ACE Demonstration Quality Monitoring Program Frequency of Reporting and Applicable Surgical Procedures
Revised February 3, 2011

		ACE Demonstration Procedure Groups or Selected Procedures					
		Hip or Knee Replacement/ Revision	Percutaneous Coronary Intervention (PCI)	Cardiac Defibrillator Implant	Cardiac Pacemaker Implant or Revision	Coronary Artery Bypass Graft (CABG)	Cardiac Valve and Other Major Cardiothoracic
Application Submission by the ACE Demonstration Sites							
Measure 4	Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery	X					
Measure 8	Inpatient Mortality Rate	X	X	X	X	X	X
Measure 11	Percent of CABG Patients Returned to operating room during stay					X	
Measure 13	Revascularization rates by number of vessels separately for PCI and CABG and Percent of CABG procedures performed off pump		X			X	
Measure 16	30-Day Post-Surgery Mortality Rate	X	X	X	X	X	X
Measure 17	30-Day Readmission Rate	X	X	X	X	X	X
Measure 19	Severity of Beneficiaries receiving a total hip or knee replacement/revision	X					
Measure 20	Average and median length of stay	X	X	X	X	X	X
Measure 21	Percent Medicare Outlier Patients	X	X	X	X	X	X
Quarterly Submission by the ACE Demonstration Sites							
Measure 1	Prophylactic antibiotic received within 1 hour prior to surgical incision	X				X	X
Measure 2	Prophylactic antibiotic selection for surgical patients	X				X	X
Measure 3	Prophylactic antibiotics discontinued within 24 hours after surgery end time for hip and knee replacement and 48 hours for CABG and valve procedure groups	X				X	X
Measure 4	Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery	X					
Measure 10	Anti-Platelet Medication Prescribed at Discharge					X	
Measure 11	Percent of CABG Patients Returned to operating room during stay					X	

(continued)

Exhibit 2-8 (continued)
ACE Demonstration Quality Monitoring Program Frequency of Reporting and Applicable Surgical Procedures

		ACE Demonstration Procedure Groups or Selected Procedures					
		Hip or Knee Replacement/ Revision	Percutaneous Coronary Intervention (PCI)	Cardiac Defibrillator Implant	Cardiac Pacemaker Implant or Revision	Coronary Artery Bypass Graft (CABG)	Cardiac Valve and Other Major Cardiothoracic
Measure 12	Percent of PCI procedures with angiographic success and no death, myocardial infarction (MI), or emergent/salvage CABG		X				
Measure 13	Revascularization rates by number of vessels separately for PCI and CABG		X			X	
Quarterly Calculation by RTI							
Measure 5	Postoperative Hemorrhage/Hematoma	X	X	X	X	X	X
Measure 6	Postoperative Physiologic and Metabolic Derangement	X	X	X	X	X	X
Measure 7	Post-operative Sepsis	X				X	X
Measure 9	Use of Internal Mammary Artery in first time isolated CABG					X	
Measure 14	Post-operative Stroke	X	X	X	X	X	X
Measure 16	30-Day Post-Surgery Mortality Rate	X	X	X	X	X	X
Measure 17	30-Day Readmission Rate	X	X	X	X	X	X
Measure 18	Change in mix of MS-DRG assignments	X	X	X	X	X	X
Measure 19	Severity of Beneficiaries receiving a hip or knee replacement/revision	X					
Measure 20	Average and median length of stay	X	X	X	X	X	X
Measure 21	Percent Medicare Outlier Patients	X	X	X	X	X	X
Measure 22	Percent Discharge Destination is acute care hospital transfer or post-acute	X	X	X	X	X	X
Semi-Annual Calculation by RTI							
Measure 15	Percent of ACE Demonstration cardiovascular procedure re-dos or revisions within six months			X	X	X	
Annual Calculation by RTI							
Measure 8	Inpatient Mortality Rate	X	X	X	X	X	X

Measures 1-4: Surgical Care Improvement Project Measures

Introduction

The CMS Surgical Care Improvement Project (SCIP) measures are a subset of *National Quality Hospital Measures* created through the joint efforts of the Centers for Medicare & Medicaid and the Joint Commission (Specifications Manual for National Hospital Quality Measures Version 2.5 effective for discharges 10-01-2008 through 03-31-2009). The SCIP measures have been endorsed by the National Quality Forum, and are used by Hospital Compare, the Premier demonstration, and RHQDAPU. Corresponding measures are used by PQRI at the individual physician level. The NQF endorsed measures are calculated across a defined list of major surgical procedures and separately for the MS-DRG ACE demonstration surgical procedure groups of CABG, Cardiac Valves, and Hip and Knee Replacement. The NQF endorsed measures do not apply to percutaneous cardiac interventions, pacemaker insertion, and cardiac defibrillator implantation.

The following four SCIP measures are to be reported at the time of application and quarterly during the demonstration:

Measure 1: Prophylactic antibiotic received within 1 hour prior to surgical incision

Measure 2: Prophylactic antibiotic selection for surgical patients

Measure 3: Prophylactic antibiotics discontinued within 24 hours after surgery end time for hip and knee replacement and 48 hours for CABG and valve procedure groups

Measure 4: Surgery patients who received appropriate venous thromboembolism prophylaxis within 24 hours prior to surgery to 24 hours after surgery end time.

Reporting of Rates

The rates for the surgical care improvement procedures should be reported to RTI on a quarterly basis using all discharges during the quarter as appropriate and for the specified ACE MS-DRG procedure groups. The numerator and denominator of the rate should be individually reported in addition to a calculated rate. If the number of the ACE demonstration beneficiaries is less than **30** in any particular quarter within any of the ACE demonstration surgical procedure groups, RTI will combine the numerator and denominator data with the previous quarter to create a semi-annual rate.

Measure 1: Prophylactic antibiotic received within 1 hour prior to surgical incision

Description: Percent of surgical patients who received prophylactic antibiotics within one hour prior to surgical incision. Patients who received vancomycin or a fluoroquinolone for prophylactic antibiotics should have the antibiotics administered within two hours prior to surgical incision. Due to longer infusion time required for vancomycin or a fluoroquinolone, it is acceptable to start these antibiotics within two hours prior to incision time.

Denominator Inclusion: This measure is calculated for all discharges in the CABG, cardiac valve, and hip and knee replacement (but **not** revision) ACE demonstration procedure groups.

Denominator Exclusion:

1. Patients less than 18 years of age
2. Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in the Surgical Care Improvement Project Appendix A, Table 5.09 for ICD-9-CM codes)
3. Patients enrolled in clinical trials
4. Patients who were receiving antibiotics within 24 hours prior to arrival
5. Patients who were receiving antibiotics more than 24 hours prior to surgery
6. Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure
7. Patients who had other procedures requiring general or spinal anesthesia that occurred within three days for hip or knee replacement or four days for CABG or cardiac valve prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay
8. Patients who have a length of Stay >120 days
9. Patient who received hip or knee revisions (ICD-9 procedure codes 81.53 and 81.55, respectively).

Numerator Inclusion: Number of surgical patients who received prophylactic antibiotics within one hour prior to surgical incision (two hours if receiving vancomycin or a fluoroquinolone listed in Table B3.)

Notes:

1. We made modifications to the specifications so that they would be more appropriate to the ACE demonstration. We removed inclusion or exclusion criteria that are not applicable to ACE demonstration participants, such as having the procedure prior to the

date of admission. Beneficiaries would not qualify for the ACE demonstration under such a circumstance. The following modifications have been made:

a) Patients whose principal procedure occurred prior to the date of admission

b) Patients whose principal procedure was performed entirely by laparoscope

c) Patients who had a hysterectomy and a caesarean section performed during this hospitalization

2. The NQF endorsed CMS SCIP specification is for cardiac surgery.
3. The Premier demonstration as well as PQRI, Hospital Compare, RHQDAPU, and the STS Composite Rating all use this measure.

♦ **Table B3**
Antibiotics that are Fluoroquinolones

Antibiotic selection options (includes trade & generic name)	**Generic name crosswalk**
Alatrofloxacin	Alatrofloxacin
Alatrofloxacin Mesylate	Alatrofloxacin
Avelox	Moxifloxacin
Ciloxan	Ciprofloxacin
Ciprofloxacin	Ciprofloxacin
Ciprofloxacin Hydrochloride	Ciprofloxacin
Cipro	Ciprofloxacin
Floxin	Ofloxin
Levaquin	Levofloxacin
Levofloxacin	Levofloxacin
Moxifloxacin	Moxifloxacin
Moxifloxacin Hydrochloride	Moxifloxacin
Ofloxacin	Ofloxacin
Trovafloxacin	Trovafloxacin
Trovafloxacin Mesylate	Trovafloxacin
Trovafloxacin/Alatrofloxacin	Trovafloxacin
Trovan	Trovafloxacin

Measure 2: Prophylactic Antibiotic Selection for Surgical Patients

Description: Percent of surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).

Denominator Inclusion: This measure is calculated for all discharges in the CABG, cardiac valve, and hip and knee replacement (but **not** revision) ACE demonstration procedure groups.

Denominator Exclusion:

1. Patients less than 18 years of age
2. Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in the Surgical Care Improvement Project Appendix A, Table 5.09 for ICD-9-CM codes)
3. Patients enrolled in clinical trials
4. Patients who were receiving antibiotics within 24 hours prior to arrival
5. Patients who were receiving antibiotics more than 24 hours prior to surgery
6. Patients who did not receive any antibiotics before or during surgery, or within 24 hours after surgery end time (i.e., patient did not receive prophylactic antibiotic)
7. Patients who did not receive any antibiotics during this hospitalization
8. Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure
9. Patients who have a length of Stay >120 days
10. Patients who expired perioperatively
11. Patient who received hip or knee revisions (ICD-9 procedure codes 81.53 and 81.55, respectively).

Numerator Inclusion: Number of surgical patients who received prophylactic antibiotics recommended for their specific surgical procedure administered from the time of arrival through the first 48 hours (72 hours for CABG or cardiac valve surgery) after the surgery end time. Recommended trade and generic name antibiotics are listed in Tables B4a and B4b. This list is consistent with the NQF endorsed list, which is used by the Joint Commission and CMS. For cardiac and orthopedic procedures, if the patient is allergic to β-lactam antibiotics, Vancomycin or Clindamycin are acceptable substitutes. Vancomycin is acceptable with a physician/APN/PA/pharmacist documented justification.

Notes:

1. We made modifications to the specifications so that they would be more appropriate to the ACE demonstration. We removed inclusion or exclusion criteria that are not applicable to ACE demonstration participants, such as having the procedure prior to the date of admission. Beneficiaries would not qualify for the ACE demonstration under such a circumstance. The following modifications have been made:
   a) Patients whose principal procedure occurred prior to the date of admission
   b) Patients whose principal procedure was performed entirely by laparoscope
2. The NQF endorsed CMS SCIP specification is for cardiac surgery.
3. The Premier demonstration as well as PQRI, Hospital Compare, RHQDAPU, and the STS Composite Rating all use this measure.

♦ **Table B4a**
Prophylactic antibiotic regimen selection for CABG, cardiac valve, and hip and knee procedures

Surgical Procedure	Approved Antibiotic
CABG and cardiac valve procedures	Cefazolin, Cefuroxime, or Vancomycin If β-lactam allergy: Vancomycin or Clindamycin
Hip/knee arthroplasty	Cefazolin, Cefuroxime, or Vancomycin If β-lactam allergy: Vancomycin or Clindamycin

♦ **Table B4b**

Crosswalk of prophylactic antibiotic regimen selection for CABG, cardiac valve, and hip and knee procedures trade and generic names

Antibiotic selection options (includes trade and generic name)	Generic name crosswalk
Cleocin HCL	Clindamycin
Cleocin Phosphate	Clindamycin
Clindamycin	Clindamycin
Clindamycin Hydrochloride	Clindamycin
Clindamycin Phosphate	Clindamycin
Ancef	Cefazolin
Cefazolin	Cefazolin
Cefazolin Sodium	Cefazolin
Ceftin	Cefuroxime
Cefuroxime	Cefuroxime
Cefuroxime Axetil	Cefuroxime
Cefuroxime Sodium	Cefuroxime
Kefurox	Cefuroxime
Kefzol	Cefazolin
Zinacef	Cefuroxime
Zolicef	Cefazolin
Lyphocin	Vancomycin
Vancocin	Vancomycin
Vancocin HCL	Vancomycin
Vancoled	Vancomycin
Vancomycin	Vancomycin
Vancomycin Hydrochloride	Vancomycin

Measure 3: Prophylactic antibiotics discontinued within 24 hours after surgery end time for the hip/knee procedure group and 48 hours for CABG & valve procedure groups

Description: Percent of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time for hip and knee replacement and 48 hours for CABG and cardiac valve procedures. The Society of Thoracic Surgeons (STS) Practice Guideline for Antibiotic Prophylaxis in Cardiac surgery (2006) indicated that there is no reason to extend antibiotics beyond 48 hours for cardiac surgery and very explicitly states that antibiotics should not be extended beyond 48 hours even with tubes and drains in place for cardiac surgery.

Denominator Inclusion: This measure is calculated for all discharges in the CABG, cardiac valve, and hip and knee replacement (but **not** revision) ACE demonstration procedure groups.

Denominator Exclusion:

1. Patients less than 18 years of age
2. Patients who had a principal diagnosis suggestive of preoperative infectious diseases (as defined in the Surgical Care Improvement Project Appendix A, Table 5.09 for ICD-9-CM codes)
3. Patients enrolled in clinical trials
4. Patients who were receiving antibiotics within 24 hours prior to arrival
5. Patients who were receiving antibiotics more than 24 hours prior to surgery
6. Patients who were diagnosed with infections within two days (three days for CABG or cardiac valve) after *surgery end date*
7. Patients who did not receive any antibiotics during this hospitalization
8. Patients with physician/advanced practice nurse/physician assistant (physician/APN/PA) documented infection prior to surgical procedure
9. Patients who had other procedures requiring general or spinal anesthesia that occurred within three days (four days to CABG or cardiac valve) prior to or after the procedure of interest (during separate surgical episodes) during this hospital stay
10. Patients who expired perioperatively
11. Patients who have a length of Stay >120 days
12. Patients who received urinary antiseptics only (as defined in Appendix Table B5)
13. Patient who received hip or knee revisions (ICD-9 procedure codes 81.53 and 81.55, respectively).

Numerator Inclusion: Number of surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time (48 hours for CABG or Valve Surgery).

Notes:

1. We made modifications to the specifications so that they would be more appropriate to the ACE demonstration. We removed inclusion or exclusion criteria that are not applicable to ACE demonstration participants, such as having the procedure prior to the date of admission. Beneficiaries would not qualify for the ACE demonstration under such a circumstance. The following modifications have been made:

    a. Patients whose principal procedure was performed entirely by laparoscope

    b. Patients whose principal procedure occurred prior to the date of admission

2. The NQF endorsed CMS SCIP specification is 24 hours for cardiac surgery.
3. The Premier demonstration extension as well as PQRI as 24 hours for all non-cardiac surgery and 48 hours for cardiac surgery as a measure. In addition, Hospital Compare, RHQDAPU, and the STS Composite Rating all use a 24 hour measure.

♦ **Table B5**
Urinary Antiseptics

Antibiotic selection options (includes trade and generic name)	**Generic name crosswalk**
Apo-Nitrofurantoin	Nitrofurantoin
Cystex	Methenamine
Furadantin	Nitrofurantoin
Furalan	Nitrofurantoin
Furatoin	Nitrofurantoin
Hiprex	Methenamine
Novo-Furantoin	Nitrofurantoin
Mandelamine	Methenamine
Macrobid	Nitrofurantoin
Macrodantin	Nitrofurantoin
Methenamine	Methenamine
Nitrofurantoin	Nitrofurantoin
Urex	Methenamine

Measure 4: Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery

Description: Percent of surgical patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to Surgical Incision Time to 24 hours after *Surgery End Time.*

Denominator Inclusion: This measure is calculated for all discharges in the hip and knee replacement ACE demonstration procedure group.

Denominator Exclusion:

1. Patients less than 18 years of age
2. Patients enrolled in clinical trials
3. Burn patients (as defined in the Surgical Care Improvement Project Appendix A, Table 5.14 for ICD-9-CM codes)
4. Patients who have a length of Stay > 120 days
5. Patients whose total surgery time is less than or equal to 60 minutes
6. Patients who are on warfarin prior to admission (See Table B6)
7. Patients with reasons for not administering both mechanical and pharmacological prophylaxis
8. Patients who stayed less than or equal to 3 calendar days postoperatively
9. Patients who did not receive *VTE Prophylaxis*

Numerator Inclusion: Surgery patients who received appropriate venous thromboembolism (VTE) prophylaxis within 24 hours prior to *Surgical Incision Time* to 24 hours after *Surgery End Time*. See Table B7 for recommended prophylaxis.

Notes:

1. We made modifications to the CMS specifications so that they would be more appropriate to the ACE demonstration. We removed inclusion or exclusion criteria that are not applicable to ACE demonstration participants, such as having the procedure prior to the date of admission. Beneficiaries would not qualify for the ACE demonstration under such a circumstance. The following modifications have been made:
    a) Patients with procedures performed entirely by laparoscope
    b) Patients whose principal procedure occurred prior to the date of admission
2. The Premier demonstration extension as well as PQRI, Hospital Compare, and RHQDAPU use this measure.

♦ **Table B6**
Trade names for Warfarin

Barr Warfarin Sodium
Coumadin
Dicumarol
Jantoven
Panwarfin
Warfarin

♦ **Table B7**
Selection of prophylaxes

Surgery	**Recommended prophylaxes***
Total hip replacement	Any of the following started within 24 hours of surgery: • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (Fondaparinux) • Warfarin
Total hip replacement with a reason for not administering pharmacological prophylaxis	Any of the following: • Intermittent pneumatic compression (IPC) • Venous foot pump (VFP)
Total knee replacement	Any of the following: • Low molecular weight heparin (LMWH) • Factor Xa Inhibitor (Fondaparinux) • Warfarin • Intermittent pneumatic compression devices (IPC) • Venous foot pump (VFP)

*Patients who receive neuraxial anesthesia or have a documented bleeding risk may pass the performance measure if appropriate pharmacologic or mechanical prophylaxis is ordered.

Measures 5-7: AHRQ Quality Indicators: Patient Safety Indicators (PSIs)

The AHRQ Patient Safety Indicators (PSIs) are a set of measures that may be used with hospital inpatient discharge data to provide a perspective on patient safety. They screen for problems that patients experience as a result of exposure to the healthcare system and are considered complications or adverse events.

The PSIs have undergone a rigorous review process and have been subjected to rigorous statistical testing of reliability. Software to calculate the PSI rates is available for download from the AHRQ web site www.ahrq.gov. RTI will use the software to calculate unadjusted and risk adjusted PSI rates. The FY2008 release includes an option to incorporate the present on admission indicator now recorded on the UB-04 discharge summary into the specifications of the PSIs. RTI's calculation of the PSIs will take into account the Present on Admission (POA) variable. (PSI Technical Specifications Version 3.2, March 10, 2008; updated Version 4.2, September 30, 2010).

The following three Patient Safety Indicators will be calculated quarterly during the demonstration:

Measure 5: Postoperative Hemorrhage/Hematoma (PSI 9)

Measure 6: Postoperative Physiologic and Metabolic Derangement (PSI 10)

Measure 7: Post-operative Sepsis (PSI 13)

PSI 13, post-operative sepsis is under consideration for endorsement by the NQF. The other two measures have not received endorsement as of this time.

Reporting of Rates

The rates for the surgical care improvement procedures will be reported by RTI on a quarterly basis using all discharges during the quarter as appropriate and for the specified ACE MS-DRG procedure groups. If the number of the ACE demonstration beneficiaries is less than **30** in any particular quarter within any of the ACE demonstration surgical procedure groups, RTI will combine the numerator and denominator data with the previous quarter to create a semi-annual rate. RTI will use the software to calculate unadjusted and risk adjusted PSI rates.

Measure 5: Postoperative Hemorrhage/Hematoma (PSI 9)

Description: Percent of cases of hematoma or hemorrhage requiring a surgical intervention. This PSI is intended to capture cases of hemorrhage or hematoma following a surgical procedure and for which a surgical procedure to treat the hemorrhage or hematoma is required. This PSI limits hemorrhage and hematoma codes to secondary procedure and diagnosis codes, respectively, to isolate those hemorrhages that may be linked to a surgical procedure.

Denominator Inclusion: This measure will be calculated for all discharges in the CABG, PCI, cardiac valve, pacemaker, cardiac defibrillator, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions:

1. Patients with a preexisting condition of postoperative hemorrhage or hematoma
2. Cases where a procedure for postoperative control of hemorrhage or drainage of hematoma occurs before the ACE Demonstration operating room procedure

Numerator Inclusion: Discharges among cases meeting the inclusion and exclusion rules for the denominator with the following:

1. ICD-9 diagnosis code for postoperative hemorrhage or postoperative hematoma in any secondary diagnosis field AND
2. ICD-9 procedure code for postoperative control of hemorrhage or for drainage of hematoma in any secondary procedure code field.

The ICD-9 diagnosis and procedure codes are specified in the PSI documentation for this measure, available on the AHRQ website at: http://www.qualityindicators.ahrq.gov/psi_download.htm. We are basing these measures on version 3.2 (March 2008) of the PSI Technical Specifications. [Updated to reflect version 4.2 (September 30, 2010) of PSI Technical Specifications.]

Notes:

1. The following exclusions present in the AHRQ specifications are not applied in the calculation of the ACE Demonstration measures because they do not apply to the ACE Demonstration population:
    a) AHRQ specification is limited to discharges for patients 18 years and older
    b) AHRQ specification excludes records with MDC 14 (pregnancy, childbirth, and puerperium)
    a) Cases where the only operating room procedure is postoperative control of hemorrhage or drainage of hematoma

2. The ACC-NCDR ICD Registry has a similar measure that is limited to a subset of defibrillator patients.
3. The Premier Demonstration used this measure in Years 1 through 3 for CABG and knee/hip replacement and currently uses the PSI composite measure.
4. The STS composite rating contains a measure for re-exploration for isolated CABG that includes as a reason bleeding/tamponade, which is a NQF-endorsed measure. The AHRQ PSI does not include the diagnosis code for tamponade so those patients may be excluded from this measure. Such cases may be picked up through the use of the procedure code only. Exploration of the inclusion of CABG surgical cases in this PSI will be conducted at the outset of the demonstration.

Measure 6: Postoperative Physiologic and Metabolic Derangement (PSI 10)

Description: This PSI is intended to identify cases of postoperative physiological or metabolic complications for surgical discharges with an elective operating room procedure. This PSI excludes non-elective cases as patients undergoing non-elective procedures may develop less preventable derangements.

Denominator Inclusion: This measure will be calculated for all discharges within the CABG, PCI, cardiac valve, pacemaker, cardiac defibrillator, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions:

1. Patients with a preexisting condition of physiologic and metabolic derangements or chronic renal failure
2. Patients with acute renal failure where a procedure for dialysis occurs before or on the same day as the first operating room procedure
3. Patients with both a diagnosis code of ketoacidosis, hyperosmolarity, or other coma and a principal diagnosis of diabetes
4. Patients with both a secondary diagnosis code for acute renal failure and a principal diagnosis of acute myocardial infarction, cardiac arrhythmia, cardiac arrest, shock, hemorrhage, or gastrointestinal hemorrhage

Numerator Inclusion: Discharges among cases meeting the inclusion and exclusion rules for the denominator that also have diagnosis codes for physiologic and metabolic derangements in any secondary diagnosis field. Discharges with acute renal failure must be accompanied by a procedure code for dialysis (39.95, 54.98).

The ICD-9 diagnosis codes for this measure are specified in the PSI documentation for this measure, available on the AHRQ website at: http://www.qualityindicators.ahrq.gov/psi_download.htm. We are basing these measures on version 3.2 (March 2008) of the PSI Technical Specifications. [Measure updated to reflect version 4.2 (September 30, 2010) of PSI Technical Specifications.]

Notes:

1. The following exclusions present in the AHRQ specifications are not applied in the calculation of the ACE Demonstration measures because they do not apply to the ACE Demonstration population:

    a) AHRQ specification is limited to discharges for patients 18 years and older

b) AHRQ specification excludes records with MDC 14 (pregnancy, childbirth, and puerperium)

2. The Premier Demonstration used this measure in Years 1 through 3 for CABG and knee/hip replacement and currently uses the PSI composite measure.

Measure 7: Post-Operative Sepsis (PSI 13)

Description: Percent of elective surgery patients with a length of stay of 4 days or more with sepsis. This indicator is intended to flag cases of nosocomial post-operative sepsis. This measure is under consideration for endorsement by the NQF.

Denominator Inclusion: This measure will be calculated for all discharges in the CABG, cardiac valve, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions:

1. Patients with preexisting (principal diagnosis or secondary diagnosis present on admission) sepsis or infection.
2. Patients with immunocompromised state or cancer
3. Cases with length of stay of less than 4 days

Numerator Inclusion: Discharges among cases meeting the inclusion and exclusion rules for the denominator with an ICD-9 diagnosis code for sepsis in any secondary diagnosis field.

The ICD-9 diagnosis codes for this measure are specified in the PSI documentation for this measure, available on the AHRQ website at: http://www.qualityindicators.ahrq.gov/psi_download.htm. We are basing these measures on version 3.2 (March 2008) of the PSI Technical Specifications. [Measure updated to reflect version 4.2 (September 30, 2010) of PSI Technical Specifications.]

Notes:

1. The following exclusions present in the AHRQ specifications are not applied in the calculation of the ACE Demonstration measures because they do not apply to the ACE Demonstration population:
    a) AHRQ specification is limited to discharges for patients 18 years and older
    b) AHRQ specification excludes records with MDC 14 (pregnancy, childbirth, and puerperium).
2. The STS Composite Rating contains a measure for deep sternal wound for isolated CABG, which is an NQF endorsed measure. In reviewing the PSI detailed coding, the bacterium causing the sepsis is listed. It is not clear if cases with an ICD-9 code of 998.59, Postoperative infection of wound, or 519.2, Mediastinum infection, would be selected for this measure.

Measure 8: Inpatient Mortality

Introduction

The AHRQ Inpatient Quality Indicators (IQI) is a set of measures that use hospital inpatient discharge data to provide an assessment of quality of care. The IQI measure set contains volume indicators as a proxy for quality, mortality indicators for procedures whose mortality has been shown to vary across institutions with a concern that the variation may be associated with poor quality of care or deficiencies in care, as well as utilization rates of selected types of surgical procedures for which there is concern about over-, under- or misuse, such as rates of hysterectomy, cesarean section, and laparoscopic cholecystectomy.

The IQIs have undergone a rigorous review process and have been subjected to rigorous statistical testing of reliability. The AHRQ IQIs exist for three of the surgical procedures that are the focus of the ACE Demonstration: PCI volume and mortality, CABG volume and mortality, and hip replacement mortality. The NQF has endorsed the adoption of the PCI and CABG mortality indicators as of this time. In reporting these measures, AHRQ risk-adjusts mortality using the APR-DRG system, which is built into the software that is available for download from the AHRQ website.

RTI will calculate inpatient mortality rates for the three AHRQ IQI indicator procedures of PCI, CABG, and hip replacement and extend this methodology to the other surgical groups of procedures in the demonstration. RTI will use the AHRQ Quality Indicators, Inpatient Quality Indicators, Technical Specifications Version 3.2, February 29, 2008-04-02 version to create the mortality indicators. [Updated to reflect version 4.2 (September 30, 2010) of IQI Technical Specifications.] RTI will also develop an inpatient mortality risk adjustment model specific to each ACE demonstration procedure group with the basic elements of the risk adjuster being demographic factors and diagnoses. The model will be used to calculate risk-adjusted inpatient mortality rates. The results of the model will be used in a comparison of actual to predicted mortality for each ACE demonstration site with the ratio itself being used as a quality measure. Mortality rates will be will be reported by RTI on a on a semi-annual or annual basis depending upon the caseload and stability of estimates.

Description: Number of inpatient deaths per 100 discharges within each ACE demonstration procedure groups.

Denominator Inclusion: All discharges for the ACE demonstration groups of CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions:

1. Cases transferring to another short-term hospital, assessed based on discharge destination status codes 02 (Discharged/transferred to other short term general hospital for inpatient

care), 43 (Discharged/transferred to a federal hospital), or 66 (discharged/transferred to a critical access hospital)

Numerator Inclusion: All beneficiaries who died during the ACE Demonstration procedure hospitalization.

Notes:

1. The following exclusions present in the AHRQ specifications are not applied in the calculation of the ACE Demonstration measures because they do not apply to the ACE Demonstration population:

    a. AHRQ specification is limited to discharges for patients 40 years and older

    b) AHRQ specification excludes records with MDC 14 (pregnancy, childbirth, and puerperium)

    c) AHRQ specification excludes records with MDC 15 (newborns and other neonates)

    d) Missing discharge disposition

2. The Society of Thoracic Surgeons uses an NQF endorsed measure of Risk-Adjusted Inpatient Operative Mortality for CABG, which is restricted to cases with isolated CABGs, and is risk-adjusted using a multivariate hierarchical model.

3. Inpatient mortality is reported in the Premier demonstration for isolated CABG but is not reported for hip and knee replacement.

4. The ACC/AHA Task Force on Performance Measures has an NQF endorsed risk-adjusted PCI mortality measure. Mortality is tracked in the CathPCI Registry and the ACC-NCDR ICD Registry.

Measure 9: Use of Internal Mammary Artery (IMA) in an isolated CABG

Definition: Percent of isolated CABG procedure patients who receive an IMA bypass graft. The ACE Demonstration uses the NQF endorsed CMS Premier demonstration specifications, effective Year 5, October 2007.

Denominator Inclusion: All patients with a procedure in the CABG ACE Demonstration procedure group who received an isolated CABG (ICD-9-CM procedure codes: 36.10-36.17, 36.19) regardless of discharge disposition status (discharged alive, transferred, or expired).

Denominator Exclusions:

1. Patients undergoing a repeat coronary artery bypass graft surgery (ICD-9 diagnosis codes V45.81, 414.02, 414.03, 414.04, 414.05, 414.06, and 414.07 as admission diagnoses)

2. Other heart procedures (ICD-9 procedure codes 37.32, 37.33, 37.34, 37.35, 36.2, and 35.00-35.99)

Numerator Inclusion: All cases where a left IMA, right IMA, or both IMA grafts were used (ICD-9 procedure codes 36.15, 36.16)

Notes:

1. The Premier Demonstration excludes patients less than 18 years of age, which we do not.
2. This is a PQRI measure.
3. This measure is part of the STS Composite Rating. The NQF measure excludes from its denominator population patients with: an emergent operation, history of mastectomy, prior use of IMA, an acute AMI, or a damaged or stenotic IMA or subclavian. STS does not currently collect ICD-9 codes. These patients are not excluded from the ACE Demonstration denominator definition.

Measure 10: Anti-Platelet Medication Prescribed at Discharge

Definition: Percent of isolated CABG procedure patients who receive an anti-platelet prescribed at discharge. This is an NQF endorsed measure. The ACE Demonstration will use the Premier demonstration measure specifications, effective Year 5, October 2007 with a modification from the STS measure that includes clopidogrel, an ADP-inhibitor.

Denominator Inclusion: All patients with a procedure in the CABG ACE Demonstration procedure group who received an isolated CABG (ICD-9-CM procedure codes: 36.10-36.17, 36.19) and were discharged alive.

Denominator Exclusions:

1. Other heart procedures (ICD-9 procedure codes 37.32, 37.33, 37.34, 37.35, 36.2, and 35.00-35.99)
2. Transferred to another acute care hospital or federal hospital, assessed based on discharge destination status codes 02 (Discharged/transferred to other short term general hospital for inpatient care), 43 (Discharged/transferred to a federal hospital), or 66 (discharged/transferred to a critical access hospital)
3. Patients who expired prior to discharge
4. Patients who left against medical advice
5. Patients discharged to hospice, assessed based on discharge destination status code 50 (Hospice – home) or 51 (Hospice - medical facility).
6. Patients with comfort measures only documented by a physician/advanced practice nurse/physician assistant (physician/APN/PA)
7. Patients with one or more of the following aspirin contraindications/reasons for not prescribing aspirin documented in the medical record:
    a) aspirin allergy
    b) Coumadin/warfarin prescribed at discharge
    c) Other reasons documented by a physician/APN/PA

Numerator Inclusion: All cases where the patient was prescribed aspirin or clopidogrel.

Notes:

1. The NQF measure does not exclude patients who died in the hospital, the ACE demonstration does.
2. The Premier Demonstration excludes patients less than 18 years of age and patients participating in a clinical trial, which we do not.

3. The STS Composite Rating Measure includes clopidogrel (an ADP inhibitor), which we include in this measure but does not appear to be in the Premier demonstration measure.

Measure 11: Surgical Re-exploration in Isolated CABG Patients during Stay

Definition: Percent of isolated CABG procedure patients who return to the operating room for bleeding/tamponade, graft occlusion, or other cardiac reasons. This is an NQF endorsed Society of Thoracic Surgery measure.

Denominator Inclusion: All patients with a procedure in the CABG ACE Demonstration procedure group who received an isolated CABG (ICD-9-CM procedure codes: 36.10-36.17, 36.19).

Denominator Exclusions:

1. Other heart procedures (ICD-9 procedure codes 37.32, 37.33, 37.34, 37.35, 36.2, and 35.00-35.99)

Numerator Inclusion: All cases where the patient experienced surgical exploration.

Measure 12: Percent of PCI Procedures with Angiographic Success and No Death, MI, or Emergent/salvage CABG during Admission

Definition: Percent of PCI patients who had angiographic success and was discharged alive with no episode of acute myocardial infarction or emergent/salvage CABG post PCI. This is an American College of Cardiology percutaneous coronary intervention (PCI) and diagnostic catheterization performance measure (Module 3.04).

Denominator Inclusion: All patients with an initial cardiovascular procedure in the PCI ACE Demonstration procedure group who have one or more of the following ICD-9 procedure codes as part of their hospital episode:

- 00.66 Percutaneous transluminal coronary angioplasty [PTCA] or coronary atherectomy
- 36.04 Intracoronary artery thrombolytic infusion (That by direct coronary artery injection, infusion, or catheterization)
- 36.06 Insertion of non-drug-eluting coronary artery stent(s)
- 36.07 Insertion of drug-eluting coronary artery stent(s)
- 36.09 Other removal of coronary artery obstruction (Coronary angioplasty NOS)

Denominator Exclusions:

1. Transferred to another acute care hospital or federal hospital, assessed based on discharge destination status codes 02 (Discharged/transferred to other short term general hospital for inpatient care), 43 (Discharged/transferred to a federal hospital), or 66 (discharged/transferred to a critical access hospital)

Numerator Inclusion: All cases where the patient met all 4 of the following criteria:

1. Angiographic Success is defined as an absolute reduction of the initial degree of luminal diameter stenosis by at least 20% at the time of the procedure with a residual diameter stenosis less than 50% of the luminal diameter, as specified by the Australian Council on Healthcare Standards (http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?ss=1&doc_id=11519). AND

2. Discharged alive AND

3. Did not experience a myocardial infarction (MI) during or post the PCI procedure (See Table B8) AND

4. Did not undergo an emergent/salvage CABG post or during the PCI procedure

Notes:

1. This measure applies to the overall patient, not to each vessel. That is, in order to be in the numerator, a patient would need to experience angiographic success in all vessels undergoing PCI as well as being discharged alive, not experiencing MI during of post the PCI procedure, and not receiving emergent/salvage CABG during or post the PCI procedure.

2. For patients undergoing two (or more) separate PCI procedures during a single ACE hospitalization, the criteria of experiencing "angiographic success" and "emergent/salvage CABG" apply to only the first PCI procedure. However, if a patient dies or experiences MI at any time during the hospitalization (i.e., after the first or subsequent PCI procedures), they are excluded from the numerator for this measure.

3. The CathPCI Registry does not specifically identify PCI success, nor does it specifically identify the time period during which the CABG is considered emergent/salvage.

♦ Table B8
ACC National Cardiovascular Data Registry Definitions of an Acute Myocardial Infarction

NON ST ELEVATION MYOCARDIAL INFARCTION (NSTEMI)

AT LEAST ONE OF THE FOLLOWING BIOCHEMICAL INDICATORS for detecting myocardial necrosis must be present (see below for a definition of Reference Control Limits):

1. Troponin T or I:
   a) Maximal concentration of troponin T or I > the MI decision limit on at least one occasion during the first 24 hours after the index clinical event.
2. CK-MB:
   a) Maximal value of CK-MB > 2 x the upper limit of normal on one occasion during the first hours after the index clinical event. OR
   b) Maximal value of CK-MB, preferable CK-MB mass, > upper limit of normal on two successive samples.
3. Total CK:
   a) In the absence of availability of a troponin or CK-MB assay, total CK > 2 x the upper limit of normal, or the B fraction of CK may be employed, but these last two biomarkers are considerably less satisfactory than CK-MB.

AND ONE OF THE FOLLOWING:

1. Either ST segment depression or T wave abnormalities; or
2. Ischemic symptoms in the presence or absence of chest discomfort. Ischemic symptoms may include:
   a) unexplained nausea and vomiting; or
   b) persistent shortness of breath secondary to left ventricular failure; or
   c) unexplained weakness, dizziness, lightheadedness, or syncope.

ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

AT LEAST ONE OF THE FOLLOWING BIOCHEMICAL INDICATORS for detecting myocardial necrosis must be present (see below for a definition of Reference Control Limits):

1. Troponin T or I:
   a) Maximal concentration of troponin T or I > the MI decision limit on at least one occasion during the first 24 hours after the index clinical event.
2. CK-MB:
   a) Maximal value of CK-MB > 2 x the upper limit of normal on one occasion during the first hours after the index clinical event. OR
   b) Maximal value of CK-MB, preferable CK-MB mass, > upper limit of normal on two successive samples.
3. Total CK:
   a) In the absence of availability of a troponin or CK-MB assay, total CK > 2 x the upper limit of normal, or the B fraction of CK may be employed, but these last two biomarkers are considerably less satisfactory than CK-MB.

AND ONE OF THE FOLLOWING ECG CHANGES:

1. ST-segment elevation: New or presumed new ST segment elevation at the J point in two or more contiguous leads with the cut-off points >=0.2 mV in leads V1, V2, or V3, or >=0.1 mV in other leads; OR
2. Development of any Q wave in leads V1 through V3, or the development of a Q-wave > or = to 30 ms (0.03s) in leads I, II, aVL, aVF, V4, V5, or V6. (Q wave changes must be present in any two contiguous leads, and be > or = to 1mm in depth.)

Defining Reference Control Values (MI Diagnostic Limit and Upper Limit of Normal):
(c) American College of Cardiology, 2004 D. History and Risk Factors 30-Jul-04 Page 5 of 33; ACC National Cardiovascular Data Registry, Cardiac Catheterization Module v3.02 Data Definitions 3.04

Reference values must be determined in each laboratory by studies using specific assays with appropriate quality control, as reported in peer-reviewed journals. Acceptable imprecision (coefficient of variation) at the 99^{th} percentile for each assay should be defined as < or = to 10%. Each individual laboratory should confirm the range of reference values in their specific setting.

Measure 13: Revascularization Rates by Number of Vessels and Percent of CABG Procedures Performed Off Pump

Definition: Percent of PCI patients and CABG patients by number of vessels treated and percent of CABG procedures performed off pump.

Denominator Inclusion: (1) all patients with a cardiovascular procedure(s) in the CABG ACE Demonstration procedure groups and (2) all patients in the PCI ACE Demonstration procedure group who have one or more of the following ICD-9 procedure codes as part of their hospital episode:

- 00.66 Percutaneous transluminal coronary angioplasty [PTCA] or coronary atherectomy
- 36.04 Intracoronary artery thrombolytic infusion (That by direct coronary artery injection, infusion, or catheterization)
- 36.06 Insertion of non-drug-eluting coronary artery stent(s)
- 36.07 Insertion of drug-eluting coronary artery stent(s)
- 36.09 Other removal of coronary artery obstruction (Coronary angioplasty NOS)

Patients should be reported in the procedure group that reflects their total cardiovascular experience during the ACE Demonstration hospitalization (that is, 13a, 13b, or 13c):

Measure 13a: PCI only

Measure 13b: CABG only

Measure 13c: PCI and CABG.

Denominator Exclusions: There are no exclusions.

Numerator Inclusion:

Definition 1: For each discharge, the number of unique vessels treated either through PCI or CABG. The unique vessels to be potentially included for this measure are the Left Main, RCA, LAD and Circumflex arteries.

Definition 2: The number of discharges performed off pump (for patients with CABG only or PCI and CABG).

Measure 13a1:	Single vessel (excluding left main) Left Main Double vessel More than double vessel
Measure 13b1:	Single vessel (excluding left main) Left Main Double vessel More than double vessel
Measure 13b2:	Number of Cases off pump
Measure 13c1:	Single vessel (excluding left main) Left Main Double vessel More than double vessel
Measure 13c2:	Number of Cases off pump

Notes:

1. Report numerator and denominator separately as well as the calculated percent. The sum of the three percents for numerator definition must be 100 percent.

2. If multiple reperfusion techniques are used on the same vessel, count the vessel only once.

Measure 14: Post-Operative Stroke

Description: Percent of cases with a post-operative stroke. The Society of Thoracic Surgeons includes this NQF endorsed measure its Composite Quality Rating system but it is specific only to cases of isolated CABG.

Denominator Inclusion: All discharges for the ACE demonstration groups of CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision.

Denominator Exclusions:

1. Patients with a preexisting (secondary diagnosis present on admission) condition of stroke.

Numerator Inclusion: Discharges among cases meeting the inclusion and exclusion rules for the denominator with an ICD-9 diagnosis code for stroke in any secondary diagnosis field:

1. 431 Intracerebral hemorrhage
2. 433.x1 Occlusion and stenosis of precerebral arteries with cerebral infarction
3. 434.x1 Occlusion of cerebral arteries with cerebral infarction
4. 436 Acute but ill-defined cerebrovascular disease
5. 997.02 Iatrogenic cerebrovascular infarction or hemorrhage

Notes:

1. The STS Composite Rating risk adjusts this measure, which will not be done in the ACE Demonstration.

Measure 15: Percent of ACE Demonstration Cardiovascular Procedures that are Re-dos or Revisions within Six Months

Description: Percent of ACE Demonstration Cardiovascular Procedures that are Re-dos or Revisions within Six Months.

Denominator Inclusion: All discharges for the ACE demonstration groups of CABG, cardiac defibrillator implantation, and cardiac pacemaker insertion.

Denominator Exclusions:

1. Patients who expired

2. Patients discharged to hospice (discharge status = 50 [home hospice] or 51[medical facility hospice])

Numerator Inclusion: Discharges among cases meeting the inclusion and exclusion rules for the denominator that have an MS-DRG assignment to the same ACE Demonstration MS-DRG or a related MS-DRG (see Note 2) within a six-month window from the date of the initial surgery.

MS-DRGs indicating receipt of a re-do/revision procedure if identified within a 6-month window from the date of the initial ACE Demonstration procedure:
CABG—231, 232, 233, 234, 235 and 236;
Defibrillator—222, 223, 224, 225, 226, and 227 (222-225 are non-ACE Demonstration MS-DRGs);
Pacemaker—242, 243, 244, 258, 259, 260, 261, and 262.

Notes:

1. Re-dos or revisions will be limited to ACE Demonstration facilities and other acute care facilities within MAC 4. Because of the time needed to process and receive follow-up claims within MAC 4, this measure will be reported on 1-year lagged basis.

2. The following is a list of defibrillator MS-DRGs that are not included in the ACE Demonstration but will be used as evidence of procedure re-do/revision if present within six months from the date of defibrillator procedures for patients included in the ACE Demonstration:
   222 Cardiac defibrillator implant w cardiac cath w AMI/HF/shock w MCC
   223 Cardiac defibrillator implant w cardiac cath w AMI/HF/shock w/o MCC
   224 Cardiac defibrillator implant w cardiac cath w/o AMI/HF/shock w MCC
   225 Cardiac defibrillator implant w cardiac cath w/o AMI/HF/shock w/o MCC.

3. Initially this measure was proposed to be applied to all cardiac and orthopedic procedure groups. However, for PCI and valve procedures, the measure cannot be calculated accurately because we cannot determine through the existing coding if the subsequent procedure was done on the same artery or valve or a different one. Similarly, for hip and knee replacement/revisions, the measure cannot be calculated accurately because we cannot determine through the existing coding if the subsequent procedure was done on the same joint or a different joint.

Measure 16: 30-Day Post-Surgery Mortality

In response to the requirements of the Deficit Reduction Act of 2005, CMS, with the support of its partners in the Hospital Quality Alliance (HQA), made available its first set of outcome measures – 30-day post-admission risk-standardized all-cause mortality measures for Medicare patients with hospital admission diagnoses of acute myocardial infarction (AMI), heart failure (HF), or Pneumonia (PN) for all acute care hospitals in the nation. A combined 30-day risk-adjusted mortality rate for heart attack and heart failure measure – based on hospital claims data and enrollment data – is calculated for CMS. Rates are not reported on the Hospital Compare Web site; but rather, whether the hospital differs from national norms is reported.

In addition to the CMS' Hospital Quality Initiative, the Society of Thoracic Surgeons has developed NQF endorsed performance measures related to the avoidance of operative mortality for CABG and valve procedures. The performance measure is the risk-adjusted proportion of patients who do not experience operative mortality, which is defined as death within 30 days of surgery. The STS risk adjustment uses a multivariate hierarchical model with smoothing to reduce the impact of sampling variation for hospitals with small sample sizes.

RTI will calculate 30-day risk-adjusted mortality rates for the ACE Demonstration groups of PCI, CABG, hip and knee replacement, cardiac valves, pacemaker insertions, and cardiac defibrillator implantation. RTI will also develop an inpatient mortality risk adjustment model specific to each ACE demonstration procedure group with the basic elements of the risk adjuster being demographic factors and diagnoses. The model will be used to calculate risk-adjusted inpatient mortality rates. The results of the model will be used in a comparison of actual to predicted mortality for each ACE demonstration site with the ratio itself being used as a quality measure. Mortality rates will be will be reported by RTI on a on a semi-annual or annual basis depending upon the caseload and stability of estimates.

Description: Number of deaths within 30 days of surgery within each ACE demonstration procedure groups.

Denominator Inclusion: All discharges assigned to the CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions:

1. Cases transferring to another short-term hospital, assessed based on discharge destination status codes 02 (Discharged/transferred to other short term general hospital for inpatient care), 43 (Discharged/transferred to a federal hospital), or 66 (discharged/transferred to a critical access hospital)

Numerator Inclusion: Number of deaths within 30 days of the procedure.

Notes:

1. The Society of Thoracic Surgeons uses an NQF endorsed measures of 30 day post surgery (including inpatient) Risk-Adjusted Operative Mortality for CABG, Aortic Valve Replacement, Mitral Valve Replacement/Repair, MVR+CABG, and AVR+CABG. Volume of procedures may prohibit the development of these sets of mortality rates. We will explore the stability of rates calculated for the STS cardiovascular groupings of CABG and valve replacement.

2. Hospital Compare reports 30-day post admission mortality for the clinical conditions of AMI, heart failure, and pneumonia.

3. RHQDAPU has a 30-day post admission mortality measure for heart failure and AMI.

4. The Premier demonstration is testing a 30-day post admission mortality measure for the clinical conditions of AMI, heart failure, and pneumonia.

5. The ACC/AHA Task Force on Performance Measurement has an NQF endorsed morality measure for PCI.

Measure 17: 30-Day Post-Discharge Readmission Rate

The Premier demonstration has reported 30-day post-discharge readmission rates for hip/knee replacement for its first three years. The demonstration extension is testing a similar measure for pneumonia, AMI, heart failure, and isolated CABG. NQF currently has this measure under consideration.

Description: Readmission to same facility within 30 days of discharge.

Denominator Inclusion: All discharges assigned to the CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions:

1. Patients who expire during the ACE Demonstration procedure hospitalization
2. Same-Day Readmits – Patients who are discharged and readmitted the same day

Numerator Inclusion: Number of patients who are readmitted within 30 days of date of discharge for any cause.

Notes:

1. The Premier Demonstration measure has numerous exclusions for the different clinical conditions. We are only applying the above two exclusions.
2. Readmissions will be limited to the same facility or to other facilities within MAC 4 depending upon our availability of hospital discharge information. If we are unable to obtain hospital discharge information from the MAC, then we will restrict this measure to the same facility. If we are able to obtain discharge information from MAC 4, then we will expand our focus to include other acute care facilities within MAC 4. However, we will not capture readmissions to acute care hospitals outside of MAC 4.

Measure 18: Change in Mix of MS-DRG Assignments

Description: Distribution of cases across the MS-DRGs within each ACE Demonstration procedure group.

Denominator Inclusion: All discharges assigned to the each of the CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions: There are no exclusions.

Numerator Inclusion: Number of patients assigned to each MS-DRG within each ACE Demonstration procedure group.

Measure 19: Severity of Beneficiaries Receiving a Hip or Knee Replacement/Revision

Description: Percentage of hip or knee replacements that are of advanced age, or have clinical conditions that reflect greater morbidity (with hip fracture or rheumatoid arthritis) at the time of surgery.

Denominator Inclusion: All discharges assigned to the hip and knee replacement/revision ACE demonstration procedure group. The submeasure related to hip fracture is limited to hip replacement/revision discharges with any of these ICD-9-CM procedure codes: 81.51, 81.52, 81.53.

Denominator Exclusions: There are no exclusions.

Numerator Inclusion: Number of patients that meet the following three criteria:

1. over age 75

2. with hip fracture (hip replacements/revisions only), based on an ICD-9 admission secondary diagnosis code of 733.14 (pathologic fracture of neck of femur); 808.0 (fracture of acetabulum, closed); 808.1 (fracture of acetabulum, open); or 820.xx (fracture of neck of femur).

3. with rheumatoid arthritis, based on an ICD-9 admission secondary diagnosis code of 714.0 (rheumatoid arthritis); 714.1 (Felty's syndrome); 714.2 (other rheumatoid arthritis with visceral or systemic involvement); or 714.3x (juvenile chronic polyarthritis); or 714.4 (chronic postrheumatic arthropathy).

Notes:

1. Three separate rates are calculated for each of the clinical conditions listed in the numerator inclusion criteria.

Measure 20: Average and Median Length of Stay

Description: Average and median length of stay for all discharges within each of the ACE Demonstration procedure groups. The NQF currently has this measure under consideration.

Denominator Inclusion: All discharges assigned to the each of the CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions: There are no exclusions.

Numerator Inclusion: Number of days of stay for each case assigned to the each of the ACE demonstration procedure groups.

Measure 21: Percent Medicare Outlier Patients

Description: Percent of ACE Demonstration discharges that are determined to be IPPS cost outliers

Denominator Inclusion: All discharges assigned to each of the CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision ACE demonstration procedure groups.

Denominator Exclusions:

1. Cases transferred to another acute care hospital.

Numerator Inclusion: Number of cases that qualify as an IPPS outlier.

Notes:

1. This measure will be calculated using outlier status data supplied by the MAC 4 contractor (that is, claims that would have been outliers if not part of the demonstration and paid for under FFS).

Measure 22: Percent Discharge Destination is acute care hospital transfer or post-acute care transfer

Description: Percent of ACE Demonstration cases that are transferred to another acute care facility or to a post-acute care facility.

Denominator Inclusion: All discharges assigned to each of the CABG, cardiac valve, cardiac defibrillator implantation, cardiac pacemaker insertion, PCI, and hip and knee replacement/revision ACE Demonstration procedure groups.

Denominator Exclusions:

1. Medicare beneficiaries who are transferred to another acute care hospital paid under the inpatient prospective payment system AND for whom the length of stay is short enough such that the transferring hospital (i.e. the demonstration hospital) would have been paid less than the full DRG under traditional fee-for-service Medicare processing rules results in ineligibility for the demonstration (see note 2, below). [This exclusion applies only to the submeasure for transfers to acute care facilities.]

2. Patients who expire during the initial hospitalization

Numerator Inclusion: Number of discharges that result in a transfer to (a) another acute care facility (discharge status =2, 43, or 66) or (b) a post-acute care facility. A post-acute care facility is defined as a skilled nursing facility (discharge status = 3); an intermediate care facility (discharge status = 4); a hospital-based Medicare approved swing bed (discharge status = 61); an inpatient rehabilitation facility or distinct part unit (discharge status = 62); a long term care facility (discharge status = 63); a nursing facility certified under Medicaid but not under Medicare (discharge status =64); or a psychiatric hospital or distinct part unit (discharge status = 65).

Notes:

1. Rates will be calculated separately for transfer to acute care hospitals and post-acute care facilities.

2. For specific "transfer MS-DRGs", PPS payments are reduced for patients transferred to post-acute settings or other IPPS hospital after a length of stay at or below the published geometric mean stay less one day. Under the terms of the ACE Demonstration, if a case is transferred to another acute hospital and would have qualified for a reduced PPS payment under traditional FFS, that case is excluded from the ACE demonstration. Transfers to post-acute settings do not affect ACE demonstration status.