is more commonly used for guiding biopsies rather than local staging. Accurate lesion mapping and dimension measurement are key steps in communicating the results to the referring physicians. (AUA, 2017) Following an initial negative biopsy, there is an ongoing need for strategies to improve patient selection for repeat biopsy as well as the diagnostic yield from repeat biopsies. Many options exist for men with a previously negative biopsy. If a biopsy is recommended, prostate MRI and subsequent MRI-targeted cores appear to facilitate the detection of [clinically

significant (CS)] disease over standardized repeat biopsy. Thus, when high-quality prostate MRI is available, it should be strongly considered in any patient with a prior negative biopsy who has persistent clinical suspicion for prostate cancer and who is undergoing a repeat biopsy. The decision whether to perform MRI in this setting must also take into account results of any other biomarkers, the cost of the examination, as well as availability of high quality prostate MRI interpretation. If MRI is done, it should be performed, interpreted, and reported in accordance with PI-RADS V2 guidelines. (SAR/AUA, 2016)

1. American College of Radiology. ACR practice parameter for communication of diagnostic imaging findings. https://www.acr.org/~/media/C5D1443C9EA4424AA12477D1AD1D927D.pdf. Revised 2014. Accessed March 24, 2017.
2. Bjurlin, MA, Carroll PR, Eggener S, et al. MRI of prostate, Standard operating procedure (SOP). http://www.auanet.org/guidelines/mri-of-the-prostate-sop. 2017. Accessed December 4, 2017.
3. American Urological Association and the Society of Abdominal Radiology's Prostate Cancer Disease-Focused Panel. Prostate MRI and MRI-targeted biopsy in patients with prior negative biopsy. http://www.auanet.org/guidelines/prostate-mri-and-mri-targeted-biopsy. 2016. Accessed December 4, 2017.
4. Magnetta, MJ, Donovan AL, Jacobs BL, Davies BJ, Furlan A. Evidence-based reporting: A method to optimize prostate MRI communications with referring physicians. AJR Am J Roentgenol. 2018 Jan;210(1):108-112. doi: 10.2214/AJR.17.18260.

Rationale

Prostate cancer is the most common cancer in men and the second leading cause of cancer-related death. Currently, prostate cancer is detected using prostate-specific antigen, digital rectal examination, and random transrectal ultrasound–guided biopsy. A major concern related to prostate cancer screening is overdiagnosis and overtreatment of indolent tumors. Multiparametric MRI of the prostate gland has been shown to achieve higher sensitivity than standard systematic biopsy for intermediate- to high-risk tumors whereas having lower sensitivity for low-grade tumors that are unlikely to affect longevity. As prostate MRI use continues to grow, there is a need for standard and consistent reporting to improve detection, characterization, localization, and risk stratification of prostate lesions. Use of prostate MRI structured reporting has been demonstrated to improve the clinical impact of the radiologist contribution to patient care.

Advances in prostate MRI technology along with growing interpreter experience have greatly expanded the clinical applications of this imaging modality to include the detection of prostate cancer. As prostate MRI use continues to grow,

there is a need for standard and consistent reporting to improve detection, characterization, localization, and risk stratification of prostate lesions. Use of prostate MRI structured reporting has been demonstrated to improve the clinical impact of the radiologist contribution to patient care. Adapting this method of reporting is also associated with a lower perceived need by the urologist to contact the interpreting radiologist for diagnostic clarification, thereby improving the quality and efficiency of provider communication. It is unclear how widespread is the use of structured reporting systems in prostate MRI. However, one study found that even after training and emphasis on its potential to improve report quality, only 36% of imaging studies included in the sample were compliant with the recommended reporting.

There is a large division/separation between PIRADS 2 (Low; clinically significant cancer is unlikely to be present) &3 (Intermediate; the presence of clinically significant cancer is equivocal) as delineated in the PIRADS scoring system.

Variation in care:
One study found that even after training and emphasis on its potential to improve report quality, only 36% of imaging studies included in the sample were compliant with the recommended reporting system. This measure aims to encourage the use of an evidence-based set of reporting guidelines that improves the accuracy of multiparametric MRI and helps triage patients to appropriate management.One study found the following results:
A total of 255 patients with 365 discrete lesions were analyzed. PIRADS score 1-2, 3, 4 and 5 yielded any prostate cancer in 7.7, 29.7, 42.3 and 82.4% of the cases, respectively, across all indications, while clinically significant cancer was found in 0, 8.9, 21.4 and 62.7%, respectively. The area under the receiver operative curves for the diagnosis of any significant cancer was 0.69 (95%CI: 0.64-0.74) and 0.74 (95%CI: 0.69-0.79) respectively. Men who have had a previous negative biopsy had lower detection rates for any prostate cancer for PIRADS 3 and 4 lesions compared to those that were biopsy-naïve or on active surveillance.

1. Which scores need a core? An evaluation of MR-targeted biopsy yield by PIRADS score across different biopsy indications Niranjan J. Sathianathen, Badrinath R. Konety, et al. Prostate Cancer and Prostatic Diseasesvolume 21, pages 573–578 (2018)
https://www.ncbi.nlm.nih.gov/pubmed/30038389

Specialty this measure applies to Radiology

Measure Funding Source (Steward) American College of Radiology

QCDR Measure Number	ACRad 41
Measure Title:	Use of Quantitative Criteria for Oncologic FDG PET Imaging
Measure Description	Percentage of final reports for all patients, regardless of age, undergoing non-CNS oncologic FDG PET studies that include at a minimum: a. Serum glucose (eg, finger stick at time of injection) b. Uptake time (interval from injection to initiation of imaging) c. One reference background (eg, volumetric normal liver or mediastinal blood pool) SUV measurement, along with description of the SUV measurement type (eg, SUVmax) and normalization method (eg, BMI) d. At least one lesional SUV measurement OR diagnosis of "no disease-specific abnormal uptake"
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Communication and Care Coordination
Care Setting	Outpatient hospital, Inpatient hospital
Meaningful Measure Area	Transfer of Health Information and Interoperability
Meaningful Measure Area Rationale	The purpose of this measure is to encourage final reports for patients undergoing FDG PET are as complete and accurate as possible in order to minimize the risk of diagnosis and treatment based on insufficient or incorrect evidence. Blood glucose level, SUV measurement, and the time from radiopharmaceutical injection to imaging are all key items which need to be present in the report but which are often left out.
Denominator	All final reports for all patients, regardless of age, undergoing non-CNS oncologic FDG PET studies
Denominator Elements	Modality Procedure; Nuclear Agent; Clinical Focus; Anatomy
Denominator Exclusions	None
Denominator Exceptions	None
Numerator	Final reports for FDG PET scans that include at a minimum: a. Serum glucose (eg, finger stick at time of injection) b. Uptake time (interval from injection to initiation of imaging) c. One reference background (eg, volumetric normal liver or mediastinal blood pool) SUV measurement, along with description of the SUV measurement type (eg, SUVmax) and normalization method (eg, BMI)

	d. At least one lesional SUV measurement OR diagnosis of "no disease-specific abnormal uptake"
Numerator Exclusions	None
Numerator Data Elements	FDG PET Measurements Documented
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A
Performance Rate Description	N/A
Measure Type (Process/Outcome)	Process
High Priority Measure	Yes
Outcome Measure	No
Inverse Measure	No
Proportion Measure	Yes
Continuous Measure	No
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	N/A
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	The following evidence statements are quoted verbatim from the referenced clinical guidelines and other sources, where applicable: The technique section of the report should contain the radiopharmaceutical (eg, 18F-FDG), the administered activity, route and site of administration, as well as any pharmaceuticals administered (eg, diuretics, benzodiazepines). The serum glucose level at the time of radiopharmaceutical administration should be reported as well as patient weight, time from injection to scanning, and technique for calculating SUVs (ie, body weight, lean body weight, or body surface criteria). (ACR, 2016) The findings section should include description of the location, extent, and intensity of abnormal FDG uptake in relation to normal comparable tissues and should describe the relevant morphological findings on the CT images.

Ideally, image and series numbers should also be included. Additionally, background activity (eg, mediastinal blood pool and/or volumetric normal liver) should be measured to help compare SUV values. Often injection-site infiltrates, such as arms, or attenuation-correction errors can significantly alter SUV values in lesions, leading to false conclusions. An estimate of the intensity of FDG uptake can be provided with the SUV; however, the intensity of uptake may be described as mild, moderate, or intense in relation to the background update in normal hepatic parenchyma or the mediastinal blood pool. (ACR, 2016)

1. American College of Radiology. ACR-SPR Practice Parameter for Performing FDG-PT/CT in Oncology. https://www.acr.org/Quality-Safety/Standards-Guidelines/Practice-Guidelines-by-Modality/Nuclear-Medicine. 2016. Accessed December 10, 2017
2. Coleman RE, Hillner BE, Shields AF, et al. PET and PET/CT reports: observations from the National Oncologic PET Registry. J Nucl Med. 2010 Jan;51(1):158-63. doi: 10.2967/jnumed.109.066399. Epub 2009 Dec 15.
3. Niederkohr RD, Greenspan BS, Prior JO, et al. Reporting guidance for oncologic 18F-FDG PET/CT imaging. J Nucl Med. 2013 May;54(5):756-61. doi: 10.2967/jnumed.112.112177. Epub 2013 Apr 10.

Rationale

Results of imaging studies play an increasingly major role in oncology for diagnostic evaluation, development of treatment plans, and monitoring of treatment response. Results of FDG PET scans are communicated to referring health care providers and patients primarily via the diagnostic imaging report. However, there is significant variation in the format and content of final reports. Many important components of PET studies are often missing from final reports including blood glucose level, SUV measurement, and the time from radiopharmaceutical injection to imaging. Such information also helps with contextual interpretation of SUV measurements for abnormal lesions. These measurements are important for technical comparisons between studies and from one center to another for a more reliable diagnosis. Excluding these components may adversely affect comparison with subsequent and prior studies.

Including the quantitative criteria in the report for a current exam provides important technical details that are the basis for many of the physiologic manifestations seen on the study. There are accepted and established standards for how PET/CTs should be optimally performed and varying from these parameters can affect the physiology and therefore the imaging findings. Including technical information like glucose level and time from injection can help interpreting clinicians know if the study was performed optimally and if the findings are anticipated to be reliable.

	Second, particularly for cancer imaging, evaluation of change in disease/response to therapy is often dependent not only on size measurements of lesions, but also on the metabolic activity. The measurement of SUV values is a surrogate measure of relative metabolic activity and comparing SUV values between scans is frequently performed. However, the SUV measurement is a normalized value so it is important to mention the method of normalization (by weight, total mass etc). Furthermore, it is very dependent technical variables including glucose level, time for injection of FDG, scanner and processing algorithm etc. As such, it can be tricky to compare SUV values between scanners/imaging centers unless similar techniques and protocols are employed. One of the methods used to assess if, generally speaking, scans are acceptably similar and SUV values can be compared with decent reliability is by comparing a reference background measurement. This reference background measurement should always be obtained and ideally is one that is less susceptible to drug/disease related issues etc., such as the cerebellum as a standard measure. The reporting of these data helps ensure that standard and appropriate protocol was performed and hence the study is believed to be interpretable and the findings are assumed to be real. It also is primarily helpful for comparisons among many studies. On occasion, such numbers and data may influence interpretation of certain findings (ie SUV value [and implied aggressiveness] of a particular lesion etc) on the given scan. If the SUV is measured for a lesion, most physicians will automatically include a prior comparative SUV measurement to demonstrate any change. This is standard practice and not the intent of this measure. Furthermore, at the discretion of physicians in some cases there may not be a good comparison measurement or size changes may be most relevant (and the SUV values may be misleading), so they may choose to not include certain comparative measures.
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

QCDR Measure Number	ACRad 42
Measure Title:	Surveillance Imaging for Liver Nodules <10mm in Patients at Risk for Hepatocellular Carcinoma (HCC)
Measure Description	Percentage of final ultrasound reports with findings of liver nodules < 10 mm for patients aged 18 years and older with a diagnosis of hepatitis B or cirrhosis undergoing screening and/or surveillance imaging for hepatocellular carcinoma with a specific recommendation for follow-up ultrasound imaging in 3-6 months based on radiological findings
QCDR Measure Type	Existing Approved QCDR Measure with No Changes
Does this measure belong to another QCDR?	No
NQF Number	N/A
NQS Domain	Efficiency and Cost Reduction
Care Setting	Ambulatory, Imaging facility, Outpatient hospital
Meaningful Measure Area	Appropriate Use of Healthcare
Meaningful Measure Area Rationale	This measure is meant to encourage appropriate imaging for patients at risk of hepatocellular carcinoma. In cases where patients are at risk for HCC, it is necessary to schedule regular surveillance imaging, but due to the frequency of imaging the results are often benign. Therefore it is not necessary or cost effective to order advanced imaging such as CT. In cases like these, ultrasound is the most appropriate imaging modality.
Denominator	All final ultrasound reports with findings of liver nodules < 1 cm for patients aged 18 years and older with a diagnosis of hepatitis B or cirrhosis undergoing screening and/or surveillance imaging for hepatocellular carcinoma
Denominator Elements	Patient Age; Medical History; Clinical Focus; Anatomy
Denominator Exclusions	Patients with an active diagnosis or history of cancer
Denominator Exceptions	None
Numerator	Final ultrasound reports with a specific recommendation for follow-up ultrasound imaging in 3-6 months
Numerator Exclusions	None
Numerator Data Elements	Final Report Follow Up Imaging Recommendations; Recommended Follow-up Imaging Modality; Recommended Follow-up Imaging Time Interval
Number of performance rates to be submitted	1
Indicate an Overall Performance Rate if more than 1	N/A

Performance Rate Description	N/A
Measure Type (Process/Outcome)	Process
High Priority Measure	Yes
Outcome Measure	No
Inverse Measure	No
Proportion Measure	Yes
Continuous Measure	No
Ratio Measure	No
If continuous variable or ratio is chosen, what would be the range of the scores?	N/A
Is the measure risk adjusted?	No
If risk-adjusted, which score is risk-adjusted?	N/A
Is the QCDR measure able to be abstracted?	Yes
Data Source	Registry (General Radiology Improvement Database)
Clinical Recommendation Statement	The following evidence statements are quoted verbatim from the referenced clinical guidelines and other sources, where applicable: Follow-up or additional diagnostic studies to clarify or confirm the impression should be suggested when appropriate. (ACR, 2014) The panel recommends screening with US (every 6 months) and optional AFP testing for patients at risk for HCC…Liver masses less than 10 mm are difficult to definitively characterize through imaging. If nodules this size are found then US and AFP should be repeated in 3 to 6 months. (NCCN, 2017) For LI-RADS Category US-2 (Subthreshold) observation(s) < 1 cm in diameter, not definitely benign, short-term US surveillance is recommended in 3-6 months. (US LI-RADS v2017) Diagnostic tests are used to further characterize positive screening or surveillance tests or to characterize incidentally detected observations. Similar to screening and surveillance, the accuracy of diagnostic tests relies on the pre-test probability of disease. Hence, diagnostic algorithms should be applied only in high-risk populations. • Ideally, diagnostic tests should have high specificity so the presence of HCC can be confirmed. • In North America, the imaging modalities used most

commonly for HCC diagnosis are multiphase contrast-enhanced CT and MRI. These modalities cover the entire liver and assess the extent (stage) of HCC.
• Another modality used for HCC diagnosis is contrast-enhanced ultrasound (CEUS). This modality typically permits detailed characterization of a limited number of targeted observations but it may not reliably visualize the entire liver; hence, it is suitable for diagnosis but not usually for staging.
• Multiphase imaging is a requirement for HCC diagnosis; hence, single-phase imaging exams are not considered diagnostic tests for HCC. CT/MRI LI-RADS and CEUS LI-RADS address the use of the corresponding modalities for diagnosis. (US LI-RADS v2017)

1. National Comprehensive Cancer Network. NCCN Guidelines Version 4.2017- Gallbladder cancer. https://www.nccn.org/professionals/physician_gls/default.aspx#detection. Accessed December 9, 2017.
2. American College of Radiology. Liver imaging reporting and data system. www.acr.org/Quality-Safety/Resources/LIRADS. Accessed January 12, 2018.
3. El-Serag HB. (2012). Epidemiology of Viral Hepatitis and Hepatocellular Carcinoma. Gastroenterology. 2012 May;142(6):1264-1273.e1. doi: 10.1053/j.gastro.2011.12.061.
4. Singal AG, Pillai A, Tiro J. Early detection, curative treatment, and survival rates for hepatocellular carcinoma surveillance in patients with cirrhosis: a meta-analysis. PLoS Med. 2014 Apr 1;11(4):e1001624. doi: 10.1371/journal.pmed.1001624. eCollection 2014 Apr.
5. Wong GL, Wong VW, Tan GM, et al. Surveillance programme for hepatocellular carcinoma improves the survival of patients with chronic viral hepatitis. Liver Int. 2008 Jan;28(1):79-87. Epub 2007 Sep 26.
6. Stravitz RT, Heuman DM, Chand N, et al. Surveillance for hepatocellular carcinoma in patients with cirrhosis improves outcome. Am J Med. 2008 Feb;121(2):119-26. doi: 10.1016/j.amjmed.2007.09.020.
7. Kim TK, Lee E, Jang H-J. Imaging findings of mimickers of hepatocellular carcinoma. Clinical and Molecular Hepatology. 2015;21(4):326-343. doi:10.3350/cmh.2015.21.4.326.
8. ACR Appropriateness Criteria: Liver Lesion—Initial Characterization. https://acsearch.acr.org/docs/69472/Narrative/. Revised 2014. Accessed November 17, 2017.

Rationale

Because of the associated increased risk of developing HCC in patients with cirrhosis or hepatitis B14, current guidelines recommend surveillance imaging at regular intervals. Patients with cirrhosis receiving this kind of regular screening have been demonstrated to have increased access to transplant, improved survival, and lower mortality.

	Ultrasound surveillance for hepatocellular carcinoma (HCC) in patients at high risk for developing this cancer reduces HCC-related mortality by 37%. Imaging surveillance also detects earlier disease, allowing small HCCs to be cured with an appreciable frequency. Although imaging techniques such as CT and MRI have improved the detection of small liver lesions, they often detect incidental benign liver lesions and nonhepatocellular malignancy that can be misdiagnosed as HCC. Moreover, lesions less than 1 cm are unlikely to represent HCC. The American Association for the Study of Liver Diseases (AASLD) has developed evidence-based guidelines for screening and surveillance of patients at high risk for developing HCC, advocating for the use of ultrasound with or without serum a-fetoprotein every 3 to 6 months. Given that the majority of liver lesions <1 cm identified on ultrasound are benign, there exists a significant burden on patients and health systems in terms of financial cost and resource use when high-cost advanced imaging tests such as CT and MRI are recommended or performed to further evaluate these lesions. The evidence-based recommendation cited in this quality measure was developed to reduce inappropriate high-cost imaging by recommending that liver lesions measuring <1 cm be followed up with ultrasound in 3 to 6 months rather than CT or MRI in patients at risk for developing HCC. Many subcentimeter nodules found in a cirrhotic liver are not HCCs and should not require immediate intervention or call back for multiphase cross-sectional imaging. Nevertheless, these nodules should continue to be monitored using ultrasound per surveillance Despite evidence-based recommendations for ultrasound follow-up of liver lesions measuring <1 cm in patients at high risk for developing HCC, there is significant potential for radiologists to recommend CT or MRI given the improved diagnostic accuracy of these modalities [69]. In a study evaluating adherence to the AASLD guidelines, the authors found that only 60% of patients were treated according to the guidelines [70]."
Specialty this measure applies to	Radiology
Measure Funding Source (Steward)	American College of Radiology

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #MEDNAX55: Use of ASPECTS (Alberta Stroke Program Early CT Score) for non-contrast suspected acute stroke.
- National Quality Strategy Domain: Effective Clinical Care
- Meaningful Measure Area: Appropriate Use of Healthcare

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process

DESCRIPTION:
Percentage of non-contrast CT Head performed for suspected acute stroke whose final reports include an ASPECTS value.

INSTRUCTIONS:
This measure is to be submitted **each time** a non-contrast CT Head (NCCT Head) is performed for suspected acute stroke during the performance period. Eligible clinicians who provide the professional component of non-contrast CT Heads will submit this measure.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure..

DENOMINATOR:
All final reports for NCCT Head performed for suspected acute stroke*

Denominator Criteria (eligible cases):
All patients, regardless of age
AND

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

CPT code(s) 70450

Denominator Exclusion (DE055): Acute hemorrhage

**Denominator Note: Either expressly stated or indication lists relevant symptoms of stroke.*

NUMERATOR:
Final reports for NCCT Head performed for suspected acute stroke that include an ASPECTS value.

Numerator Note: *Inclusion of an ASPECTS value in the final report for NCCT Head performed for suspected acute stroke. Terminology in the report must include one or more of the following:*

- *Alberta Stroke Program Early CT Score*
- *ASPECTS*
- *ASPECT Score*

In instances where the study is normal, the numeric ASPECTS score of 10/10 is still preferred, but may be substituted by verbiage indicating results are "normal" or "no acute abnormalities".

Numerator Options:
Performance Met:
MEDNAX 100A: Report includes an ASPECTS value

OR

Performance Not Met:
MEDNAX 100F: Report does not include an ASPECTS value

RATIONALE:
Non-contrast CT Head is the most common initial imaging modality used for assessment of acute stroke. By applying a quantitative approach to determine the extent of ischemic changes, ASPECTS provides a reliable grading system for detection of early ischemic changes in the middle cerebral artery circulation on non-contrast CT Head in patients with suspected acute stroke. Several trials have demonstrated that baseline core infarct

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

size is a predictor of endovascular reperfusion outcomes in the setting of acute stroke. Studies have also shown that patients with a large infarct burden are unlikely to benefit from endovascular reperfusion therapy and experience a high rate of symptomatic intracranial hemorrhage when treated with endovascular therapy, suggesting they should be excluded from such treatment. ASPECTS values quantify infarct size and thus are useful in predicting the likelihood of benefit and/or adverse outcomes from endovascular reperfusion therapy and in assessing patients' eligibility for treatment.

References:

1. Pop NO, Tit DM, Diaconu CC, Munteanu MA, Babes EE, Stoicescu M, Popescu MI, Bungau S. The Alberta Stroke Program Early CT score (ASPECTS): A predictor of mortality in acute ischemic stroke. Exp Ther Med. 2021 Dec;22(6):1371. doi: https://doi.org/10.3892/etm.2021.10805.
2. Schröder J, Thomalla G. A Critical Review of Alberta Stroke Program Early CT Score for Evaluation of Acute Stroke Imaging. Front Neurol. 2017 Jan 12;7:245. doi: https://doi.org/10.3389/fneur.2016.00245.
3. Yoo AJ, Zaidat OO, Chaudhry ZA, Berkhemer OA, González RG, Goyal M, Demchuk AM, Menon BK, Mualem E, Ueda D, Buell H, Sit SP, Bose A; Penumbra Pivotal and Penumbra Imaging Collaborative Study (PICS) Investigators. Impact of pretreatment noncontrast CT Alberta Stroke Program Early CT Score on clinical outcome after intra-arterial stroke therapy. Stroke. 2014 Mar;45(3):746-51. doi: https://doi.org/10.1161/STROKEAHA.113.004260.
4. Pexman JH, Barber PA, Hill MD, Sevick RJ, Demchuk AM, Hudon ME, Hu WY, Buchan AM. Use of the Alberta Stroke Program Early CT Score (ASPECTS) for assessing CT scans in patients with acute stroke. AJNR Am J Neuroradiol. 2001 Sep;22(8):1534-42.
5. Sair H, Murphy A. Alberta stroke programme early CT score (ASPECTS). Reference article, Radiopaedia.org. doi: https://doi.org/10.53347/rID-4936

Meaningful Measure Priority: Appropriate Use of Healthcare
NQS Domain: Effective Clinical Care
Measure type: Process
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Stewards: MSN Healthcare Solutions, LLC

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

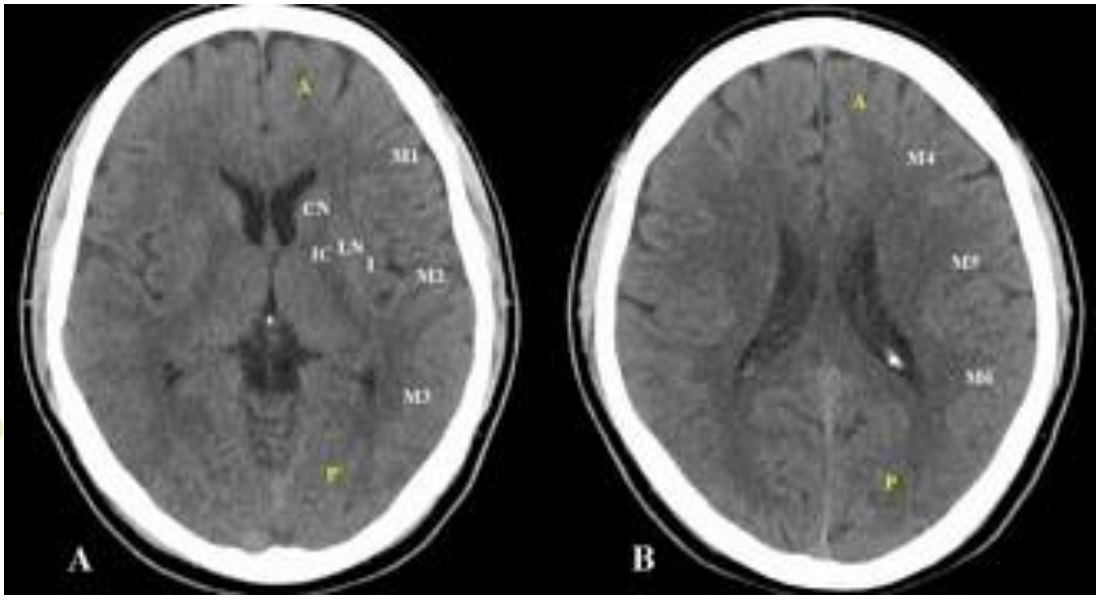
MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

APPENDIX:

ASPECTS (Alberta Stroke Protocol Early CT Score) Methodology

1. Start with 10 points
2. Remove 1 point for every region listed below that is involved with the infarct:
    - Caudate nucleus
    - Lentiform nucleus
    - Internal capsule (any portion)
    - Insular cortex
    - M1: anterior MCA territory (frontal operculum)
    - M2: Lateral MCA territory lateral to insular ribbon (anterior temporal lobe)
    - M3: posterior MCA territory (posterior temporal lobe)
    - M4: anterior MCA territory immediately superior to M1
    - M5: lateral MCA territory immediately superior to M2
    - M6: posterior MCA territory immediately superior to M3
    - (A scan with no ischemia in the MCA territory would score 10 and a scan with involvement of all MCA territory would score 0.)

ASPECTS Image Guides



MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #MSN13: Screening Coronary Calcium Scoring for Cardiovascular Risk Assessment Including Coronary Artery Calcification Regional Distribution Scoring
- National Quality Strategy Domain: Effective Clinical Care
- Meaningful Measure Area: Preventative Care

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process

DESCRIPTION:
Percentage of patients, regardless of age, undergoing Coronary Calcium Scoring who have measurable coronary artery calcification (CAC) with total CACS and regional distribution scoring documented in the Final Report.

INSTRUCTIONS:
This measure is to be submitted each time a patient has a screening coronary calcium scoring test during the performance period. The diagnosis associated with this measure demonstrates a screening exam for the asymptomatic patient even if there are risk factors associated with the patient.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

DENOMINATOR:
All final reports for screening computed tomography, heart, without contrast material, with quantitative evaluation of coronary calcium.

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

DENOMINATOR NOTE: **Signifies that this CPT Category I code may be a non-covered service under the Medicare Part B Physician Fee Schedule (PFS) for this encounter. These non-covered services should be counted in the denominator population for MIPS CQMs.*

Denominator Criteria (eligible cases):
All patients, regardless of age,
AND
Final imaging reports for CPT code 75571*
AND
CACS greater than zero (0) **(EE013)**

Denominator Exclusions and/or Exceptions: None

NUMERATOR:
Final reports with documentation that indicate the Coronary Artery Calcium Score (CACS), including CACS regional reporting, was used to score that patient's total calcium score and risk stratification. CACS is a tool for cardiovascular risk assessment and typically the total calcium score and risk stratification is performed using this value. In addition to the total score, reporting regional CACS distribution, would provide meaningful and prognostic information.

Numerator Note*: To meet measure requirements, the five regions must be referenced in the report along with a regional CACs score. Also, regional scores may not combine more than two regions. For instance, "Total CACS = 12. Left Main = 0, RCA&PDA = 2, PDA = 0, LAD = 0, LCx = 10" is considered acceptable. However, "Total CACS = 12. RCA = 0, PDA = 0, LAD & LCx & Left Main = 12" is NOT acceptable as this score combines more than two regions. Also, note that an Agatston score is synonymous with total CACS.*

Numerator Options:
Performance Met:
PM001: Final report includes total CACS as well as the regional CACS for each of these regions: the Left Main, LAD, LCx, RCA, and PDA.

OR

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Performance Not Met:
PNM01: Final report does not include total CACS or fails to include regional CACS for each of these regions: the Left Main, LAD, LCx, RCA, and PDA.

RATIONALE:
Coronary Artery Calcium Score (CACS) is a tool for cardiovascular risk assessment. The risk assessment percentile is age based and the score and the percentile are reported separately. Typically this is reported as a total calcium score and risk stratification is performed based on the total score.

In addition to the total score, reporting regional CACS distribution, would provide meaningful and prognostic information. The regional distribution is already calculated and totaled in order to derive the total CACS. The regional CAC distribution is however inconsistently reported.

Below is an example of the basic CACS. The regional distribution would further define the problem areas and risk.

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

CCS (Agaston)	Risk	Description
0	Non-identified	Negative test. Findings are consistent with a low risk of having a cardiovascular event in the next 5 years.
1-10	Minimal	Minimal atherosclerosis is present. Findings are consistent with a low risk of having a cardiovascular event in the next 5 years.
11-100	Mild	Mild coronary atherosclerosis is present. There is likely mild or minimal coronary stenosis. A mild risk of having CAD exists.
101-400	Moderate	Moderate calcium is detected in the coronary arteries and confirms the presence of atherosclerotic plaque. A moderate risk of having a cardiovascular event exists.
>400	High	A high calcium score may be consistent with significant risk of having a cardiovascular event within the next 5 years

The coronary artery calcium (CAC) score as assessed by CT imaging represents the totality of calcium burden throughout the coronary tree. There is voluminous and consistent literature documenting the prognostic power of this measure in asymptomatic individuals to predict incident coronary artery disease (CAD) events and mortality. Guidelines consider this a reasonable test to consider for individuals who are at intermediate risk by risk-scoring tools to refine a risk estimate, although whether management driven by CAC data is superior to that based on the risk tools alone is uncertain.

As the CAC score represents the total calcium burden, investigators have examined whether more specific description of calcium location and distribution may additionally inform prognostic estimates. In a study, using data from over 23,000 people who had been referred for calcium scoring, it was shown that within groupings with similar CAC scores, calcium deposition in a pattern consistent with multivessel CAD is associated with higher risk for mortality over 6 years of follow-up compared with a single-vessel pattern, and deposition in the left main is also associated with higher risk [3].

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

The risk associated with a certain level of total CAC may vary quite widely. If patterns suggest significantly higher risk, such as multivessel and particularly left main calcium, it would create a more compelling reason to consider further testing, such as stress testing for the extent of inducible ischemia, or conceivably to consider direct to catheterization if substantial left main calcium is seen, compared with only having a total CAC score. Thus, these data may change management, even in asymptomatic individuals.

MEASURE TESTING AND GAP ANALYSIS:

MSN coded 16,819 calcium scoring exams (CPT code 75571 and ICD-10 code Z13.6) in 2019 for dates of service between January 2nd and May 29th.

- We sampled 202 calcium scoring reports and found 89 reports with a CACS numeric value of 0 (zero).
- Of the remaining 113 reports with a CACS numeric value greater than 0 (zero) 22 did not include a regional distribution score. This represents 19% of the total research sample, which could greatly impact the patient population.
- If the findings were extrapolated over the entire sample frame then 320 patients did not receive a regional distribution score and that poses a significant health risk.

References:

1. Blaha MJ, Mortensen MB, Kianoush S, Tota-Maharaj R, Cainzos-Achirica M. Coronary Artery Calcium Scoring: Is It Time for a Change in Methodology? JACC Cardiovasc Imaging. 2017 Aug;10(8):923-937. doi: https://doi.org/10.1016/j.jcmg.2017.05.007.
2. Sundaram B, Patel S, Bogot N, Ella A. Anatomy and Terminology for the Interpretation and Reporting of Cardiac MDCT: Part 1, Structured Report, Coronary Calcium Screening, and Coronary Artery Anatomy. American Journal of Roentgenology. 2009 Mar;192(3):574-583. doi: https://doi.org/10.2214/AJR.08.1177.
3. Tota-Maharaj R, Joshi PH, Budoff MJ, Whelton S, Zeb I, Rumberger J, Al-Mallah M, Blumenthal RS, Nasir K, Blaha MJ. Usefulness of regional distribution of coronary artery calcium to improve the prediction of all-cause mortality. Am J Cardiol. 2015 May 1;115(9):1229-34. doi: https://doi.org/10.1016/j.amjcard.2015.01.555.

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Meaningful Measure Priority: Preventative Care
NQS Domain: Effective Clinical Care
Measure type: Process
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Steward: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: One performance rate
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

2023 Clinical Quality Measure Flow Narrative for Quality ID #MSN13: Screening Coronary Calcium Scoring for Cardiovascular Risk Assessment Including Coronary Artery Calcification Regional Distribution Scoring

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification.

1. Start with Denominator

2. Check Procedure Code as listed in Denominator
   a. If Procedure Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
   b. If Procedure Code as listed in Denominator equals YES, include in Eligible Population.

3. Denominator Population
   a. Denominator Population is all Eligible Procedure codes in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter "d" equals 80 procedures in the Sample Calculation.

4. Start Numerator

5. Check Final report includes CACS as well as the regional CACS for each of these regions: the Left Main, LAD, LCx, RCA, and PDA
   a. If Final report includes CACS as well as the regional CACS for each of these regions: the Left Main, LAD, LCx, RCA, and PDA 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 40 procedures in the Sample Calculation.
   c. If Final report includes CACS as well as the regional CACS for each of these regions: the Left Main, LAD, LCx, RCA, and PDA equals NO, include in Data Completeness Met and Performance Not Met.

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

d. 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 "c" equals 40 procedures in the Sample Calculation.

6. Check Data Completeness Not Met
   a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 0 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS:

Data Completeness=

Performance Met (a=40 procedures) + Performance Not Met (c=40 procedures) = 80 procedures = **100.00%**
Eligible Population / Denominator (d=80 procedures) = 80 procedures

Performance Rate=

Performance Met (a=40 procedures) = 40 procedures = **50.00%**
Data Completeness Numerator (80 procedures) = 80 procedures

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #MSN15: Use of Thyroid Imaging Reporting & Data System (TI-RADS) in Final Report to Stratify Thyroid Nodule Risk
- National Quality Strategy Domain: Communication and Care Coordination
- Meaningful Measure Area: Appropriate Use of Healthcare

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process – High Priority

DESCRIPTION:
Percentage of patients, 19 years of age and older, undergoing ultrasound of the neck with findings of thyroid nodule(s) whose reports include the TI-RADS assessment.

INSTRUCTIONS:
This measure is to be submitted **each time** a patient has an ultrasound of the neck with findings of thyroid nodule(s) during the performance period. The American College of Radiology (ACR) TI-RADS is designed to balance the benefit of identifying clinically important cancers against the risk and cost of subjecting patients with benign nodules or indolent cancers to biopsy and treatment. The ACR recommendations for follow-up ultrasound substantially mitigate the possibility that significant malignancies will remain undetected over time and are concordant with the increasing trend toward active surveillance ("watchful waiting") for low-risk thyroid cancer.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

DENOMINATOR:
All final reports for use of TI-RADS to stratify thyroid nodules on patients 19 years of age and older.

DENOMINATOR NOTE: **Signifies that this MSN Category I code may be a non-covered service under the MSN Part B Physician Fee Schedule (PFS) for this encounter. These non-covered services should be counted in the denominator population for MSN CQMs. This measure applies to every procedure billed under CPT 76536 that identifies a thyroid nodule, regardless of the purpose of the order (e.g. US Soft Tissue Head/Neck, US of Thyroid, etc. are all billed under CPT 76536, thus are eligible for this measure).*

Denominator Criteria (eligible cases):
All patients, 19 years of age and older
AND
CPT code(s) 76536*
AND
ICD-10 codes E04.1, E04.2, E04.8, E05.10, E05.11, E05.20, E05.21

Denominator Exclusions: None

NUMERATOR:
Final reports with positive findings of thyroid nodules and recommendations for follow-up based on appropriate scoring and treatment protocols according to the TI-RADS assessment.

Numerator Options:
Performance Met:
PM004: Patients with thyroid nodules who are assigned a TI-RADS Score and assessed and stratified with the recommendations per TI-RADS documented in the final report

OR

Performance Not Met:
PNM04: Patients with thyroid nodules without TI-RADS Score or appropriate TI-RADS recommendations documented in the final report

OR

Denominator Exception (if applicable):

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

PE004: Patients with co-morbidities with extremely shortened life span and/or patients with a history of thyroid cancer, and/or patients with multiple small nodules which do not meet assessment criteria for TiRADS assignment, and/or other reasons that exempt patients from meeting assessment criteria for TiRADS.

RATIONALE:

Thyroid nodules are common, with a prevalence of up to 68% of adults on ultrasound. Fine needle aspiration (FNA) is the most effective test in determining if a thyroid nodule is malignant and occasionally surgery is required to achieve a definitive diagnosis. But most thyroid nodules are benign and not all nodules require FNA or surgery. Over diagnosis of thyroid cancer results in many detected thyroid cancers without affecting mortality between 45 to 80% of cases. Recent attention has been focused on developing a non-invasive system, called Thyroid Imaging, Reporting and Data System (TI-RADS), with the use of ultrasound for risk stratification of thyroid nodules to identify clinically significant malignancies while reducing the number of biopsies performed on benign nodules.

The ACR released a white paper in 2017 on the use of the TI-RADS. TI-RADS is based on ACR recommended standardized terms for ultrasound reporting of thyroid nodules. Selected ultrasound features of thyroid nodules are combined into a score to identify nodules that warrant biopsy or sonographic follow-up. The use of TI-RADS to risk stratify incidental nodules may result in fewer unnecessary biopsies. Below are the basics of the scoring, classification and recommendations for thyroid nodules.

Scoring and Classification:

- **TR1**: 0 points
  - benign
- **TR2**: 2 points
  - not suspicious
- **TR3**: 3 points
  - mildly suspicious
- **TR4**: 4-6 points
  - moderately suspicious
- **TR5**: ≥7 points

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

- highly suspicious

Recommendations:

- **TR1**: no FNA required
- **TR2**: no FNA required
- **TR3**: ≥1.5 cm follow up, ≥2.5 cm FNA
  - follow up: 1, 3 and 5 years
- **TR4**: ≥1.0 cm follow up, ≥1.5 cm FNA
  - follow up: 1, 2, 3 and 5 years
- **TR5**: ≥0.5 cm follow up, ≥1.0 cm FNA
  - annual follow up for up to 5 years

Biopsy is recommended for suspicious lesions (TR3 - TR5) with the above size criteria. If there are multiple nodules, the two with the highest ACR TI-RADS grades should be sampled (rather than the two largest).

Interval enlargement on follow up is felt to be significant if there is an increase of 20% and 2 mm in two dimensions, or a 50% increase in volume. If the ACR TI-RADS level increases between scans, an interval scan the following year is again recommended.

In developing the ACR TI-RADS, the ACR committee strived to account for the discrepancy between the sharp rise in the diagnosis and treatment of thyroid cancer resulting from increased detection and biopsy and the lack of commensurate improvement in long-term outcomes. This suggested that diagnosing every thyroid malignancy should not be the goal. Like other professional societies, the ACR recommends biopsy of high-suspicion nodules only if they are 1 cm or larger. As well, they advocate biopsy of nodules that have a low risk for malignancy only when they measure 2.5 cm or more.

ACR recommendations for follow-up ultrasound substantially mitigate the possibility that significant malignancies will remain undetected over time and are concordant with the increasing trend toward active surveillance (“watchful waiting”) for low-risk thyroid cancer.

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

In the ACR TI-RADS, recommendations for FNA or ultrasound follow-up are based on a nodule's ACR TI-RADS level and its maximum diameter. For risk levels TR3 through TR5, the chart presents a size threshold at or above which FNA should be recommended. They also defined lower size limits for recommending follow-up ultrasound for TR3, TR4, and TR5 nodules to limit the number of repeat sonograms for those that are likely to be benign or not clinically significant.

The article below titled "Thyroid Imaging Reporting and Data System Reduces Biopsies" was published by Diagnostic Imaging Staff on April 18, 2018.
Criteria from the American College of Radiology (ACR) Thyroid Imaging Reporting and Data System (TI-RADS) offers a meaningful reduction in the number of thyroid nodules recommended for biopsy, according to a study published in the journal Radiology.

Researchers from several states performed a retrospective study to compare the biopsy rate and diagnostic accuracy before and after applying ACR TI-RADS criteria for thyroid nodule evaluation. Eight radiologists with three to 32 years of experience in thyroid ultrasonography were asked to review the ultrasound features of 100 thyroid nodules that were cytologically proven and/or pathologically proven. Nodules evaluated in five US categories and biopsy recommendations were provided based on the radiologists' practice patterns without knowledge of ACR TI-RADS criteria. Three other expert radiologists were reference standard readers for the imaging findings. ACR TI-RADS criteria were retrospectively applied to the features assigned by the eight radiologists to produce biopsy recommendations. Comparison was made for biopsy rate, sensitivity, specificity, and accuracy.

The results showed 15 of the 100 nodules (15 percent) were malignant. The mean number of nodules recommended for biopsy by the eight radiologists was 80 ± 16 (standard deviation) based on their own practice patterns and 57 ± 11 with retrospective application of ACR TI-RADS criteria.

Without ACR TI-RADS criteria:

- Sensitivity 95 percent
- Specificity 20 percent
- Accuracy 28 percent

With ACR TI-RADS criteria:

- Sensitivity 92 percent

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

- Specificity 44 percent
- Accuracy 52 percent

Expert consensus:

- Sensitivity 87 percent
- Specificity 51 percent
- Accuracy 56 percent

The researchers noted that although fewer malignancies were recommended for biopsy with ACR TI-RADS criteria, the majority met the criteria for follow-up US. Only three of 120 (2.5 percent) malignancy encounters required no follow-up or biopsy. Expert consensus recommended biopsy in 55 of 100 nodules with ACR TI-RADS criteria.

Not only did the ACR TI-RADS criteria offer a meaningful reduction in the number of thyroid nodules recommended for biopsy, the researchers wrote, they significantly improve the accuracy of recommendations for nodule management.

References:

1. Tessler FN, Middleton WD, Grant EG, Hoang JK, Berland LL, Teefey SA, Cronan JJ, Beland MD, Desser TS, Frates MC, Hammers LW, Hamper UM, Langer JE, Reading CC, Scoutt LM, Stavros AT. ACR Thyroid Imaging, Reporting and Data System (TI-RADS): White Paper of the ACR TI-RADS Committee. J Am Coll Radiol. 2017 May;14(5):587-595. doi: https://doi.org/10.1016/j.jacr.2017.01.046.
2. Grant EG, Tessler FN, Hoang JK, Langer JE, Beland MD, Berland LL et al. Thyroid ultrasound reporting lexicon: White paper of the ACR thyroid imaging, reporting and data system (TIRADS) committee. Journal of the American College of Radiology. 2015 Jan 1;12(12):1272-1279. doi: https://doi.org/10.1016/j.jacr.2015.07.011.
3. Ahmadi S, Oyekunle T, Jiang X', Scheri R, Perkins J, Stang M, Roman S, Sosa JA. A DIRECT COMPARISON OF THE ATA AND TI-RADS ULTRASOUND SCORING SYSTEMS. Endocr Pract. 2019 May;25(5):413-422. doi: https://doi.org/10.4158/EP-2018-0369.
4. Hoang JK, Middleton WD, Farjat AE, Langer JE, Reading CC, Teefey SA, Abinanti N, Boschini FJ, Bronner AJ, Dahiya N, Hertzberg BS, Newman JR, Scanga D, Vogler RC, Tessler FN. Reduction in Thyroid Nodule Biopsies and Improved Accuracy with American College of Radiology Thyroid Imaging Reporting and Data System.

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Radiology. 2018 Apr;287(1):185-193. doi: https://doi.org/10.1148/radiol.2018172572.
5. Li W, Wang Y, Wen J, Zhang L, Sun Y. Diagnostic Performance of American College of Radiology TI-RADS: A Systematic Review and Meta-Analysis. American Journal of Roentgenology. 2021 Mar;216(1):38-47. doi: https://doi.org/10.2214/AJR.19.22691.
6. Abou Shaar B, Meteb M, Awad El-Karim G, Almalki Y. Reducing the Number of Unnecessary Thyroid Nodule Biopsies With the American College of Radiology (ACR) Thyroid Imaging Reporting and Data System (TI-RADS). Cureus. 2022 Mar 13;14(3):e23118. doi: https://doi.org/10.7759/cureus.23118.

Meaningful Measure Priority: Appropriate Use of Healthcare
NQS Domain: Communication and Care Coordination
Measure type: Process – High Priority
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Steward: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

2023 Clinical Quality Measure Flow Narrative for Quality ID #MSN15:
Use of Thyroid Imaging Reporting & Data System (TI-RADS) in Final Report to Stratify Thyroid Nodule Risk

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification.

1. Start with Denominator.

2. Check Patient Age
    a. If patient age is greater than or equal to 19 years on the date of encounter equals NO, do not include in Eligible Population. Stop Processing.
    b. If patient age is greater than or equal to 19 years on the date of encounter equals YES, proceed to check Procedure Code as listed in Denominator.

3. Check Procedure Code as listed in Denominator
    a. If Procedure Code as Listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
    b. If Procedure Code as Listed in Denominator equals YES, proceed to check Diagnosis Code as Listed in Denominator.

4. Check Diagnosis Code as listed in Denominator
    a. If Diagnosis Code as Listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
    b. If Diagnosis Code as Listed in Denominator equals YES, include in Eligible Population.

5. Denominator Population:
    a. Denominator Population is all Eligible Procedure and ICD-10 codes in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter "d" equals 80 procedures in the Sample Calculation.

6. Start Numerator

7. Check for elements of Documentation/Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report ~~to~~ Stratify Thyroid Nodule Risk

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

   a. If Documentation/Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report 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 30 procedures in the Sample Calculation.
   c. If Documentation/Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report equals NO, proceed to check Documentation of Medical Reasons for Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report.

8. Check Documentation of Medical Reasons for Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report
   a. If Documentation of Medical Reasons for Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report equals YES, include in Data Completeness Met and Denominator Exception.
   b. Data Completeness Met and Denominator Exception is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter "b" equals 20 procedures in the Sample Calculation.
   c. If Documentation of Medical Reasons for Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report equals NO, proceed to check Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report, Reason Not Otherwise Specified.

9. Check Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report, Reason Not Otherwise Specified
   a. If Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report, Reason Not Otherwise Specified equals YES, include in the 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 "c" equals 20 procedures in the Sample Calculation.
   c. If Use of Thyroid Imaging Reporting & Data System (**TI-RADS**) in Final Report, Reason Not Otherwise Specified equals NO, proceed to check Data Completeness Not Met.

10. Check Data Completeness Not Met

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 10 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS:

Data Completeness=
Performance Met (a=30 procedures) + Denominator Exception (b=20 procedures) + Performance Not Met (c=20 procedures) = 70 procedures = **87.50%**
Eligible Population / Denominator (d=80 procedures) = 80 procedures

Performance Rate=
Performance Met (a=30 procedures) = 30 procedures = **60.00%**
Data Completeness Numerator (70 procedures) – Denominator Exception (b=20 procedures) = 50 procedures

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #MSN16: Screening Abdominal Aortic Aneurysm Reporting with Recommendations
- National Quality Strategy Domain: Effective Clinical Care
- Meaningful Measure Area: Management of Chronic Conditions

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process – High Priority

DESCRIPTION:
Percentage of patients, 50 years of age and older, who have had a screening ultrasound for an abdominal aortic aneurysm with a positive finding of abdominal aortic aneurysm (AAA), that have recognized clinical follow up recommendations documented in the final report and direct communication of findings ≥ 5.5 cm in size made to the ordering provider. This population encompasses those 50 and older not covered by Medicare as well as the Medicare one-time coverage for an ultrasound to screen for AAA.

For non-Medicare patients the screening ultrasound may be elective and not covered by insurance. For Medicare patients the following criteria must be met to be considered for coverage.

Medicare Criteria – Ultrasound Screening for Abdominal Aortic Aneurysm (AAA)
Centers for Medicare & Medicaid Services (CMS) Internet-Only Manual (IOM) Publication 100-04, *Medicare Claims Processing Manual*, Chapter 18, Section 110
Payment may be made for a one-time ultrasound screening for AAA for beneficiaries who meet the following criteria:

1) receives a referral for such an ultrasound screening from the beneficiary's attending physician, physician assistant, nurse practitioner or clinical nurse specialist;
2) receives such ultrasound screening from a provider or supplier who is authorized to provide covered ultrasound diagnostic services;

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

3) has not been previously furnished such an ultrasound screening under the Medicare Program; and
   1) is included in at least one of the following risk categories—
      (i) has a family history of abdominal aortic aneurysm;
      (ii) is a man age 65 to 75 who has smoked at least 100 cigarettes in his lifetime; or
      (iii) is a beneficiary who manifests other risk factors in a beneficiary category recommended for screening by the United States Preventive Services Task Force regarding AAA, as specified by the Secretary of Health and Human Services, through the national coverage determination process.

INSTRUCTIONS:

This measure is to be submitted when a patient aged 50-years-old or older has a screening ultrasound for an abdominal aortic aneurysm with a positive finding for AAA during the performance period.

Measure Submission Type:

Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure. The quality-data codes listed do not need to be submitted.

DENOMINATOR:

All final reports for patients 50 years of age and older undergoing AAA Screening ultrasound positive for a finding of AAA.

DENOMINATOR NOTE: **Signifies that this CPT Category I code may be a non-covered service under the Medicare Part B Physician Fee Schedule (PFS) for this encounter. These non-covered services should be counted in the denominator population for MIPS CQMs.*

Denominator Criteria (eligible cases):

All patients, 50 years of age and older at the time of imaging,
AND

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

CPT code(s) 76706*
AND
Positive Screening for AAA **(EE014)**

Denominator Exclusions and/or Exceptions: None

NUMERATOR:
All final ultrasound screening reports positive for abdominal aortic aneurysm with recommendations in accordance with the Society of Vascular Surgery (SVS) Practice Criteria for AAA (https://doi.org/10.1016/J.JVS.2017.10.044) or similar guidelines AND direct communication made to the ordering provider for AAAs ≥ 5.5 cm in size. Observing recognized clinical guidelines for appropriate follow-up minimizes mortality risk and optimizes care.

Definition:
Direct Communication: A form of communication that is in addition to, and more immediate than, the documentation in the Final Ultrasound Report. This could include: a phone call, entry into a critical-results reporting system, or other means.

***Numerator Note**:*
- *A reference to the source of the standardized recommendation guidance should be documented in the Final Report (such as "recommendation made in accordance with Society of Vascular Surgery Practice Criteria for AAAs").*
- *When no following-up is recommended (e.g. for AAAs <2.5 cm in size), "No follow-up" should be explicitly stated in the Final Report (such as "No follow-up imaging is recommended per the Society of Vascular Surgery Practice Criteria for AAAs").*

Numerator Options:
Performance Met:
PM002: For AAA finding < 5.5 cm in size - Recognized, standardized recommendations for follow-up of abdominal aortic aneurysm (or recommendation of "no follow-up") according to Society of Vascular Surgery Practice Criteria or similar guidelines (the source of the recommendation must be identified)

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

documented in Final Ultrasound Report for all positive findings for AAA < 5.5 cm (e.g., follow-up ultrasound imaging studies needed or referral to specialist). If the recommendation is "no follow-up" this is explicitly stated in the Final Report

OR

PM102: For AAA finding ≥ 5.5 cm in size – Recognized, standardized recommendations for follow-up of abdominal aortic aneurysm according to Society of Vascular Surgery Practice Criteria or similar guidelines (the source of the recommendation must be identified) documented in Final Ultrasound Report for all positive findings for AAA ≥ 5.5 cm (e.g., follow-up ultrasound imaging studies needed or referral to specialist) AND Direct communication regarding AAA finding and recommendation was made to the ordering provider and documented.

OR

Performance Not Met:

PNM02: No recommendations for appropriate follow-up AND, if finding is ≥ 5.5 cm, no documentation of direct communication.

OR

Denominator Exception:

PE002: Documentation that patient is under active surveillance by a vascular specialist and there is no change in the AAA from prior study.

RATIONALE:

Detection of abdominal aortic aneurysm requires appropriate follow-up for management of patients. Follow-up recommendations allow clinicians to appropriately treat patients, with active surveillance and intervention when indicated. There are well defined follow-up criteria developed by the Society for Vascular Surgery in 2009, revised 2018. Abdominal aortic aneurysms can clearly progress over time, and mortality is nearly 100% with acute rupture. ***Rupture is the biggest threat posed by an aneurysm. In the United States, ruptured aneurysms are the 10th-leading cause of death of men over the age of 50. Women are also at risk.*** Aneurysms that have been discovered prior to rupture need to be measured, closely monitored and evaluated for treatment. Small aneurysms, those less than five centimeters in diameter, can often be left untreated, yet observed periodically to check for changes.

MSN
HEALTHCARE SOLUTIONS

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Appropriate intervention at the appropriate time is very low risk, and significantly decreases morbidity and mortality. Radiologists can play an instrumental role guiding appropriate follow-up of these patients and should do so in a concise and consistent format ***with recognized, standard practice guidelines***.

Medicare Part B covers a one-time abdominal aortic aneurysm screening ultrasound if a beneficiary is at risk for AAA and obtains a referral. This screening ultrasound is not applicable to patients under 65 (except for disabled and ESRD patients covered by Medicare) nor does it not specify the actions that the clinician should take upon discovery of the AAA. Any additional follow-up screening exams are not covered if an AAA is not detected. At this time *Medicare does not require the interpreting physician to determine the findings and give recommendations based on recognized standard medical practice guidelines.*

The risk of rupture of small aneurysms (smaller than 4.0 centimeters) is much lower than the risk of rupture of large aneurysms (larger than 6.0 centimeters). In addition to size, the risk of AAA rupture depends upon the rate at which the aneurysm is expanding. The evidence suggests that aneurysms expand at an average rate of 0.3 to 0.4 centimeters per year (1 inch = 2.5 cm). Larger aneurysms tend to expand faster than smaller aneurysms.

Per a report of a subcommittee of the Joint Council of the American Association for Vascular Surgery and Society for Vascular Surgery the annual risk of rupture based upon aneurysm size is estimated as follows:

- Less than 4.0 cm in diameter = less than 1 in 200
- 4.0 to 4.9 cm in diameter = between 1 in 200 and 1 in 20
- 5.0 to 5.9 cm in diameter = between 1 in 30 and 1 in 7
- 6.0 to 6.9 cm in diameter = between 1 in 10 and 2 in 10
- 7.0 to 7.9 cm in diameter = between 2 in 10 and 4 in 10
- 8.0 cm or more in diameter = between 3 in 10 and 5 in 10

There can be significant variability in the rate of expansion, both from one patient to another, and for a given patient from year to year. Aneurysms that expand rapidly (for example, more than 0.5 cm over six months) may be at higher risk of rupture. Many patients have long periods with little change in aneurysm size. Some aneurysms, for

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

unclear reasons, remain relatively fixed in size for a period of time and then undergo rapid expansion.

Enlargement tends to be more rapid in smokers and less rapid in patients with diabetes mellitus. So far, smoking cessation is the only known way of decreasing aneurysm enlargement.

An abdominal aortic aneurysm is defined as an aortic diameter at least one and one-half times the normal diameter at the level of the renal arteries, which is approximately 2.0 cm. Thus, generally, a segment of abdominal aorta with a diameter of greater than 3.0 cm is considered an aortic aneurysm. Approximately 80% of aortic aneurysms occur between the renal arteries and the aortic bifurcation. Aortic aneurysms constitute the 14th leading cause of death in the United States. Each year in the United States, AAA rupture causes 4,500 deaths, with an additional 1,400 deaths resulting from the 45,000 repair procedures performed to prevent rupture.

The diagnosis of an AAA should ideally be made before the development of clinical symptoms to prevent rupture. Approximately 30% of asymptomatic AAAs are discovered as a pulsatile abdominal mass on routine physical examination. Physical examination may reveal a pulsatile, expansile mass at or above the umbilicus. The vascular examination should include abdominal auscultation because the presence of a bruit may indicate aortic or visceral arterial atherosclerotic disease, or rarely an aortocaval fistula (machinery murmur).

MEASURE TESTING AND GAP ANALYSIS:

MSN coded 5,946 screening ultrasounds for abdominal aneurysm (CPT code 76706 and ICD-10 code Z13.6) in 2019 for dates of service between January 1st and May 28th.

- We reviewed 92 reports from 17 different radiology group practices that had positive findings for abdominal aortic aneurysm.
- There were 60 reports that did not include any recommendations for follow-up procedure(s) while 14 recommended follow-up with vascular surgery and 18 recommended other imaging follow-up (CTA, CT or US).
- This represents 65% of the sample patient population with positive findings that did not have appropriate recommendations for a condition with a high mortality rate when not properly treated.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Additionally, in a 2017 review presented by a large radiology practice to the American College of Radiology regarding appropriate follow-up of newly diagnosed cases of AAA, 36% of 122 lacked recognized and appropriate follow-up recommendations.
By implementing standardized recommendations, such as those below*, the initial results made in this practice showed that about 130 phone calls were made to the referring physicians to ensure that appropriate recommendations were followed and it is expected that this protocol will save 4 lives a year to the patient population of their practice.

Impression	Recommendation
< 2.6 cm	No follow up necessary
2.6-2.9 cm	US follow up every 5 years
3.0 cm to 3.4 cm	US follow up every 3 years
3.5 cm to 3.9 cm	US follow up every 12 months
4.0 cm to 4.9 cm	US follow up every 12 months, vascular surgery consult
5.0 cm to 5.4 cm	US follow up every 6 months, vascular surgery consult
>= 5.5 cm	Referral to vascular surgeon

*Based upon Society for Vascular Surgery Guidelines: J Vasc Surgery 2009 Oct 50: s2-s49; updated Jan 2018 J Vasc Surgery 67:2-77

References:

1. Radiology Partners. Improving follow-up of abdominal aortic aneurysms by implementation of a radiology-driven care coordination program. ACR Annual Meeting. 2017.
2. Ahmed S, Mitsky J, Rawal U, Sheth S, Bronner J. Asymptomatic Abdominal Aortic Aneurysm: Standardizing Reporting Recommendations at a Large Multistate Radiology Practice. J Am Coll Radiol. 2021 Sep;18(9):1317-1323. doi: https://doi.org/10.1016/j.jacr.2021.04.009.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Meaningful Measure Priority: Management of Chronic Conditions
NQS Domain: Effective Clinical Care
Measure type: Process – High Priority
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Steward: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

2023 Clinical Quality Measure Flow Narrative for Quality ID #MSN16:

Screening Abdominal Aortic Aneurysm Reporting with Recommendations

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification.

1. Start with Denominator

2. Check Patient Age
   a. If patient age is greater than or equal to 50 years on date of encounter equals NO during the measurement period, do not include in eligible population. Stop Processing.
   b. If patient age is greater than or equal to 50 years on date of encounter equals YES during the measurement period, proceed to Check Procedure Code as listed in Denominator.

3. Check Procedure Code as listed in Denominator
   a. If Procedure Code as Listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
   b. If Procedure as Listed in Denominator equals YES, proceed to Check Finding of AAA Noted in Report.

4. Check Finding of AAA Noted in Report
   a. If Finding of AAA Noted in Report equals NO, do not include in Eligible Population. Stop Processing.
   b. If Finding of AAA Noted in Report equals YES, include in Eligible Population.

5. Denominator Population
   a. Denominator Population is all Eligible Procedure codes in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter “d” equals 80 procedures in the Sample Calculation.

6. Start Numerator

7. Check Documentation of Screening Abdominal Aortic Aneurysm Reporting with Recommendations

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

a. If Documentation of Screening Abdominal Aortic Aneurysm Reporting with Recommendations (source identified) equals YES, include in Data Completeness Met and Performance Met if AAA finding is < 5.5 cm in size. If YES and AAA finding is ≥ 5.5 cm in size, proceed to check Documentation of Direct Communication of AAA finding ≥5.5 cm and standardized recommendation(s) to ordering provider.
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 40 procedures in the Sample Calculation.
c. If Documentation of Screening Abdominal Aortic Aneurysm Reporting with Recommendations (source identified) equals NO, move to exception criteria.
d. Exception Criteria – If Documentation that patient is under active surveillance by a vascular specialist and there is no change in the AAA from prior study equals YES, include in Data Completeness Met and Performance Exception.
e. Data Completeness Met and Performance Exception letter is represented in the Sample Calculation listed at the end of this document. Letter "b" equals 20 procedures in the Sample Calculation.
f. Exception Criteria – If Documentation that patient is under active surveillance by a vascular specialist and there is no change in the AAA from prior study equals NO, include in Data Completeness Met and Performance Not Met.
g. 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 "c" equals 40 procedures in the Sample Calculation.

8. Check Documentation of Direct Communication of AAA finding ≥5.5 cm and Standardized Recommendation(s) to Ordering Provider
   a. If Documentation of Direct Communication of AAA finding ≥5.5 cm and Standardized Recommendation(s) to Ordering Provider 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 40 procedures in the Sample Calculation.
   c. If Documentation of Direct Communication of AAA finding ≥5.5 cm and Standardized Recommendation(s) to Ordering Provider equals NO, move to exception criteria.
   d. Exception Criteria – If Documentation that patient is under active surveillance by a vascular specialist and there is no change in the AAA from prior study equals YES, include in Data Completeness Met and Performance Exception

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

e. Data Completeness Met and Performance Exception letter is represented in the Sample Calculation listed at the end of this document. Letter "b" equals 20 procedures in the Sample Calculation.

f. Exception Criteria — If Documentation that patient is under active surveillance by a vascular specialist and there is no change in the AAA from prior study equals NO, include in Data Completeness Met and Performance Not Met.

g. Data Completeness Met and Performance Not Met letter is represented in "c" equals 40 procedures in the Sample Calculation.

9. Check Data Completeness Not Met:
   a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 0 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS:

Data Completeness =

$$\frac{\text{Performance Met (a=40 procedures) + Denominator Exception (b=20 procedures) + Performance Not Met (c=40 procedures)}}{\text{Eligible Population / Denominator (d=100 procedures)}} = \frac{100 \text{ procedures}}{100 \text{ procedures}} = 100.00\%$$

Performance Rate =

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (100 procedures) - Denominator Exception (20 procedures)}} = \frac{40 \text{ procedures}}{80 \text{ procedures}} = 50.00\%$$

MSN HEALTHCARE SOLUTIONS

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #QMM16: IVC Filter Management Confirmation
- National Quality Strategy Domain: Patient Safety
- Meaningful Measure Area: Preventable Healthcare Harm

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process – High Priority

DESCRIPTION:
Percentage of final reports for eligible exams where an IVC filter is present and the radiologist included a statement of recommendation in the Impression of the report for the treating clinician to:
1) Assess if there is a management plan in place for the patient's IVC filter, and
2) If there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation.

Eligible exams are limited to x-ray (XR), computed tomography (CT), and computed tomography angiography (CTA) exams of the abdomen and/or pelvis.

INSTRUCTIONS:
This measure is to be submitted **each time** an XR, CT, or CTA of the abdomen and/or pelvis is reported for a patient with an IVC filter during the reporting period. Measure performance focuses on the radiologist's inclusion of a statement of recommendation in in the Impression of the report for the treating clinician to:
1) Assess if there is a management plan in place for the patient's IVC filter, and
2) If there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

numerator options included in this specification are used to submit the quality actions as allowed by the measure.

DENOMINATOR:
All final reports for XR, CT, and CTA of the abdomen and/or pelvis for patients with an IVC filter in place.

Denominator Criteria (Eligible Cases):
All patients, regardless of age
AND
Patient procedure during the performance period (CPT):
Abdomen: 74018, 74019, 74021, 74022, 74150, 74160, 74170, 74174, 74175, 74176, 74177, 74178
Pelvis: 72170, 72190, 72191, 72192, 72193, 72194
AND
Final report documents IVC filter present **(EE016)**

Denominator Exclusion: None

NUMERATOR:
Final reports for patients with an IVC filter in place that include a statement in the Impression by the radiologist recommending the treating clinician to:
1) Assess if there is a management plan in place for the patient's IVC filter, and
2) If there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation.

Numerator Options:
Performance Met:
PM016: Imaging report includes a documented statement of recommendation by the radiologist in the Impression for the treating clinician to: 1) assess if there is a management plan in place for the patient's IVC filter, and 2) if there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation.

OR

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Performance Not Met:
PNM16: Imaging report does not include a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient's IVC filter, and 2) if there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation.

OR

Denominator Exception
PE016: Documentation that study was ordered for the purpose of monitoring an IVC filter and/or documentation of medical reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan, such as patients with a limited life expectancy, other medical reason(s).

Numerator Note:
For Inpatients receiving multiple imaging studies during their Inpatient stay, it is acceptable for the Radiology provider to document on each subsequent study a reference back to the initial study dated xx/xx/xxxx for the statement recommendation on IVC management.

RATIONALE:
IVC filter retrieval rates in clinical practice have been shown to be generally low, with at least one study documenting a retrieval rate under 15% among all provider specialty groups for the Medicare population [5, 6]. IVC filters are frequently used as an alternative or supplemental tool to prevent pulmonary embolism in patients with known thromboembolic disease and as a prophylactic tool to prevent pulmonary embolism in patients at high risk of developing thromboembolic disease [2, 3, 4] Complications of indwelling IVC filters include filter movement and embolization, filter penetration of the IVC wall with possible penetration of adjacent organs, filter tip embedding, filter fracture and filter-associated thrombus. These complications can potentially be symptomatic for the patient and/or lead to subsequent serious complications such as bleeding and organ perforation [1, 4].

Due to the risk of these complications, IVC filters should be removed if possible when they are no longer clinically necessary. Potential contributors to the low retrieval rates

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

include lack of physician initiative to consider filter retrieval and loss of follow-up of patients [7].

While current MIPS measure #421 addresses removal of IVC filters within 3 months of insertion, #421 does not address the role of diagnostic radiologists in improving IVC filter retrieval rates by promoting assessment for indwelling IVC filter management plans and referral to an interventional clinician for those patients who do not have a management plan in place. Including Diagnostic Radiologists would vastly increase the identification of the number of patients with IVC filters, particularly those that have had an IVC for an extended period of time (those at highest risk for complications).

References:

1. Shin BJ, Habibollahi P, Zafar H, Hilton S, Stavropoulos SW, Trerotola SO. Reporting of Inferior Vena Cava Filter Complications on CT: Impact of Standardized Macros. AJR Am J Roentgenol. 2018 Aug;211(2):439-444. doi: https://doi.org/10.2214/AJR.17.19148.
2. Oh JC, Trerotola SO, Dagli M, Shlansky-Goldberg RD, Soulen MC, Itkin M, Mondschein J, Solomon J, Stavropoulos SW. Removal of retrievable inferior vena cava filters with computed tomography findings indicating tenting or penetration of the inferior vena cava wall. J Vasc Interv Radiol. 2011 Jan;22(1):70-4. doi: https://doi.org/10.1016/j.jvir.2010.09.021.
3. Caplin DM, Nikolic B, Kalva SP, Ganguli S, Saad WE, Zuckerman DA; Society of Interventional Radiology Standards of Practice Committee. Quality improvement guidelines for the performance of inferior vena cava filter placement for the prevention of pulmonary embolism. J Vasc Interv Radiol. 2011 Nov;22(11):1499-506. doi: https://doi.org/10.1016/j.jvir.2011.07.012.
4. Dinglasan LA, Oh JC, Schmitt JE, Trerotola SO, Shlansky-Goldberg RD, Stavropoulos SW. Complicated inferior vena cava filter retrievals: associated factors identified at preretrieval CT. Radiology. 2013 Jan;266(1):347-54. doi: https://doi.org/10.1148/radiol.12120372.
5. Duszak R Jr, Parker L, Levin DC, Rao VM. Placement and removal of inferior vena cava filters: national trends in the medicare population. J Am Coll Radiol. 2011

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Jul;8(7):483-9. doi: https://doi.org/10.1016/j.jacr.2010.12.021.

6. Morris E, Duszak R Jr, Sista AK, Hemingway J, Hughes DR, Rosenkrantz AB. National Trends in Inferior Vena Cava Filter Placement and Retrieval Procedures in the Medicare Population Over Two Decades. J Am Coll Radiol. 2018 Aug;15(8):1080-1086. doi: https://doi.org/10.1016/j.jacr.2018.04.024.
7. Morales JP, Li X, Irony TZ, Ibrahim NG, Moynahan M, Cavanaugh KJ Jr. Decision analysis of retrievable inferior vena cava filters in patients without pulmonary embolism. J Vasc Surg Venous Lymphat Disord. 2013 Oct;1(4):376-84. doi: https://doi.org/10.1016/j.jvsv.2013.04.005.

Meaningful Measure Priority: Preventable Healthcare Harm
NQS Domain: Patient Safety
Measure type: Process – High Priority
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Steward: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

MSN HEALTHCARE SOLUTIONS

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

2023 Clinical Quality Measure Flow Narrative for Quality ID #QMM16:
IVC Filter Management Confirmation

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification.

1. Start with Denominator

2. Check Procedure Code as listed in Denominator
   a. If Procedure Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
   b. If Procedure Code as listed in Denominator equals YES, proceed to check Final report documents IVC Filter Present.
3. Check Final report documents IVC Filter Present
   a. If Final report documents IVC Filter Present equals NO, do not include in Eligible Population. Stop Processing.
   b. If Final report documents IVC Filter Present equals YES, include in Eligible Population.

4. Denominator Population:
   a. Denominator Population is all Eligible Procedure codes in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter “d” equals 100 procedures in the Sample Calculation.

5. Start Numerator

6. Check Imaging report includes a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient’s IVC filter, and 2) if there is no established management plan for the patient’s IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation
   a. If Imaging report includes a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient’s IVC filter, and 2) if there is no established management plan for the patient’s IVC filter, refer the patient to an

MSN
HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

interventional clinician on a nonemergent basis for evaluation 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 40 procedures in the Sample Calculation.

c. If Imaging report includes a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient's IVC filter, and 2) if there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation equals NO, proceed to check Documentation if reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan is because the purpose of the order is to assess an existing or suspected IVC filter.

7. Check Documentation of reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan is because the purpose of the order is to assess an existing or suspected IVC filter
   a. If Documentation of reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan is because the purpose of the order is to assess an existing or suspected IVC filter equals YES, include in Data Completeness Met and Denominator Exception
   b. Data Completeness Met and Denominator Exception letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter "b" equals 20 procedures in the Sample Calculation.
   c. If Documentation of reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan is because the purpose of the order is to assess an existing or suspected IVC filter equals NO, proceed to check Documentation of medical reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan, such as patients with a limited life expectancy, other medical reason(s).

8. Check Documentation of medical reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan, such as patients with a limited life expectancy, other medical reason(s)

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

a. If Documentation of medical reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan, such as patients with a limited life expectancy, other medical reason(s) equals YES, include in Data Completeness Met and Denominator Exception.
b. Data Completeness Met and Denominator Exception letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter "b" equals 20 procedures in the Sample Calculation (consisting of 10 procedures from Section 7 above, and 10 procedures where Documentation of medical reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan, such as patients with a limited life expectancy, other medical reason(s) equals YES).
c. If Documentation of medical reason(s) for not entering statement of recommendation by the radiologist for IVC filter plan, such as patients with a limited life expectancy, other medical reason(s) equals NO, proceed to check Imaging report does not include a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient's IVC filter, and 2) if there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation.

9. Check Imaging report does not include a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient's IVC filter, and 2) if there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation
   a. If Imaging report does not include a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient's IVC filter, and 2) if there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation 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 and Performance Rate in the Sample Calculation listed at the end of this document. Letter "c" equals 40 procedures in the Sample Calculation.

MSN HEALTHCARE SOLUTIONS
717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

c. If Imaging report does not include a documented statement of recommendation by the radiologist in the impression for the treating clinician to: 1) assess if there is a management plan in place for the patient's IVC filter, and 2) if there is no established management plan for the patient's IVC filter, refer the patient to an interventional clinician on a nonemergent basis for evaluation equals NO, Proceed to Data Completeness Not Met.

10. Check Data Completeness Not Met
    a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 0 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS:

Data Completeness =

$$\frac{\text{Performance Met (a=40 procedures) + Denominator Exception (b=20 procedures) + Performance Not Met (c=40 procedures)}}{\text{Eligible Population / Denominator (d=100 procedures)}} = \frac{100 \text{ procedures}}{100 \text{ procedures}} = \mathbf{100.00\%}$$

Performance Rate =

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (100 procedures) - Denominator Exception (20 procedures)}} = \frac{40 \text{ procedures}}{80 \text{ procedures}} = \mathbf{50.00\%}$$

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #QMM17: Appropriate Follow-up Recommendations for Ovarian-Adnexal Lesions using the Ovarian-Adnexal Reporting and Data System (O-RADS)
- National Quality Strategy Domain: Communication and Care Coordination
- Meaningful Measure Area: Appropriate Use of Healthcare

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process – High Priority

DESCRIPTION:
The percentage of final reports for female patients receiving a transvaginal ultrasound (US) examination of the pelvis (including transabdominal/transvaginal exams) where a lesion is detected, in which the radiologist describes the lesion using O-RADS Lexicon Descriptors, provides O-RADS score, and subsequently makes the correct clinical management recommendation based on the O-RADS Risk Stratification and Management System.

INSTRUCTIONS:
This measure is to be submitted **each time** during the reporting period a female pelvic ultrasound reports a finding that qualifies for description and management under the ORADS criteria. Measure performance focuses on the radiologist's inclusion in the report of appropriate use of O-RADS descriptors and a subsequent O-RADS appropriate recommendation for the treating clinician to assist in overall risk stratification and management.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

DENOMINATOR:
All final reports for US examination of the female pelvis performed transvaginal with/without a transabdominal portion that have a lesion.

Denominator Criteria (eligible cases):
All patients, regardless of age,
AND
Patient procedure during the performance period (CPT):
Pelvis: 76830
AND
Finding of adnexal or ovarian lesion(s), noted by the following ICD-10 diagnosis code(s):
N83.00, N83.01, N83.02, N83.10, N83.11, N83.12, N83.201, N83.202, N83.209, N83.291, N83.292, N83.299, N83.311, N83.312, N83.319, N83.321, N83.322, N83.329, N83.331, N83.332, N83.339, N83.40. N83.41, N83.42, N83.511, N83.512, N83.519, N83.521, N83.522, N83.529, N83.53, N83.6, N83.7, N83.8, N83.9

Denominator Note:
O-RADS applies only to adnexal and ovarian lesions. Findings not applicable to O-RADS classification, such as Nabothian or Uterine cysts, are not to be included in the denominator count for this measure.

Denominator Exclusions: Findings not applicable to O-RADS classification, such as Nabothian or Uterine cysts. **(DE017)**

NUMERATOR:
Documented identification of lesion using appropriate O-RADS terminology AND subsequent recommendation of clinical management according to ORADS criteria.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Numerator Note: *When referencing the O-RADS criteria, the radiologist* ***must*** *include O-RADS score, appropriate lexicon descriptors, and appropriate premenopausal or postmenopausal management for the patient. If a patient's recommendation is "N/A" or "None" according to the O-RADS criteria, the radiologist should state "No imaging follow-up required" in the final report. Reference to O-RADS criteria while describing lesion and making recommendations would also suffice.*

Numerator Options:

Performance Met:

PM017: Lesion identified using O-RADS terminology with appropriate O-RADS score AND appropriate O-RADS management recommendation made in the Final Report**.**

OR

Performance Not Met:

PNM17: Lesion identified but O-RADS terminology OR O-RADS score OR O-RADS appropriate clinical management not made in the Final Report.

OR

Denominator Exception:

PE017: Documentation of medical reason(s) for not documenting O-RADS score (such as, patients with a limited life expectancy, no positive finding of ovarian/adnexal mass(es)**,** or if the cyst has ruptured).

RATIONALE:

Female pelvic ultrasound is a common examination that can result in identification of ovarian/adnexal lesions of varying sizes requiring clinical management. Therefore, accurate characterization of ovarian and adnexal findings on sonography is required for optimal patient management and risk stratification [1]. It is important for the clinician to receive information to differentiate between lesions that are likely benign and those that require more advanced follow up and possible surgical management due to the risk of malignancy. The current lack of standardized terminology in gynecological imaging has led to inconsistent treatment recommendations, even within the same institution [2], potentially causing increased cost and inappropriate resource consumption [3].

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

The Ovarian-Adnexal Reporting and Data System (O-RADS) US risk stratification and management system was created using a standard lexicon to eliminate these inconsistencies by using classes such as descriptors of the overall lesion, lesion size, blood flow, and internal content [2]. By use of such standardized terminology, radiologists should be able to communicate a more correct diagnosis, accurately assess the risk of malignancy, and create optimal patient treatment plans [2]. The goal is to recreate the same positive impact on gynecologic imaging as BI-RADS had on breast imaging.

Additional Info from Society of Radiologist in Ultrasound (SRU):
Updated SRU Consensus Conference Statements and Recommendations - Unnecessary follow-up of simple cysts increases the chance of surgical intervention as slow or uncertain growth can lead to recommendations for surgical removal even in the absence of malignant findings. Once an adnexal cyst demonstrates sonographic features indicating a negligible risk of malignancy, imaging follow-up may still be reasonable for those cysts large enough to merit surveillance to distinguish a growing benign neoplasm from a nonneoplastic cyst. However, it is also reasonable to rely on clinical follow-up alone (patient symptoms and physical examination) once a cyst has been well-characterized as simple, with US follow-up used as the clinician feels indicated. A thorough patient assessment is required to make specific recommendations for surgical intervention based on careful review of a patient's symptoms, age, medical profile, and US findings [4].

An example of the O-RADS system is outlined as follows:

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

O-RADS Score	Risk Category [IOTA Model]	Lexicon Descriptors		Management	
				Pre-menopausal	Post-menopausal
0	Incomplete Evaluation [N/A]	N/A		Repeat study or alternate study	
1	Normal Ovary [N/A]	Follicle defined as a simple cyst ≤ 3 cm		None	N/A
		Corpus Luteum ≤ 3cm			
2	Almost Certainly Benign [< 1%]	Simple cyst	≤ 3 cm	N/A	None
			> 3 cm to 5 cm	None	Follow up in 1 year. *
			> 5 cm but < 10 cm	Follow up in 8 - 12 weeks	
		Classic Benign Lesions	See **Figure 3** for separate descriptors	See **Figure 3** for management strategies	
		Non-simple unilocular cyst, smooth inner margin	≤ 3 cm	None	Follow up in 1 year * If concerning, US specialist or MRI
			> 3 cm but < 10 cm	Follow-up in 8 - 12 weeks If concerning, US specialist	US specialist or MRI
3	Low Risk Malignancy [1-<10%]	Unilocular cyst ≥ 10 cm (simple or non-simple)		US specialist or MRI Management by gynecologist	
		Typical dermoid cysts, endometriomas, hemorrhagic cysts ≥ 10 cm			
		Unilocular cyst, any size with irregular inner wall <3 mm height			
		Multilocular cyst < 10 cm, smooth inner wall, CS = 1-3			
		Solid smooth, any size, CS = 1			
4	Intermediate Risk [10- < 50%]	Multilocular cyst, no solid component	≥ 10 cm, smooth inner wall, CS = 1-3	US specialist or MRI Management by gynecologist with GYN-oncologist consultation or solely by GYN-oncologist	
			Any size, smooth inner wall, CS = 4		
			Any size, irregular inner wall and/or irregular septation, any color score		
		Unilocular cyst with solid component	Any size, 0-3 papillary projections, CS = any		
		Multilocular cyst with solid component	Any size, CS = 1-2		
		Solid	Smooth, any size, CS = 2-3		
5	High Risk [≥ 50%]	Unilocular cyst, any size, ≥ 4 papillary projections, CS = any		GYN-oncologist	
		Multilocular cyst with solid component, any size, CS = 3-4			
		Solid smooth, any size, CS = 4			
		Solid irregular, any size, CS = any			
		Ascites and/or peritoneal nodules**			

Figure 2: Image shows Ovarian-Adnexal Reporting and Data System (O-RADS) US risk stratification and management system. * = At a minimum, at least 1-year follow-up showing stability or decrease in size is recommended with consideration of annual follow-up of up to 5 years, if stable. However, there is currently a paucity of evidence for defining optimal duration or interval of timing for surveillance. ** = Presence of ascites with category 1–2 lesion, must consider other malignant or nonmalignant etiologies of ascites. CS = color score, GYN = gynecologic, IOTA = International Ovarian Tumor Analysis, N/A = not applicable. Adapted, with permission, from the American College of Radiology.

No current MIPS measure addresses this need for effective description of ovarian/adnexal lesions and subsequent management. Without appropriate upfront lesion management recommendations by radiologists as provided by O-RADS, studies have shown that downstream consumption of resources tends to increase and create a

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

wide variability in care [3]. In this way, use of this measure will decrease health care expenditures and result in cost savings to the US health system [3] as well as potentially lead to improved patient outcomes.

MEASURE TESTING AND GAP ANALYSIS:

200 ultrasound reports for findings of ovarian mass were reviewed. Findings were stratified by age, positive or negative findings, and whether a recommendation was made or not. Below are details of the gap analysis.

Table #1 shows the overall findings. In premenopausal women (under 50 years of age) there were 58 positive findings of ovarian masses/cysts. Of those 25 (43%) did not include a recommendation. Furthermore, of the ones that did include recommendations, the recommendations were quite inconsistent as demonstrated in Table #2 below.

In postmenopausal women (50 years and older) there were 103 positive finding of ovarian masses/cysts and, of those, 94 (91%) did not include a recommendation.

TABLE #1

FINDINGS	# FOUND	AGE
16 no ovarian mass	16	under 50
25 ovarian masses w/o recommendations	25	under 50
33 ovarian masses w/recommendations	33	under 50
23 no ovarian mass	23	50 +
94 ovarian masses w/o recommendation	94	50 +
9 ovarian masses w/recommendations	9	50 +
TOTAL	200	All Ages

Table #2 shows the inconsistency in recommendations for the premenopausal group.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Small findings such as those in premenopausal patients are fairly common and most certainly benign, therefore, typically should not lead to follow-up imaging.

TABLE #2

Actual Recommendation	SIZE (cm)	AGE	Recommendation Had O-RADS been Used
3 month follow-up is recommended	1.9	20	No follow-up
A follow-up pelvic US is recommended 6 to 12 weeks to document stability vs resolution	2.2	32	No follow-up
A follow-up US after 6 weeks may confirm that it has resolved or that it is smaller	2.2	38	No follow-up
Follow-up as clinically recommended	2.5*	35	No follow-up
A follow-up transabdominal and endovaginal pelvic US in 6 weeks time is recommended to assure stability or resolution	2.7	43	No follow-up
Consider follow-up sonography in 4 to 6 months	2.7	43	No follow-up
Consider 6 week follow-up for further evaluation	2.8	30	No follow-up
Follow-up US after menses is suggested	3.1	49	No follow-up unless non-simple cyst
6 week US follow-up recommended	3.2	35	No follow-up unless non-simple cyst
Follow-up pelvic ultrasound 2 - 3 months recommended to reevaluate	3.2	33	No follow-up unless non-simple cyst

* There was an abd/transvag US 1 day earlier without any recommendation at all for this patient

References:

1. Andreotti RF, Timmerman D, Strachowski LM, Froyman W, Benacerraf BR, Bennett GL, Bourne T, Brown DL, Coleman BG, Frates MC, Goldstein SR, Hamper UM, Horrow MM, Hernanz-Schulman M, Reinhold C, Rose SL, Whitcomb BP, Wolfman WL, Glanc P. O-RADS US Risk Stratification and Management System: A Consensus Guideline from the ACR Ovarian-Adnexal Reporting and Data System Committee. Radiology. 2020 Jan;294(1):168-185. doi: https://doi.org/10.1148/radiol.2019191150.
2. Andreotti RF, Timmerman D, Benacerraf BR, Bennett GL, Bourne T, Brown DL, Coleman BG, Frates MC, Froyman W, Goldstein SR, Hamper UM, Horrow MM, Hernanz-Schulman M, Reinhold C, Strachowski LM, Glanc P. Ovarian-Adnexal

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Reporting Lexicon for Ultrasound: A White Paper of the ACR Ovarian-Adnexal Reporting and Data System Committee. J Am Coll Radiol. 2018 Oct;15(10):1415-1429. doi: https://doi.org/10.1016/j.jacr.2018.07.004.

3. Rosenkrantz AB, Xue X, Gyftopoulos S, Kim DC, Nicola GN. Variation in Downstream Relative Costs Associated With Incidental Ovarian Cysts on Ultrasound. J Am Coll Radiol. 2018 Jul;15(7):958-963.e1. doi: https://doi.org/10.1016/j.jacr.2018.03.005.
4. Levine D, Patel MD, Suh-Burgmann EJ, Andreotti RF, Benacerraf BR, Benson CB, Brewster WR, Coleman BG, Doubilet PM, Goldstein SR, Hamper UM, Hecht JL, Horrow MM, Hur HC, Marnach ML, Pavlik E, Platt LD, Puscheck E, Smith-Bindman R, Brown DL. Simple Adnexal Cysts: SRU Consensus Conference Update on Follow-up and Reporting. Radiology. 2019 Nov;293(2):359-371. doi: https://doi.org/10.1148/radiol.2019191354.
5. Cao L, Wei M, Liu Y, Fu J, Zhang H, Huang J, Pei X, Zhou J. Validation of American College of Radiology Ovarian-Adnexal Reporting and Data System Ultrasound (O-RADS US): Analysis on 1054 adnexal masses. Gynecol Oncol. 2021 Jul;162(1):107-112. doi: https://doi.org/10.1016/j.ygyno.2021.04.031.

Meaningful Measure Priority: Appropriate Use of Healthcare
NQS Domain: Communication and Care Coordination
Measure type: Process – High Priority
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Steward: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #QMM18: Use of Breast Cancer Risk Score on Mammography
- National Quality Strategy Domain: Patient Safety
- Meaningful Measure Area: Communication and Care Coordination

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process – High Priority

DESCRIPTION:
The percentage of final reports for screening mammograms which include the patient's estimated numeric risk assessment based on a validated and published model**, and appropriate recommendations for supplemental screening based on the patient's estimated risk, and documentation of the source of recommendation.

***Must be a one of the models listed in the Numerator Instructions below.*

INSTRUCTIONS:
This measure is to be submitted **each time** a screening mammogram is performed for all patients during the performance period.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

DENOMINATOR:
All final screening mammogram reports.

Denominator Criteria (Eligible Cases):

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

All Patients, regardless of age,

AND

Patient procedure during the performance period (CPT or HCPC): 77067

AND

Screening mammogram for malignant neoplasm of breast (ICD-10-CM): Z12.31

Denominator Exclusions:

DE018: Patients with an active diagnosis of breast cancer, or history of breast cancer

OR

DE018: Screening mammogram assigned a BIRADS 0: Incomplete

OR

DE018: Women who have a history of mastectomy

NUMERATOR:

Final reports that include a documented calculated risk assessment number based on one of the validated and published models from the list below AND appropriate recommendation(s) for supplemental screening based on the patient's estimated risk AND source of recommendation (Tyrer-Cuzick, Modified Gail, etc).

Numerator Note:

- *Validated and Published Models – All eligible exams **must** include an estimated risk number based on one of the validated and published models for breast cancer risk estimation listed below:*
  - *Modified Gail, or*
  - *BRCAPRO, or*
  - *Tyrer-Cuzick (IBIS Tool), or*
  - *Breast Cancer Surveillance Consortium (BCSC), or*
  - *National Cancer Institute's Breast Cancer Risk Assessment Tool, or*
  - *Claus model, or*
  - *Myriad (myRisk Management Tool)*
    https://myriad.com/myrisk/documents-and-forms/

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Use of a risk model, not on the list above, will be considered inappropriate for this measure.

- *Appropriate Recommendations – Recommendations should be appropriately based on the patient's estimated risk number for breast cancer. For example, for patients who are estimated to be high-risk, appropriate recommendation could include, but is not limited to, supplemental screening exams such as screening breast MRI.*

Numerator Options:

Performance Met:

PM018: Final report includes a documented calculated risk assessment number based on one of the validated and published models listed in the numerator instructions AND appropriate recommendations for supplemental screening based on the patient's estimated risk AND source of recommendation.

OR

Performance Not Met:

PNM18: Final report does not include a documented calculated risk assessment number based on a validated and published model, AND/OR if patient is at risk, appropriate recommendations for supplemental screening based on the patient's estimated risk not documented AND source of recommendation, reason not given.

OR

Denominator Exception (if applicable):

PDE18: Documentation of medical reason(s) for not documenting calculated risk assessment, such as patients with a limited life expectancy, or

PDE18: Documentation of patient reason(s) for not documenting calculated risk assessment, such as patient's age is outside the age parameters employed by the validated/published risk model being used (must state model being used), or patient is transgender and model does not take into account transgender patients.

MEASURE TESTING AND GAP ANALYSIS:

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

200 reports were reviewed to assess the rate of recorded risk assessments and documentation of appropriate follow-up. Of the sample reviewed, a recorded calculated risk assessment was documented in 25 records (12.5% of 200 total records). Follow-up recommendations were documented in 5 out of the documented 25 records (2.5% of 200 total records).

RATIONALE:

Screening is of greatest value for patients who are most likely to develop breast cancer and for whom early treatment is more effective than later treatment in reducing mortality. Thus, it is important to determine a patient's risk of developing breast cancer and use that information both to recommend the modality and frequency of screening and also to determine whether referrals are needed for genetic testing and for consideration of chemoprevention and/or prophylactic surgery [4].

Contrast-enhanced breast MRI (ie, breast MRI, with and without gadolinium-based contrast; hereafter MRI) is known to increase cancer detection in higher-risk women and is more sensitive than either mammography or ultrasound in high-risk populations. Recommendations have been established supporting the use of MRI in women with genetics-based increased risk and their untested first-degree relatives, women who received chest radiation therapy before age 30, and women with a calculated risk of 20% or more. Data continue to accumulate to support these recommendations, as well as some refinements to them [2].

CLINICAL RECOMMENDATION STATEMENTS:

American Cancer Society:

Women who are at high risk for breast cancer based on certain factors should get a breast MRI and a mammogram every year, typically starting at age 30. This includes women who: Have a lifetime risk of breast cancer of about 20% to 25% or greater, according to risk assessment tools that are based mainly on family history.

If MRI is used, it should be in addition to, not instead of, a screening mammogram. This is because although an MRI is more likely to detect cancer than a mammogram, it may still miss some cancers that a mammogram would detect. Most women at high risk should

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

begin screening with MRI and mammograms when they are 30 and continue for as long as they are in good health [3].

American Society of Breast Surgeons:
The ASBrS recommends annual MRI screening in the following patients, compliant with NCCN Guidelines: Women with a 20%-25% or greater estimated lifetime risk of breast cancer primarily based on mathematical models that are mostly based on family history such as the Claus, BRCAPRO, BOADICEA, and Tyrer-Cuzick models [1].

American College of Radiology and Society of Breast Imaging:
For women with genetics-based increased risk (and their untested first-degree relatives), history of chest radiation (cumulative dose of 10 Gy before age 30), or with a calculated lifetime risk of 20% or more, breast MRI should be performed annually beginning at age 25 to 30 [2].

References:

1. The American Society of Breast Surgeons. Consensus guideline on diagnostic and screening magnetic resonance imaging of the breast. Breastsurgeons.org. 2017 Jun 22. https://www.breastsurgeons.org/resources/statements.
2. Monticciolo DL, Newell MS, Moy L, Niell B, Monsees B, Sickles EA. Breast Cancer Screening in Women at Higher-Than-Average Risk: Recommendations From the ACR. J Am Coll Radiol. 2018 Mar;15(3 Pt A):408-414. doi: https://doi.org/10.1016/j.jacr.2017.11.034.
3. The American Cancer Society. American Cancer Society recommendations for the early detection of breast cancer: American Cancer Society screening recommendations for women at high risk. Cancer.org. 2022 Jan 14. https://www.cancer.org/cancer/breast-cancer/screening-tests-and-early-detection/american-cancer-society-recommendations-for-the-early-detection-of-breast-cancer.html.
4. Elmore JG, Lee CI. Screening for breast cancer: Strategies and recommendations. Uptodate.com. 2021 Apr 20. https://www.uptodate.com/contents/screening-for-breast-cancer-strategies-and-recommendations#.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Meaningful Measure Priority: Communication and Care Coordination
NQS Domain: Patient Safety
Measure type: Process – High Priority
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Steward: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

2023 Clinical Quality Measure Flow for Quality ID #QMM18:
Use of Breast Cancer Risk Score on Mammography

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification.

1. Start with Denominator

2. Check Procedure Code as listed in Denominator
   a. If Procedure Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
   b. If Procedure Code as listed in Denominator equals YES, proceed to check Diagnosis Code as listed in Denominator.

3. Check Diagnosis Code as listed in Denominator
   a. If Diagnosis Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
   b. If Diagnosis Code as listed in Denominator equals YES, proceed to check Patient has an active diagnosis of Breast Cancer or history of Breast Cancer.

4. Check Patient has an active diagnosis of Breast Cancer or history of Breast Cancer
   a. If Patient has an active diagnosis of Breast Cancer or history of Breast Cancer equals YES, do not include in Eligible Population. Stop Processing.
   b. If Patient has an active diagnosis of Breast Cancer or history of Breast Cancer equals NO, proceed to check Screening Mammogram assigned a BIRADS 0: Incomplete.

5. Check Screening Mammogram assigned a BIRADS 0: Incomplete
   a. If Screening Mammogram assigned a BIRADS 0: Incomplete equals YES, do not include in Eligible Population. Stop Processing.
   b. If Screening Mammogram assigned a BIRADS 0: Incomplete equals NO, proceed to check Women who have a history of mastectomy.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

6. Check Women who have a history of mastectomy
    a. If Women who have a history of mastectomy equals YES, do not include in Eligible Population. Stop Processing.
    b. If Women who have a history of mastectomy equals NO, include in Eligible Population.

7. Denominator Population:
    a. Denominator Population is all Eligible Procedure and ICD-10 codes in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter "c" equals 100 procedures in the Sample Calculation.

8. Start Numerator

9. Check Final report includes documented risk score using a validated and published model (acceptable models are listed in numerator instructions above) AND appropriate recommendation based on the risk score
    a. If Final report includes documented risk score using validated and published model(s) AND appropriate recommendation based on the risk score 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 40 procedures in the Sample Calculation.
    c. If Final report includes documented risk score using published models AND appropriate recommendation based on the risk score equals NO, proceed to check Documentation of medical reason(s) for not documenting calculated risk assessment.

10. Check Documentation of medica/patient reason(s) for not documenting calculated risk assessment
    a. If Documentation of medical/patient reason(s) for not documenting calculated risk assessment equals YES, include in Data Completeness Met and Numerator Exclusion.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

b. Data Completeness Met and Numerator Exclusion letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter "b" equals 20 procedures in the Sample Calculation.
c. If Documentation of medical reason(s) for not documenting calculated risk assessment equals NO, proceed to check Final report does not include documented risk score and recommendation based on the risk score, reason not given.

11. Check Final report does not include documented risk score and recommendation based on the risk score, reason not given
    a. If Final report does not include documented risk score and recommendation based on the risk score, reason not given 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 and Performance Rate in the Sample Calculation listed at the end of this document. Letter "b" equals 40 procedures in the Sample Calculation.
    c. IF Final report does not include documented risk score and recommendation based on the risk score, reason not given equals NO, proceed to check Data Completeness Not Met.

12. Check Data Completeness Not Met
    a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 0 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS:

Data Completeness =

$$\frac{\text{Performance Met (a=40 procedures) + Numerator Exclusion (b=20 procedures) + Performance Not Met (b=40 procedure}}{\text{Eligible Population / Denominator (c=100 procedures)}} = \frac{\text{100 procedures}}{\text{100 procedures}} = \textbf{100.00\%}$$

Performance Rate =

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (100 procedures) - Numerator Exclusion (20 procedures)}} = \frac{\text{40 procedures}}{\text{80 procedures}} = \textbf{50.00\%}$$

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #QMM19: DEXA/DXA and Fracture Risk Assessment for Patients with Osteopenia
- National Quality Strategy Domain: Effective Clinical Care
- Meaningful Measure Area: Patient-Focused Episode of Care

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process

DESCRIPTION:
All patients with osteopenia, aged 40-90 at time of service, who undergo DEXA scans for bone density who have their FRAX score reported and a statement of whether they meet criteria for pharmacologic treatment to prevent osteoporosis included in the final report.

INSTRUCTIONS:
This measure is to be submitted **each time** an eligible patient has a DEXA scan during the performance period. The FRAX score indicates fracture risk for asymptomatic and symptomatic patients. FRAX should be reported and reviewed against published guidelines* to determine if patient meets criteria for pharmacologic treatment to prevent osteoporosis.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

DENOMINATOR:
All final reports for DEXA scans

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Denominator Criteria (eligible cases):
Patients aged 40 to 90 years on the date of service
AND
Patient procedure during the performance period (CPT): 77080, 77081, 77085 or 77086
AND
Diagnosis of Osteopenia documented with ICD-10 code: M85.80, M85.811, M85.812, M85.819, M85.821, M85.822, M85.829, M85.831, M85.832, M85.839, M85.841, M85.842, M85.849, M85.851, M85.852, M85.859, M85.861, M85.862, M85.869, M85.871, M85.872, M85.879, M85.88, M85.89, M85.9

Denominator Exclusions and/or Exceptions: None

NUMERATOR:
Final reports for all patients aged 40 to 90 on the date of service, with documentation to indicate the patient's 10-year Fracture Risk (FRAX). The bone density is reported, and additional demographic and risk factors are assessed to determine the FRAX score for each patient and whether they meet the criteria for pharmacological treatment to prevent of osteoporosis per published guidelines*.

Numerator Options:
Performance Met:
PM019: Final report includes a documented FRAX score in the Physician Dictated Report AND whether patient does or does not meet the pharmacological treatment recommendations for prevention of osteoporosis per published guidelines*

OR

Performance Not Met:
PNM19: Final report does not include a documented FRAX score in the Physician Dictated Report AND/OR mention whether patient does or does not meet the pharmacological treatment recommendations for prevention of osteoporosis per published guidelines*

OR

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Denominator Exception:

PE019: Documentation that patient's age is outside the parameters of the FRAX risk tool used by your institution/equipment (must document this and the name of the FRAX risk tool used by your institution to qualify for exception).

OR

PE019: Documentation of other patient reason(s) why final report does not include a documented FRAX score in the Physician Dictated Report (e.g. patient is NOT post-menopausal, patient actively being treated for osteopenia, T-Score(s) for mandatory regions required to calculate FRAX is unavailable, patient refusal to cooperate, etc.)

***Numerator Note:** Lack of FRAX software is not an acceptable exception.* Final report must state the published guidelines referenced to determine if patient meets criteria for pharmacological treatment to prevent of osteoporosis (e.g. per Bone Health and Osteoporosis Foundation's guidelines).

RATIONALE:

Osteoporosis-related fractures (low-trauma or fragility fractures) cause substantial disability, health care costs, and mortality among postmenopausal women and older men. Epidemiologic studies indicate that at least half the population burden of osteoporosis-related fractures affects persons with osteopenia (low bone density), who comprise a larger segment of the population than those with osteoporosis. The public health burden of fractures will fail to decrease unless the subset of patients with low bone density who are at increased risk for fracture are identified and treated. Risk stratification for medically appropriate and cost-effective treatment is facilitated by the World Health Organization (WHO) FRAX algorithm, which uses clinical risk factors, bone mineral density, and country-specific fracture and mortality data to quantify a patient's 10-year probability of a hip or major osteoporotic fracture. Included risk factors comprise femoral neck bone mineral density, prior fractures, parental hip fracture history, age, gender, body mass index, ethnicity, smoking, alcohol use, glucocorticoid use, rheumatoid arthritis, and secondary osteoporosis. FRAX was developed by the WHO to be applicable to both postmenopausal women and men aged 40 to 90 years; the National Osteoporosis Foundation Clinician's Guide focuses on its utility in postmenopausal women and men aged >50 years. It is validated to be used in untreated

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

patients only. The current National Osteoporosis Foundation Guide recommends treating patients with FRAX 10-year risk scores of ≥ 3% for hip fracture or ≥ 20% for major osteoporotic fracture, to reduce their fracture risk. Additional risk factors such as frequent falls, not represented in FRAX, warrant individual clinical judgment. FRAX has the potential to demystify fracture risk assessment in primary care for patients with low bone density, directing clinical fracture prevention strategies to those who can benefit most [6].

GAP ANALYSIS:
In a review of 200 DXA reports only 68 (34%) documented the patient's fracture risk.

ECONOMIC ANALYSIS:
Annually, two million fractures are attributed to osteoporosis, causing more than 432,000 hospital admissions, almost 2.5 million medical office visits, and about 180,000 nursing home admissions in the USA [1].

Medicare currently pays for approximately 80 % of these fractures, with hip fractures accounting for 72 % of fracture costs. Due in part to an aging population, the cost of care is expected to rise to $25.3 billion by 2025 [2].

Despite the availability of cost-effective and well-tolerated treatments to reduce fracture risk, only 23 % of women age 67 or older who have an osteoporosis-related fracture receive either a BMD test or a prescription for a drug to treat osteoporosis in the 6 months after the fracture [3].

Clinical risk factors included in the FRAX Tool:

- Current age
- Rheumatoid arthritis
- Gender
- Secondary causes of osteoporosis: type 1 (insulin dependent) diabetes, osteogenesis imperfecta in adults, untreated long-standing hyperthyroidism, hypogonadism or premature menopause (3 months (ever)

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Use of WHO FRAX® in the USA FRAX® was developed to calculate the 10-year probability of a hip fracture and the 10-year probability of a major osteoporotic fracture (defined as clinical vertebral, hip, forearm, or proximal humerus fracture), taking into account femoral neck BMD and clinical risk factors [4]. The FRAX® algorithm is available at https://www.bonehealthandosteoporosis.org/ as well as at https://www.sheffield.ac.uk/FRAX/. It is also available on newer DXA machines or with software upgrades that provide the FRAX® scores on the bone density report. The WHO algorithm used in this Guide was calibrated to US fracture and mortality rates; therefore, the fracture risk figures herein are specific for the US population. Economic modeling was performed to identify the 10-year hip fracture risk above which it is cost-effective, from the societal perspective, to treat with pharmacologic agents. The US-based economic modeling is described in one report [5].

References:

1. Office of the Surgeon General (US). Bone Health and Osteoporosis: A Report of the Surgeon General. Rockville (MD): Office of the Surgeon General (US); 2004.
2. Burge R, Dawson-Hughes B, Solomon DH, Wong JB, King A, Tosteson A. Incidence and economic burden of osteoporosis-related fractures in the United States, 2005-2025. J Bone Miner Res. 2007 Mar;22(3):465-75. doi: https://doi.org/10.1359/jbmr.061113.
3. National Committee for Quality Assurance. Osteoporosis management in women who had a fracture (OMW). 2022. https://www.ncqa.org/hedis/measures/osteoporosis-management-in-women-who-had-a-fracture/.
4. Kanis JA; on behalf of the World Health Organization Scientific Group. Assessment of osteoporosis at the primary health care level. University of Sheffield, UK: World Health Organization Collaborating Center for Metabolic Bone Diseases. 2007. https://www.sheffield.ac.uk/FRAX/pdfs/WHO_Technical_Report.pdf.
5. Tosteson AN, Melton LJ 3rd, Dawson-Hughes B, Baim S, Favus MJ, Khosla S, Lindsay RL; National Osteoporosis Foundation Guide Committee. Cost-effective osteoporosis treatment thresholds: the United States perspective. Osteoporos Int. 2008 Apr;19(4):437-47. doi: https://doi.org/10.1007/s00198-007-0550-6.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

6. Siris ES, Baim S, Nattiv A. Primary care use of FRAX: absolute fracture risk assessment in postmenopausal women and older men. Postgrad Med. 2010 Jan;122(1):82-90. doi: https://doi.org/10.3810/pgm.2010.01.2102.
7. Cosman F, de Beur SJ, LeBoff MS, Lewiecki EM, Tanner B, Randall S, Lindsay R; National Osteoporosis Foundation. Clinician's Guide to Prevention and Treatment of Osteoporosis. Osteoporos Int. 2014 Oct;25(10):2359-81. doi: https://doi.org/10.1007/s00198-014-2794-2.
8. Bone Health and Osteoporosis Foundation Clinician Guide to Prevention and Treatment of Osteoporosis. 2022. https://bonesource.org/clinical-guidelines

Meaningful Measure Priority: Patient-Focused Episode of Care
NQS Domain: Effective Clinical Care
Measure type: Process
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Stewards: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

2023 Clinical Quality Measure Flow for Quality ID #QMM19:
DEXA/DXA and Fracture Risk Assessment for Patients with Osteopenia

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification.

1. Start with Denominator

2. Check Patient Age
    a. If Patient aged 40 to 90 on the date of service equals NO, do not include in Eligible Population. Stop Processing.
    b. If Patient aged 40 to 90 on the date of service equals YES, proceed to check Procedure Code as listed in Denominator.

3. Check Procedure Code as listed in Denominator
    a. If Procedure Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
    b. If Procedure Code as listed in Denominator equals YES, proceed to check Diagnosis Code as listed in Denominator.

4. Check Diagnosis Code as listed in Denominator
    a. If Diagnosis Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
    b. If Diagnosis Code as listed in Denominator equals YES, include in Eligible Population.

5. Denominator Population:
    a. Denominator Population is all Eligible Procedure and ICD-10 codes in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter “d” equals 100 procedures in the Sample Calculation.

6. Start Numerator

7. Check Final report includes a documented FRAX score in the Physician Dictated Report

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

a. If Final report includes a documented FRAX score in the Physician Dictated Report 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 40 procedures in the Sample Calculation.
c. If Final report includes a documented FRAX score in the Physician Dictated Report equals NO, proceed to check Documentation of reason final report does not include a documented FRAX score in the Physician Dictated Report.

7. Check Documentation of reason final report does not include a documented FRAX score in the Physician Dictated Report
    a. If Documentation of reason final report does not include a documented FRAX score in the Physician Dictated Report equals YES, include in Data Completeness Met and Denominator Exception.
    b. Data Completeness Met and Denominator Exception letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter "b" equals 20 procedures in the Sample Calculation.
    c. If Documentation of reason final report does not include a documented FRAX score in the Physician Dictated Report equals NO, proceed to check Final report does not include a documented FRAX score in the Physician Dictated Report.

8. Check Final report does not include a documented FRAX score in the Physician Dictated Report:
    a. If Final report does not include a documented FRAX score in the Physician Dictated Report 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 and Performance Rate in the Sample Calculation listed at the end of this document. Letter "c" equals 40 procedures in the Sample Calculation.
    c. If Final report does not include a documented FRAX score in the Physician Dictated Report equals NO, proceed to check Data Completeness Not Met.

9. Check Data Completeness Not Met

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 0 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS:

Data Completeness =

$$\frac{\text{Performance Met (a=40 procedures) + Denominator Exception (b=20 procedures) + Performance Not Met (c=40 procedures)}}{\text{Eligible Population / Denominator (d=100 procedures)}} = \frac{\text{100 procedures}}{\text{100 procedures}} = \mathbf{100.00\%}$$

Performance Rate =

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (100 procedures) - Denominator Exception (20 procedures)}} = \frac{\text{40 procedures}}{\text{80 procedures}} = \mathbf{50.00\%}$$

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

Quality ID #QMM20: Opening Pressure in Lumbar Puncture
- National Quality Strategy Domain: Effective Clinical Care
- Meaningful Measure Area: Patient-Focused Episode of Care

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process

DESCRIPTION:
Percentage of final reports for patients, 18 years of age and older, which include Documentation of Opening Pressure Value obtained during Lumbar Puncture.

INSTRUCTIONS:
This measure is to be submitted **each time** during the reporting period that a lumbar puncture is performed. Measure performance focuses on the radiologist's inclusion of the Opening Pressure Value obtained during the lumbar puncture in the report. This inclusion can reduce or prevent the need for a second lumbar puncture.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

DENOMINATOR:
All final reports for lumbar puncture for patients 18 years of age and older

Denominator Criteria (eligible cases):
All patients, 18 years of age and older,

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

AND

Patient procedure during the performance period (CPT): 62270, 62328, 62272 or 62329

AND

Diagnosis Code (ICD-10-CM):

Seizure: R56.9

Headache: G44.001, G44.009, G44.011, G44.019, G44.021, G44.029, G44.031, G44.039, G44.041, G44.049, G44.051, G44.059, G44.091, G44.099, G44.1, G44.201, G44.209, G44.211, G44.219, G44.221, G44.229, G44.301, G44.309, G44.311, G44.319, G44.321, G44.329, G44.40, G44.41, G44.51, G44.52, G44.53, G44.59, G44.81, G44.82, G44.83, G44.84, G44.85, G44.89, R51.0, R51.9

Photophobia: H53.141, H53.142, H53.143, H53.149

Nausea: R11.0, R11.2

Fever: R50.2, R50.81, R50.82, R50.83 R50.84, R50.9, R68.0, R68.83

Neck Pain: M54.2

Vomiting: R11.11

Assorted Meningitis: A02.0, A02.1, A02.20, A02.21, A02.22, A02.23, A02.24, A02.25, A02.29, A02.8, A02.9, A20.0, A20.1, A20.2, A20.3, A20.7, A20.8, A20.9, A27.0, A27.81, A27.89, A27.9, A39.0, A39.1, A39.3, A39.4, A39.50, A39.51, A39.52, A39.53, A39.81, A39.82, A39.83, A39.84, A39.89, A39.9, A52.00, A52.01, A52.02, A52.03, A52.04, A52.05, A52.06, A52.09, A52.10, A52.11, A52.12, A52.13, A52.14, A52.15, A52.16, A52.17, A52.19, A52.2, A52.3, A52.71, A52.72, A52.73, A52.74, A52.75, A52.76, A52.77, A52.78, A52.79, A52.8, A52.9, A54.00, A54.01, A54.02, A54.03, A54.09, A54.1, A54.21, A54.22, A54.23, A54.24, A54.29, A54.30, A54.31, A54.32, A54.33, A54.39, A54.40, A54.41, A54.42, A54.43, A54.49, A54.5, A54.6, A54.81, A54.82, A54.83, A54.84, A54.85, A54.86, A54.89, A54.9, A87.0, A87.1, A87.2, A87.8, A87.9, B00.0, B00.1, B00.2, B00.3, B00.4, B00.50, B00.51, B00.52. B00.53, B00.59, B00.7, B00.81, B00.82, B00.89, B00.9, B02.0, B02.1, B02.21, B02.22, B02.23, B02.24, B02.29, B02.30, B02.31, B02.32, B02.33, B02.34, B02.39, B02.7, B02.8, B02.9, B26.0, B26.1, B26.2, B26.3, B26.81, B26.82, B26.83, B26.84, B26.85, B26.89, B26.9, B37.0, B37.1, B37.2, B37.3, B37.41, B37.42, B37.49, B37.5, B37.6, B37.7, B37.81, B37.82, B37.83, B37.84, B37.89, B37.9,

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

B38.0, B38.1, B38.2, B38.3, B38.4, B38.7, B38.81, B38.89, B38.9, G00.0, G00.1, G00.2, G00.3, G00.8, G00.9, G02, G03.0, G03.1, G03.2, G03.8, G03.9

Denominator Exclusions and/or Exceptions: None

NUMERATOR:
Final report for lumbar puncture includes documentation of Opening Pressure Value obtained during Lumbar Puncture.

Numerator Options:
Performance Met:
PM020: Final report for lumbar puncture has documentation of open pressure value*****

OR

Performance Not Met:
PNM20: Final report for lumbar puncture does not have documentation of open pressure value.

OR

Denominator Exception:
PE020: Final report for lumbar puncture documents technical difficulties that preclude obtaining the opening pressure value**.**

Numerator Note: *Final Reports that qualify for the performance exception require documentation that technical difficulties precluded obtaining the opening pressure Value. These issues can include, but are not limited to: Technical difficulty due to "dry tap" or insufficient CSF.*
******* *Opening pressure value should be numeric and also include the units of measurement (e.g. 10 cm H_2O or 100 mm H_2O).*

RATIONALE:
Fluoroscopy-guided lumbar puncture (LP) is a minimally invasive, image-guided diagnostic and therapeutic procedure that involves the removal of a small volume of

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

cerebrospinal fluid (CSF) from, or an injection of medication or other substance (e.g. radiotracer, chemotherapy agents) into the lumbar cistern of the spinal column. The opening pressure recorded during diagnostic lumbar puncture reflects intracranial pressure.

This value is critical for accurate diagnosis of suspected elevated intracranial pressure and has been shown to have correlation with morbidity in meningitis [2, 3]. In some cases, measuring the opening pressure could mean the difference between diagnosing or missing entities like CSF leaks, cerebral venous thrombosis, and idiopathic intracranial hypertension (IIH). Since the patient is already undergoing an invasive procedure and the opening pressure can usually be obtained and documented without further risk to the patient the physician should always attempt to measure the CSF opening pressure whenever performing a diagnostic LP.

If lumbar puncture is successfully performed, it is important to also record an accurate opening pressure in all cases as this may alter treatment strategy or portend more severe disease. Furthermore, routine reporting of opening pressure may obviate the need for repeat procedures should this value be needed in the future.

MEASURE TESTING AND GAP ANALYSIS:

In a review of 123 medical records opening pressure was only documented 55 times (44.7%) during the lumbar puncture procedure.

References:

1. Abel AS, Brace JR, McKinney AM, Harrison AR, Lee MS. Practice patterns and opening pressure measurements using fluoroscopically guided lumbar puncture. AJNR Am J Neuroradiol. 2012 May;33(5):823-5. doi: https://doi.org/10.3174/ajnr.A2876.

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

2. Minns RA, Engleman HM, Stirling H. Cerebrospinal fluid pressure in pyogenic meningitis. Arch Dis Child. 1989 Jun;64(6):814-20. doi: https://doi.org/10.1136/adc.64.6.814.
3. Rolfes MA, Hullsiek KH, Rhein J, Nabeta HW, Taseera K, Schutz C, Musubire A, Rajasingham R, Williams DA, Thienemann F, Muzoora C, Meintjes G, Meya DB, Boulware DR. The effect of therapeutic lumbar punctures on acute mortality from cryptococcal meningitis. Clin Infect Dis. 2014 Dec 1;59(11):1607-14. doi: https://doi.org/10.1093/cid/ciu596.
4. Doherty CM, Forbes RB. Diagnostic Lumbar Puncture. Ulster Med J. 2014 May;83(2):93-102.

Meaningful Measure Priority: Patient-Focused Episode of Care
NQS Domain: Effective Clinical Care
Measure type: Process
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Stewards: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

2023 Clinical Quality Measure Flow Narrative for Quality ID #QMM20: Opening Pressure in Lumbar Puncture

Please refer to the specific section of the specification to identify the denominator and numerator information for use in submitting this Individual Specification.

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

1. Start with Denominator

2. Check Patient Age
    a. If patient age is greater than or equal to 18 years on date of encounter equals NO during the measurement period, do not include in Eligible Population. Stop Processing.
    b. If patient age is greater than or equal to 18 years at date of encounter equals YES during the measurement period, proceed to check Procedure Code as listed in Denominator.

3. Check Procedure Code as listed in Denominator
    a. If Procedure Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
    b. If Procedure Code as listed in the Denominator equals YES, proceed to check Diagnosis Code as listed in Denominator.

4. Check Diagnosis Code as listed in Denominator
    a. If Diagnosis Code as listed in Denominator equals NO, do not include in Eligible Population. Stop Processing.
    b. If Diagnosis Code as listed in Denominator equals YES, include in Eligible Population.

5. Denominator Population
    a. Denominator Population is all Eligible Procedure and ICD-10 codes in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter “d” equals 100 procedures in the Sample Calculation.

6. Start Numerator
7. Check Final report for lumbar puncture has documentation of open pressure value
    a. If Final report for lumbar puncture has documentation of open pressure value 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 40 procedures in the Sample Calculation.

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

   c. If Final report for lumbar puncture has documentation of open pressure value equals NO, proceed to check Final report for lumbar puncture documents technical difficulties that preclude obtaining the opening pressure value.

8. Check Final report for lumbar puncture documents technical difficulties that preclude obtaining the opening pressure value
   a. If Final report for lumbar puncture documents technical difficulties that preclude obtaining the opening pressure value equals YES, include in Data Completeness Met and Denominator Exception.
   b. Data Completeness Met and Denominator Exception letter is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter “b” equals 20 procedures in the Sample Calculation.
   c. If Final report for lumbar puncture documents technical difficulties that preclude obtaining the opening pressure equals NO, proceed to check Final report for lumbar puncture does not have documentation of open pressure value.

9. Check Final report for lumbar puncture does not have documentation of open pressure value
   a. If Final report for lumbar puncture does not have documentation of open pressure value 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 and Performance Rate in the Sample Calculation listed at the end of this document. Letter “c” equals 40 procedures in the Sample Calculation.
   c. If Final report for lumbar puncture does not have documentation of open pressure value equals NO, proceed to check Data Completeness Not Met.

10. Check Data Completeness Not Met
   a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 0 procedures have been subtracted from the Data Completeness Numerator in the Sample Calculation.

717 20th Street
Columbus, GA 31904 800-889-8610
706-653-1230 (Fax)

SAMPLE CALCULATIONS:

Data Completeness =

$$\frac{\text{Performance Met (a=40 procedures)} + \text{Denominator Exception (b=20 procedures)} + \text{Performance Not Met (c=40 procedures)}}{\text{Eligible Population / Denominator (d=100 procedures)}} = \frac{100 \text{ procedures}}{100 \text{ procedures}} = \mathbf{100.00\%}$$

Performance Rate =

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (100 procedures)} - \text{Denominator Exception (20 procedures)}} = \frac{40 \text{ procedures}}{80 \text{ procedures}} = \mathbf{50.00\%}$$

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #QMM23: Low dose cancer screening recommendation for CT of Chest with diagnosis of Emphysema.
- National Quality Strategy Domain: Community/Population Health
- Meaningful Measure Area: Preventive Care

2023 COLLECTION TYPE:
Qualified Clinical Data Registry Quality Measure (QCDR)

MEASURE TYPE:
Process

DESCRIPTION:
Percentage of emphysema patients, aged 50-77 years old at the time of service, undergoing a CT/CTA of the chest with a recommendation made to consider patient for low dose cancer screening documented in the Final Report.

INSTRUCTIONS:
This measure is to be submitted **each time** an eligible patient receiving a CT/CTA of the chest. Low dose cancer screening is recommended to screen patients with risk factors, such as emphysema.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

DENOMINATOR:
All final reports for CT/CTA of the chest

Denominator Criteria (eligible cases):
Patients 50 – 77 years old at the time of service

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

AND

Patient procedure during the performance period (CPT):

71250 – CT, thorax w/out contrast
71260 – CT, thorax w/ contrast
71270 – CT, thorax w/ and w/o contrast
71275 – CTA of Chest

AND

Diagnosis of Emphysema documented with ICD10 code: J43.0, J43.1, J43.2, J43.8, J43.9

Denominator Exclusions: Active diagnosis or history of Lung Cancer (DE023) or Patient is enrolled in a lung cancer screening program (DE123)

Numerator:

Final reports for all patients on the date of service, with documentation indicating patient should be evaluated for entry into low dose lung cancer screening protocol.

Numerator Options:

Performance Met:

PM023: Final report includes documentation recommending patient be evaluated for low dose lung cancer screening.

OR

Performance Not Met:

PNM23: Final report does not include a recommendation that patient be evaluated for low dose lung cancer screening, no reason given.

OR

Denominator Exception:

PE023: Documentation of a clinical reason why final report does not include recommendation for low dose lung cancer screening (for example, patient in hospice, patient in end-of-life care, etc.).

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Rationale:

Lung Cancer kills more people in the U.S. than any other form of cancer; more than breast and colorectal cancer combined.[11,17] The five-year survival rate of lung cancer (18.6%) is significantly lower than other leading forms of cancer, such as colorectal (64.5 percent), breast (89.6 percent) and prostate (98.2 percent).[10] Early detection of lung cancer (before spread to other organs), dramatically increases the five-year survival rate from 5% to 56%; yet only 16% of lung cancer cases are diagnosed early (still localized within the lungs).[10]

The United States Preventive Services Task Force (USPSTF) issued its final recommendation for annual lung cancer screening of current and former heavy smokers between the ages of 55 and 80 years back in 2014 and updated it in 2021 to include heavy smokers aged 50 to 54.[12] The National Comprehensive Cancer Network (NCCN), the American Cancer Society (ACS), and other professional organizations also recommend screening for lung cancer with LDCT, however, the majority of eligible patients that could benefit from such preventative care remain unscreened.[2, 5, 6, 7, 8]

A number of professional societies have endorsed the use of the NLST inclusion criteria as minimum or sufficient criteria for consideration of lung cancer screening. However, several researchers have proposed that a more refined risk assessment, which would account for additional risk information not considered in the NLST entry criteria, could improve the selection process for lung-cancer screening.[15]

Emphysema have been proposed as an important risk factor for developing lung cancer in a lung cancer screening setting. However, it has been neglected by current guidelines identifying the target population that should undergo screening.[14]

In a 2008 study on 3,638 high-risk subjects, it was found that both COPD as measured by GOLD I–IV and emphysema assessed semi-quantitatively with the CT scan are independently related to lung cancer in a high-risk population, and that lung cancer occurs most frequently in patients with both COPD and emphysema.[13]

In another study, completed in 2015, of 6,699 individuals in two different, geographically disparate lung cancer screening groups, it was found that limiting annual screening to individuals with emphysema found on baseline LDCT showed the highest lung cancer incidence densities (cases per 1,000 person-years) and detection rates, and hence, the lowest number of people needed to be screened in a year to detect one lung cancer.[14] (However, the highest absolute lung cancer counts were observed in subjects who either met NLST entry criteria and/or had emphysema on baseline LDCT. By using these

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

criteria, 88% and 95% of incident lung cancers could be detected in the two different groups despite screening 48% and 27% fewer participants, respectively) [14]

In a 2012 meta-analysis, three studies assessing emphysema visually on CT observed an association with lung cancer, independent of smoking history and airflow obstruction. [16]

Given emphysema is an independent risk factor of death, including subjects with emphysema in lung cancer screening, not only provides the benefit of increased lung cancer detection, but can also add the benefit from smoking cessation efforts and therapies to limit the progression of emphysema and/or COPD. [14]

Radiologists can play an active role in improving lung cancer screening rates by helping providers identify patients that meet the requirements of such an important preventative screening. By providing a recommendation within their Final report for the ordering provider to evaluate patients that fall within the target population of LDCS, Radiologists can act as a safety net to catch patients that may have otherwise not been identified for screening services.

Gap Analysis:

A study completed in 2020, using The American College of Radiology's Lung Cancer Screening Registry shows that Nationally, less than 5% of eligible adults received a lung cancer screening. The study concludes that, "annual LDCT screening remains inadequate following USPSTF recommendations despite the time since implementation and potential to prevent thousands of lung cancer deaths each year. It remains unclear why the lung cancer screening rate is dramatically lower than other cancer screening modalities such as mammography and colonoscopy. Further initiatives are needed including awareness programs and mandating lung cancer screening as a national quality measure" [3].

LDCT screens performed in 2016 compared to eligible smokers per USPSTF criteria [3].

U.S. Census Region	No. of Accredited Centers	Estimated Eligible Smokers	LDCT Screens	Rate (%)
Northeast	404	1,152,141	40,105	3.5
Midwest	497	2,020,045	38,931	1.9

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

U.S. Census Region	No. of Accredited Centers	Estimated Eligible Smokers	LDCT Screens	Rate (%)
South	663	3,072,095	47,966	1.6
West	232	1,368,694	14,080	1.0
Total	**1796**	**7,612,975**	**141,260**	**1.9**

Economic toll:

The National Institutes of Health (NIH) estimates the cost to care for lung cancer patients in the U.S. totals $13.4 billion. Add to that the lost productivity due to early death from lung cancer, brings the total economic burden of Lung Cancer in the US to $49.5 billion.[9]

References:

1. Printz C. Lung cancer alliance praises CMS decision to cover lung cancer screenings. *Cancer*. 2015 Apr 15;121(8):1157. doi: 10.1002/cncr.29376. PMID: 25855332. https://acsjournals.onlinelibrary.wiley.com/doi/10.1002/cncr.29376

2. Barton, M.K. (2015), Integration of lung cancer screening into practice is lacking. *CA: A Cancer Journal for Clinicians*, 65: 255-256. https://doi.org/10.3322/caac.21282 https://acsjournals.onlinelibrary.wiley.com/doi/full/10.3322/caac.21282

3. Danh Pham, Shruti Bhandari, Malgorzata Oechsli, Christina M Pinkston, and Goetz H. Kloecker Lung cancer screening rates: Data from the lung cancer screening registry. *Journal of Clinical Oncology* 2018 36:15_suppl, 6504-6504 https://ascopubs.org/doi/abs/10.1200/JCO.2018.36.15_suppl.6504

4. Stacey A Fedewa, PhD, Ella A Kazerooni, MD, MS, Jamie L Studts, PhD, Robert A Smith, PhD, Priti Bandi, PhD, Ann Goding Sauer, MSPH, Megan Cotter, MPH, Helmneh M Sineshaw, MD, MPH, Ahmedin Jemal, DVM, PhD, Gerard A Silvestri, MD, MS, State Variation in Low-Dose Computed Tomography Scanning for Lung Cancer Screening in

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

the United States, *JNCI: Journal of the National Cancer Institute*, Volume 113, Issue 8, August 2021, Pages 1044–1052, https://doi.org/10.1093/jnci/djaa170

5. V.A. Moyer, US Preventive Services Task Force. **Screening for lung cancer: US Preventive Services Task Force recommendation statement.** Ann Intern Med, 160 (2014), pp. 330-338 https://www.acpjournals.org/doi/full/10.7326/M13-2771

6. National Comprehensive Cancer Network **Lung Cancer Screening Version 1.2015** National Comprehensive Cancer Network (2015) Available at: https://www.nccn.org/professionals/physician_gls/pdf/lung_screening.pdf

7. R. Wender, E.T. Fontham, E. Barrera Jr., *et al.* **American Cancer Society lung cancer screening guidelines** CA Cancer J Clin, 63 (2013), pp. 107-117

8. D.J. Raz, G.X. Wu, M. Consunji, *et a l.***Perceptions and utilization of lung cancer screening among primary care physicians** J Thorac Oncol, 11 (2016), pp. 1856-1862

9. U.S. National Institutes of Health. National Cancer Institute. Cancer Trends Progress Report – Financial Burden of Cancer Care. November, 2015.

10. U.S. National Institute Of Health, National Cancer Institute. SEER Cancer Statistics Review, 1975–2015

11. Centers For Disease Control And Prevention. National Center For Health Statistics. CDC WONDER On-Line Database, Compiled from Compressed Mortality File 1999-2016 Series 20 No. 2V, 2017.

12. The U.S. The United States Preventive Services Task Force. Final Recommendation Statement: Lung cancer: Screening. 2021 Mar 9. https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/lung-cancer-screening#fullrecommendationstart.

13. Wilson DO, Weissfeld JL, Balkan A, Schragin JG, Fuhrman CR, Fisher SN, Wilson J, Leader JK, Siegfried JM, Shapiro SD, Sciurba FC. Association of radiographic emphysema and airflow

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

obstruction with lung cancer. Am J Respir Crit Care Med. 2008 Oct 1;178(7):738-44. doi: http://doi.org/10.1164/rccm.200803-435OC.

14. Sanchez-Salcedo P, Wilson DO, de-Torres JP, Weissfeld JL, Berto J, Campo A, Alcaide AB, Pueyo J, Bastarrika G, Seijo LM, Pajares MJ, Pio R, Montuenga LM, Zulueta JJ. Improving selection criteria for lung cancer screening. The potential role of emphysema. Am J Respir Crit Care Med. 2015 Apr 15;191(8):924-31. doi: http://doi.org/10.1164/rccm.201410-1848OC.

15. Kovalchik SA, Tammemagi M, Berg CD, Caporaso NE, Riley TL, Korch M, Silvestri GA, Chaturvedi AK, Katki HA. Targeting of low-dose CT screening according to the risk of lung-cancer death. N Engl J Med. 2013 Jul 18;369(3):245-254. doi: http://doi.org/10.1056/NEJMoa1301851.

16. Smith BM, Pinto L, Ezer N, Sverzellati N, Muro S, Schwartzman K. Emphysema detected on computed tomography and risk of lung cancer: a systematic review and meta-analysis. Lung Cancer. 2012 Jul;77(1):58-63. doi: http://doi.org/10.1016/j.lungcan.2012.02.019.

17. U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2021 submission data (1999-2019). U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute. 2022 Jun. www.cdc.gov/cancer/dataviz.

SAMPLE CALCULATIONS:

Data Completeness =

$$\frac{\text{Performance Met (a=40 procedures) + Denominator Exception (b=20 procedures) + Performance Not Met (c=40 procedures)}}{\text{Eligible Population / Denominator (d=100 procedures)}} = \frac{100 \text{ procedures}}{100 \text{ procedures}} = 100.00\%$$

Performance Rate =

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (100 procedures) - Denominator Exception (20 procedures)}} = \frac{40 \text{ procedures}}{80 \text{ procedures}} = 50.00\%$$

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Quality ID #QMM24: Acute Rib Fracture Numbering on ED Trauma Patients
- **National Quality Strategy Domain: Effective Clinical Care**
- **Meaningful Measure Area: Patient Focused Episode of Care**

2023 COLLECTION TYPE:
QUALIFIED CLINICAL DATA REGISTRY QUALITY MEASURE (QCDR)

MEASURE TYPE:
Process

DESCRIPTION:
All patients, regardless of age, who undergo a CT/CTA of the chest in the Emergency Department with a diagnosis of an acute rib fracture(s), who have documentation of rib fracture numbering, laterality of rib fracture(s), and presence or absence of ribs fractured in two or more places.

INSTRUCTIONS:
This measure is to be submitted **each time** an eligible patient has CT/CTA of the chest with a diagnosis of one or more acute rib fractures. Proper documentation of the number, laterality of rib fractures, and presence or absence of ribs fractured in two or more places is pertinent information to assist the ordering provider in choosing the most appropriate care plan for the patient, thus avoiding major complications.

Measure Submission Type:
Measure data may only be submitted by the measure steward or third-party-intermediaries possessing licensing rights from the measure steward. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

DENOMINATOR:
All final reports for CT/CTA of the chest

Denominator Criteria (eligible cases):
All patients, regardless of age
AND
Patient procedure during the performance period (CPT):
71250 – CT, thorax w/out contrast
71260 – CT, thorax w/ contrast
71270 – CT, thorax w/ and w/o contrast
71275 – CTA of Chest
AND
Diagnosis of one or more acute rib fractures documented with ICD-10 codes:
S22.31 – Fracture of one rib, right side
S22.32 – Fracture of one rib, left side
S22.39 – Single rib fracture, unspecified side
S22.41 – Multiple fracture of ribs, right side
S22.42 – Multiple fracture of ribs, left side
S22.43 – multiple rib fracture, bilateral
S22.49 – multiple fracture of rib, unspecified side
S22.5 – Flail chest

AND
POS Code: 23 – Hospital Emergency Room

AND NOT
DENOMINATOR EXCLUSIONS:
Healed/Healing rib fracture(s) (DE024)

NUMERATOR:
Final report contains documentation of ALL of the following:
1. Rib fracture numbering
2. Laterality of rib fracture(s)
3. Presence or absence of ribs fractured in two or more places

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

Numerator Options:

Performance Met:

PM024: Final report includes documentation of:

1. Rib fracture numbering
2. Laterality of rib fracture(s)
3. Presence or absence of ribs fractured in two or more places

OR

Performance Not Met:

PNM24: Final report does NOT include all of the following:

1. Rib fracture numbering
2. Location of rib fracture(s)
3. Presence or absence of ribs fractured in two or more places

Reason not specified.

OR

Denominator Exception:

PE024: Documentation of a patient reason why final report does not include all requirements listed above (e.g., patient is in an urgent or emergent medical situation where time is of the essence and to delay treatment would jeopardize the patient's health status).

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

RATIONALE:

Often times rib fractures can lead to severe complications when patients are not adequately monitored. Presenting the required documentation elements listed in this measure to the Emergency provider allows them to make better informed treatment plans, thus avoiding potentially fatal complications or unnecessary admissions.

The most common mechanism causing rib fractures is blunt trauma (i.e. automobile accidents, falls from height, assault, or even severe coughing). Approximately 10% of all patients admitted for blunt chest trauma have one or more rib fractures, with up to a third of the patients going on to develop secondary complication. [4, 5]

"In a retrospective study of 174 chest trauma patients with rib fracture, it was found that the number of displaced or total rib fractures, bilateral rib fractures, and rib fractures in more than two areas were associated with the most chest complications. Furthermore, three or more rib fractures or any displacement were found to be the most sensitive risk factor for chest complications…".[3]

GAP ANALYSIS:

"Radiology reports are often not sufficiently descriptive or are incomplete with respect to the number and location fracture and reliance on these data will lead to erroneous conclusions." In a study of 388 patients with ≥ 1 rib fracture, the CT radiology reports of 43% (179 of 388) of the patients incorrectly identified the number and location of the fractured ribs. Of these reports, 72% (129 of 179) differed from the prospective review by more than one fracture. [6]

ECONOMIC ANALYSIS:

Rib fractures affect between 22,000 and 45,000 people in the United States every year. Looking at rib fracture admissions during 2007–2016, (a study found that) the average cost per hospitalization was $10,169. The annual cost of rib fracture hospitalizations is now over $469 million per year and increasing over time. [1]

Multiple rib fractures and flail chest rib fractures are associated with increased cost. Looking at rib fracture admissions during 2007–2016, multiple and flail chest rib fracture patients accounted for 64,411 (85%) and 1,234 (2%) admissions, respectively. More than 50% of the patients with multiple non-flail fractures had moderate to profound injuries, which resulted in 6% to 26% higher costs relative to the mild injuries. [1]

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

The number of body regions injured is associated with increased cost. Looking at rib fracture admissions during 2007–2016, a higher proportion of isolated chest injuries occurred in single rib fracture patients (64%) compared to multiple (52%) and flail chest (30%) rib fracture patients. And compared to only chest injuries, 1–2 and 3–5 body region injuries resulted in 17% to 32% higher costs. [1]

Longer hospitalizations are associated with increased cost. Looking at rib fracture admissions during 2007–2016, the average length of stay (LOS) for flail chest, multiple and single rib fracture patients was 8.2, 4.1 and 3.3 days, respectively. Cost of hospitalization was found to increase incrementally for each day increase in LOS by 10%.[1]

Rib fracture hospitalizations are a large cost burden on the US healthcare system, with the largest total cost being attributable to the group of patients with multiple non-flail fractures. Documentation of rib fracture numbering, laterality of rib fracture(s), and the presence or absence of multi-segmental rib fractures in final radiology reports can reduce cost by facilitating early and more accurate identification of multiple non-flail rib fractures. And early identification can lead to expedited discharge which has been shown to result in significant cost savings. [2]

References:

1. Sarode AL, Ho VP, Pieracci FM, Moorman ML, Towe CW. The financial burden of rib fractures: National estimates 2007 to 2016. Injury. 2021 Aug;52(8):2180-2187. doi: http://doi.org/10.1016/j.injury.2021.05.027.
2. Dalton MK, Minarich MJ, Twaddell KJ, Hazelton JP, Fox NM. The expedited discharge of patients with multiple traumatic rib fractures is cost-effective. Injury. 2019 Jan;50(1):109-112. doi: http://doi.org/10.1016/j.injury.2018.10.014.
3. Chien CY, Chen YH, Han ST, Blaney GN, Huang TS, Chen KF. The number of displaced rib fractures is more predictive for complications in chest trauma patients. Scand J Trauma Resusc Emerg Med. 2017 Feb 28;25(1):19. doi: http://doi.org/10.1186/s13049-017-0368-y.

717 20th Street
Columbus, GA 31904
800-889-8610
706-653-1230 (Fax)

4. Pines G, Gotler Y, Lazar LO, Lin G. Clinical significance of rib fractures' anatomical patterns. Injury. 2020 Aug;51(8):1812-1816. doi: http://doi.org/10.1016/j.injury.2020.05.023.
5. Serfin JA, Guo WA. Rib fractures. The American Association for the Surgery of Trauma. https://www.aast.org/resources-detail/rib-fractures.
6. Livingston DH, Shogan B, John P, Lavery RF. CT diagnosis of Rib fractures and the prediction of acute respiratory failure. J Trauma. 2008 Apr;64(4):905-11. doi: http://doi.org/10.1097/TA.0b013e3181668ad7.

Meaningful Measure Priority: Patient-Focused Episode of Care
NQS Domain: Effective Clinical Care
Measure type: Process
Data Source: Registry, RIS/VR System, Contracted third party data capture systems.
Measure Stewards: MSN Healthcare Solutions, LLC
Number of Multiple Performance Rates: 1
Inverse Measure: No
Proportion Measure Scoring: Yes
Continuous Measure Scoring: No
Risk adjustment: No
NQF Number: Not applicable
eCQM Number: Not applicable

SAMPLE CALCULATIONS:

Data Completeness =

$$\frac{\text{Performance Met (a=40 procedures) + Denominator Exception (b=20 procedures) + Performance Not Met (c=40 procedures)}}{\text{Eligible Population / Denominator (d=100 procedures)}} = \frac{100 \text{ procedures}}{100 \text{ procedures}} = 100.00\%$$

Performance Rate =

$$\frac{\text{Performance Met (a=40 procedures)}}{\text{Data Completeness Numerator (100 procedures) - Denominator Exception (20 procedures)}} = \frac{40 \text{ procedures}}{80 \text{ procedures}} = 50.00\%$$