

Description: This document contains the 13 performance measures approved by CMS for inclusion in the 2021 Qualified Clinical Data Registry (QCDR).

Measure ID	IGR1
Modality	Transthoracic Echocardiography
Measure Title	Comprehensive TTE studies reporting a measured value of LVEF AND wall motion findings with LVEF < 50%
Measure Description	Percentage of comprehensive TTE studies reporting a measured value of LVEF and wall motion findings with LVEF < 50% on patients 18 years of age or older.
Numerator	Number of denominator eligible studies reporting a measured value of LVEF by 2D or 3D techniques and wall motion findings in patients with LVEF < 50%.
Numerator Exclusions	None
Denominator	Comprehensive TTE studies with a LVEF < 50% performed on patients 18 years of age or older.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes
Measure Type	Efficiency and Cost/Resource Use
Inverse Measure	No
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	Appropriate use of Healthcare
NQS Domain	Efficiency and Cost Reduction
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	IGR2
Modality	Stress Echocardiography
Measure Title	Parameters in stress echocardiography dobutamine testing for low flow, low gradient aortic stenosis
Measure Description	Percentage of low flow, low gradient aortic stenosis studies in the setting of LVEF < 50% with complete measurements during a dobutamine stress echocardiogram on patients 18 years of age or older.
Numerator	Number of denominator eligible studies in which ((left ventricular outflow tract diameter (LVOT), LVOT velocity time integral, AND peak aortic valve velocity) OR aortic valve area) AND mean aortic valve gradient AND LVEF are measured at baseline and at peak stage of dobutamine infusion.
Numerator Exclusions	None

Denominator	All stress echo studies performed to assess low flow, low gradient aortic stenosis in the setting of LVEF < 50% on patients 18 years of age or older.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	No
Measure Type	Process
Inverse Measure	No
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	Appropriate use of Healthcare
NQS Domain	Effective Clinical Care
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	IGR9
Modality	Stress Echocardiography
Measure Title	Stress echo performance for shortness of breath per ASE guidelines
Measure Description	<p>Stress echo performance for shortness of breath per ASE guidelines on patients 18 years of age or older. This is a multi-strata measure consisting of the following:</p> <ol style="list-style-type: none"> 1. Percentage of stress echo studies presenting with an indication of unexplained dyspnea that include an interpretation of LV diastolic function parameters with exercise. 2. Percentage of stress echo studies presenting with significant aortic or mitral valve disease that include reporting of valve function and regurgitation with exercise. <p>The overall performance will be calculated using a weighted average.</p>
Numerator	<ol style="list-style-type: none"> 1. Number of denominator eligible studies performed that include interpretation of (LV diastolic function OR estimated LV filling pressures) and estimated pulmonary artery systolic pressure at exercise. 2. Number of denominator eligible studies performed that include reporting of aortic and mitral valve function and regurgitation at exercise.
Numerator Exclusions	None
Denominator	<ol style="list-style-type: none"> 1. Number of exercise echocardiograms with an indication of unexplained dyspnea performed on patients 18 years of age or older. 2. Number of exercise echocardiograms with an indication known or suspected aortic or mitral regurgitation or being evaluated for valvular heart disease performed on patients 18 years of age or older.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes
Measure Type	Efficiency and Cost/Resource Use

Inverse Measure	No
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	Appropriate use of Healthcare
NQS Domain	Effective Clinical Care
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	IGR10
Modality	Transthoracic Echocardiography
Measure Title	Transthoracic Echo (TTE) performance per ASE guidelines
Measure Description	<p>Transthoracic Echo (TTE) performance per ASE guidelines on patients 18 years of age or older. This is a multi-strata measure consisting of the following:</p> <ol style="list-style-type: none"> 1. Percentage of comprehensive TTE studies reporting 100% obtainment of required views. 2. Percentage of limited and comprehensive TTE studies where the study quality was poor or technically difficult that utilized contrast. 3. Percentage of comprehensive TTE studies reporting pulmonary artery pressures. 4. Percentage of comprehensive TTE studies reporting of diastolic function. 5. Percentage of limited and comprehensive TTE studies reporting cardiac function using strain analysis in patients receiving chemotherapy. <p>The overall performance will be calculated using a weighted average.</p>
Numerator	<ol style="list-style-type: none"> 1. Number of denominator eligible studies utilizing 100% of all required views 2. Number of denominator eligible studies receiving contrast 3. Number of denominator eligible studies reporting pulmonary artery pressures 4. Number of denominator eligible studies documenting LV diastolic function or LV filling pressure 5. Number of denominator eligible studies that include strain analysis
Numerator Exclusions	None
Denominator	<ol style="list-style-type: none"> 1. Number of comprehensive Transthoracic Echo (TTE) studies performed on patients 18 years of age or older. 2. Number of limited and comprehensive Transthoracic Echo (TTE) studies where the study quality was poor/technically difficult performed on patients 18 years of age or older. 3. Number of comprehensive Transthoracic Echo (TTE) studies performed on patients 18 years of age or older. 4. Number of comprehensive Transthoracic Echo (TTE) studies for heart failure or being evaluated for shortness of breath performed on patients 18 years of age or older 5. Number of limited and comprehensive Transthoracic Echo (TTE) studies for indications involving chemotherapy performed on patients 18 years of age or older
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes

Measure Type	Efficiency and Cost/Resource Use
Inverse Measure	No
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	Appropriate use of Healthcare
NQS Domain	Efficiency and Cost Reduction
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	IGR12
Modality	Transthoracic Echocardiography
Measure Title	Appropriate diagnosis verification and severity grading for valve disease through transthoracic echocardiography (TTE) quantitative parameters.
Measure Description	<p>This measure addresses changes in cardiac structure and function in patients with aortic stenosis and/or mitral regurgitation. Changes in left ventricular size and function AND quantitative assessment of severity of aortic stenosis and/or mitral regurgitation should be performed in patients with significant left sided valvular lesions. Both sets of data (left ventricle structure and function, and extent of valvular disease) are needed to reach a conclusion about whether valve surgery or repair is needed. While qualitative assessments are commonly employed, they are generally inadequate to determine severity and to track changes over time. This is a multi-strata measure consisting of the following strata:</p> <ol style="list-style-type: none"> 1. Percentage of transthoracic echocardiogram reports with at least moderate mitral regurgitation including qualitative MR severity, two quantitative MR measurements to support the qualitative severity grading, quantitative LVEF, one quantitative measurement of LV size at end diastole and end systole, AND blood pressure at time of study. 2. Percentage of transthoracic echocardiogram reports with at least moderate aortic stenosis including peak velocity, mean systolic gradient, aortic valve area, quantitative LVEF, one quantitative measurement of LV size at end diastole and end systole, AND blood pressure at the time of study . <p>The overall performance will be calculated using a weighted average.</p>
Numerator	<ol style="list-style-type: none"> 1. Number of transthoracic echocardiogram reports with at least moderate mitral regurgitation including qualitative MR severity, two quantitative MR measurements to support the qualitative severity grading, quantitative LVEF, one quantitative measurement of LV size at end diastole and end systole, AND blood pressure at time of study. 2. Number of transthoracic echocardiogram reports with at least moderate aortic stenosis including peak velocity, mean systolic gradient, aortic valve area, quantitative LVEF, one quantitative measurement of LV size at end diastole and end systole, AND blood pressure at the time of study
Numerator Exclusions	None
Denominator	1. Number of transthoracic echocardiogram (TTE) studies performed with moderate or

greater mitral regurgitation reported on patients 18 years of age or older.
 2. Number of comprehensive transthoracic Echo (TTE) studies performed with moderate or greater aortic valve stenosis reported on patients 18 years of age or older.

Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	No
Measure Type	Process
Inverse Measure	No
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	Transfer of Health Information and Interoperability
NQS Domain	Effective Clinical Care
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	IGR14
Modality	Transthoracic Echocardiography
Measure Title	Appropriate Evaluation of Left Ventricular Structure and Systolic Function with Transthoracic Echocardiography (TTE) to Guide Heart Failure and Cardiomyopathy Management
Measure Description	This measure addresses appropriate evaluation of left ventricular structure and systolic function with TTE to guide heart failure and cardiomyopathy management on patients 18 years of age or older. It examines percentage (%) of comprehensive transthoracic echocardiogram (TTE) studies performed on patients with heart failure/cardiomyopathy as the reason for the study, and including the following parameters for the study: - LV end-diastolic and end systolic diameters, end diastolic LV interventricular septum thickness and LV posterior wall thickness measurements - LV mass index calculation - Strain technology utilization - Use of intravenous contrast agent to visualize endocardial borders for LV volumes and ejection fraction (EF) measurement in technically difficult studies.
Numerator	Number of denominator eligible studies reporting a quantitative assessment of left ventricular (LV) structure and systolic function including: - LV end-diastolic and end systolic diameters, end diastolic LV interventricular septum thickness and LV posterior wall thickness measurements - LV mass index calculation - Strain technology utilization - Use of intravenous contrast agent to visualize endocardial borders for LV volumes and ejection fraction (EF) measurement in technically difficult studies
Numerator Exclusions	None
Denominator	Number of comprehensive TTE studies performed on patients with heart failure/cardiomyopathy as a reason for the study in patients 18 years of age or older.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	No

Measure Type	Process
Inverse Measure	No
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	Patient-Focused Episode of Care
NQS Domain	Effective Clinical Care
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	IGR15
Modality	Nuclear (SPECT, PET), Stress Echocardiography
Measure Title	Myocardial Perfusion Imaging (MPI) or Stress Echocardiography Imaging Studies - Adequate Exercise Protocol
Measure Description	<p>This is a multi-strata measure consisting of the following strata:</p> <ol style="list-style-type: none"> 1. Percentage of Single Photon Emission Computed Tomography (SPECT) Myocardial Perfusion Imaging (MPI) or Stress Echocardiography studies using a Stress Test Type that includes exercise performed on patients 18 years of age or older. 2. Percentage of Single Photon Emission Computed Tomography (SPECT) Myocardial Perfusion Imaging (MPI) or Stress Echocardiography exercise studies where the stress heart rate \geq 85% of maximum heart rate and three or more minutes of exercise performed on patients 18 years of age or older. <p>The overall performance will be calculated using a weighted average.</p>
Numerator	<ol style="list-style-type: none"> 1. Number of SPECT-MPI or Stress Echocardiography studies where the Stress Test Type includes exercise. 2. Number of exercise SPECT-MPI or Stress Echocardiography studies where the stress heart rate \geq 85% of maximum heart rate and three or more minutes of exercise.
Numerator Exclusions	None
Denominator	<ol style="list-style-type: none"> 1. Number of SPECT-MPI or Stress Echocardiography studies performed on patients 18 years of age or older. 2. Number of exercise SPECT-MPI or Stress Echocardiography studies performed on patients 18 years of age or older.
Denominator Exclusions	<ol style="list-style-type: none"> 1. Patients with Left Bundle Branch Block (LBBB), a pacemaker or who are unable to exercise. 2. None
Denominator Exceptions	None
High Priority Status	No
Measure Type	Process
Inverse Measure	No
Number of rates	2
Overall Performance Rate	Weighted Average
Measure Rate Type	Proportional

Meaningful Measure Area	Preventive Care
NQS Domain	Effective Clinical Care
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	IGR16
Modality	Nuclear (SPECT, PET), Transthoracic Echocardiography, Stress Echocardiography
Measure Title	Myocardial Perfusion Imaging (MPI) Studies, Transthoracic Echo (TTE), or Stress Echocardiography Imaging Studies - Adequate Reporting for Appropriate Interventions
Measure Description	<p>This is a multi-strata measure consisting of the following strata:</p> <ol style="list-style-type: none"> 1. Percentage of Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET) Myocardial Perfusion Imaging (MPI) studies that were abnormal and contained perfusion defects documentation including location, severity, and size performed on patients 18 years of age or older. 2. Percentage of Single Photon Emission Computed Tomography (SPECT), Positron Emission Tomography (PET) Myocardial Perfusion Imaging (MPI), transthoracic echocardiography, or stress echocardiography imaging studies where the Left Ventricle Ejection Fraction (LVEF) was calculated and included in the report performed on patients 18 years of age or older. <p>The overall performance will be calculated using a weighted average.</p>
Numerator	<ol style="list-style-type: none"> 1. Number of stress nuclear Myocardial Perfusion Imaging (MPI) studies performed where all stress perfusion defects were documented including the defect location, severity, size and type. 2. Number of stress nuclear Myocardial Perfusion Imaging (MPI) studies, Transthoracic Echocardiography (TTE), or Stress Echocardiography imaging studies performed where the Left Ventricular Ejection Fraction was calculated and reported.
Numerator Exclusions	None
Denominator	<ol style="list-style-type: none"> 1. All instances of stress nuclear Myocardial Perfusion Imaging (MPI) studies that were abnormal performed on patients 18 years of age or older. 2. All instances of stress nuclear Myocardial Perfusion Imaging (MPI) studies, Transthoracic Echocardiography (TTE), or Stress Echocardiography imaging studies performed on patients 18 years of age or older.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes
Measure Type	Process
Inverse Measure	No
Number of rates	2
Overall Performance Rate	Weighted Average
Measure Rate Type	Proportional
Meaningful Measure Area	Transfer of Health Information and Interoperability
NQS Domain	Communication and Care Coordination

NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services
Measure ID	IGR17
Modality	Nuclear (SPECT, PET)
Measure Title	Myocardial Perfusion Imaging (MPI) studies - Radiation Reduction Strategies
Measure Description	This is a multi-strata measure consisting of the following strata: <ol style="list-style-type: none"> 1. Percentage of Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET) Myocardial Perfusion Imaging (MPI) studies where the imaging protocol used was stress only performed on patients 18 years of age or older. 2. Percentage of Single Photon Emission Computed Tomography (SPECT) Myocardial Perfusion Imaging (MPI) studies where 9 or less millisieverts of radiation were administered per ASNC guideline recommendations on patients 18 years of age or older. <p>The overall performance will be calculated using a weighted average.</p>
Numerator	<ol style="list-style-type: none"> 1. Number of SPECT Myocardial Perfusion Imaging (MPI) and PET-MPI studies where the imaging protocol used was stress only. 2. Number of SPECT-MPI studies where 9 or less millisieverts were administered for the study.
Numerator Exclusions	None
Denominator	<ol style="list-style-type: none"> 1. All instances of SPECT- Myocardial Perfusion Imaging (MPI) and PET-MPI studies performed on patients 18 years of age or older. 2. All instances of SPECT-MPI studies performed on patients 18 years of age or older.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes
Measure Type	Outcome
Inverse Measure	No
Number of rates	2
Overall Performance Rate	Weighted Average
Measure Rate Type	Proportional
Meaningful Measure Area	Preventable Healthcare Harm
NQS Domain	Patient Safety
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services
Measure ID	IGR18
Modality	Nuclear (SPECT, PET), Stress Echocardiography
Measure Title	Myocardial Perfusion Imaging (MPI) or Stress Echocardiography imaging studies - Improving Image Quality
Measure Description	This is a multi-strata measure consisting of the following strata:

1. Percentage of Single Photon Emission Computed Tomography (SPECT) Myocardial Perfusion Imaging (MPI) studies using Attenuation Correction performed on patients 18 years of age or older.
2. Percentage of SPECT-MPI or Stress Echocardiography imaging studies where the Imaging Protocol was appropriate for morbidly obese patients 18 years of age or older.

The overall performance will be calculated using a weighted average.

- Numerator**
1. Number of SPECT-Myocardial Perfusion Imaging (MPI) where an Attenuation Correction of CT or Transmission was used or an Attenuation Correction of "Prone" or "Supine" was documented for patients.
 2. Number of SPECT-MPI or Stress Echocardiography studies where the nuclear imaging protocol used was Rest/Stress 2-Day or Stress/Rest 2-day or Stress Echocardiography where contrast was utilized.

Numerator Exclusions None

- Denominator**
1. Number of SPECT-MPI studies performed on patients 18 years of age or older.
 2. Number of SPECT-MPI or Stress Echocardiography studies performed where the BMI \geq 40 on patients 18 years of age or older.

Denominator Exclusions None

Denominator Exceptions None

High Priority Status No

Measure Type Process

Inverse Measure No

Number of rates 2

Overall Performance Rate Weighted Average

Measure Rate Type Proportional

Meaningful Measure Area Patient-Focused Episode of Care

NQS Domain Effective Clinical Care

NQF ID Number N/A

Risk-Adjusted No

Care Settings Hospital Inpatient; Hospital Outpatient Services

Measure ID QPP322

Modality Nuclear (SPECT, PET), Stress Echocardiography

Measure Title Cardiac Stress Imaging Not Meeting Appropriate Use Criteria: Preoperative Evaluation in Low Risk Surgery Patients

Measure Description Percentage of stress single-photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI), stress echocardiogram (ECHO), cardiac computed tomography angiography (CCTA), or cardiac magnetic resonance (CMR) performed in low-risk surgery patients 18 years or older for preoperative evaluation during the 12-month submission period.

Numerator Number of stress SPECT MPI, stress echo, CCTA, or CMR primarily performed in low-risk surgery patients for preoperative evaluation within 30 days preceding low-risk non-cardiac surgery.

Numerator Exclusions None

Denominator	All instances of stress single-photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI), stress echocardiogram (ECHO), cardiac computed tomography angiography (CCTA), or cardiac magnetic resonance (CMR) performed on patients aged 18 years and older during the submission period.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes
Measure Type	Efficiency and Cost/Resource Use
Inverse Measure	Yes
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	N/A
NQS Domain	Efficiency and Cost Reduction
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services

Measure ID	QPP323
Modality	Nuclear (SPECT, PET), Stress Echocardiography
Measure Title	Cardiac Stress Imaging Not Meeting Appropriate Use Criteria: Routine Testing After Percutaneous Coronary Intervention (PCI)
Measure Description	Percentage of all stress single-photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI), stress echocardiogram (ECHO), cardiac computed tomography angiography (CCTA), and cardiovascular magnetic resonance (CMR) performed in patients aged 18 years and older routinely after percutaneous coronary intervention (PCI), with reference to timing of test after PCI and symptom status.
Numerator	Number of stress SPECT MPI, stress echo, CCTA and CMR performed in asymptomatic patients within 2 years of the most recent PCI.
Numerator Exclusions	None
Denominator	All instances of stress single-photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI), stress echocardiogram (ECHO), cardiac computed tomography angiography (CCTA), or cardiac magnetic resonance (CMR) performed on patients aged 18 years and older during the submission period.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes
Measure Type	Efficiency and Cost/Resource Use
Inverse Measure	Yes
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	N/A

NQS Domain	Efficiency and Cost Reduction
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services
Measure ID	QPP324
Modality	Nuclear (SPECT, PET), Stress Echocardiography
Measure Title	Cardiac Stress Imaging Not Meeting Appropriate Use Criteria: Testing in Asymptomatic, Low-Risk Patients
Measure Description	Percentage of all stress single-photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI), stress echocardiogram (ECHO), cardiac computed tomography angiography (CCTA), and cardiovascular magnetic resonance (CMR) performed in asymptomatic, low coronary heart disease (CHD) risk patients 18 years and older for initial detection and risk assessment.
Numerator	Number of stress SPECT MPI, stress echo, CCTA, or CMR primarily performed for asymptomatic, low CHD risk patients for initial detection and risk assessment.
Numerator Exclusions	None
Denominator	All instances of stress single-photon emission computed tomography (SPECT) myocardial perfusion imaging (MPI), stress echocardiogram (ECHO), cardiac computed tomography angiography (CCTA), or cardiac magnetic resonance (CMR) performed on patients aged 18 years and older during the performance period.
Denominator Exclusions	None
Denominator Exceptions	None
High Priority Status	Yes
Measure Type	Efficiency and Cost/Resource Use
Inverse Measure	Yes
Number of rates	1
Overall Performance Rate	1st Performance Rate
Measure Rate Type	Proportional
Meaningful Measure Area	N/A
NQS Domain	Efficiency and Cost Reduction
NQF ID Number	N/A
Risk-Adjusted	No
Care Settings	Hospital Inpatient; Hospital Outpatient Services