NCDR®
NATIONAL CARDIOVASCULAR DATA REGISTRY

CathPCI Registry®

Physician Dashboard

Guide for Physicians

National Cardiovascular Data Registry
800-257-4737
www.ncdr.com • ncdr@acc.org

Introduction

As part of our ongoing effort to provide meaningful data, improve cardiovascular care, and deliver value to our members, the NCDR has created a new Physician Dashboard where you can review your physician level data. This new online reporting tool will allow you to access your report on demand and view your data based on your NPI. Whether you practice at one or multiple hospitals, you may view the dashboard for one hospital or for all hospitals in which you practice because the data are based on your NPI number.

This dashboard may be used for:

- Awareness of your data
- Compare your performance on selected metrics to national benchmarks
- Quality improvement
- MOC IV self-directed Performance Improvement Modules (PIMs)

This Physician Instruction Guide is designed to assist you in becoming familiar with and using the Physician Dashboard. We hope that this new report will be beneficial to you as well as advancing the care of cardiac patients.

Please confer with the CathPCI Registry Site Manager at your hospital concerning the data reports. If you have a question about the Physician Dashboard, please contact the NCDR Product Support Team at 800- 257-4737 or via email at *ncdr@acc.org* and allow three business days for a response.

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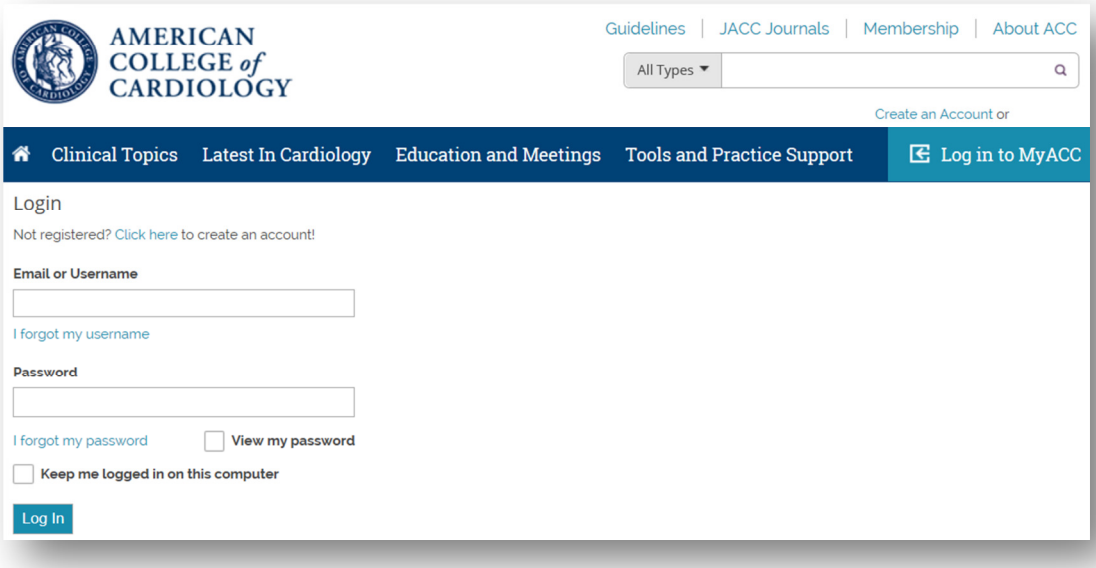
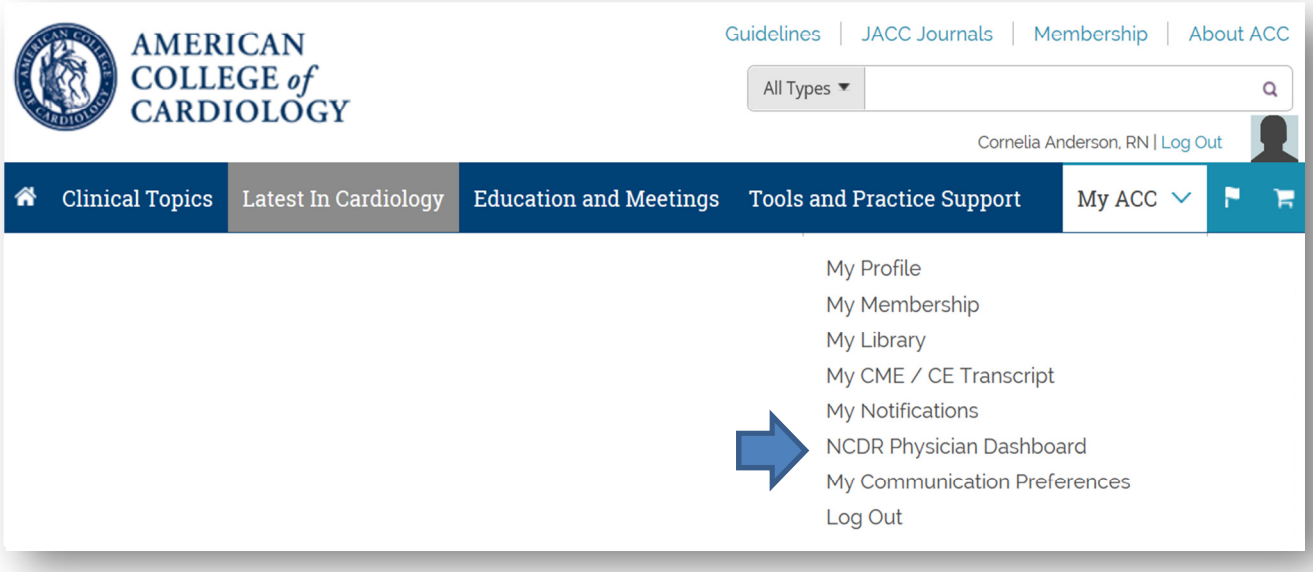
How to Access Your Physician Dashboard

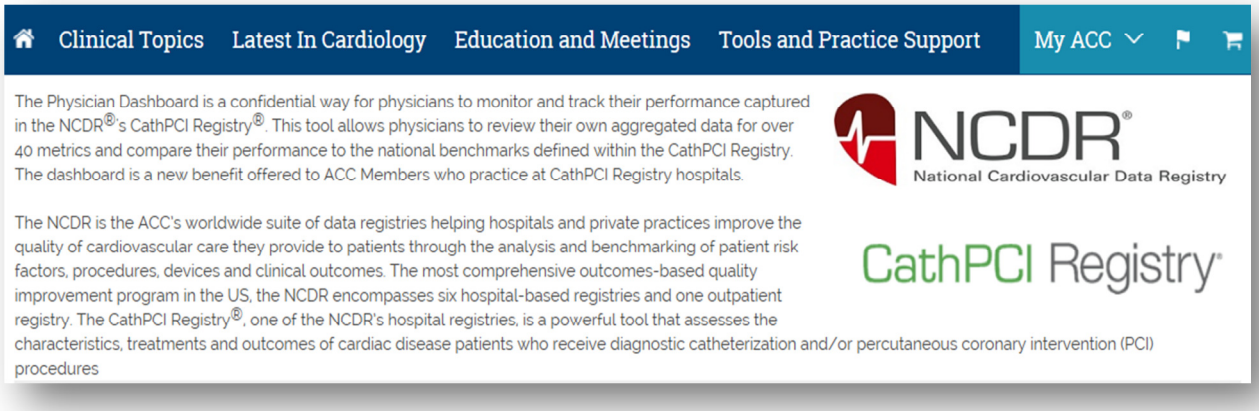
1. Select “Log in MyACC” on the top navigation bar and Log In
   http://www.acc.org/



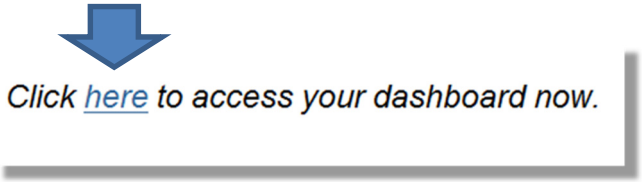
2. Next click on “**My ACC**” in the top navigation bar and select “**NCDR Physician Dashboard**” from the dropdown menu



3. This will bring you to the Physician Dashboard homepage.

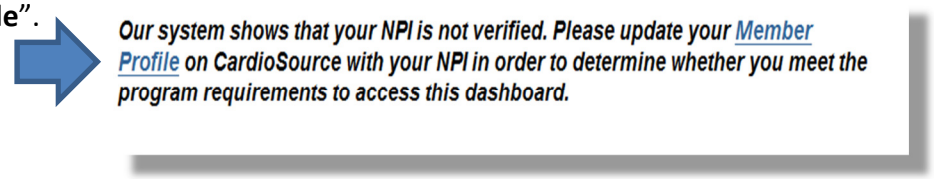


4. If your NPI number is correct and verified, you will see this message:
   Please click on "**here**" to navigate to your
   Physician Dashboard. (Proceed to **step #6**)

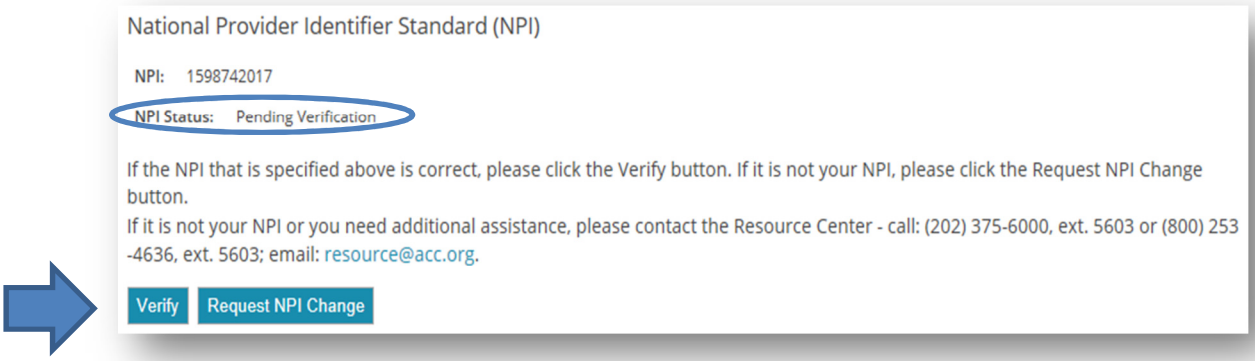


5. If your NPI number is missing, incorrect or needs to be verified, you will get this message:

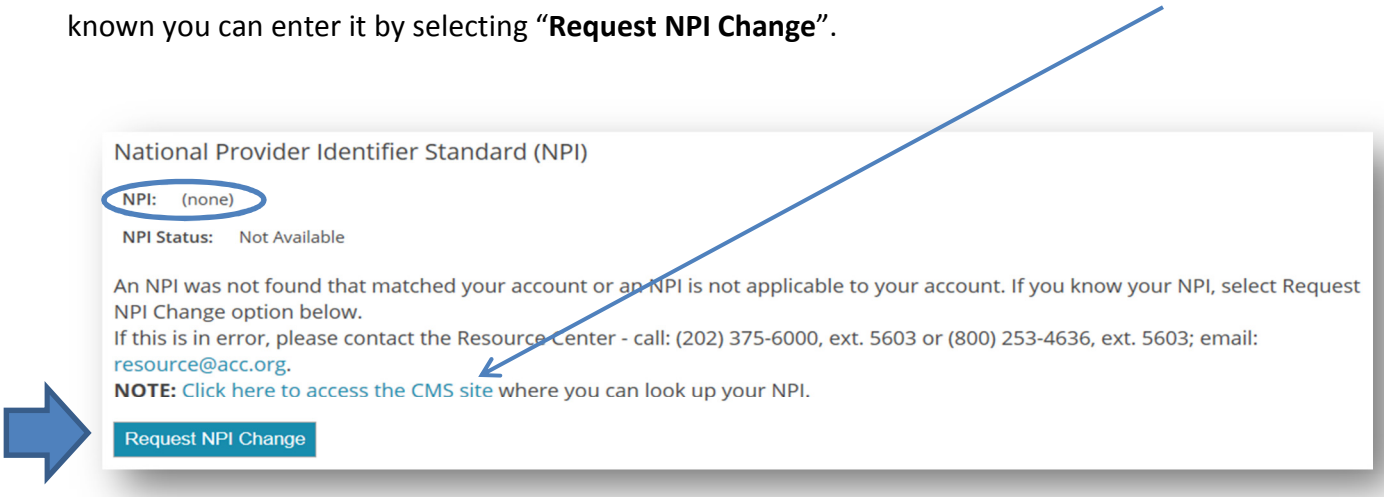
   Please click on "**Member Profile**".



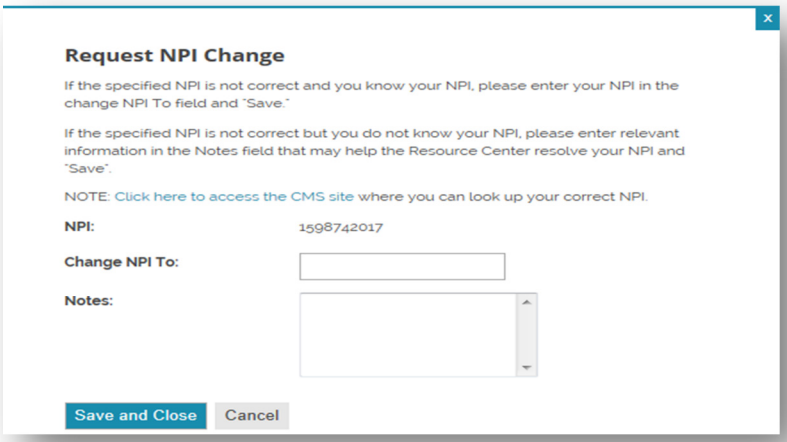
   This will bring you to your ACC Member Profile. Once there, scroll down and click on the "**Professional Information**" bar. If the NPI number is correct, but needs to be verified select "**Verify**"



If the NPI number is missing or incorrect you can validate it by navigating to the CMS site *or* when it is known you can enter it by selecting "**Request NPI Change**".

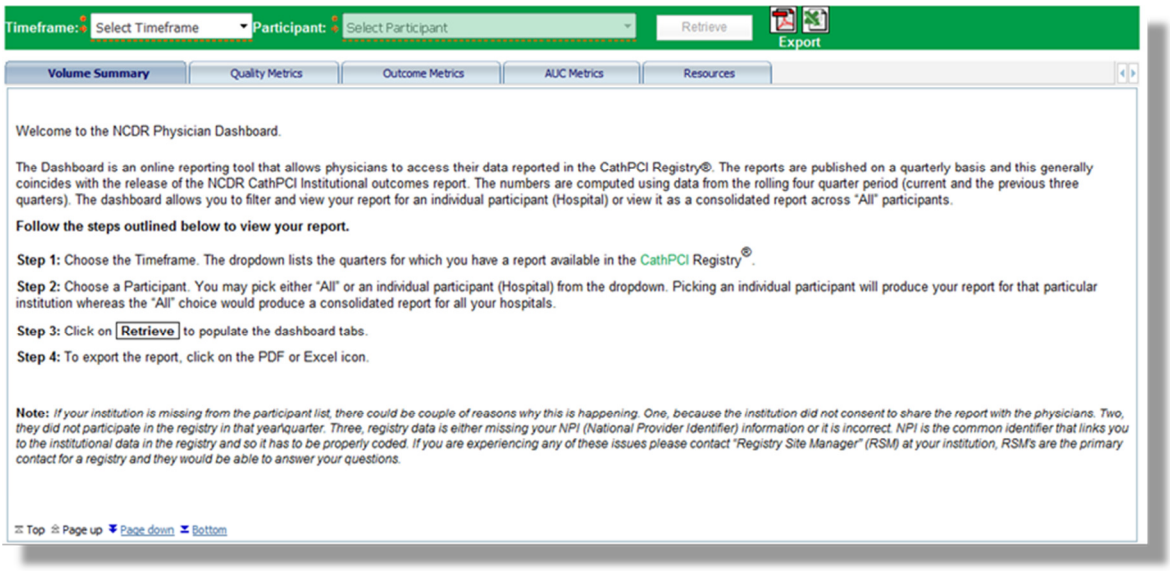


When Request NPI Change has been selected, enter your correct NPI number in the available field and select "**Save and Close**"

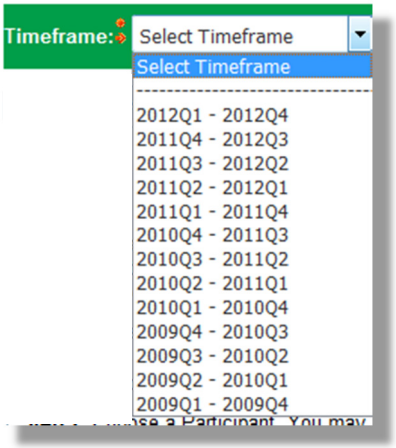


*Once you have verified your NPI number and/or entered it, you may need to log out and log back in, in order to access your Physician Dashboard. Then follow steps 1-4 to locate and access the Physician Dashboard.

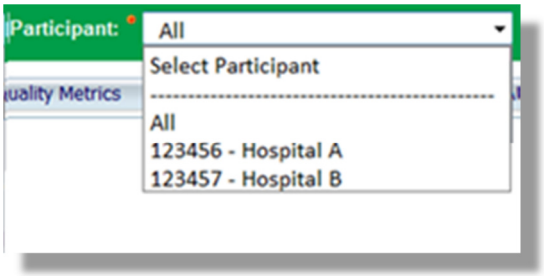
6. This brings you to the Physician Dashboard homepage.



7. Click on the down arrow for "**Select Timeframe"** and select the timeframe for the data you wish to view.



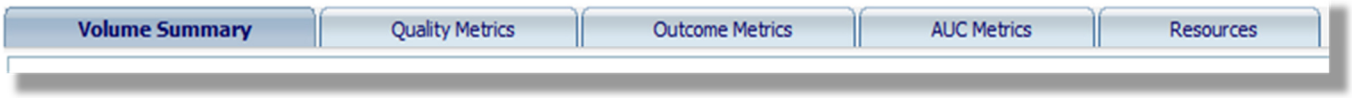
8. Then click on the arrow to "**Select Participant"** and select one hospital or all the hospitals in which you practice.



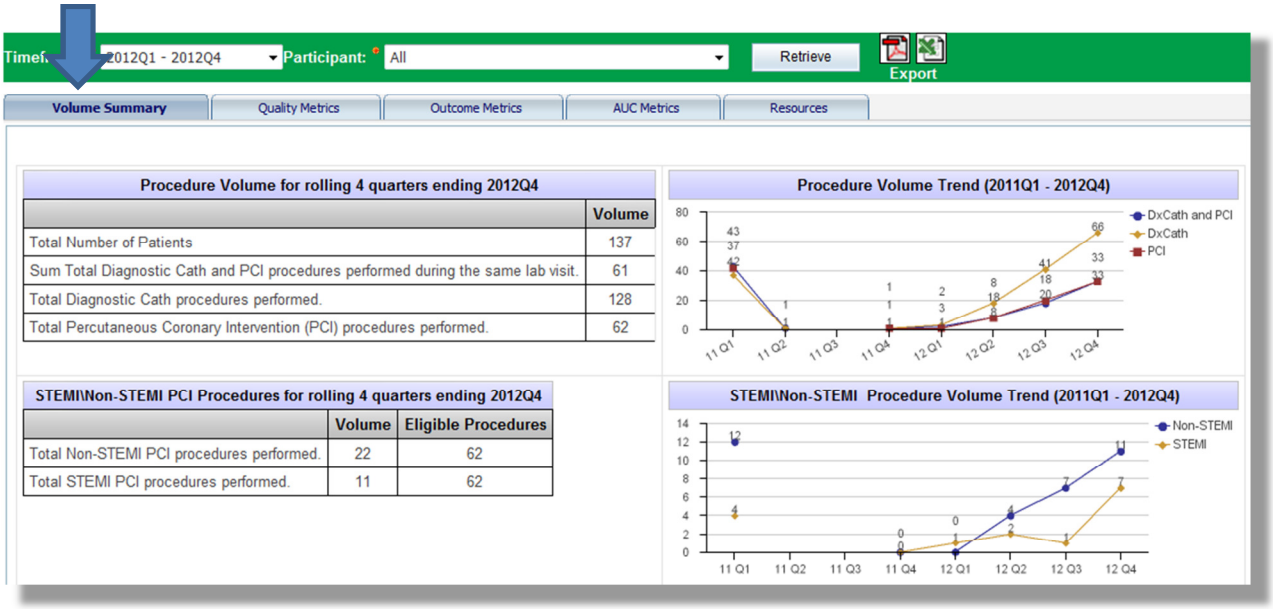
9. Then click on "**Retrieve**" from the top navigation bar to update the information into the dashboard.

11.
12.

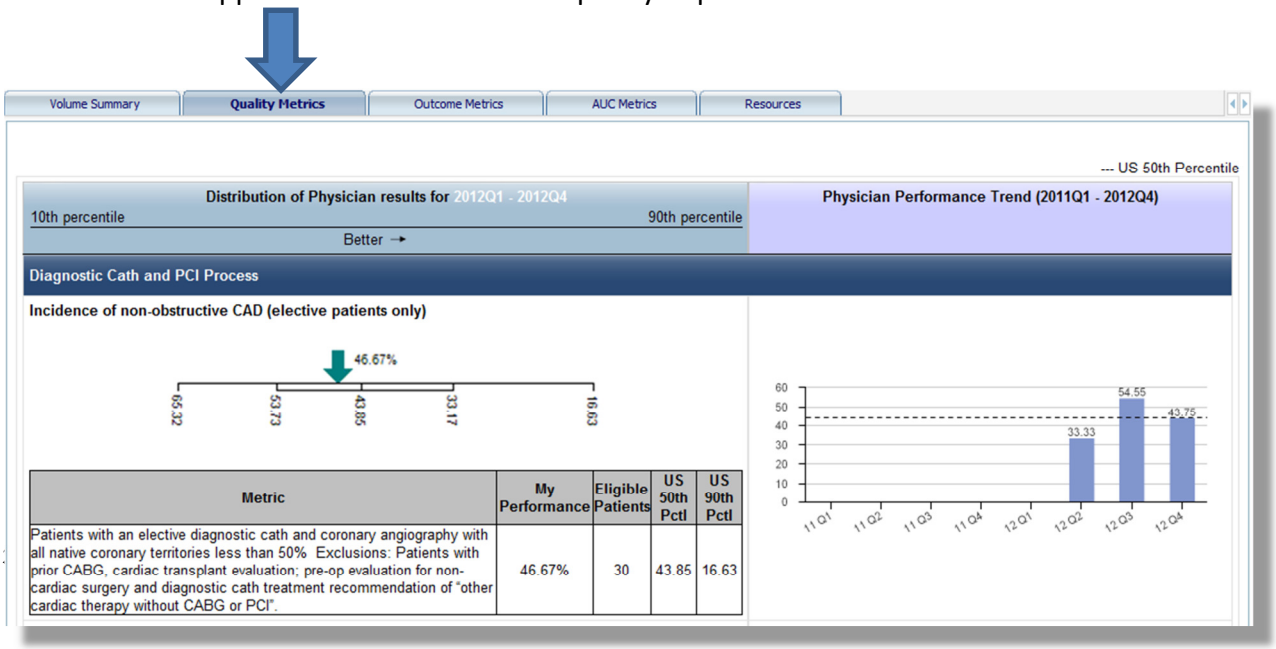
10. The Physician Dashboard is divided into 5 key areas as detailed below:



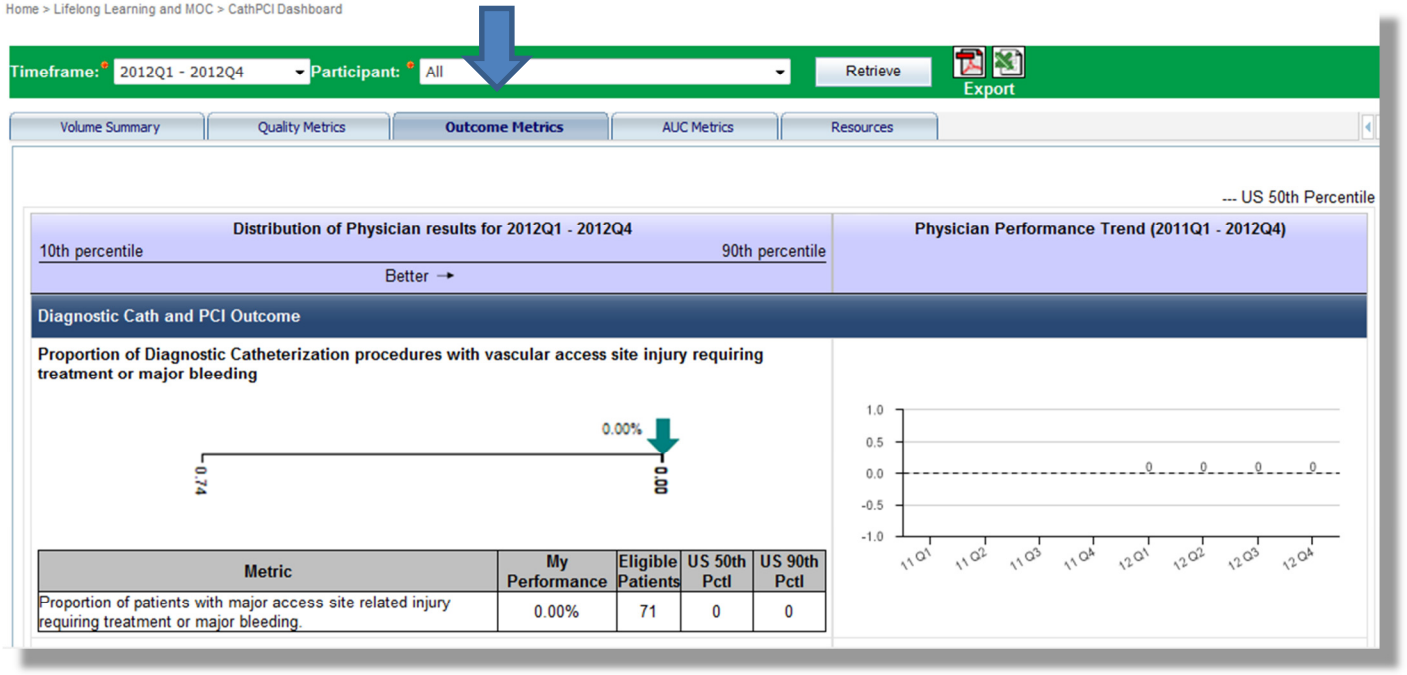
11. The **Volume Summary** page displays data pertaining to volumes of patients, procedures, ACS type and procedure access type. The left side of the Physician Dashboard indicates your volume for the last 4 quarters of data while the right side of the Dashboard displays a trend of your volumes for the past 8 quarters.



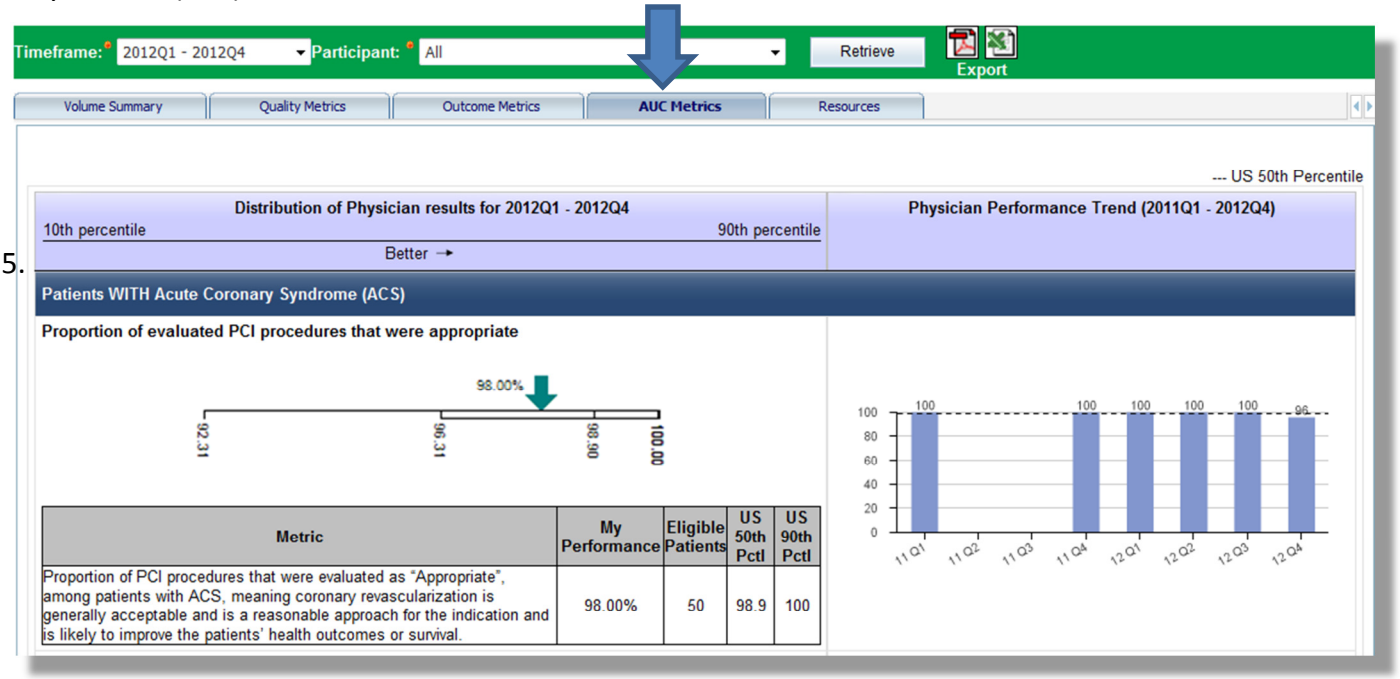
12. The **Quality Metrics** page provides information pertaining to both Diagnostic Cath and PCI patients. These metrics support self-assessment and quality improvement.



13. **Outcome Metrics** provide information pertaining to patient outcomes within the hospitalization.

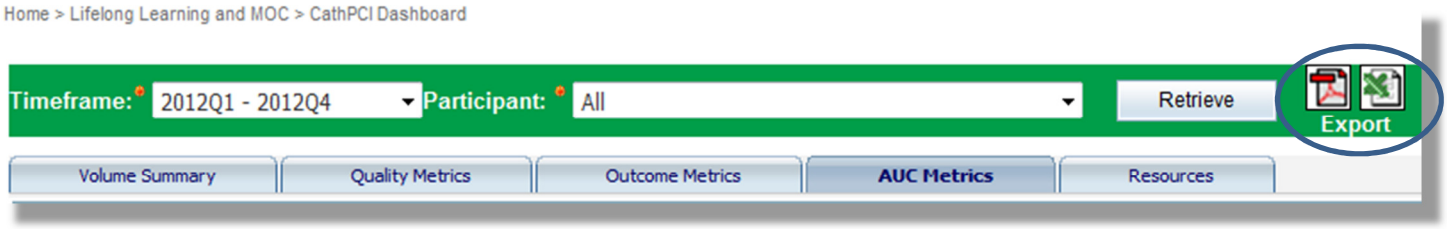


14. The **AUC Metrics** apply the Appropriate Use Criteria (AUC) for Coronary Revascularization to PCI procedures performed and then displays the portion of patients evaluated to be Appropriate, Uncertain or Inappropriate. These metrics divide patients into two groups: those *with* Acute Coronary Syndrome (ACS) and those *without* ACS.

15. 

15. The **Resources** tab contains the following documents: Physician Dashboard: Guide for Physicians; Physician Dashboard: Guide for CathPCI Registry Participants; Trouble Shooting Ability to Download Physician Dashboard. Other resources will be added as needed.

16. You can export your Physician Dashboard to a PDF or Excel file by selecting either the PDF or Excel icon located in the upper right corner of the Physician Dashboard screen. These tools allow for further analysis and use of the information in presentations.



If many people are logged into the system, this step may take several seconds. Note that the entire Dashboard will be in the downloaded PDF file, and that each tab in the Physician Dashboard will have a separate tab in the Excel file.

If you have trouble downloading your Dashboard, please make sure your Pop-up blocker is off. (See Troubleshooting Ability to Download Dashboard document under the Resources tab.)

Frequently Asked Questions

1) What process is used to obtain NCDR data?

NCDR registries have been created under the leadership of clinical experts with critical input from NCDR participants regarding the feasibility of implementation and the burden of data collection. Data are collected, validated, and submitted under the responsibility of a designated Registry Site Manager (RSM) at each participating institution.

All data submissions are evaluated for errors and completeness and sent to the participant as a data quality report (DQR). This automated process is based on a set of algorithms with predetermined thresholds to rate the submission using a color code: red, yellow and green.

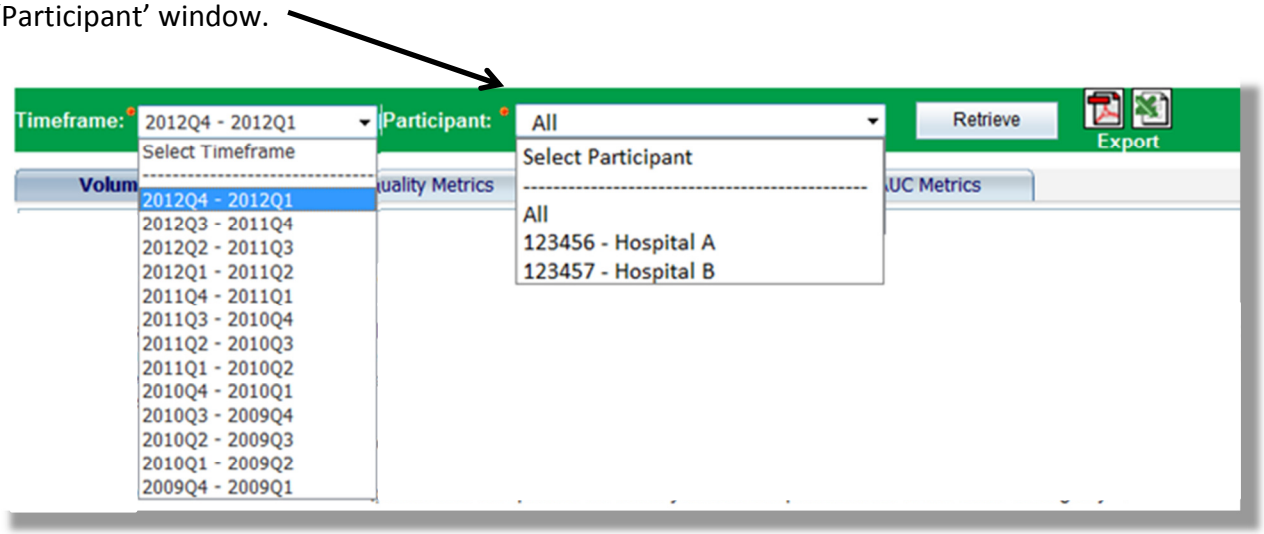
Red means that the data submission has failed and will not be entered into the NCDR data warehouse and will not be included in the report.

Yellow means that the data has passed the threshold for errors but not completeness. The data will be entered into the NCDR data warehouse, but will not be incorporated into the comparison reports.

Green means that the data passed both assessments, will be entered into the NCDR data warehouse, and will be included into any data computations and aggregated reports. Therefore, the DQR is used by the participants to help prioritize data "cleaning" efforts.

2) What if I practice at more than one hospital?

Your National Provider Identifier (NPI) is linked to the hospital data that is entered into the CathPCI Registry. It is possible to view your cumulative data by selecting 'All' (see figure below) from the 'Participant window. You may also view your data specific to one facility by selecting that facility from the 'Participant' window.



3) Who has access to my data?

Access to the dashboard is secure and confidential via CardioSource login. Only you have access to your data via the CardioSource website. We do not share this data with anyone or any entity.

4) Does my hospital have access to my data?

Yes, the hospital where you practice has had access to your data since you joined the hospital. The Physician Dashboard will provide an easier, more meaningful way for both the facility and physicians to access the data.

5) Do you publicly report this data?

This data is not publicly reported.

6) Does my Physician Dashboard contain all of my cases?

All cases that meet the specific Inclusion/Exclusion criteria for each measure (see Detailed Descriptions for Metrics document below) will be included if:

1.) The procedure occurred at a hospital that participates in the CathPCI Registry
2.) The hospital submits all diagnostic and/or PCI procedures
3.) Submitted data obtain a Green or Yellow Inclusion status on the DQR (See FAQ #1)
4.) The Hospital has correctly identified you by your NPI number

7) What if the physician dashboard does not contain data or all cases?
You may want to contact the RSM to discuss the possible reasons. If you cannot resolve the data discrepancy then contact the NCDR at ncdr@acc.org or 1-800-257-4737.

8) How do I interpret the graph in the Dashboard?

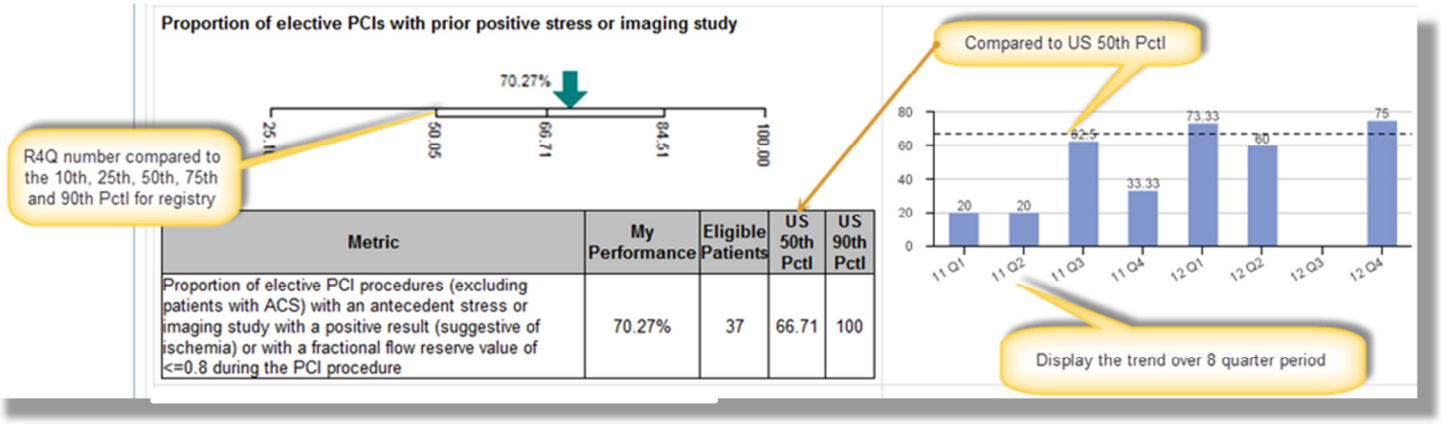


Figure 2: Report graphs

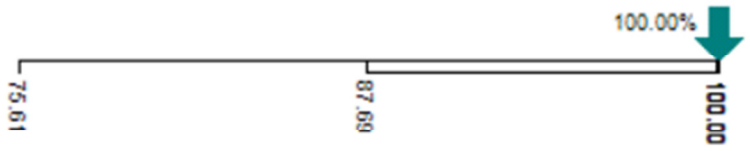
In the above graph on the left, the green arrow points to your results. The numbers underneath the arrow represent the results for all physicians for the 10th (25.16%), 25th (50.05%), 50th (66.71%), 75th (84.51%), and 90th (100%) percentiles. In this case, the arrow falls just above the 50th percentile. This means that slightly less than half the physicians perform better and slightly more than half perform worse than you in this metric.

If in subsequent results the arrow moves to the right, it would indicate an improvement in performance. Results in which the arrow falls at or below the 50th percentile, i.e., more to the left, may indicate an opportunity for improvement.

In the graph to the right, the bars represent the results from the last eight quarters and the dotted line represents the 50th percentile.

Note that if the range for the percentiles is small, you may see only part of the range. In the example below, the 10th percentile and 25th percentile are shown (75.61, 87.69 respectively). The 50th, 75th, and 90th percentiles are all wrapped into 100.

Proportion of STEMI patients receiving immediate PCI within 90 minutes



Metric	My Performance	Eligible Patients	US 50th Pctl	US 90th Pctl
Proportion of STEMI patients with a time from arrival (or subsequent ECG if ST elevation first noted on subsequent ECG) to immediate PCI <=90 minutes. Exclusions: Patients transferred in from another acute care facility; Reasons for delay does not equal none.	100.00%	7	100	100

Note that the numbers may represent the number of patients **or** the number of procedures so they may not be equal.

Detailed Description of Metrics included in the Dashboard

Procedure Volume Information

Procedure Volume Data **Description:** Counts of the volume of patients and procedures that you have cared for by procedure type	
Total Dx Cath Procedures	Count of procedures where Diagnostic Cath Procedure=yes
Total PCI procedures	Count of procedures where PCI procedure=yes
Total Diagnostic Cath and PCI procedures during same lab visit	Count of procedures where Diagnostic cath=yes and PCI procedure=yes
Total number of patients	Count of patients (not procedures) where diagnostic cath=yes OR PCI procedure=yes
Clinical Rationale/ Recommendation	According to the ACCF/AHA/SCAI 2013 Update of the Clinical Competence Statement on Coronary Artery Interventional Procedures the following are recommendations for provider competence; • Participate in PCI quality programs of the hospital, including review of major complications. • Participate in a hospital-based state, regional, or national database to measure risk-adjusted PCI outcomes of the laboratory and compare them to regional and national benchmarks for improving quality of care. • Based on available data and the judgment of the writing committee involving all of these considerations, the writing committee recommends interventional cardiologists perform a minimum of 50 coronary interventional procedures per year (averaged over a 2-year period) to maintain competency.
Relevant Citations	Harold, HG, et. al. ACCF/AHA/SCAI 2013 Update of the Clinical Competence Statement on Coronary Artery Interventional Procedures 10.1016/j.jacc.2013.05.002

Total STEMI \ NSTEMI PCI Procedures **Description:** Counts of PCI procedures by diagnosis of NSTEMI and STEMI	
Eligible Procedures	Count of procedures where PCI procedure=yes
Total Non-STEMI PCI procedures performed	Count of PCI procedures with a CAD presentation=non-STEMI
Total STEMI PCI procedures performed	Count of PCI procedures with a CAD presentation=STEMI
Clinical Rationale/ Recommendation	Patients presenting with STEMI/NSTEMI are at a higher risk of adverse events than elective PCI cases.
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Procedure Access Sites **Description:** Counts of PCI procedures based on arterial access for the procedure.	
Eligible Procedures	Count of procedures where diagnostic cath=yes OR PCI procedure=yes
Femoral	Count of procedures with Arterial Access Site = femoral
Brachial	Count of procedures with Arterial Access Site = brachial
Radial	Count of procedures with Arterial Access Site = radial
Other	Count of procedures with Arterial Access Site = other
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing feedback on choice of arterial access site which may influence bleeding complications, clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
Relevant Citations	Rao SV, Ou FS, Wang TY et al. Trends in the prevalence and outcomes of radial and femoral approaches to percutaneous coronary intervention: a report from the national cardiovascular data registry. JACC Cardiovasc Interv 2008;1:379-86. Marso SP, Amin AP, House JA et al. Association between use of bleeding avoidance strategies and risk of periprocedural bleeding among patients undergoing percutaneous coronary intervention. JAMA 2010;303:2156-64. Mehta SK, Frutkin AD, Lindsey JB et al. Bleeding in patients undergoing percutaneous coronary intervention: The development of a clinical risk algorithm from the National Cardiovascular Data Registry. Circulation: Cardiovascular Interventions 2009;2:222-229.

Diagnostic Cath and PCI Process

Incidence of non-obstructive CAD **Description:** Identifies patients with non-obstructive CAD	
Numerator	Count of diagnostic cath procedures with all native coronary artery territories <50%.
Denominator	Count of diagnostic cath procedures
Inclusion Criteria	-Diagnostic cath procedure with coronary angiography -Elective diagnostic cath -All diagnostic cath patient admissions in data submissions that passed NCDR data inclusion thresholds
Exclusion Criteria	-Previous CABG -Graft territories in the coronary anatomy section -Cardiac transplant evaluation= donor -Pre-op evaluation for non-cardiac surgery -Diagnostic cath treatment recommendation=other cardiac therapy without CABG or PCI -Data submissions with Population Status 'A' (submitting PCI only)
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	This purpose of this metric is to identify diagnostic cath procedures with “normal” results. Because the constellation of findings characteristic of heart disease is non-specific, there will (and should) be patients who undergo diagnostic catheterization who have insignificant coronary artery disease. However, given the potential for physicians to vary with respect to their threshold for recommending diagnostic catheterization, it is important for hospitals to have a process that permits that variation to be recognized, discussed, and managed.

Proportion of elective PCIs with prior positive stress or imaging study **Description:** Proportion of elective PCI procedures (excluding patients with acute coronary syndrome) with an antecedent stress or imaging study with a positive result (suggestive of ischemia) or with a fractional flow reserve value of <=0.8 performed during the procedure.	
Numerator	Count of PCI procedures with an antecedent stress or imaging study performed with a positive result (suggestive of ischemia) or a fractional flow reserve assessed with a FFR value of <=0.8 during the PCI procedure.
Denominator	Count of PCI procedures
Inclusion Criteria	-Elective PCI -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Patients with acute coronary syndrome (CAD Presentation=STEMI; NSTEMI or Unstable Angina) -Patients with angina classification of CCS IV prior to the procedure -Patients with PCI Indication of “staged procedure” -Prior cardiac transplant
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Several studies have established that for patients with stable CAD outcomes do not differ between PCI with medical therapy and medical therapy alone. Noninvasive testing prior to elective PCI for patients with stable CAD (without acute coronary syndrome) can help select patients that will benefit from PCI. The 2012 appropriateness criteria for coronary revascularization require that, for patients without acute coronary syndromes, results from non-invasive testing be either low-risk, intermediate risk, or high risk, or that results from FFR be <= 0.80 be used to validate the need for revascularization.
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am CollCardiol 2011; 58:e44–122 Patel MR, et al. ACCF/SCAI/STS/AATS/AHA/ASNC/HFSA/SCCT 2012 appropriate use criteria for coronary revascularization focused update: a report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Association for Thoracic Surgery, American Heart Association, American Society of Nuclear Cardiology, and the Society of Cardiovascular Computed Tomography. J Am Coll Cardiol 2012;59:857– 81. Tonino, P.A., et al. Fractional Flow Reserve versus Angiography for Guiding Percutaneous Coronary Intervention. New England Journal of Medicine, vol 360, #3, January 15, 2009

Median time to immediate PCI for STEMI patients (in minutes) **Description:** Your patients' median time from hospital arrival to immediate PCI for STEMI patients in minutes.	
Median	-Arrival to first device activation when ST elevation noted on first ECG; or -Subsequent ECG with STEMI or STEMI equivalent to first device deployment time when STE elevation first noted on subsequent ECG for patients with an admit source of "emergency department" or "other".
Inclusion Criteria	-PCI procedures -PCI indication of Immediate PCI for STEMI -Transferred in for Immediate PCI for STEMI=no -Non-system reason for delay = none -Non-system reason for delay AND a "time to immediate PCI" <=90" -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Non-system reason for delays AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	According to the ACC/AHA performance measures for STEMI/NSTEMI report, "Acute reperfusion therapy for patients with STEMI significantly reduces the risk of death and should be provided to all eligible patients." Hospital policies and procedures materially affect door-to-balloon time. This measure is insensitive to differences in case mix. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction recommends: "Primary PCI should be performed as quickly as possible with a goal of a medical contact–to-balloon or door-to-balloon interval of within 90 minutes."
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Proportion of STEMI patients receiving intermediate PCI w/in 90 minutes **Description:** Proportion of your STEMI patients with a time from the hospital arrival (or subsequent ECG if ST elevation first noted on subsequent ECG) to immediate PCI <=90 minutes	
Numerator	Count of PCI procedures for patients with an admit source of "emergency department" or "other" with a date/time difference of <=90" from 1. Arrival to first device activation <=90" when ST elevation noted on first ECG; or 2. Subsequent ECG with STEMI or STEMI equivalent to first device deployment time when STE elevation first noted on subsequent ECG.
Denominator	Count of PCI procedures
Inclusion Criteria	-PCI procedures -PCI indication of Immediate PCI for STEMI -Transferred in for Immediate PCI for STEMI=no -Non-system reason for delay =none -Non-system reason for delay AND a "time to immediate PCI" <=90" -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Non-system reason for delays AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	According to the ACC/AHA performance measures for STEMI/NSTEMI report, "Acute reperfusion therapy for patients with STEMI significantly reduces the risk of death and should be provided to all eligible patients." Hospital policies and procedures materially affect door-to-balloon time. This measure is insensitive to differences in case mix. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction recommends: "Primary PCI should be performed as quickly as possible with a goal of a medical contact–to-balloon or door-to-balloon interval of within 90 minutes."
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Median time from ED arrival at STEMI transferring facility to ED arrival at STEMI receiving facility among transferred patients. **Description:** Your patients' median time from arrival at transferring facility to ED arrival at STEMI receiving facility among transferred patients.	
Median	ED presentation at referring facility date/time and arrival at your facility date/time for patients with an admit source of "transfer in from another acute care facility"
Inclusion Criteria	-PCI procedures -PCI Indication = immediate -Transfer in for immediate PCI for STEMI=Yes -Non-system reason for delay =none -Non-system reason for delay AND a "time to immediate PCI" <=90" -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Non-system reason for delay AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Class I: 1. Patients with STEMI who have cardiogenic shock and are less than 75 years of age should be brought immediately or secondarily transferred to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG) if it can be performed within 18 hours of onset of shock. (Level of Evidence: A) 2. Patients with STEMI who have contraindications to fibrinolytic therapy should be brought immediately or secondarily transferred promptly (i.e., primary receiving hospital door-to-departure time less than 30 minutes) to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG). (Level of Evidence: B)
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Median time from ED arrival at STEMI transferring facility to immediate PCI at STEMI receiving facility among transferred patients (in minutes). **Description:** Your patients' median time from arrival at referring facility to immediate PCI at STEMI receiving facility among transferred patients.	
Median	ED presentation at referring facility date/time and first device activation date/time for patients with an admit source of "transfer in from another acute care facility"
Inclusion Criteria	-PCI procedures -PCI indication=immediate -Transfer in for immediate PCI for STEMI=Yes -Data from submissions that pass NCDR data inclusion thresholds. -Non-system reason for delay = none -Non-system reason for delay AND a "time to immediate PCI" <=90"
Exclusion Criteria	-Non-system reason for delay AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	According to the ACC/AHA performance measures for STEMI/USTEMI report, "The benefits of timely acute reperfusion for STEMI with either fibrinolysis or primary percutaneous coronary intervention (PCI) are substantial. In centers where PCI is not available on-site, patients may be transferred to another facility for treatment. Because delayed PCI may not be as beneficial as timely fibrinolysis, opting for transfer for PCI rather than fibrinolysis requires that transfer be performed in a timely manner." Class I: 1. Patients with STEMI who have cardiogenic shock and are less than 75 years of age should be brought immediately or secondarily transferred to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG) if it can be performed within 18 hours of onset of shock. (Level of Evidence: A) 2. Patients with STEMI who have contraindications to fibrinolytic therapy should be brought immediately or secondarily transferred promptly (i.e., primary receiving hospital door-to-departure time less than 30 minutes) to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG). (Level of Evidence: B)
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Median fluoro time (in minutes) **Description:** Median Fluoro time for PCI procedures	
Median	Fluoro time
Inclusion Criteria	-PCI procedures (with or without diagnostic cath) -PCI of one vessel/lesion -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Prior CABG; or "other" procedure during the same lab visit; PCI of >1 vessel/lesion.
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	2011 PCI Guidelines - 4.3. Radiation Safety CLASS I Recommendation: Cardiac catheterization laboratories should routinely record relevant available patient procedural radiation dose data (e.g., total air kerma at the international reference point [Ka r], air kerma air product [PKA], fluoroscopy time, number of cine images), and should define thresholds with corresponding follow-up protocols for patients who receive a high procedural radiation dose. (Level of Evidence: C)
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122)

Proportion of your patients with post procedure Myocardial Infarction (when routinely collecting post-PCI biomarkers) **Description:** Your proportion of patients with post procedure MI when biomarkers are routinely collected..	
Numerator	Count of PCI procedures with post procedure MI
Denominator	Count of PCI procedures
Inclusion Criteria	1. submissions with >= 90% of patients with biomarkers (troponin and/or CK) coded post procedure 2. LOS >= 1 day 3. Data from submissions that pass NCDR data inclusion thresholds. 4. Elective PCI
Exclusion Criteria	1. submissions with < 90% of patients with biomarkers (troponin and/or CK) coded post procedure 2. LOS <1 day
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	MI following PCI is a major complication that is associated with the success of the PCI procedure. Studies debate the most accurate way to define post procedure MI (with or without routine collection of biomarkers). Post procedure MI increases patient morbidity and mortality, as well as health care resource use. --- There is evidence that hospitals that routinely collect biomarkers have a higher rate of periprocedural MI than those who don't. Thus this metric is reported separately, based on the routine collection of biomarkers (see metric 14 as well). "Hospitals that routinely performed marker testing had higher rates of periprocedural MI detection despite a trend toward lower mortality and greater adherence to recommended medications that suggest better overall quality of care for PCI patients at these hospitals. Therefore, in the absence of routine cardiac marker surveillance after PCI, the use of periprocedural MI as a quality metric for PCI will be misleading." [1]
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122 [1]Wang TY, Peterson ED, Dai D, et al. Patterns of cardiac marker surveillance after elective percutaneous coronary intervention and implications for the use of periprocedural myocardial infarction as a quality metric: a report from the National Cardiovascular Data Registry (NCDR). J Am Coll Cardiol. 2008;51:2068-74.

Proportion of patients with post procedure Myocardial Infarction (when not routinely collecting post-PCI biomarkers) **Description:** Your proportion of patients with post procedure MI when biomarkers are not routinely collected.	
Numerator	Count of PCI procedures with post procedure MI
Denominator	Count of PCI procedures
Inclusion Criteria	Submissions with < 90% of patients with biomarkers (troponin and/or CK) coded post procedure LOS >= 1 day Data from submissions that pass NCDR data inclusion thresholds. Elective PCI
Exclusion Criteria	Submissions with >=90% of patients with biomarkers (troponin and/or CK) coded post procedure LOS <1 day
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	MI following PCI is a major complication that is associated with the success of the PCI procedure. Studies debate the most accurate way to define post procedure MI (with or without routine collection of biomarkers). Post procedure MI increases patient morbidity and mortality, as well as health care resource use. --- There is evidence that hospitals that routinely collect biomarkers have a higher rate of periprocedural MI than those who don't. Thus this metric is reported separately, based on the routine collection of biomarkers (see metric 14 as well). "Hospitals that routinely performed marker testing had higher rates of periprocedural MI detection despite a trend toward lower mortality and greater adherence to recommended medications that suggest better overall quality of care for PCI patients at these hospitals. Therefore, in the absence of routine cardiac marker surveillance after PCI, the use of periprocedural MI as a quality metric for PCI will be misleading." [1]
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122 [1]Wang TY, Peterson ED, Dai D, et al. Patterns of cardiac marker surveillance after elective percutaneous coronary intervention and implications for the use of periprocedural myocardial infarction as a quality metric: a report from the National Cardiovascular Data Registry (NCDR). J Am Coll Cardiol. 2008;51:2068-74.

Proportion of PCI procedures with creatinine assessed pre and post PCI procedure **Description:** Proportion of your PCI patients with creatinine assessed pre and post procedure.	
Numerator	PCI procedures with creatinine assessed pre and post procedure
Denominator	PCI procedures
Inclusion Criteria	-PCI procedures -LOS >=1 day -Valid pre-procedure and post-procedure creatinine values -Data submissions that passed NCDR data inclusion thresholds
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Acute kidney injury, or "contrast induced nephropathy" is a major, procedure-related complication of PCI. The "risk, injury, failure, loss, end-stage" (RIFLE) classification requires pre and post procedure creatinine to classify acute kidney injury (AKI). The 2011 PCI Guidelines - 4.4. Contrast-Induced AKI Class I Recommendations: 1. Patients should be assessed for risk of contrast induced AKI before PCI. (Level of Evidence: C) 2. Patients undergoing cardiac catheterization with contrast media should receive adequate preparatory hydration. (Level of Evidence: B) 3. In patients with CKD (creatinine clearance <60 mL/min), the volume of contrast media should be minimized. (Level of Evidence: B)
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122 Biesen, Wim, et al. Defining Acute Renal Failure: RIFLE and Beyond. Clin J Am Soc Nephrol 1: 1314–1319, 2006

Median post-procedure length of stay (in days) for PCI patients with STEMI **Description:** Your patients' median post-procedure length of stay (in days) for PCI patients with STEMI.	
Median	Median of Procedure Date and Discharge Date.
Inclusion Criteria	-Patients admissions with STEMI -Patient admissions with at least one PCI procedure. -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Records with invalid values for Admission Date or Discharge Date
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Median LOS will be sensitive to patient characteristics (and therefore case mix). However, there is evidence that hospitals can influence total, pre and post procedure LOS, maximizing efficient resource usage.

Composite: Discharge Medications in Eligible PCI Patients Description: Patients undergoing PCI who receive prescriptions for all medications (aspirin, P2Y12 and statins) which they are eligible for at discharge	
Numerator	Patients who receive all medications for which they are eligible. 1. Aspirin prescribed at discharge (if eligible for aspirin as described in denominator) AND 2. P2Y12 agent (clopidogrel, prasurgel, ticlopidine or ticagrelor) prescribed at discharge (if eligible for P2Y12 as described in denominator) AND 3. Statin prescribed at discharge (if eligible for statin as described in denominator)
Denominator	All patients surviving hospitalization who are eligible to receive any one of the three medication classes: 1) Eligibility for aspirin (ASA): Patients undergoing PCI who do not have a contraindication to aspirin documented OR 2) Eligibility for P2Y12 agent (clopidogrel, prasugrel, ticlopidine, ticagrelor): Patients undergoing PCI with stenting who do not have a contraindication to P2Y12 agent documented OR 3) Eligibility for statin therapy: Patients undergoing PCI who do not have a contraindication to statin therapy.
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Discharge status of expired -Discharge location of “other acute care hospital”, “hospice” or “against medical advice”.
Timeframe	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Population	Patients with a PCI procedure
Clinical Rationale	The 2011 PCI Guidelines - 5.7.2. Oral Antiplatelet Therapy Class I Recommendations: 3. After PCI, use of aspirin should be continued indefinitely. (Level of Evidence: A) AND 7. The duration of P2Y12 inhibitor therapy after stent implantation should generally be as follows: a. In patients receiving a stent (BMS or DES) during PCI for ACS, P2Y12 inhibitor therapy should be given for at least 12 months. Options include clopidogrel 75 mg daily, prasugrel 10 mg daily, and ticagrelor 90 mg twice daily. (Level of Evidence: B) b. In patients receiving DES for a non-ACS indication, clopidogrel 75 mg daily should be given for at least 12 months if patients are not at high risk of bleeding. (Level of

	Evidence: B) c. In patients receiving BMS for a non-ACS indication, clopidogrel should be given for a minimum of 1 month and ideally up to 12 months (unless the patient is at increased risk of bleeding; then it should be given for a minimum of 2 weeks). (Level of Evidence: B) **Reducing LDL-c** is associated with a decrease in mortality and morbidity for patients with coronary artery disease. Lipid-lowering therapy can reduce the risk of cardiovascular outcomes. 1. 2011 AHA/ACCF Secondary Prevention Guidelines class I recommendation for lipid management: 4. In addition to therapeutic lifestyle changes, statin therapy should be prescribed in the absence of contraindications or documented adverse effects (25–29). (Level of Evidence: A) 2. The ACC/AHA 2007 UA/NSTEMI Guidelines recommend: Class I Recommendation: Hydroxymethyl glutaryl-coenzyme A reductase inhibitors (**statins),** in the absence of contraindications, **regardless of baseline LDL-**C and diet modification, should be given to post-UA/NSTEMI patients, including post revascularization patients. (*Level of Evidence: A*).
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122) AHA/ACCF Secondary Prevention and Risk Reduction Therapy for Patients With Coronary and Other Atherosclerotic Vascular Disease: 2011 Update (JACC 2011, Vol. 58, No. 23) ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non–ST-Elevation Myocardial Infarction:J Am Coll Cardiol, 2007; 50:1-157; This measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

Proportion of patients with aspirin prescribed at discharge **Description:** Proportion of patients with aspirin prescribed at discharge.	
Numerator	Count of PCI admissions with the discharge medication (prescribed at discharge) of Aspirin at discharge coded as yes.
Denominator	Count of PCI admissions
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Aspirin coded as contraindicated or blinded -Discharge status of expired -Discharge location of “other acute care hospital”, “hospice” or “against medical advice”
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	The 2011 PCI Guidelines - 5.7.2. Oral Antiplatelet Therapy Class I Recommendations: 3. After PCI, use of aspirin should be continued indefinitely. (Level of Evidence: A)
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122)

Proportion of patients with statins prescribed at discharge **Description:** Proportion of patients with statins prescribed at discharge.	
Numerator	Count of PCI admissions with a statin coded as "yes"
Denominator	Count of PCI admissions
Inclusion Criteria	-Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Discharge status of expired -Discharge location of "other acute care hospital", "hospice" or "against medical advice" -Statins coded as contraindicated or blinded
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Reducing LDL-c is associated with a decrease in mortality and morbidity for patients with coronary artery disease. Lipid-lowering therapy can reduce the risk of cardiovascular outcomes. 3. 2011 AHA/ACCF Secondary Prevention Guidelines class I recommendation for lipid management: 4. In addition to therapeutic lifestyle changes, statin therapy should be prescribed in the absence of contraindications or documented adverse effects (25–29). (Level of Evidence: A) 4. The ACC/AHA 2007 UA/NSTEMI Guidelines recommend: Class I Recommendation: Hydroxymethyl glutaryl-coenzyme A reductase inhibitors (**statins),** in the absence of contraindications, **regardless of baseline LDL-**C and diet modification, should be given to post-UA/NSTEMI patients, <u>including post revascularization patients</u>. (*Level of Evidence: A*). For UA/NSTEMI patients with elevated LDL-C (greater than or equal to 100 mg per dL), cholesterol-lowering therapy should be initiated or intensified to achieve an LDL-C of less than 100 mg per dL (*Level of Evidence: A*).
Relevant Citations	1. AHA/ACCF Secondary Prevention and Risk Reduction Therapy for Patients With Coronary and Other Atherosclerotic Vascular Disease: 2011 Update (JACC 2011, Vol. 58, No. 23) 2. ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non–ST-Elevation Myocardial Infarction: J Am Coll Cardiol, 2007; 50:1-157;

Proportion of patients with a P2Y12 inhibitor prescribed at discharge (patients with stents) **Description:** Proportion of patients (without a documented contraindication) with a stent implanted that had a thienopyridine/P2Y12 Inhibitor prescribed at discharge.	
Numerator	Count of PCI admissions with the discharge medication (prescribed at discharge) of a thienopyridine or P2Y12 Inhibitor (Clopidogrel, Prasugrel, Ticlopidine or Ticagrelor) coded as yes.
Denominator	Count of PCI admissions with a stent implanted
Inclusion Criteria	-PCI admissions with a stent implanted -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Thienopyridine/$P2Y_{12}$ coded as contraindicated or blinded -Discharge status of expired -Discharge location of “other acute care hospital”, “hospice” or “against medical advice”
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	The 2011 PCI Guidelines - 5.7.2. Oral Antiplatelet Therapy Class I Recommendations: 7. The duration of P2Y12 inhibitor therapy after stent implantation should generally be as follows: a. In patients receiving a stent (BMS or DES) during PCI for ACS, P2Y12 inhibitor therapy should be given for at least 12 months. Options include clopidogrel 75 mg daily, prasugrel 10 mg daily, and ticagrelor 90 mg twice daily. (Level of Evidence: B) b. In patients receiving DES for a non-ACS indication, clopidogrel 75 mg daily should be given for at least 12 months if patients are not at high risk of bleeding. (Level of Evidence: B) c. In patients receiving BMS for a non-ACS indication, clopidogrel should be given for a minimum of 1 month and ideally up to 12 months (unless the patient is at increased risk of bleeding; then it should be given for a minimum of 2 weeks). (Level of Evidence: B)
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122)

Diagnostic Cath and PCI Outcome

Proportion of diagnostic catheterization procedures with vascular access site injury requiring treatment or major bleeding **Description:** Proportion of your patients with major access site related injury requiring treatment or major bleeding. Major access site related injury requiring treatment is includes access site occlusion, peripheral embolization, dissection, pseudoaneurysm, AV fistulas requiring treatment anytime from the procedure until discharge. Major bleeding is defined as bleeding at access site, hematomas at access site, or retroperitoneal bleeds that occur within 72 hours of the procedure. To qualify the event must be associated with a hemoglobin drop of >3 g/dL; transfusion of whole or packed red blood cells, or a procedural intervention/surgery at the bleeding site to reverse/stop or correct the bleeding.	
Numerator	Count of diagnostic cath procedures with a bleeding event (bleeding at access site, hematomas at access site, and/or a retroperitoneal bleed) and/or major access site related injury requiring treatment (access site occlusion, peripheral embolization, dissection, pseudoaneurysm, AV fistulas)
Denominator	Count of diagnostic cath procedures
Inclusion Criteria	All diagnostic cath patient admissions in data submissions that passed NCDR data inclusion thresholds
Exclusion Criteria	-Diagnostic cath procedures with a PCI during the same lab visit. -Patient with CABG or "other major surgery" during admission -Bleeding events that occur 72 hours after the procedure (note major access site related injury requiring treatment does not have this timing restriction). -GI, GU and "Other" bleeding events
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Vascular complications can cause significant discomfort and disability for patients. While rates of complication will be sensitive to patient characteristics (and therefore case mix), there is evidence that hospitals can significantly influence overall complication rates. This can be accomplished through monitoring and analyzing the causes of complications, developing policies and procedures that minimize the risk of complications, and developing policies that assure operator and cath team competency.
Relevant Citations	Mehran R, Rao SV, Bhatt DL et al. Standardized bleeding definitions for cardiovascular clinical trials: a consensus report from the Bleeding Academic Research Consortium. Circulation 2011;123:2736-47.

Composite: Proportion of patients with death, emergency CABG, stroke or repeat target vessel revascularization

Description: Your proportion of patients with (unadjusted) death, emergency CABG, stroke or repeat target vessel revascularization[1] post procedure up to hospital discharge.

[1]Target vessel revascularization is defined as a repeat PCI procedure on the same segment during the same admission

Numerator	Count of PCI admissions with a discharge status of expired; an emergency CABG, stroke or repeat target vessel revascularization prior to discharge.
Denominator	Count of PCI procedures
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Patients with a stroke AND an elective, urgent or salvage CABG during the same admission.
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	This measure represents a composite of major complications occurring after PCI.

Proportion of patients with post procedure stroke **Description:** Proportion of your patients with stroke post procedure (excluding patients with CABG during same admission).	
Numerator	Count of PCI procedures with post procedure stroke
Denominator	Count of PCI procedures
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Patients with CABG or other major surgery during same admission
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Stroke is one of the major complications occurring after PCI.
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122) Fuchs S, Stabile E, Kinnaird TD, et al. Stroke complicating percutaneous coronary interventions: incidence, predictors, and prognostic implications. Circulation. 2002;106:86-91.
Proportion of PCI procedures with transfusion of whole blood or red blood cells **Description:** Proportion of your patients who received a transfusion of whole blood or red blood cells after a PCI procedure.	
Numerator	Count of PCI procedures with a RBC/whole blood transfusion
Denominator	Count of PCI procedures
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Patients having CABG or other major surgery during the same admission Patients who have a pre-procedure hgb level of <=8
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	The purpose of this metric is to allow identification of potential overuse of transfusion after PCI procedures. In addition, it points out blood loss, which predicts poor outcomes.

Proportion of patients with emergency CABG **Description:** Proportion of your patients having emergency CABG or transferred for emergency CABG during the same episode of care.	
Numerator	Count of your PCI admissions with Emergency CABG at this facility or transferred to another facility for emergency CABG.
Denominator	Count of PCI admissions
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Emergency CABG following PCI is considered one of the major complications that are associated with the PCI procedure and its success. Studies have demonstrated that patient and institutional characteristics, including competency and procedure volume, are related to rates of emergency CABG following PCI. The strongest patient predictors of the need for emergency CABG in several analyses are cardiogenic shock (OR: 11.4), acute MI or emergency PCI (OR: 3.2 to 3.8), multivessel disease (OR: 2.3 to 2.4), and type C lesion (OR: 2.6) (243, 245). In-hospital mortality for emergency CABG ranges from 7.8% to 14% (2011 PCI guidelines).
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122

Mortality

PCI in-hospital Observed Mortality (among eligible) **Description:** Your PCI in-hospital observed mortality rate for all patients using the NCDR® risk adjustment model.	
Numerator	Count of patients with a discharge status=expired (unadjusted or actual rates of mortality)
Denominator	Number of eligible patients who had a PCI
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. The current algorithm does not calculate zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Expected Mortality (among eligible) **Description:** Your PCI in-hospital expected mortality rate for all patients using the NCDR® risk adjustment model.	
	Cumulative sum of the predicted or expected probability of death of all patients in the reporting timeframe (alive or dead) based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed/Expected Mortality Ratio **Description:** Your PCI in-hospital observed to expected mortality ratio for all patients using the NCDR® risk adjustment model.	
	Ratio of Observed compared to Expected mortalities for PCI patients
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed mortality (patients with STEMI) **Description:** Your PCI in-hospital observed mortality rate for patients with STEMI adjusted using the NCDR® risk adjustment model.	
Numerator	Count of patients with a discharge status=expired (unadjusted or actual rates of mortality)
Denominator	Number of eligible patients who had a PCI
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission; PCI admissions with STEMI
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Expected mortality (patients with STEMI) **Description:** Your PCI in-hospital expected mortality rate for patients with STEMI adjusted using the NCDR® risk adjustment model.	
	Cumulative sum of the predicted or expected probability of death of all patients in the reporting timeframe (alive or dead) based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission; PCI admissions with STEMI
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
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PCI in-hospital Observed/Expected Mortality Ratio (patients with STEMI) **Description:** Your PCI in-hospital observed to expected mortality ratio for all patients with STEMI using the NCDR® risk adjustment model.	
	Ratio of Observed compared to Expected mortalities for PCI patients
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
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PCI in-hospital Observed mortality (patients without STEMI) **Description:** Your PCI in-hospital observed mortality rate for patients without STEMI adjusted using the NCDR® risk adjustment model.	
Numerator	Count of patients with a discharge status=expired (unadjusted or actual rates of mortality)
Denominator	Number of eligible patients who had a PCI
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge; PCI admissions with STEMI
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Expected mortality (patients without STEMI) **Description:** Your PCI in-hospital expected mortality rate for patients without STEMI adjusted using the NCDR® risk adjustment model.	
	Cumulative sum of the predicted or expected probability of death of all patients in the reporting timeframe (alive or dead) based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge; PCI admissions with STEMI
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed/Expected Mortality Ratio (patients without STEMI) **Description:** Your PCI in-hospital observed to expected mortality ratio for all patients without STEMI using the NCDR® risk adjustment model.	
	Ratio of Observed compared to Expected mortalities for PCI patients
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
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Adverse Events

PCI in-hospital Observed rate of bleeding events (all patients) **Description:** Your Observed rate of bleeding events for patients with PCI procedures using the NCDR® PCI bleeding risk adjustment model.	
Numerator	Count of PCI patients with a bleeding event defined as any of the following (unadjusted or actual rates of bleeding) 1. Bleeding event w/in 72 hours (8050); *OR* 2. Hemorrhagic stroke (8021); *OR* 3. Tamponade (8025); *OR* 4. Post-PCI transfusion (8040) for patients with a pre-procedure hgb >8 g/dL AND no CABG and pre-procedure hgb not missing; *OR* Absolute hgb decrease (7320 and 7345) from pre-PCI to post-PCI of >= 3 g/dl AND pre-procedure hgb <16 g/dL AND pre-procedure hgb not missing.
Denominator	Number of eligible patients who had a PCI
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing risk-adjusted feedback on bleeding complications, informing clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Rao SV, Ou FS, Wang TY et al. Trends in the prevalence and outcomes of radial and femoral approaches to percutaneous coronary intervention: a report from the national cardiovascular data registry. JACC Cardiovasc Interv 2008;1:379-86. Marso SP, Amin AP, House JA et al. Association between use of bleeding avoidance strategies and risk of periprocedural bleeding among patients undergoing percutaneous coronary intervention. JAMA 2010;303:2156-64. Mehta SK, Frutkin AD, Lindsey JB et al. Bleeding in patients undergoing percutaneous coronary intervention: The development of a clinical risk algorithm from the National Cardiovascular Data Registry. Circulation: Cardiovascular Interventions 2009;2:222-229. Mehran R, Rao SV, Bhatt DL et al. Standardized bleeding definitions for cardiovascular clinical trials: a consensus report from the Bleeding Academic Research Consortium. Circulation 2011;123:2736-47.

PCI in-hospital Expected rate of bleeding events (all patients) **Description:** Your Expected rate of bleeding events for patients with PCI procedures using the NCDR® PCI bleeding risk adjustment model.	
	Cumulative sum of the predicted or expected probability of a bleeding event of all patients during the reported timeframe based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing risk-adjusted feedback on bleeding complications, informing clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Rao SV, Ou FS, Wang TY et al. Trends in the prevalence and outcomes of radial and femoral approaches to percutaneous coronary intervention: a report from the national cardiovascular data registry. JACC Cardiovasc Interv 2008;1:379-86. Marso SP, Amin AP, House JA et al. Association between use of bleeding avoidance strategies and risk of periprocedural bleeding among patients undergoing percutaneous coronary intervention. JAMA 2010;303:2156-64. Mehta SK, Frutkin AD, Lindsey JB et al. Bleeding in patients undergoing percutaneous coronary intervention: The development of a clinical risk algorithm from the National Cardiovascular Data Registry. Circulation: Cardiovascular Interventions 2009;2:222-229. Mehran R, Rao SV, Bhatt DL et al. Standardized bleeding definitions for cardiovascular clinical trials: a consensus report from the Bleeding Academic Research Consortium. Circulation 2011;123:2736-47.

PCI in-hospital Observed/Expected rate of bleeding events (all patients) **Description:** Your PCI in-hospital observed to expected rate of bleeding events for patients with PCI procedures using the NCDR® PCI bleeding risk adjustment model.	
	Ratio of Observed compared to Expected bleeding events for PCI patients
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing risk-adjusted feedback on bleeding complications, informing clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
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Appropriate Use Criteria for Coronary Revascularization

Patients WITH Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were appropriate **Description:** Proportion of PCI procedures (for patients with ACS) that were evaluated as "appropriate", meaning coronary revascularization is generally acceptable and is a reasonable approach for the indication and is likely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "appropriate" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions) PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data.
Exclusion Criteria at the Facility level	If more than 40% of a facility's PCIs are not classified or calculated using the AUC model, your data will not be displayed in this metric.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
Relevant Citations	Appropriate Use Criteria for Coronary Revascularization Focused Update developed by the ACC, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Heart Association, and other national societies and published in the Journal of the American College of Cardiology (*J Am Coll Cardiol* 2012;59: 857-81)

Patients WITH Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were inappropriate **Description:** Proportion of PCI procedures (for patients with ACS) that were evaluated as "Inappropriate", meaning coronary revascularization is not generally acceptable and is not a reasonable approach for the indication and is unlikely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "inappropriate" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions) PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data.
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Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
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Patients WITH Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were of uncertain appropriateness **Description:** Proportion of PCI procedures (for patients with ACS) that were evaluated as "Uncertain", meaning coronary revascularization may be acceptable and may be a reasonable approach for the indication. However, some degree of uncertainty exists, implying that more research and/or patient information is needed to determine whether the procedure would improve patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "uncertain" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions) PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
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Patients WITHOUT Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were appropriate **Description:** Proportion of PCI procedures (for patients without ACS) that were evaluated as "appropriate", meaning coronary revascularization is generally acceptable and is a reasonable approach for the indication and is likely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "appropriate" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data. PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
Exclusion Criteria at the Facility level	If more than 40% of a facility's PCIs are not classified or calculated using the AUC model, your data will not be displayed in this metric.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
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Patients WITHOUT Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were inappropriate **Description:** Proportion of PCI procedures (for patients without ACS) that were evaluated as "Inappropriate", meaning coronary revascularization is not generally acceptable and is not a reasonable approach for the indication and is unlikely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "inappropriate" according to AUC guidelines
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Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
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Proportion of PCI procedures not classifiable for AUC reporting **Description:** Proportion of PCI procedures that were not classifiable / evaluated for PCI AUC reporting due to incomplete or missing data.	
Numerator	PCI Procedures that were not classifiable or evaluated for PCI AUC reporting
Denominator	PCI Procedures
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
Relevant Citations	Appropriate Use Criteria for Coronary Revascularization Focused Update developed by the ACC, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Heart Association, and other national societies and published in the Journal of the American College of Cardiology (*J Am Coll Cardiol* 2012;59: 857-81)

Published June 2013

NCDR®
NATIONAL CARDIOVASCULAR DATA REGISTRY

CathPCI Registry®

Physician Dashboard

Guide for Physicians

National Cardiovascular Data Registry
800-257-4737
www.ncdr.com • ncdr@acc.org

Introduction

As part of our ongoing effort to provide meaningful data, improve cardiovascular care, and deliver value to our members, the NCDR has created a new Physician Dashboard where you can review your physician level data. This new online reporting tool will allow you to access your report on demand and view your data based on your NPI. Whether you practice at one or multiple hospitals, you may view the dashboard for one hospital or for all hospitals in which you practice because the data are based on your NPI number.

This dashboard may be used for:

- Awareness of your data
- Compare your performance on selected metrics to national benchmarks
- Quality improvement
- MOC IV self-directed Performance Improvement Modules (PIMs)

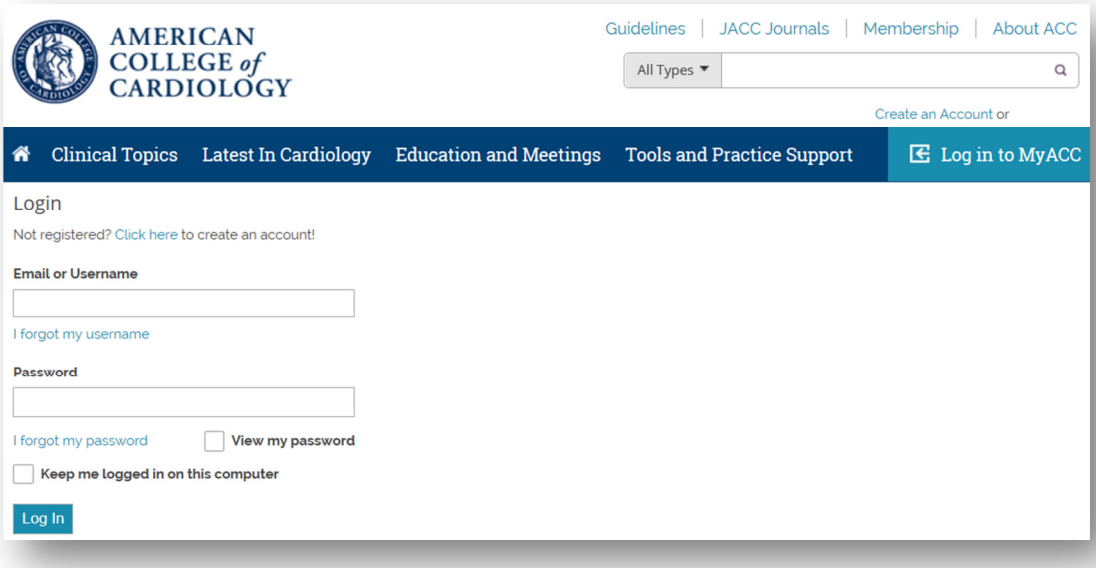
This Physician Instruction Guide is designed to assist you in becoming familiar with and using the Physician Dashboard. We hope that this new report will be beneficial to you as well as advancing the care of cardiac patients.

Please confer with the CathPCI Registry Site Manager at your hospital concerning the data reports. If you have a question about the Physician Dashboard, please contact the NCDR Product Support Team at 800- 257-4737 or via email at *ncdr@acc.org* and allow three business days for a response.

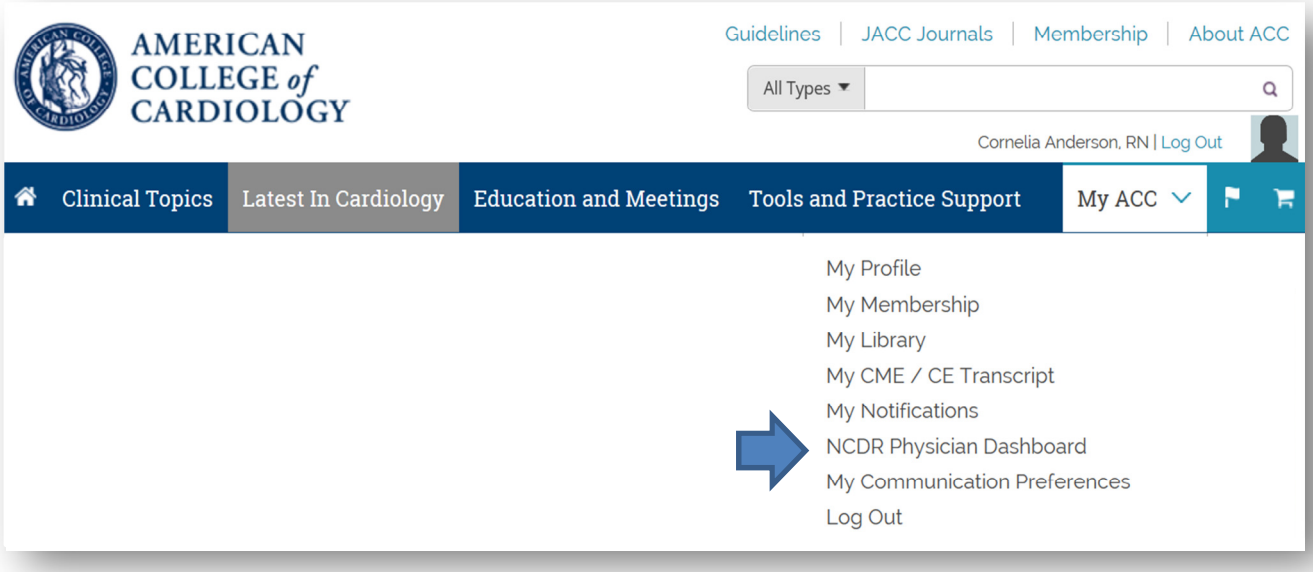
Table of Contents

How to Access Your Physician Dashboard

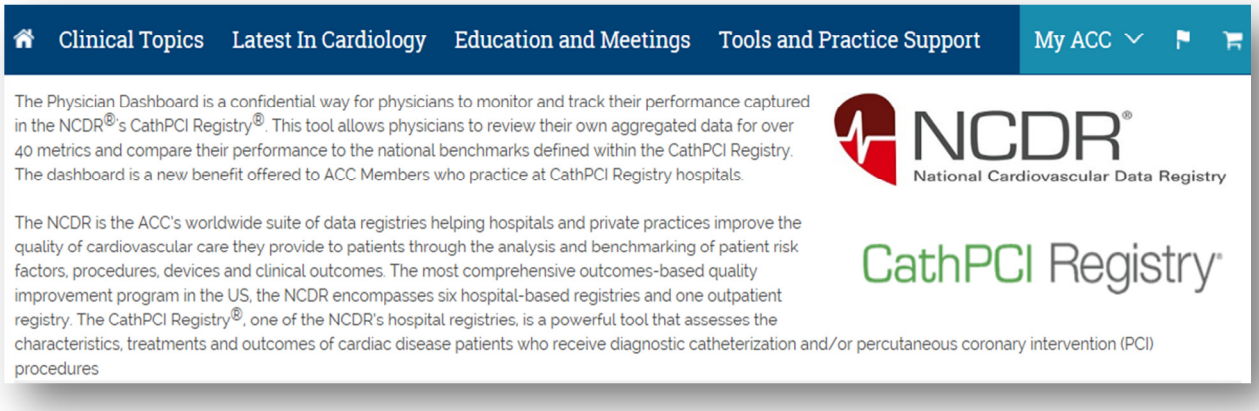
1. Select “Log in MyACC” on the top navigation bar and Log In
   http://www.acc.org/



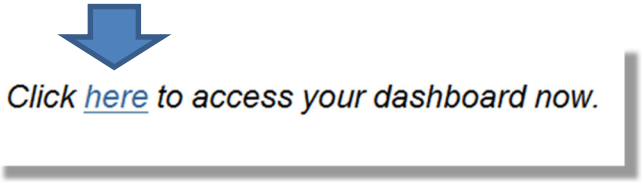
2. Next click on “**My ACC**” in the top navigation bar and select “**NCDR Physician Dashboard**” from the dropdown menu



3. This will bring you to the Physician Dashboard homepage.

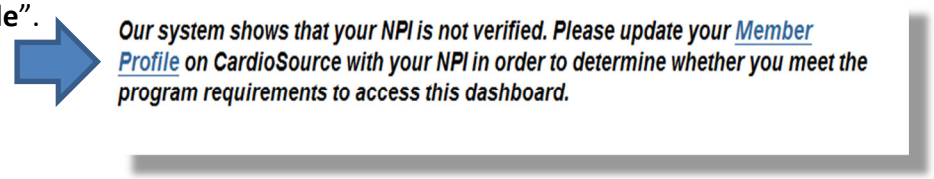


4. If your NPI number is correct and verified, you will see this message:
   Please click on "**here**" to navigate to your
   Physician Dashboard. (Proceed to **step #6**)

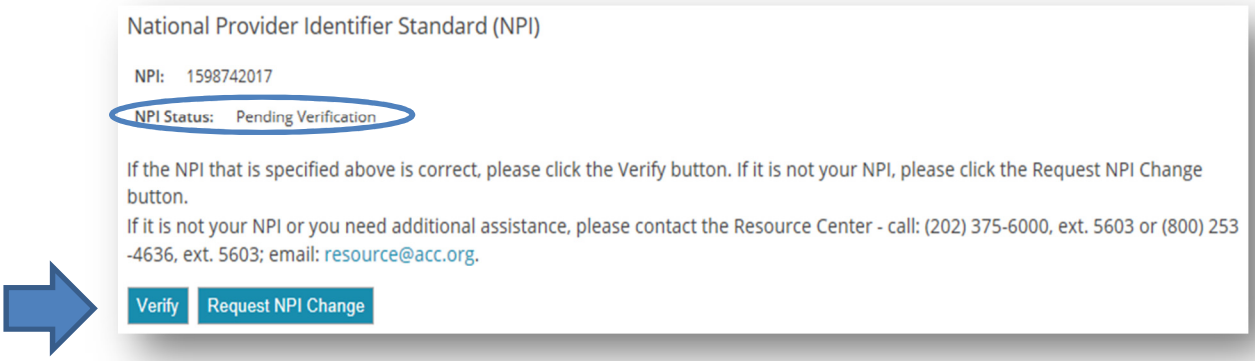


5. If your NPI number is missing, incorrect or needs to be verified, you will get this message:

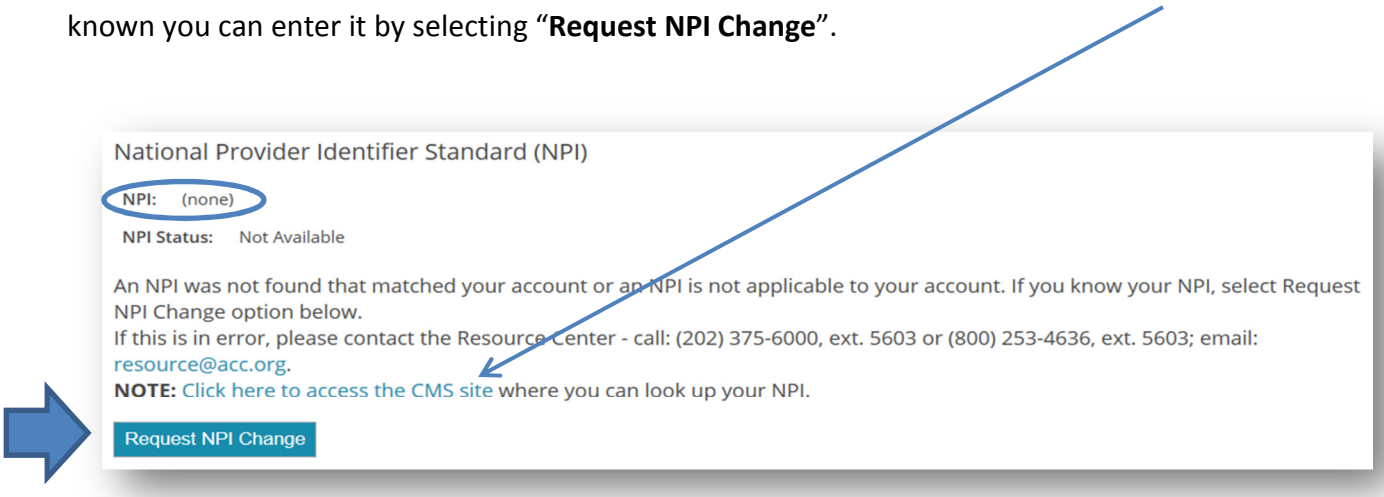
   Please click on "**Member Profile**".



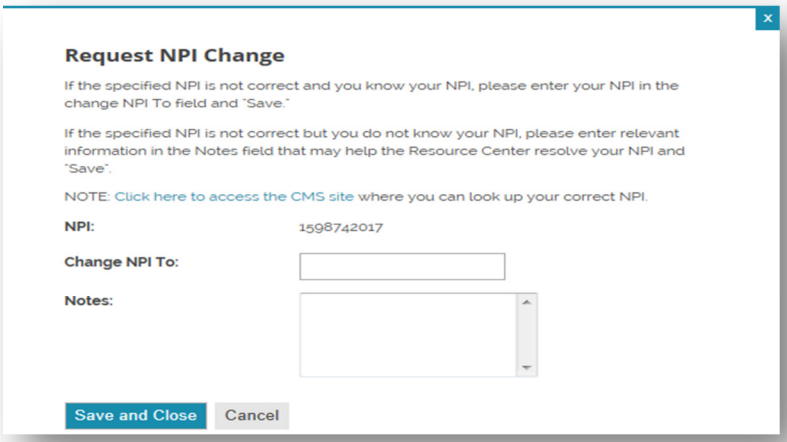
   This will bring you to your ACC Member Profile. Once there, scroll down and click on the "**Professional Information**" bar. If the NPI number is correct, but needs to be verified select "**Verify**"



If the NPI number is missing or incorrect you can validate it by navigating to the CMS site *or* when it is known you can enter it by selecting "**Request NPI Change**".

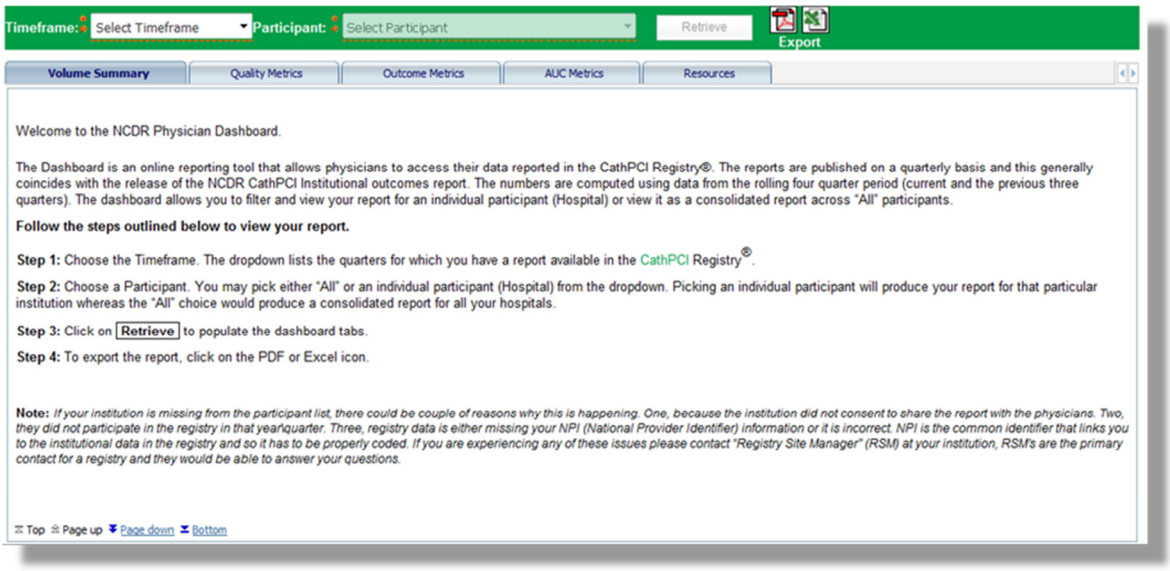


When Request NPI Change has been selected, enter your correct NPI number in the available field and select "**Save and Close**"

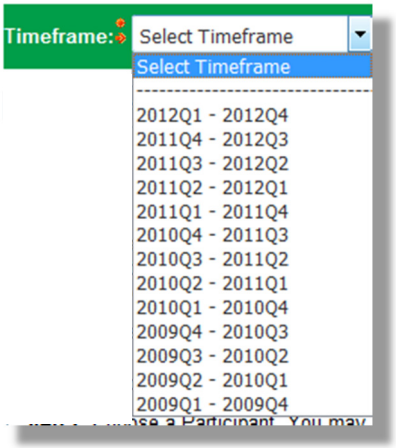


*Once you have verified your NPI number and/or entered it, you may need to log out and log back in, in order to access your Physician Dashboard. Then follow steps 1-4 to locate and access the Physician Dashboard.

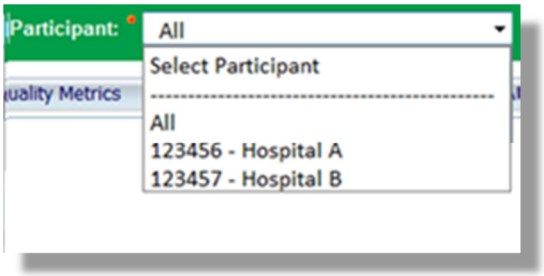
6. This brings you to the Physician Dashboard homepage.



7. Click on the down arrow for "**Select Timeframe"** and select the timeframe for the data you wish to view.



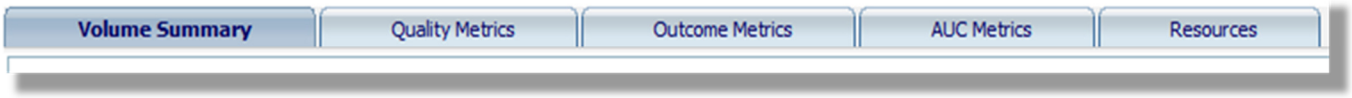
8. Then click on the arrow to "**Select Participant"** and select one hospital or all the hospitals in which you practice.



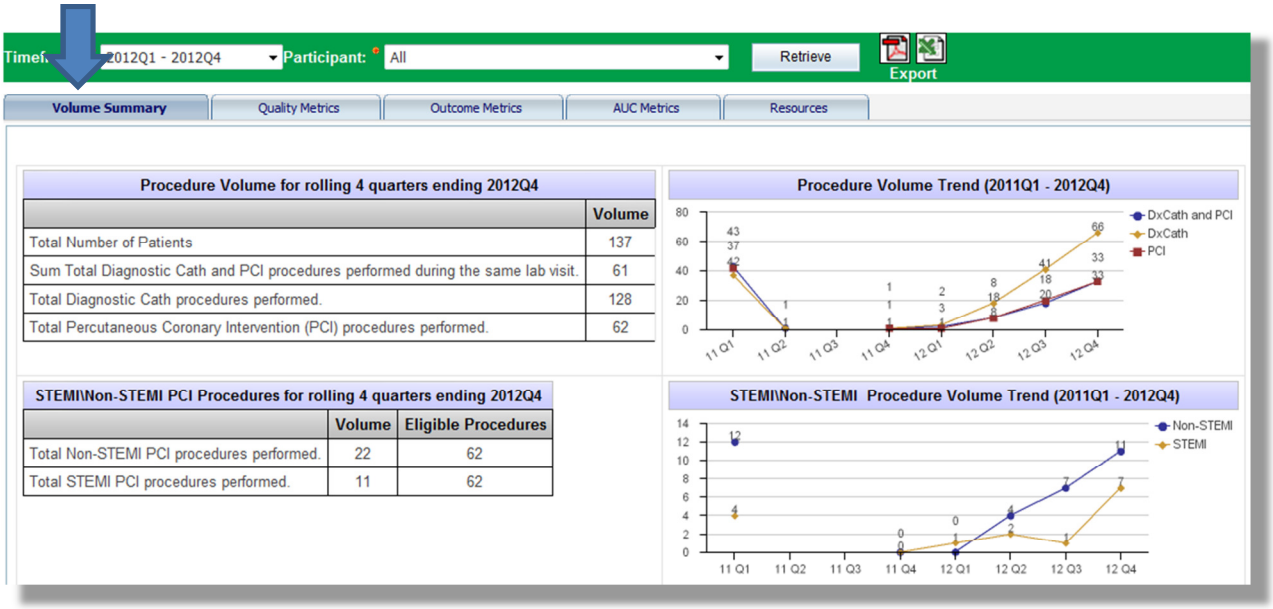
9. Then click on "**Retrieve**" from the top navigation bar to update the information into the dashboard.

11.
12.

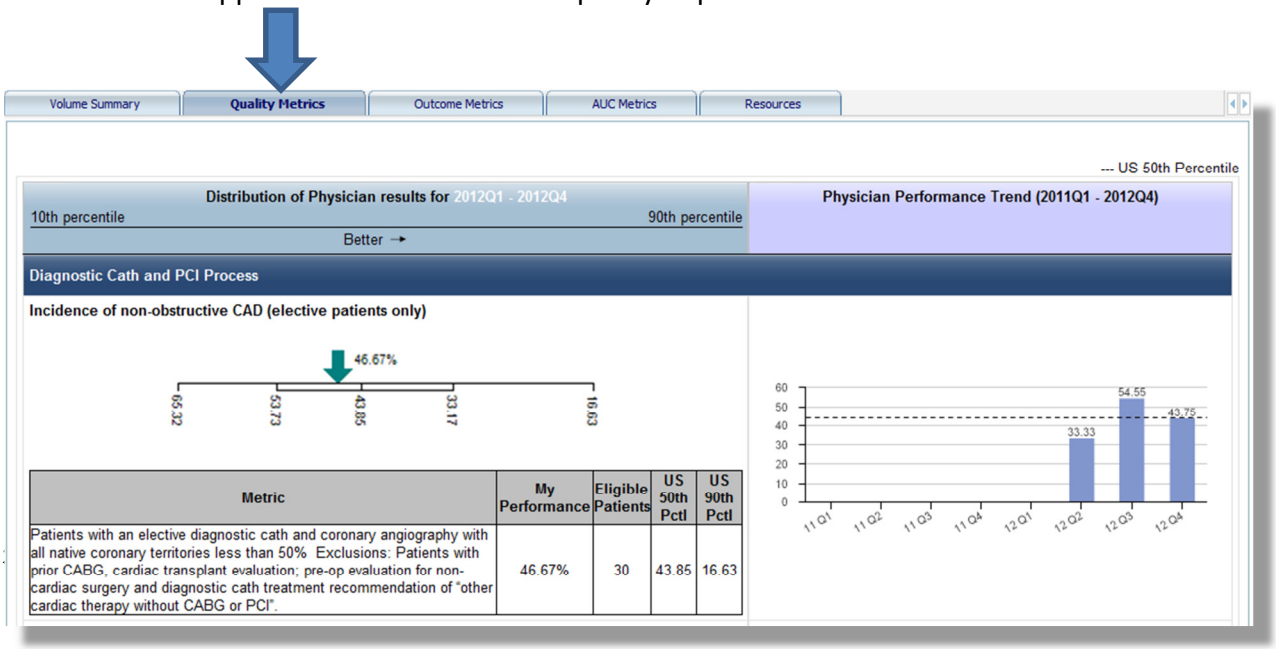
10. The Physician Dashboard is divided into 5 key areas as detailed below:



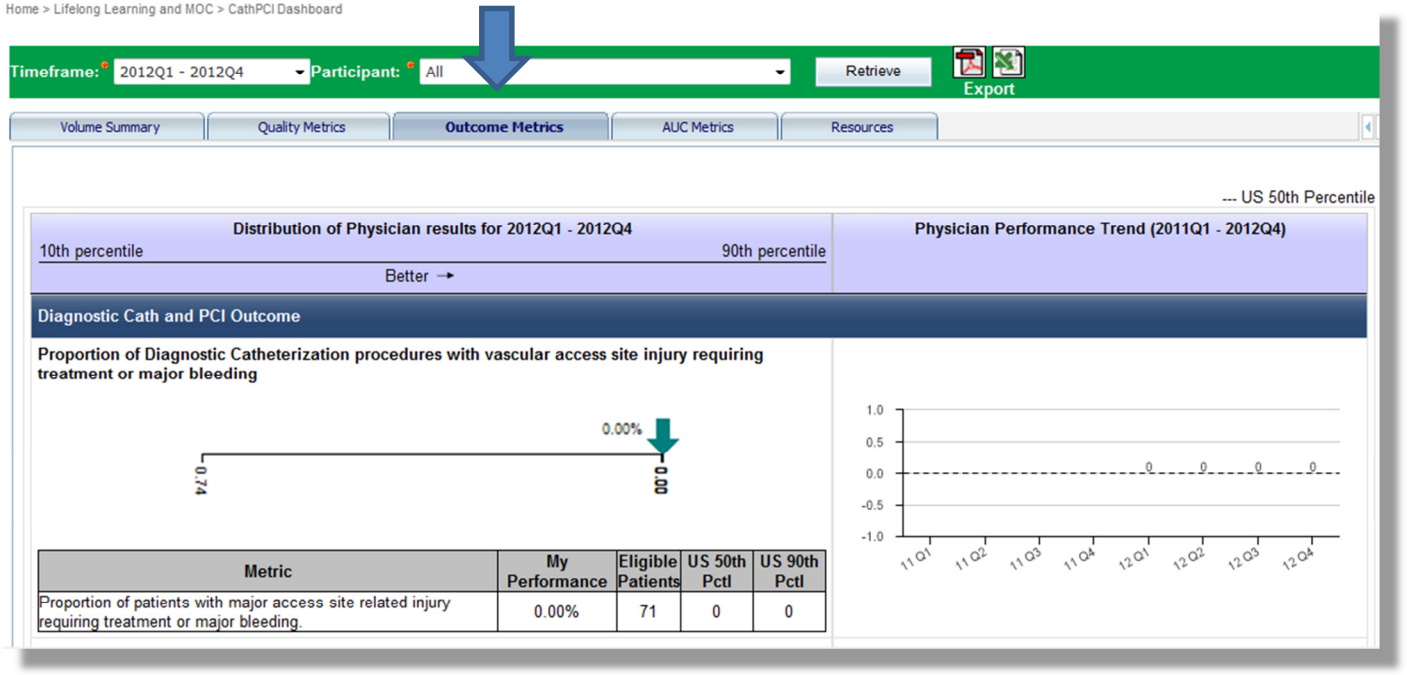
11. The **Volume Summary** page displays data pertaining to volumes of patients, procedures, ACS type and procedure access type. The left side of the Physician Dashboard indicates your volume for the last 4 quarters of data while the right side of the Dashboard displays a trend of your volumes for the past 8 quarters.



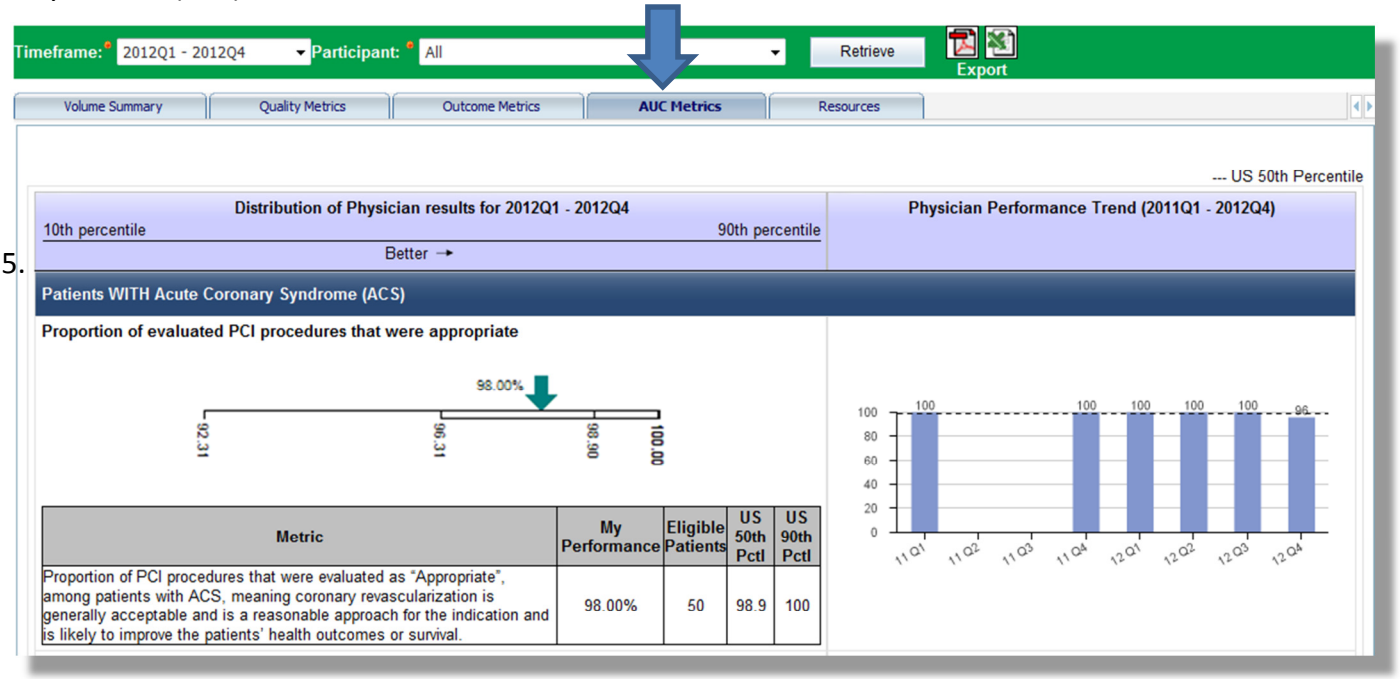
12. The **Quality Metrics** page provides information pertaining to both Diagnostic Cath and PCI patients. These metrics support self-assessment and quality improvement.



13. **Outcome Metrics** provide information pertaining to patient outcomes within the hospitalization.

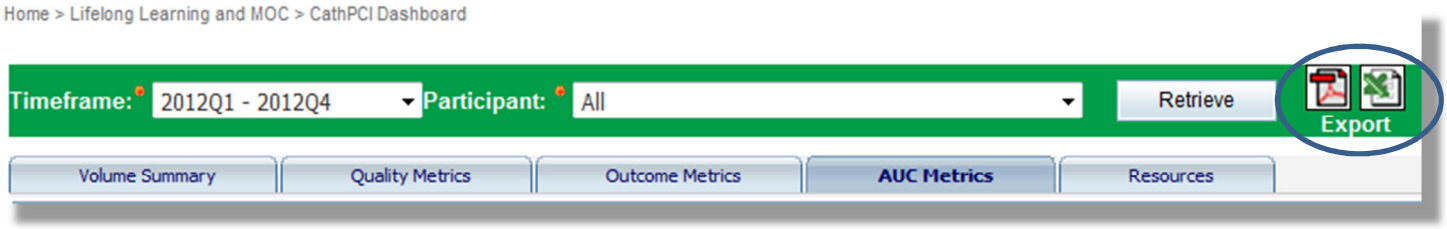


14. The **AUC Metrics** apply the Appropriate Use Criteria (AUC) for Coronary Revascularization to PCI procedures performed and then displays the portion of patients evaluated to be Appropriate, Uncertain or Inappropriate. These metrics divide patients into two groups: those *with* Acute Coronary Syndrome (ACS) and those *without* ACS.

15. 

15. The **Resources** tab contains the following documents: Physician Dashboard: Guide for Physicians; Physician Dashboard: Guide for CathPCI Registry Participants; Trouble Shooting Ability to Download Physician Dashboard. Other resources will be added as needed.

16. You can export your Physician Dashboard to a PDF or Excel file by selecting either the PDF or Excel icon located in the upper right corner of the Physician Dashboard screen. These tools allow for further analysis and use of the information in presentations.



If many people are logged into the system, this step may take several seconds. Note that the entire Dashboard will be in the downloaded PDF file, and that each tab in the Physician Dashboard will have a separate tab in the Excel file.

If you have trouble downloading your Dashboard, please make sure your Pop-up blocker is off. (See Troubleshooting Ability to Download Dashboard document under the Resources tab.)

Frequently Asked Questions

1) What process is used to obtain NCDR data?

NCDR registries have been created under the leadership of clinical experts with critical input from NCDR participants regarding the feasibility of implementation and the burden of data collection. Data are collected, validated, and submitted under the responsibility of a designated Registry Site Manager (RSM) at each participating institution.

All data submissions are evaluated for errors and completeness and sent to the participant as a data quality report (DQR). This automated process is based on a set of algorithms with predetermined thresholds to rate the submission using a color code: red, yellow and green.

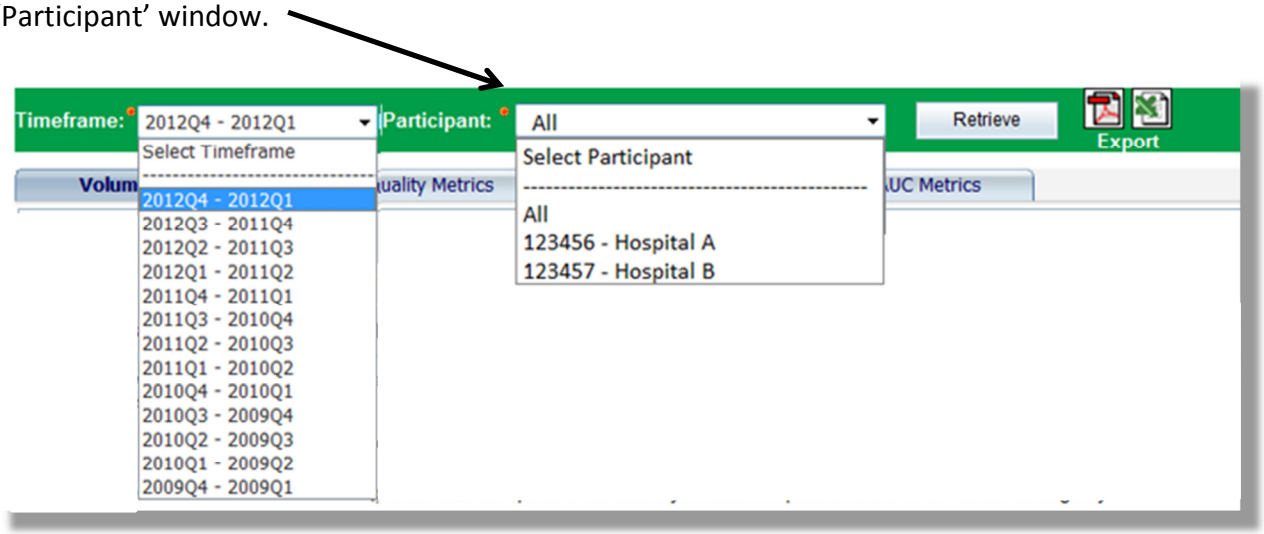
Red means that the data submission has failed and will not be entered into the NCDR data warehouse and will not be included in the report.

Yellow means that the data has passed the threshold for errors but not completeness. The data will be entered into the NCDR data warehouse, but will not be incorporated into the comparison reports.

Green means that the data passed both assessments, will be entered into the NCDR data warehouse, and will be included into any data computations and aggregated reports. Therefore, the DQR is used by the participants to help prioritize data "cleaning" efforts.

2) What if I practice at more than one hospital?

Your National Provider Identifier (NPI) is linked to the hospital data that is entered into the CathPCI Registry. It is possible to view your cumulative data by selecting 'All' (see figure below) from the 'Participant window. You may also view your data specific to one facility by selecting that facility from the 'Participant' window.



3) Who has access to my data?

Access to the dashboard is secure and confidential via CardioSource login. Only you have access to your data via the CardioSource website. We do not share this data with anyone or any entity.

4) Does my hospital have access to my data?

Yes, the hospital where you practice has had access to your data since you joined the hospital. The Physician Dashboard will provide an easier, more meaningful way for both the facility and physicians to access the data.

5) Do you publicly report this data?

This data is not publicly reported.

6) Does my Physician Dashboard contain all of my cases?

All cases that meet the specific Inclusion/Exclusion criteria for each measure (see Detailed Descriptions for Metrics document below) will be included if:

1.) The procedure occurred at a hospital that participates in the CathPCI Registry
2.) The hospital submits all diagnostic and/or PCI procedures
3.) Submitted data obtain a Green or Yellow Inclusion status on the DQR (See FAQ #1)
4.) The Hospital has correctly identified you by your NPI number

7) What if the physician dashboard does not contain data or all cases?
You may want to contact the RSM to discuss the possible reasons. If you cannot resolve the data discrepancy then contact the NCDR at ncdr@acc.org or 1-800-257-4737.

8) How do I interpret the graph in the Dashboard?

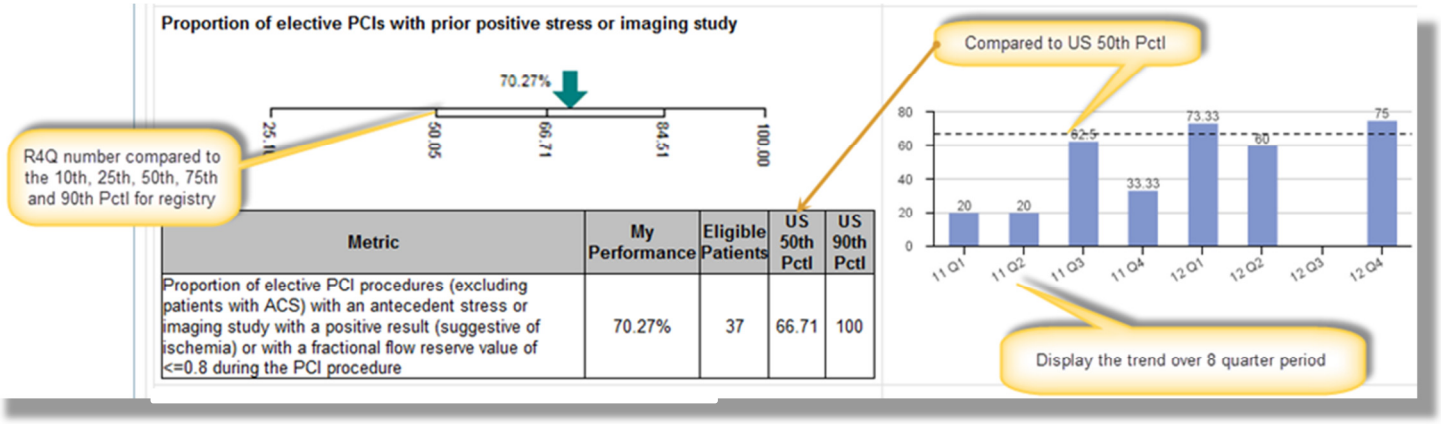


Figure 2: Report graphs

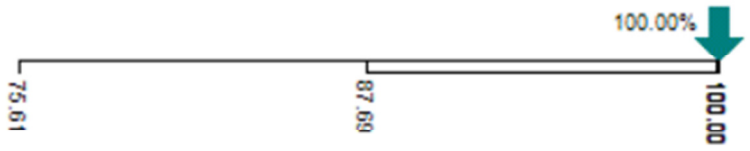
In the above graph on the left, the green arrow points to your results. The numbers underneath the arrow represent the results for all physicians for the 10th (25.16%), 25th (50.05%), 50th (66.71%), 75th (84.51%), and 90th (100%) percentiles. In this case, the arrow falls just above the 50th percentile. This means that slightly less than half the physicians perform better and slightly more than half perform worse than you in this metric.

If in subsequent results the arrow moves to the right, it would indicate an improvement in performance. Results in which the arrow falls at or below the 50th percentile, i.e., more to the left, may indicate an opportunity for improvement.

In the graph to the right, the bars represent the results from the last eight quarters and the dotted line represents the 50th percentile.

Note that if the range for the percentiles is small, you may see only part of the range. In the example below, the 10th percentile and 25th percentile are shown (75.61, 87.69 respectively). The 50th, 75th, and 90th percentiles are all wrapped into 100.

Proportion of STEMI patients receiving immediate PCI within 90 minutes



Metric	My Performance	Eligible Patients	US 50th Pctl	US 90th Pctl
Proportion of STEMI patients with a time from arrival (or subsequent ECG if ST elevation first noted on subsequent ECG) to immediate PCI <=90 minutes. Exclusions: Patients transferred in from another acute care facility; Reasons for delay does not equal none.	100.00%	7	100	100

Note that the numbers may represent the number of patients **or** the number of procedures so they may not be equal.

Detailed Description of Metrics included in the Dashboard

Procedure Volume Information

Procedure Volume Data **Description:** Counts of the volume of patients and procedures that you have cared for by procedure type	
Total Dx Cath Procedures	Count of procedures where Diagnostic Cath Procedure=yes
Total PCI procedures	Count of procedures where PCI procedure=yes
Total Diagnostic Cath and PCI procedures during same lab visit	Count of procedures where Diagnostic cath=yes and PCI procedure=yes
Total number of patients	Count of patients (not procedures) where diagnostic cath=yes OR PCI procedure=yes
Clinical Rationale/ Recommendation	According to the ACCF/AHA/SCAI 2013 Update of the Clinical Competence Statement on Coronary Artery Interventional Procedures the following are recommendations for provider competence; • Participate in PCI quality programs of the hospital, including review of major complications. • Participate in a hospital-based state, regional, or national database to measure risk-adjusted PCI outcomes of the laboratory and compare them to regional and national benchmarks for improving quality of care. • Based on available data and the judgment of the writing committee involving all of these considerations, the writing committee recommends interventional cardiologists perform a minimum of 50 coronary interventional procedures per year (averaged over a 2-year period) to maintain competency.
Relevant Citations	Harold, HG, et. al. ACCF/AHA/SCAI 2013 Update of the Clinical Competence Statement on Coronary Artery Interventional Procedures 10.1016/j.jacc.2013.05.002

Total STEMI \ NSTEMI PCI Procedures **Description:** Counts of PCI procedures by diagnosis of NSTEMI and STEMI	
Eligible Procedures	Count of procedures where PCI procedure=yes
Total Non-STEMI PCI procedures performed	Count of PCI procedures with a CAD presentation=non-STEMI
Total STEMI PCI procedures performed	Count of PCI procedures with a CAD presentation=STEMI
Clinical Rationale/ Recommendation	Patients presenting with STEMI/NSTEMI are at a higher risk of adverse events than elective PCI cases.
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Procedure Access Sites **Description:** Counts of PCI procedures based on arterial access for the procedure.	
Eligible Procedures	Count of procedures where diagnostic cath=yes OR PCI procedure=yes
Femoral	Count of procedures with Arterial Access Site = femoral
Brachial	Count of procedures with Arterial Access Site = brachial
Radial	Count of procedures with Arterial Access Site = radial
Other	Count of procedures with Arterial Access Site = other
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing feedback on choice of arterial access site which may influence bleeding complications, clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
Relevant Citations	Rao SV, Ou FS, Wang TY et al. Trends in the prevalence and outcomes of radial and femoral approaches to percutaneous coronary intervention: a report from the national cardiovascular data registry. JACC Cardiovasc Interv 2008;1:379-86. Marso SP, Amin AP, House JA et al. Association between use of bleeding avoidance strategies and risk of periprocedural bleeding among patients undergoing percutaneous coronary intervention. JAMA 2010;303:2156-64. Mehta SK, Frutkin AD, Lindsey JB et al. Bleeding in patients undergoing percutaneous coronary intervention: The development of a clinical risk algorithm from the National Cardiovascular Data Registry. Circulation: Cardiovascular Interventions 2009;2:222-229.

Diagnostic Cath and PCI Process

Incidence of non-obstructive CAD **Description:** Identifies patients with non-obstructive CAD	
Numerator	Count of diagnostic cath procedures with all native coronary artery territories <50%.
Denominator	Count of diagnostic cath procedures
Inclusion Criteria	-Diagnostic cath procedure with coronary angiography -Elective diagnostic cath -All diagnostic cath patient admissions in data submissions that passed NCDR data inclusion thresholds
Exclusion Criteria	-Previous CABG -Graft territories in the coronary anatomy section -Cardiac transplant evaluation= donor -Pre-op evaluation for non-cardiac surgery -Diagnostic cath treatment recommendation=other cardiac therapy without CABG or PCI -Data submissions with Population Status 'A' (submitting PCI only)
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	This purpose of this metric is to identify diagnostic cath procedures with “normal” results. Because the constellation of findings characteristic of heart disease is non-specific, there will (and should) be patients who undergo diagnostic catheterization who have insignificant coronary artery disease. However, given the potential for physicians to vary with respect to their threshold for recommending diagnostic catheterization, it is important for hospitals to have a process that permits that variation to be recognized, discussed, and managed.

Proportion of elective PCIs with prior positive stress or imaging study **Description:** Proportion of elective PCI procedures (excluding patients with acute coronary syndrome) with an antecedent stress or imaging study with a positive result (suggestive of ischemia) or with a fractional flow reserve value of <=0.8 performed during the procedure.	
Numerator	Count of PCI procedures with an antecedent stress or imaging study performed with a positive result (suggestive of ischemia) or a fractional flow reserve assessed with a FFR value of <=0.8 during the PCI procedure.
Denominator	Count of PCI procedures
Inclusion Criteria	-Elective PCI -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Patients with acute coronary syndrome (CAD Presentation=STEMI; NSTEMI or Unstable Angina) -Patients with angina classification of CCS IV prior to the procedure -Patients with PCI Indication of “staged procedure” -Prior cardiac transplant
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Several studies have established that for patients with stable CAD outcomes do not differ between PCI with medical therapy and medical therapy alone. Noninvasive testing prior to elective PCI for patients with stable CAD (without acute coronary syndrome) can help select patients that will benefit from PCI. The 2012 appropriateness criteria for coronary revascularization require that, for patients without acute coronary syndromes, results from non-invasive testing be either low-risk, intermediate risk, or high risk, or that results from FFR be <= 0.80 be used to validate the need for revascularization.
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am CollCardiol 2011; 58:e44–122 Patel MR, et al. ACCF/SCAI/STS/AATS/AHA/ASNC/HFSA/SCCT 2012 appropriate use criteria for coronary revascularization focused update: a report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Association for Thoracic Surgery, American Heart Association, American Society of Nuclear Cardiology, and the Society of Cardiovascular Computed Tomography. J Am Coll Cardiol 2012;59:857– 81. Tonino, P.A., et al. Fractional Flow Reserve versus Angiography for Guiding Percutaneous Coronary Intervention. New England Journal of Medicine, vol 360, #3, January 15, 2009

Median time to immediate PCI for STEMI patients (in minutes) **Description:** Your patients' median time from hospital arrival to immediate PCI for STEMI patients in minutes.	
Median	-Arrival to first device activation when ST elevation noted on first ECG; or -Subsequent ECG with STEMI or STEMI equivalent to first device deployment time when STE elevation first noted on subsequent ECG for patients with an admit source of "emergency department" or "other".
Inclusion Criteria	-PCI procedures -PCI indication of Immediate PCI for STEMI -Transferred in for Immediate PCI for STEMI=no -Non-system reason for delay = none -Non-system reason for delay AND a "time to immediate PCI" <=90" -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Non-system reason for delays AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	According to the ACC/AHA performance measures for STEMI/NSTEMI report, "Acute reperfusion therapy for patients with STEMI significantly reduces the risk of death and should be provided to all eligible patients." Hospital policies and procedures materially affect door-to-balloon time. This measure is insensitive to differences in case mix. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction recommends: "Primary PCI should be performed as quickly as possible with a goal of a medical contact–to-balloon or door-to-balloon interval of within 90 minutes."
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Proportion of STEMI patients receiving intermediate PCI w/in 90 minutes **Description:** Proportion of your STEMI patients with a time from the hospital arrival (or subsequent ECG if ST elevation first noted on subsequent ECG) to immediate PCI <=90 minutes	
Numerator	Count of PCI procedures for patients with an admit source of "emergency department" or "other" with a date/time difference of <=90" from 1. Arrival to first device activation <=90" when ST elevation noted on first ECG; or 2. Subsequent ECG with STEMI or STEMI equivalent to first device deployment time when STE elevation first noted on subsequent ECG.
Denominator	Count of PCI procedures
Inclusion Criteria	-PCI procedures -PCI indication of Immediate PCI for STEMI -Transferred in for Immediate PCI for STEMI=no -Non-system reason for delay =none -Non-system reason for delay AND a "time to immediate PCI" <=90" -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Non-system reason for delays AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	According to the ACC/AHA performance measures for STEMI/NSTEMI report, "Acute reperfusion therapy for patients with STEMI significantly reduces the risk of death and should be provided to all eligible patients." Hospital policies and procedures materially affect door-to-balloon time. This measure is insensitive to differences in case mix. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction recommends: "Primary PCI should be performed as quickly as possible with a goal of a medical contact–to-balloon or door-to-balloon interval of within 90 minutes."
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Median time from ED arrival at STEMI transferring facility to ED arrival at STEMI receiving facility among transferred patients. **Description:** Your patients' median time from arrival at transferring facility to ED arrival at STEMI receiving facility among transferred patients.	
Median	ED presentation at referring facility date/time and arrival at your facility date/time for patients with an admit source of "transfer in from another acute care facility"
Inclusion Criteria	-PCI procedures -PCI Indication = immediate -Transfer in for immediate PCI for STEMI=Yes -Non-system reason for delay =none -Non-system reason for delay AND a "time to immediate PCI" <=90" -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Non-system reason for delay AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Class I: 1. Patients with STEMI who have cardiogenic shock and are less than 75 years of age should be brought immediately or secondarily transferred to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG) if it can be performed within 18 hours of onset of shock. (Level of Evidence: A) 2. Patients with STEMI who have contraindications to fibrinolytic therapy should be brought immediately or secondarily transferred promptly (i.e., primary receiving hospital door-to-departure time less than 30 minutes) to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG). (Level of Evidence: B)
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Median time from ED arrival at STEMI transferring facility to immediate PCI at STEMI receiving facility among transferred patients (in minutes). **Description:** Your patients' median time from arrival at referring facility to immediate PCI at STEMI receiving facility among transferred patients.	
Median	ED presentation at referring facility date/time and first device activation date/time for patients with an admit source of "transfer in from another acute care facility"
Inclusion Criteria	-PCI procedures -PCI indication=immediate -Transfer in for immediate PCI for STEMI=Yes -Data from submissions that pass NCDR data inclusion thresholds. -Non-system reason for delay = none -Non-system reason for delay AND a "time to immediate PCI" <=90"
Exclusion Criteria	-Non-system reason for delay AND a "time to immediate PCI" >90"
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	According to the ACC/AHA performance measures for STEMI/USTEMI report, "The benefits of timely acute reperfusion for STEMI with either fibrinolysis or primary percutaneous coronary intervention (PCI) are substantial. In centers where PCI is not available on-site, patients may be transferred to another facility for treatment. Because delayed PCI may not be as beneficial as timely fibrinolysis, opting for transfer for PCI rather than fibrinolysis requires that transfer be performed in a timely manner." Class I: 1. Patients with STEMI who have cardiogenic shock and are less than 75 years of age should be brought immediately or secondarily transferred to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG) if it can be performed within 18 hours of onset of shock. (Level of Evidence: A) 2. Patients with STEMI who have contraindications to fibrinolytic therapy should be brought immediately or secondarily transferred promptly (i.e., primary receiving hospital door-to-departure time less than 30 minutes) to facilities capable of cardiac catheterization and rapid revascularization (PCI or CABG). (Level of Evidence: B)
Relevant Citations	Krumholz HM, Anderson JL, Bachelder BL, et al. ACC/AHA 2008 performance measures for adults with ST-elevation and non–ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Performance Measures (Writing Committee to Develop Performance Measures for ST-Elevation and Non–ST-Elevation Myocardial Infarction). J Am Coll Cardiol 2008;52:2046 –99.

Median fluoro time (in minutes) **Description:** Median Fluoro time for PCI procedures	
Median	Fluoro time
Inclusion Criteria	-PCI procedures (with or without diagnostic cath) -PCI of one vessel/lesion -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Prior CABG; or "other" procedure during the same lab visit; PCI of >1 vessel/lesion.
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	2011 PCI Guidelines - 4.3. Radiation Safety CLASS I Recommendation: Cardiac catheterization laboratories should routinely record relevant available patient procedural radiation dose data (e.g., total air kerma at the international reference point [Ka r], air kerma air product [PKA], fluoroscopy time, number of cine images), and should define thresholds with corresponding follow-up protocols for patients who receive a high procedural radiation dose. (Level of Evidence: C)
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122)

Proportion of your patients with post procedure Myocardial Infarction (when routinely collecting post-PCI biomarkers) **Description:** Your proportion of patients with post procedure MI when biomarkers are routinely collected..	
Numerator	Count of PCI procedures with post procedure MI
Denominator	Count of PCI procedures
Inclusion Criteria	1. submissions with >= 90% of patients with biomarkers (troponin and/or CK) coded post procedure 2. LOS >= 1 day 3. Data from submissions that pass NCDR data inclusion thresholds. 4. Elective PCI
Exclusion Criteria	1. submissions with < 90% of patients with biomarkers (troponin and/or CK) coded post procedure 2. LOS <1 day
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	MI following PCI is a major complication that is associated with the success of the PCI procedure. Studies debate the most accurate way to define post procedure MI (with or without routine collection of biomarkers). Post procedure MI increases patient morbidity and mortality, as well as health care resource use. --- There is evidence that hospitals that routinely collect biomarkers have a higher rate of periprocedural MI than those who don't. Thus this metric is reported separately, based on the routine collection of biomarkers (see metric 14 as well). "Hospitals that routinely performed marker testing had higher rates of periprocedural MI detection despite a trend toward lower mortality and greater adherence to recommended medications that suggest better overall quality of care for PCI patients at these hospitals. Therefore, in the absence of routine cardiac marker surveillance after PCI, the use of periprocedural MI as a quality metric for PCI will be misleading." [1]
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122 [1]Wang TY, Peterson ED, Dai D, et al. Patterns of cardiac marker surveillance after elective percutaneous coronary intervention and implications for the use of periprocedural myocardial infarction as a quality metric: a report from the National Cardiovascular Data Registry (NCDR). J Am Coll Cardiol. 2008;51:2068-74.

Proportion of patients with post procedure Myocardial Infarction (when not routinely collecting post-PCI biomarkers) **Description:** Your proportion of patients with post procedure MI when biomarkers are not routinely collected.	
Numerator	Count of PCI procedures with post procedure MI
Denominator	Count of PCI procedures
Inclusion Criteria	Submissions with < 90% of patients with biomarkers (troponin and/or CK) coded post procedure LOS >= 1 day Data from submissions that pass NCDR data inclusion thresholds. Elective PCI
Exclusion Criteria	Submissions with >=90% of patients with biomarkers (troponin and/or CK) coded post procedure LOS <1 day
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	MI following PCI is a major complication that is associated with the success of the PCI procedure. Studies debate the most accurate way to define post procedure MI (with or without routine collection of biomarkers). Post procedure MI increases patient morbidity and mortality, as well as health care resource use. --- There is evidence that hospitals that routinely collect biomarkers have a higher rate of periprocedural MI than those who don't. Thus this metric is reported separately, based on the routine collection of biomarkers (see metric 14 as well). "Hospitals that routinely performed marker testing had higher rates of periprocedural MI detection despite a trend toward lower mortality and greater adherence to recommended medications that suggest better overall quality of care for PCI patients at these hospitals. Therefore, in the absence of routine cardiac marker surveillance after PCI, the use of periprocedural MI as a quality metric for PCI will be misleading." [1]
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122 [1]Wang TY, Peterson ED, Dai D, et al. Patterns of cardiac marker surveillance after elective percutaneous coronary intervention and implications for the use of periprocedural myocardial infarction as a quality metric: a report from the National Cardiovascular Data Registry (NCDR). J Am Coll Cardiol. 2008;51:2068-74.

Proportion of PCI procedures with creatinine assessed pre and post PCI procedure **Description:** Proportion of your PCI patients with creatinine assessed pre and post procedure.	
Numerator	PCI procedures with creatinine assessed pre and post procedure
Denominator	PCI procedures
Inclusion Criteria	-PCI procedures -LOS >=1 day -Valid pre-procedure and post-procedure creatinine values -Data submissions that passed NCDR data inclusion thresholds
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Acute kidney injury, or "contrast induced nephropathy" is a major, procedure-related complication of PCI. The "risk, injury, failure, loss, end-stage" (RIFLE) classification requires pre and post procedure creatinine to classify acute kidney injury (AKI). The 2011 PCI Guidelines - 4.4. Contrast-Induced AKI Class I Recommendations: 1. Patients should be assessed for risk of contrast induced AKI before PCI. (Level of Evidence: C) 2. Patients undergoing cardiac catheterization with contrast media should receive adequate preparatory hydration. (Level of Evidence: B) 3. In patients with CKD (creatinine clearance <60 mL/min), the volume of contrast media should be minimized. (Level of Evidence: B)
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122 Biesen, Wim, et al. Defining Acute Renal Failure: RIFLE and Beyond. Clin J Am Soc Nephrol 1: 1314–1319, 2006

Median post-procedure length of stay (in days) for PCI patients with STEMI **Description:** Your patients' median post-procedure length of stay (in days) for PCI patients with STEMI.	
Median	Median of Procedure Date and Discharge Date.
Inclusion Criteria	-Patients admissions with STEMI -Patient admissions with at least one PCI procedure. -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Records with invalid values for Admission Date or Discharge Date
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Median LOS will be sensitive to patient characteristics (and therefore case mix). However, there is evidence that hospitals can influence total, pre and post procedure LOS, maximizing efficient resource usage.

Composite: Discharge Medications in Eligible PCI Patients Description: Patients undergoing PCI who receive prescriptions for all medications (aspirin, P2Y12 and statins) which they are eligible for at discharge	
Numerator	Patients who receive all medications for which they are eligible. 1. Aspirin prescribed at discharge (if eligible for aspirin as described in denominator) AND 2. P2Y12 agent (clopidogrel, prasurgel, ticlopidine or ticagrelor) prescribed at discharge (if eligible for P2Y12 as described in denominator) AND 3. Statin prescribed at discharge (if eligible for statin as described in denominator)
Denominator	All patients surviving hospitalization who are eligible to receive any one of the three medication classes: 1) Eligibility for aspirin (ASA): Patients undergoing PCI who do not have a contraindication to aspirin documented OR 2) Eligibility for P2Y12 agent (clopidogrel, prasugrel, ticlopidine, ticagrelor): Patients undergoing PCI with stenting who do not have a contraindication to P2Y12 agent documented OR 3) Eligibility for statin therapy: Patients undergoing PCI who do not have a contraindication to statin therapy.
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Discharge status of expired -Discharge location of “other acute care hospital”, “hospice” or “against medical advice”.
Timeframe	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Population	Patients with a PCI procedure
Clinical Rationale	The 2011 PCI Guidelines - 5.7.2. Oral Antiplatelet Therapy Class I Recommendations: 3. After PCI, use of aspirin should be continued indefinitely. (Level of Evidence: A) AND 7. The duration of P2Y12 inhibitor therapy after stent implantation should generally be as follows: a. In patients receiving a stent (BMS or DES) during PCI for ACS, P2Y12 inhibitor therapy should be given for at least 12 months. Options include clopidogrel 75 mg daily, prasugrel 10 mg daily, and ticagrelor 90 mg twice daily. (Level of Evidence: B) b. In patients receiving DES for a non-ACS indication, clopidogrel 75 mg daily should be given for at least 12 months if patients are not at high risk of bleeding. (Level of

	Evidence: B) c. In patients receiving BMS for a non-ACS indication, clopidogrel should be given for a minimum of 1 month and ideally up to 12 months (unless the patient is at increased risk of bleeding; then it should be given for a minimum of 2 weeks). (Level of Evidence: B) **Reducing LDL-c** is associated with a decrease in mortality and morbidity for patients with coronary artery disease. Lipid-lowering therapy can reduce the risk of cardiovascular outcomes. 1. 2011 AHA/ACCF Secondary Prevention Guidelines class I recommendation for lipid management: 4. In addition to therapeutic lifestyle changes, statin therapy should be prescribed in the absence of contraindications or documented adverse effects (25–29). (Level of Evidence: A) 2. The ACC/AHA 2007 UA/NSTEMI Guidelines recommend: Class I Recommendation: Hydroxymethyl glutaryl-coenzyme A reductase inhibitors (**statins),** in the absence of contraindications, **regardless of baseline LDL-**C and diet modification, should be given to post-UA/NSTEMI patients, including post revascularization patients. (*Level of Evidence: A*).
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122) AHA/ACCF Secondary Prevention and Risk Reduction Therapy for Patients With Coronary and Other Atherosclerotic Vascular Disease: 2011 Update (JACC 2011, Vol. 58, No. 23) ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non–ST-Elevation Myocardial Infarction:J Am Coll Cardiol, 2007; 50:1-157; This measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

Proportion of patients with aspirin prescribed at discharge **Description:** Proportion of patients with aspirin prescribed at discharge.	
Numerator	Count of PCI admissions with the discharge medication (prescribed at discharge) of Aspirin at discharge coded as yes.
Denominator	Count of PCI admissions
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Aspirin coded as contraindicated or blinded -Discharge status of expired -Discharge location of “other acute care hospital”, “hospice” or “against medical advice”
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	The 2011 PCI Guidelines - 5.7.2. Oral Antiplatelet Therapy Class I Recommendations: 3. After PCI, use of aspirin should be continued indefinitely. (Level of Evidence: A)
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122)

Proportion of patients with statins prescribed at discharge **Description:** Proportion of patients with statins prescribed at discharge.	
Numerator	Count of PCI admissions with a statin coded as "yes"
Denominator	Count of PCI admissions
Inclusion Criteria	-Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Discharge status of expired -Discharge location of "other acute care hospital", "hospice" or "against medical advice" -Statins coded as contraindicated or blinded
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Reducing LDL-c is associated with a decrease in mortality and morbidity for patients with coronary artery disease. Lipid-lowering therapy can reduce the risk of cardiovascular outcomes. 3. 2011 AHA/ACCF Secondary Prevention Guidelines class I recommendation for lipid management: 4. In addition to therapeutic lifestyle changes, statin therapy should be prescribed in the absence of contraindications or documented adverse effects (25–29). (Level of Evidence: A) 4. The ACC/AHA 2007 UA/NSTEMI Guidelines recommend: Class I Recommendation: Hydroxymethyl glutaryl-coenzyme A reductase inhibitors (**statins),** in the absence of contraindications, **regardless of baseline LDL-**C and diet modification, should be given to post-UA/NSTEMI patients, <u>including post revascularization patients</u>. (*Level of Evidence: A*). For UA/NSTEMI patients with elevated LDL-C (greater than or equal to 100 mg per dL), cholesterol-lowering therapy should be initiated or intensified to achieve an LDL-C of less than 100 mg per dL (*Level of Evidence: A*).
Relevant Citations	1. AHA/ACCF Secondary Prevention and Risk Reduction Therapy for Patients With Coronary and Other Atherosclerotic Vascular Disease: 2011 Update (JACC 2011, Vol. 58, No. 23) 2. ACC/AHA 2007 Guidelines for the Management of Patients With Unstable Angina/Non–ST-Elevation Myocardial Infarction: J Am Coll Cardiol, 2007; 50:1-157;

Proportion of patients with a P2Y12 inhibitor prescribed at discharge (patients with stents) **Description:** Proportion of patients (without a documented contraindication) with a stent implanted that had a thienopyridine/P2Y12 Inhibitor prescribed at discharge.	
Numerator	Count of PCI admissions with the discharge medication (prescribed at discharge) of a thienopyridine or P2Y12 Inhibitor (Clopidogrel, Prasugrel, Ticlopidine or Ticagrelor) coded as yes.
Denominator	Count of PCI admissions with a stent implanted
Inclusion Criteria	-PCI admissions with a stent implanted -Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	-Thienopyridine/$P2Y_{12}$ coded as contraindicated or blinded -Discharge status of expired -Discharge location of “other acute care hospital”, “hospice” or “against medical advice”
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	The 2011 PCI Guidelines - 5.7.2. Oral Antiplatelet Therapy Class I Recommendations: 7. The duration of P2Y12 inhibitor therapy after stent implantation should generally be as follows: a. In patients receiving a stent (BMS or DES) during PCI for ACS, P2Y12 inhibitor therapy should be given for at least 12 months. Options include clopidogrel 75 mg daily, prasugrel 10 mg daily, and ticagrelor 90 mg twice daily. (Level of Evidence: B) b. In patients receiving DES for a non-ACS indication, clopidogrel 75 mg daily should be given for at least 12 months if patients are not at high risk of bleeding. (Level of Evidence: B) c. In patients receiving BMS for a non-ACS indication, clopidogrel should be given for a minimum of 1 month and ideally up to 12 months (unless the patient is at increased risk of bleeding; then it should be given for a minimum of 2 weeks). (Level of Evidence: B)
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122)

Diagnostic Cath and PCI Outcome

Proportion of diagnostic catheterization procedures with vascular access site injury requiring treatment or major bleeding **Description:** Proportion of your patients with major access site related injury requiring treatment or major bleeding. Major access site related injury requiring treatment is includes access site occlusion, peripheral embolization, dissection, pseudoaneurysm, AV fistulas requiring treatment anytime from the procedure until discharge. Major bleeding is defined as bleeding at access site, hematomas at access site, or retroperitoneal bleeds that occur within 72 hours of the procedure. To qualify the event must be associated with a hemoglobin drop of >3 g/dL; transfusion of whole or packed red blood cells, or a procedural intervention/surgery at the bleeding site to reverse/stop or correct the bleeding.	
Numerator	Count of diagnostic cath procedures with a bleeding event (bleeding at access site, hematomas at access site, and/or a retroperitoneal bleed) and/or major access site related injury requiring treatment (access site occlusion, peripheral embolization, dissection, pseudoaneurysm, AV fistulas)
Denominator	Count of diagnostic cath procedures
Inclusion Criteria	All diagnostic cath patient admissions in data submissions that passed NCDR data inclusion thresholds
Exclusion Criteria	-Diagnostic cath procedures with a PCI during the same lab visit. -Patient with CABG or "other major surgery" during admission -Bleeding events that occur 72 hours after the procedure (note major access site related injury requiring treatment does not have this timing restriction). -GI, GU and "Other" bleeding events
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Vascular complications can cause significant discomfort and disability for patients. While rates of complication will be sensitive to patient characteristics (and therefore case mix), there is evidence that hospitals can significantly influence overall complication rates. This can be accomplished through monitoring and analyzing the causes of complications, developing policies and procedures that minimize the risk of complications, and developing policies that assure operator and cath team competency.
Relevant Citations	Mehran R, Rao SV, Bhatt DL et al. Standardized bleeding definitions for cardiovascular clinical trials: a consensus report from the Bleeding Academic Research Consortium. Circulation 2011;123:2736-47.

Composite: Proportion of patients with death, emergency CABG, stroke or repeat target vessel revascularization

Description: Your proportion of patients with (unadjusted) death, emergency CABG, stroke or repeat target vessel revascularization[1] post procedure up to hospital discharge.

[1]Target vessel revascularization is defined as a repeat PCI procedure on the same segment during the same admission

Numerator	Count of PCI admissions with a discharge status of expired; an emergency CABG, stroke or repeat target vessel revascularization prior to discharge.
Denominator	Count of PCI procedures
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Patients with a stroke AND an elective, urgent or salvage CABG during the same admission.
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	This measure represents a composite of major complications occurring after PCI.

Proportion of patients with post procedure stroke **Description:** Proportion of your patients with stroke post procedure (excluding patients with CABG during same admission).	
Numerator	Count of PCI procedures with post procedure stroke
Denominator	Count of PCI procedures
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Patients with CABG or other major surgery during same admission
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Stroke is one of the major complications occurring after PCI.
Relevant Citations	2011 PCI Guidelines (J Am Coll Cardiol 2011; 58:e44–122) Fuchs S, Stabile E, Kinnaird TD, et al. Stroke complicating percutaneous coronary interventions: incidence, predictors, and prognostic implications. Circulation. 2002;106:86-91.
Proportion of PCI procedures with transfusion of whole blood or red blood cells **Description:** Proportion of your patients who received a transfusion of whole blood or red blood cells after a PCI procedure.	
Numerator	Count of PCI procedures with a RBC/whole blood transfusion
Denominator	Count of PCI procedures
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Exclusion Criteria	Patients having CABG or other major surgery during the same admission Patients who have a pre-procedure hgb level of <=8
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	The purpose of this metric is to allow identification of potential overuse of transfusion after PCI procedures. In addition, it points out blood loss, which predicts poor outcomes.

Proportion of patients with emergency CABG **Description:** Proportion of your patients having emergency CABG or transferred for emergency CABG during the same episode of care.	
Numerator	Count of your PCI admissions with Emergency CABG at this facility or transferred to another facility for emergency CABG.
Denominator	Count of PCI admissions
Inclusion Criteria	Data from submissions that pass NCDR data inclusion thresholds.
Time period	Four consecutive quarters (the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Emergency CABG following PCI is considered one of the major complications that are associated with the PCI procedure and its success. Studies have demonstrated that patient and institutional characteristics, including competency and procedure volume, are related to rates of emergency CABG following PCI. The strongest patient predictors of the need for emergency CABG in several analyses are cardiogenic shock (OR: 11.4), acute MI or emergency PCI (OR: 3.2 to 3.8), multivessel disease (OR: 2.3 to 2.4), and type C lesion (OR: 2.6) (243, 245). In-hospital mortality for emergency CABG ranges from 7.8% to 14% (2011 PCI guidelines).
Relevant Citations	Levine GN, et al. 2011 ACCF/AHA/SCAI guideline for percutaneous coronary intervention: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. J Am Coll Cardiol 2011; 58:e44–122

Mortality

PCI in-hospital Observed Mortality (among eligible) **Description:** Your PCI in-hospital observed mortality rate for all patients using the NCDR® risk adjustment model.	
Numerator	Count of patients with a discharge status=expired (unadjusted or actual rates of mortality)
Denominator	Number of eligible patients who had a PCI
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. The current algorithm does not calculate zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Expected Mortality (among eligible) **Description:** Your PCI in-hospital expected mortality rate for all patients using the NCDR® risk adjustment model.	
	Cumulative sum of the predicted or expected probability of death of all patients in the reporting timeframe (alive or dead) based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed/Expected Mortality Ratio **Description:** Your PCI in-hospital observed to expected mortality ratio for all patients using the NCDR® risk adjustment model.	
	Ratio of Observed compared to Expected mortalities for PCI patients
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed mortality (patients with STEMI) **Description:** Your PCI in-hospital observed mortality rate for patients with STEMI adjusted using the NCDR® risk adjustment model.	
Numerator	Count of patients with a discharge status=expired (unadjusted or actual rates of mortality)
Denominator	Number of eligible patients who had a PCI
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission; PCI admissions with STEMI
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Expected mortality (patients with STEMI) **Description:** Your PCI in-hospital expected mortality rate for patients with STEMI adjusted using the NCDR® risk adjustment model.	
	Cumulative sum of the predicted or expected probability of death of all patients in the reporting timeframe (alive or dead) based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission; PCI admissions with STEMI
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed/Expected Mortality Ratio (patients with STEMI) **Description:** Your PCI in-hospital observed to expected mortality ratio for all patients with STEMI using the NCDR® risk adjustment model.	
	Ratio of Observed compared to Expected mortalities for PCI patients
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed mortality (patients without STEMI) **Description:** Your PCI in-hospital observed mortality rate for patients without STEMI adjusted using the NCDR® risk adjustment model.	
Numerator	Count of patients with a discharge status=expired (unadjusted or actual rates of mortality)
Denominator	Number of eligible patients who had a PCI
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge; PCI admissions with STEMI
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Expected mortality (patients without STEMI) **Description:** Your PCI in-hospital expected mortality rate for patients without STEMI adjusted using the NCDR® risk adjustment model.	
	Cumulative sum of the predicted or expected probability of death of all patients in the reporting timeframe (alive or dead) based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge; PCI admissions with STEMI
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

PCI in-hospital Observed/Expected Mortality Ratio (patients without STEMI) **Description:** Your PCI in-hospital observed to expected mortality ratio for all patients without STEMI using the NCDR® risk adjustment model.	
	Ratio of Observed compared to Expected mortalities for PCI patients
Inclusion Criteria	Data submissions that passed the data quality completeness checks; Patient admissions with a PCI procedure performed during admission
Exclusion Criteria	CathPCI Registry® patients who did not have a PCI (Patient admissions with a diagnostic cath only during that admission); Procedure variables for subsequent PCIs during the same admission (if the patient had more than one PCI procedure during that admission). Patient admissions with PCI who transferred to another facility on discharge.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Although death in patients with serious heart disease is not completely unexpected, that rate (adjusted for case mix/patient risk factors) is sensitive to a number of controllable factors such as case selection, procedural judgment and operator skill, as well as institutional support and overall quality of care. The NCDR™ risk adjustment model analyzes multiple elements to account for patient risk factors that are present prior to PCI. Risk adjustment "levels the playing field" among participating institutions and adjusts the "actual" mortality rate based on these factors. In other words, if you have several very sick patients die, your risk adjusted mortality rate would be lower than your actual mortality rate. If you had several very healthy patients die unexpectedly, your risk adjusted mortality rate would be higher than your actual mortality rate. The current algorithm does not calculate expected mortality based on zero deaths.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Peterson, E, et al. Contemporary Mortality Risk Prediction for Percutaneous Coronary Intervention, Journal of the American College of Cardiology, vol 55, #18, 2010. The NCDR PCI In-Hospital Risk Adjusted Mortality measure has been endorsed by the National Quality Forum, measure 964 (http://www.qualityforum.org/Measures_List.aspx?#k=)

Adverse Events

PCI in-hospital Observed rate of bleeding events (all patients) **Description:** Your Observed rate of bleeding events for patients with PCI procedures using the NCDR® PCI bleeding risk adjustment model.	
Numerator	Count of PCI patients with a bleeding event defined as any of the following (unadjusted or actual rates of bleeding) 1. Bleeding event w/in 72 hours (8050); *OR* 2. Hemorrhagic stroke (8021); *OR* 3. Tamponade (8025); *OR* 4. Post-PCI transfusion (8040) for patients with a pre-procedure hgb >8 g/dL AND no CABG and pre-procedure hgb not missing; *OR* Absolute hgb decrease (7320 and 7345) from pre-PCI to post-PCI of >= 3 g/dl AND pre-procedure hgb <16 g/dL AND pre-procedure hgb not missing.
Denominator	Number of eligible patients who had a PCI
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing risk-adjusted feedback on bleeding complications, informing clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Rao SV, Ou FS, Wang TY et al. Trends in the prevalence and outcomes of radial and femoral approaches to percutaneous coronary intervention: a report from the national cardiovascular data registry. JACC Cardiovasc Interv 2008;1:379-86. Marso SP, Amin AP, House JA et al. Association between use of bleeding avoidance strategies and risk of periprocedural bleeding among patients undergoing percutaneous coronary intervention. JAMA 2010;303:2156-64. Mehta SK, Frutkin AD, Lindsey JB et al. Bleeding in patients undergoing percutaneous coronary intervention: The development of a clinical risk algorithm from the National Cardiovascular Data Registry. Circulation: Cardiovascular Interventions 2009;2:222-229. Mehran R, Rao SV, Bhatt DL et al. Standardized bleeding definitions for cardiovascular clinical trials: a consensus report from the Bleeding Academic Research Consortium. Circulation 2011;123:2736-47.

PCI in-hospital Expected rate of bleeding events (all patients) **Description:** Your Expected rate of bleeding events for patients with PCI procedures using the NCDR® PCI bleeding risk adjustment model.	
	Cumulative sum of the predicted or expected probability of a bleeding event of all patients during the reported timeframe based on the variables and coefficients in the NCDR risk model (expressed as a decimal).
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing risk-adjusted feedback on bleeding complications, informing clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Rao SV, Ou FS, Wang TY et al. Trends in the prevalence and outcomes of radial and femoral approaches to percutaneous coronary intervention: a report from the national cardiovascular data registry. JACC Cardiovasc Interv 2008;1:379-86. Marso SP, Amin AP, House JA et al. Association between use of bleeding avoidance strategies and risk of periprocedural bleeding among patients undergoing percutaneous coronary intervention. JAMA 2010;303:2156-64. Mehta SK, Frutkin AD, Lindsey JB et al. Bleeding in patients undergoing percutaneous coronary intervention: The development of a clinical risk algorithm from the National Cardiovascular Data Registry. Circulation: Cardiovascular Interventions 2009;2:222-229. Mehran R, Rao SV, Bhatt DL et al. Standardized bleeding definitions for cardiovascular clinical trials: a consensus report from the Bleeding Academic Research Consortium. Circulation 2011;123:2736-47.

PCI in-hospital Observed/Expected rate of bleeding events (all patients) **Description:** Your PCI in-hospital observed to expected rate of bleeding events for patients with PCI procedures using the NCDR® PCI bleeding risk adjustment model.	
	Ratio of Observed compared to Expected bleeding events for PCI patients
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Bleeding complications after PCI are associated with increased morbidity, mortality and costs. This measure is helpful in providing risk-adjusted feedback on bleeding complications, informing clinical decision-making, and directing the use of bleeding avoidance strategies to improve the safety of PCI procedures.
Relevant Citations	Risk adjusted outcomes interpretation and specifications in the CathPCI Registry® https://www.ncdr.com/WebNCDR/NCDRDocuments/CathPCIV4_RiskAdjustmentTechNotes.pdf Rao SV, Ou FS, Wang TY et al. Trends in the prevalence and outcomes of radial and femoral approaches to percutaneous coronary intervention: a report from the national cardiovascular data registry. JACC Cardiovasc Interv 2008;1:379-86. Marso SP, Amin AP, House JA et al. Association between use of bleeding avoidance strategies and risk of periprocedural bleeding among patients undergoing percutaneous coronary intervention. JAMA 2010;303:2156-64. Mehta SK, Frutkin AD, Lindsey JB et al. Bleeding in patients undergoing percutaneous coronary intervention: The development of a clinical risk algorithm from the National Cardiovascular Data Registry. Circulation: Cardiovascular Interventions 2009;2:222-229. Mehran R, Rao SV, Bhatt DL et al. Standardized bleeding definitions for cardiovascular clinical trials: a consensus report from the Bleeding Academic Research Consortium. Circulation 2011;123:2736-47.

Appropriate Use Criteria for Coronary Revascularization

Patients WITH Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were appropriate **Description:** Proportion of PCI procedures (for patients with ACS) that were evaluated as "appropriate", meaning coronary revascularization is generally acceptable and is a reasonable approach for the indication and is likely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "appropriate" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions) PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data.
Exclusion Criteria at the Facility level	If more than 40% of a facility's PCIs are not classified or calculated using the AUC model, your data will not be displayed in this metric.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
Relevant Citations	Appropriate Use Criteria for Coronary Revascularization Focused Update developed by the ACC, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Heart Association, and other national societies and published in the Journal of the American College of Cardiology (*J Am Coll Cardiol* 2012;59: 857-81)

Patients WITH Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were inappropriate **Description:** Proportion of PCI procedures (for patients with ACS) that were evaluated as "Inappropriate", meaning coronary revascularization is not generally acceptable and is not a reasonable approach for the indication and is unlikely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "inappropriate" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions) PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data.
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Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
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Patients WITH Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were of uncertain appropriateness **Description:** Proportion of PCI procedures (for patients with ACS) that were evaluated as "Uncertain", meaning coronary revascularization may be acceptable and may be a reasonable approach for the indication. However, some degree of uncertainty exists, implying that more research and/or patient information is needed to determine whether the procedure would improve patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "uncertain" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions) PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data.
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Patients WITHOUT Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were appropriate **Description:** Proportion of PCI procedures (for patients without ACS) that were evaluated as "appropriate", meaning coronary revascularization is generally acceptable and is a reasonable approach for the indication and is likely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "appropriate" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data. PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
Exclusion Criteria at the Facility level	If more than 40% of a facility's PCIs are not classified or calculated using the AUC model, your data will not be displayed in this metric.
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
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Patients WITHOUT Acute Coronary Syndrome: Proportion of evaluated PCI procedures that were inappropriate **Description:** Proportion of PCI procedures (for patients without ACS) that were evaluated as "Inappropriate", meaning coronary revascularization is not generally acceptable and is not a reasonable approach for the indication and is unlikely to improve the patients' health outcomes or survival.	
Numerator	PCI Procedures evaluated as "inappropriate" according to AUC guidelines
Denominator	PCI Procedures
Inclusion Criteria	PCIs evaluated using AUC (see exclusions)
Exclusion Criteria	PCIs not classifiable for AUC reporting. PCIs not classifiable for AUC reporting. Some cases may be unclassifiable due to the lack of data. PCIs with (any PCI indication for STEMI or high risk Non-STEMI/unstable angina) or CAD presentation of (STEMI or Non-STEMI)
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Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
Relevant Citations	Appropriate Use Criteria for Coronary Revascularization Focused Update developed by the ACC, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Heart Association, and other national societies and published in the Journal of the American College of Cardiology (J Am Coll Cardiol 2012;59: 857-81)

Proportion of PCI procedures not classifiable for AUC reporting **Description:** Proportion of PCI procedures that were not classifiable / evaluated for PCI AUC reporting due to incomplete or missing data.	
Numerator	PCI Procedures that were not classifiable or evaluated for PCI AUC reporting
Denominator	PCI Procedures
Time period	Four consecutive quarters (ex. - the 2011 q4 report includes 2011 quarters 1-4).
Clinical Rationale/ Recommendation	Percutaneous coronary intervention (PCI) Appropriate Use Criteria (AUC) metrics give you feedback on self-assessment of the appropriateness of PCI procedures.
Relevant Citations	Appropriate Use Criteria for Coronary Revascularization Focused Update developed by the ACC, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Heart Association, and other national societies and published in the Journal of the American College of Cardiology (*J Am Coll Cardiol* 2012;59: 857-81)

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