



Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to subcriterion 1b).

Brief Measure Information

NQF #: 2379

De.2. Measure Title: Adherence to Antiplatelet Therapy after Stent Implantation

Co.1.1. Measure Steward: Centers for Medicare & Medicaid Services

De.3. Brief Description of Measure: Average proportion of days covered (PDC) for individuals with antiplatelet therapy during the 12 months following implantation of a coronary artery drug-eluting stent (DES) or a bare-metal stent (BMS).

1b.1. Developer Rationale: Several important benefits related to quality improvement are envisioned with the implementation of this measure. Specifically, the measure will help providers to identify on average if individuals within their practice with coronary artery stent implantation are adherent (at a critical threshold of a PDC of 0.8 or greater) to P2Y12 inhibitors. Furthermore, this measure will encourage providers to develop communication and educational tools and processes to improve adherence to P2Y12 inhibitors in their patients having stent implantation. Higher medication adherence rates are expected to result in lower rates of stent thrombosis and mortality. Adoption of this performance measure has the potential to improve quality of care for individuals having stent implantation and, therefore, advance quality of care by engaging patients as partners in their care, a priority area identified in the National Quality Strategy.

S.4. Numerator Statement: The sum of the days covered by the days' supply of all antiplatelet prescriptions during the days measured in the denominator

S.7. Denominator Statement: The sum of the days measured for all individuals who undergo a coronary artery drug-eluting stent (DES) or bare-metal stent (BMS) placement at any time during the first 12 months of the 24-month measurement period and have at least two prescriptions for antiplatelet therapy during the 12 months following stent placement

S.10. Denominator Exclusions: Individuals with a history of contraindication(s) to antiplatelet therapy are excluded. Contraindications include peptic ulcer disease, intracranial hemorrhage, and gastrointestinal (GI) bleed.

De.1. Measure Type: Process

S.23. Data Source: Administrative claims

S.26. Level of Analysis: Clinician : Group/Practice, Health Plan, Integrated Delivery System, Population : State

IF Endorsement Maintenance – Original Endorsement Date: Sep 08, 2014 **Most Recent Endorsement Date:** Sep 08, 2014

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results? Not applicable

1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. **Measures must be judged to meet all subcriteria to pass this criterion and be evaluated against the remaining criteria.**

1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form
[NQF2379_Evidence_Form-635231547639499046.docx](#)

1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- disparities in care across population groups.

1b.1. Briefly explain the rationale for this measure (e.g., the benefits or improvements in quality envisioned by use of this measure)

Several important benefits related to quality improvement are envisioned with the implementation of this measure. Specifically, the measure will help providers to identify on average if individuals within their practice with coronary artery stent implantation are adherent (at a critical threshold of a PDC of 0.8 or greater) to P2Y12 inhibitors. Furthermore, this measure will encourage providers to develop communication and educational tools and processes to improve adherence to P2Y12 inhibitors in their patients having stent implantation. Higher medication adherence rates are expected to result in lower rates of stent thrombosis and mortality. Adoption of this performance measure has the potential to improve quality of care for individuals having stent implantation and, therefore, advance quality of care by engaging patients as partners in their care, a priority area identified in the National Quality Strategy.

1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis. (This is required for endorsement maintenance. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included). This information also will be used to address the subcriterion on improvement (4b.1) under Usability and Use.**States and Prescription Drug Plans**

All Medicare Parts A, B, and D claims data during calendar years 2011 and 2012 from 10 states (Arizona, Delaware, Florida, Iowa, Indiana, Mississippi, Missouri, Rhode Island, Texas, and Washington); the sample consisted of 14,162,440 Medicare beneficiaries and 83 Prescription Drug Plans (Part D plans). Following attribution of the measure denominator, 10 states, 59 Prescription Drug Plans, and 3,259 physician groups had at least one beneficiary attributed. Requiring at least 10 individuals per unit of measurement resulted in 10 states, 38 Prescription Drug Plans, 434 physician groups, and 31 ACOs. The distributions for each are presented below.

Table 4. States

Year	n	Mean	Median	Min	Max	STD	IQR	P10	P25	P50	P75	P90
2012	10	0.75	0.75	0.73	0.79	0.02	0.02	0.74	0.74	0.75	0.76	0.78

Prescription Drug Plans

Year	n	Mean	Median	Min	Max	STD	IQR	P10	P25	P50	P75	P90
2012	38	0.75	0.76	0.54	0.86	0.06	0.04	0.71	0.74	0.76	0.78	0.81

Physician Groups

Year	n	Mean	Median	Min	Max	STD	IQR	P10	P25	P50	P75	P90
2012	434	0.75	0.76	0.52	0.93	0.06	0.07	0.68	0.72	0.76	0.79	0.82

ACOs

Sample Characteristics: Parts A, B, and D data for 707,677 beneficiaries (2,044 who met the denominator criteria) attributed to 31 ACOs from calendar year 2011.

Year	n	Mean	Median	Min	Max	STD	IQR	P10	P25	P50	P75	P90
2011	31	0.78	0.78	0.68	0.85	0.04	0.06	0.73	0.76	0.78	0.81	0.83

1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.

Not applicable; performance data is reported in Section 1b.2.

1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (This is required for endorsement maintenance. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities)

include.) This information also will be used to address the subcriterion on improvement (4b.1) under Usability and Use.

The summary of data on disparities by population group is discussed in the overview of disparities by population group, summary of published studies on disparities by population group, and testing results based on Medicare data.

This measure was stratified for disparities by age, race/ethnicity, and dual-eligibility (beneficiaries covered by both Medicare and Medicaid). The results/scores are presented for these categories/cohorts.

Rates by Age and Race/Ethnicity for the Entire 10-State Sample
Category or Cohort / Denominator / Numerator / Measure Rate

All Ages / 9,373,260 / 7,024,898 / 0.75

White / 8,091,894 / 6,095,119 / 0.75

African American / 709,674 / 501,731 / 0.71

Hispanic / 326,838 / 246,447 / 0.75

Other / 244,854 / 181,601 / 0.74

18 – 24 / 366 / 289 / 0.79

White / 0 / 0 / 0.0

African American / 366 / 289 / 0.79

Hispanic / 0 / 0 / 0.0

Other / 0 / 0 / 0.0

25 – 44 / 102,114 / 69,814 / 0.68

White / 69,540 / 49,051 / 0.71

African American / 20,130 / 12,899 / 0.64

Hispanic / 9,516 / 6,323 / 0.66

Other / 2,929 / 1,541 / 0.53

45 – 64 / 1,432,890 / 1,027,793 / 0.72

White / 1,066,158 / 770,301 / 0.72

African American / 261,324 / 181,577 / 0.70

Hispanic / 61,854 / 44,256 / 0.72

Other / 43,554 / 31,659 / 0.73

65 – 74 / 4,387,242 / 3,313,368 / 0.76

White / 3,911,808 / 2,966,563 / 0.76

African American / 247,782 / 174,874 / 0.71

Hispanic / 117,120 / 91,075 / 0.78

Other / 110,532 / 80,856 / 0.73

75 – 84 / 2,769,888 / 2,099,690 / 0.76

White / 2,449,638 / 1,860,442 / 0.76

African American / 143,106 / 102,794 / 0.72

Hispanic / 107,238 / 82,164 / 0.77

Other / 69,906 / 54,290 / 0.78

85+ / 680,760 / 513,944 / 0.76

White / 594,750 / 448,762 / 0.76

African American / 36,966 / 29,298 / 0.79

Hispanic / 31,110 / 22,629 / 0.73

Other / 17,934 / 13,255 / 0.74

Rates by Age and Dual Eligible Status for the Entire 10-State Sample
Category or Cohort / Denominator / Numerator / Measure Rate

Dual Eligible / 2,742,804 / 2,086,275 / 0.76

18 – 24 / 366 / 289 / 0.79
25 – 44 / 83,082 / 57,635 / 0.69
45 – 64 / 927,810 / 681,568 / 0.74
65 – 74 / 955,260 / 742,044 / 0.78
75 – 84 / 626,958 / 488,066 / 0.78
85+ / 149,328 / 116,673 / 0.78

Not Dual Eligible / 6,630,456 / 4,938,623 / 0.75

18 – 24 / N/A / N/A / N/A
25 – 44 / 19,032 / 12,179 / 0.64
45 – 64 / 505,080 / 346,225 / 0.69
65 – 74 / 3,431,982 / 2,571,324 / 0.75
75 – 84 / 2,142,930 / 1,611,624 / 0.75
85+ / 531,432 / 397,271 / 0.75

African Americans had significantly lower rates compared to all other race groups: versus White ($t=-86.3$, $p\text{-value} \leq 0.0001$), versus Hispanics ($t=-49.7$, $p\text{-value} \leq 0.0001$), and versus Other ($t=-32.8$, $p\text{-value} \leq 0.0001$). There are statistically significant differences between all race groups ($p\text{-value} \leq 0.0001$) except Hispanics versus Whites.

Patients 44 years or younger had a significantly lower rate than patients 45 or older: versus 45 - 64 ($t=-23.0$, $p\text{-value} \leq 0.0001$), versus 65 - 74 ($t=-52.5$, $p\text{-value} \leq 0.0001$), versus 75 – 84 ($t=-54.3$, $p\text{-value} \leq 0.0001$), versus 85+ ($t=-48.8$, $p\text{-value} \leq 0.0001$). There are statistically significant differences between all age groups ($p\text{-value} \leq 0.0001$) except patients 65-74 versus patients 85 or older and patients 18-24 versus patients 65 and older.

In addition, the measure rates were significantly different ($\chi^2=2,578$, $p\text{-value} \leq 0.0001$) between dual eligible and non-dual eligible beneficiaries.

1b.5. If no or limited data on disparities from the measure as specified is reported in 1b4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations.

Not applicable; data on disparities is reported in Section 1b.4.

1c. High Priority (previously referred to as High Impact)

The measure addresses:

- a specific national health goal/priority identified by DHHS or the National Priorities Partnership convened by NQF; OR
- a demonstrated high-priority (high-impact) aspect of healthcare (e.g., affects large numbers of patients and/or has a substantial impact for a smaller population; leading cause of morbidity/mortality; high resource use (current and/or future); severity of illness; and severity of patient/societal consequences of poor quality).

1c.1. Demonstrated high priority aspect of healthcare

Frequently performed procedure, High resource use, Patient/societal consequences of poor quality

1c.2. If Other:

1c.3. Provide epidemiologic or resource use data that demonstrates the measure addresses a high priority aspect of healthcare.

List citations in 1c.4.

This measure relates to adherence to antiplatelet (P2Y12 inhibitor therapy) in individuals after coronary artery stent implantation. The National Quality Forum's Measure Prioritization Advisory Committee ranked ischemic heart disease third in a list of the top 20 high-impact Medicare conditions identified on the basis of cost, prevalence, variability, improvability, and disparities (National Quality Forum, 2010). Furthermore, two priorities identified by the National Quality Strategy for quality improvement in the nation's healthcare system relate to the focus of this measure: engaging patients as partners in their care (#2) and promoting effective treatment practices for the leading causes of mortality, starting with cardiovascular disease (#4) (U.S. Department of Health and Human Services, 2013). Therefore, national priorities support the potential high impact of this measure.

Frequently Performed Procedure

More than half a million stent placement procedures are performed each year in the United States. The number of inpatient stent placements has fluctuated dramatically since 2003, peaking at 880,320 in 2006 and declining to 526,410 in 2011 (Agency for

Healthcare Research and Quality, 2013). The proportions of bare metal and drug-eluting stents (BMS and DES, respectively) have also changed over time. While DES made up approximately 90% of all stents placed in 2005, they now constitute approximately 70% of stents, a proportion that remained about the same from 2007 to 2011 (Agency for Healthcare Research and Quality, 2013). While stent placement is usually an inpatient procedure, often requiring several days in the hospital, the last decade has seen a substantial increase in both the number and proportion of stents placed in outpatient settings. The percentage of stent placements performed as outpatient procedures rose from 7.5% in 2001 to 16.8% in 2008 (Epstein, Polsky, Yang, Yang, & Groeneveld, 2011). We estimated the number of outpatient stent placements to be in the range of 106,295 to 138,250 procedures, for a total of 632,705 to 664,660 stent placements in inpatient and outpatient settings combined during 2011.

Patient/Societal Consequences of Poor Quality

Stent thrombosis is an infrequent but serious complication after stent placement, with rates of thrombosis in the month immediately following stent placement estimated to be 0.8% for DES and 0.9% for BMS (Roukoz et al., 2009). The risk of stent thrombosis decreases over time after stent placement, but overall likelihood of stent thrombosis is reported to be 1.4% for DES and 1.3% for BMS (Roukoz et al., 2009).

Long-term P2Y12 inhibitor therapy (clopidogrel, prasugrel, or ticagrelor) plus aspirin, known as dual antiplatelet therapy (DAPT), is required after stent placement to reduce the risk of late stent thrombosis (Levine et al., 2011). Substantial evidence exists to show that DAPT reduces the risk of post-PCI stent thrombosis and other cardiovascular events, as described in a recent review of medical management after coronary stent implantation (Brilakis, Patel, & Banerjee, 2013). However, evidence suggests that appropriate DAPT is not used in up to 25% of cases (Eisenstein et al., 2007; Spertus et al., 2006). Thus, this measure can help improve the safety and effectiveness of stent placement by increasing adherence to P2Y12 inhibitor therapy.

Four P2Y12 inhibitors are available for use in the United States: ticlopidine, clopidogrel, prasugrel, and ticagrelor. Ticlopidine is used infrequently due to possible complications and side effects (Bhatt et al., 2002). Efficacy of the other three medications in reducing post-PCI adverse outcomes has been demonstrated in several trials: clopidogrel (Eriksson, 2004; Mehta et al., 2001; Mehta et al., 2010; Steinhubl et al., 2002), prasugrel (Montalescot et al., 2009; Wiviott et al., 2007; Wiviott, Braunwald, McCabe, et al., 2008; Wiviott, Braunwald, Angiolillo, et al., 2008), and ticagrelor (Cannon et al., 2010; James et al., 2010; Mahaffey et al., 2011; Wallentin et al., 2009).

High Resource Use

Stent placement procedures are initially more costly than medical therapy, but savings decrease over time. One study estimated the average cost of the initial stent placement procedure is \$9,927, with one-year costs of \$12,646 (Fearon et al., 2013). In contrast, medical therapy initially costs \$3,900, with one-year costs of \$9,763; these differences in one-year costs for medical therapy patients were explained by increased likelihood of urgent stent placement or coronary artery bypass graft procedures (Fearon et al., 2013). Additionally, those costs do not include treatment costs associated with stent thrombosis. These thrombosis events can be costly with one study reporting median and mean costs of \$11,134 and \$17,134, respectively, for patients hospitalized after stent thrombosis, with a mean length of stay of 4.4 days (Reynolds, Rinaldi, Pinto, & Cohen, 2002).

1c.4. Citations for data demonstrating high priority provided in 1a.3

Agency for Healthcare Research and Quality. (2013). HCUPnet. Retrieved November 14, 2013, from

<http://hcupnet.ahrq.gov/>

Bhatt, D. L., Bertrand, M. E., Berger, P. B., L'Allier, P. L., Moussa, I., Moses, J. W., . . . Holmes, D. R. (2002). Meta-analysis of randomized and registry comparisons of ticlopidine with clopidogrel after stenting. *Journal of the American College of Cardiology*, 39(1), 9-14.

Brilakis, E. S., Patel, V. G., Banerjee, S. (2013). Medical management after coronary stent implantation: A review. *Journal of the American Medical Association*, 310(2), 189-198.

Cannon, C. P., Harrington, R. A., James, S., Ardissino, D., Becker, R. C., Emanuelsson, H., . . . Khurmi, N. S. (2010). Comparison of ticagrelor with clopidogrel in patients with a planned invasive strategy for acute coronary syndromes (PLATO): A randomised double-blind study. *The Lancet*, 375(9711), 283-293.

Eisenstein, E. L., Anstrom, K. J., Kong, D. F., Shaw, L. K., Tuttle, R. H., Mark, D. B., . . . Kandzari, D. E. (2007). Clopidogrel use and long-term clinical outcomes after drug-eluting stent implantation. *Journal of the American Medical Association*, 297(2), 159-168.

Epstein, A. J., Polsky, D., Yang, F., Yang, L., & Groeneveld, P. W. (2011). Coronary revascularization trends in the United States, 2001-2008. *JAMA*, 305(17), 1769-1776.

Eriksson, P. (2004). Long-term clopidogrel therapy after percutaneous coronary intervention in PCI-CURE and CREDO: The "Emperor's New Clothes" revisited. *European Heart Journal*, 25(9), 720-722.

- Fearon, W. F., Shilane, D., Pijls, N. H., Boothroyd, D. B., Tonino, P. A., Barbato, E., . . . Hlatky, M. A. (2013). Cost-effectiveness of percutaneous coronary intervention in patients with stable coronary artery disease and abnormal fractional flow reserve. *Circulation*, 128(12), 1335-1340.
- James, S., Budaj, A., Aylward, P., Buck, K. K., Cannon, C. P., Cornel, J. H., . . . Wallentin, L. (2010). Ticagrelor versus clopidogrel in acute coronary syndromes in relation to renal function results from the Platelet Inhibition and Patient Outcomes (PLATO) Trial. *Circulation*, 122(11), 1056-1067.
- Levine, G. N., Bates, E. R., Blankenship, J. C., Bailey, S. R., Bittl, J. A., Cercek, B., . . . Ting, H. H. (2011). 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. *Circulation*, 124, e574–e651.
- Mahaffey, K. W., Wojdyla, D. M., Carroll, K., Becker, R. C., Storey, R. F., Angiolillo, D. J., . . . Pieper, K. S. (2011). Ticagrelor compared with clopidogrel by geographic region in the Platelet Inhibition and Patient Outcomes (PLATO) trial. *Circulation*, 124(5), 544-554.
- Mehta, S. R., Bassand, J., Chrolavicius, S., Diaz, R., Eikelboom, J. W., Fox, K. A., . . . Rupprecht, H. (2010). Dose comparisons of clopidogrel and aspirin in acute coronary syndromes. *New England of Medicine*, 363(10), 930-942.
- Mehta, S. R., Yusuf, S., Peters, R. J., Bertrand, M. E., Lewis, B. S., Natarajan, M. K., . . . Chrolavicius, S. (2001). Clopidogrel in Unstable angina to prevent Recurrent Events trial (CURE) Investigators. Effects of pretreatment with clopidogrel and aspirin followed by long-term therapy in patients undergoing percutaneous coronary intervention: The PCI-CURE study. *Lancet*, 358(9281), 527-533.
- Montalescot, G., Wiviott, S. D., Braunwald, E., Murphy, S. A., Gibson, C. M., McCabe, C. H., & Antman, E. M. (2009). Prasugrel compared with clopidogrel in patients undergoing percutaneous coronary intervention for ST-elevation myocardial infarction (TRITON-TIMI 38): Double-blind, randomised controlled trial. *The Lancet*, 373(9665), 723-731.
- National Quality Forum. (2010). Prioritization of high-impact Medicare conditions and measure gaps. Measure Prioritization Advisory Committee Report. Washington, DC: National Quality Forum.
- Reynolds, M. R., Rinaldi, M. J., Pinto, D. S., & Cohen, D. J. (2002). Current clinical characteristics and economic impact of subacute stent thrombosis. *Journal of Invasive Cardiology*, 14(7), 364-368.
- Roukoz, H., Bavry, A. A., Sarkees, M. L., Mood, G. R., Kumbhani, D. J., Rabbat, M. G., & Bhatt, D. L. (2009). Comprehensive meta-analysis on drug-eluting stents versus bare-metal stents during extended follow-up. *American Journal of Medicine*, 122(6), 581. e581-581. e510.
- Spertus, J. A., Kettelkamp, R., Vance, C., Decker, C., Jones, P. G., Rumsfeld, J. S., . . . Bach, R. G. (2006). Prevalence, predictors, and outcomes of premature discontinuation of thienopyridine therapy after drug-eluting stent placement: Results from the PREMIER registry. *Circulation*, 113(24), 2803-2809.
- Steinhubl, S. R., Berger, P. B., Mann 3rd, J. T., Fry, E. T., DeLago, A., Wilmer, C., Topol, E. J. (2002). CREDO Investigators. Clopidogrel for the Reduction of Events During Observation. Early and sustained dual oral antiplatelet therapy following percutaneous coronary intervention: A randomized controlled trial. *Journal of the American Medical Association*, 288(19), 2411-2420.
- Wallentin, L., Becker, R. C., Budaj, A., Cannon, C. P., Emanuelsson, H., Held, C., . . . Katus, H. (2009). Ticagrelor versus clopidogrel in patients with acute coronary syndromes. *New England Journal of Medicine*, 361(11), 1045-1057.
- Wiviott, S. D., Braunwald, E., McCabe, C. H., Montalescot, G., Ruzyllo, W., Gottlieb, S., . . . Murphy, S. A. (2007). Prasugrel versus clopidogrel in patients with acute coronary syndromes. *New England Journal of Medicine*, 357(20), 2001-2015.
- Wiviott, S. D., Braunwald, E., McCabe, C. H., Horvath, I., Keltai, M., Herrman, J. R., . . . Murphy, S. A. (2008). Intensive oral antiplatelet therapy for reduction of ischaemic events including stent thrombosis in patients with acute coronary syndromes treated with percutaneous coronary intervention and stenting in the TRITON-TIMI 38 trial: A subanalysis of a randomised trial. *The Lancet*, 371(9621), 1353-1363.
- Wiviott, S. D., Braunwald, E., Angiolillo, D. J., Meisel, S., Dalby, A. J., Verheugt, F. W., . . . Murphy, S. A. (2008). Greater clinical benefit of more intensive oral antiplatelet therapy with prasugrel in patients with diabetes mellitus in the trial to assess improvement in therapeutic outcomes by optimizing platelet inhibition with prasugrel—Thrombolysis in Myocardial Infarction 38. *Circulation*, 118(16), 1626-1636.
- U.S. Department of Health and Human Services. (2013). National strategy for quality improvement in health care: 2013 Annual Report to Congress. Washington, DC: Author.

1c.5. If a PRO-PM (e.g. HRQoL/functional status, symptom/burden, experience with care, health-related behaviors), provide evidence that the target population values the measured PRO and finds it meaningful. (Describe how and from whom their input was obtained.)
Not applicable

2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when

implemented. **Measures must be judged to meet the subcriteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.**

2a.1. Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. Subject/Topic Area (check all the areas that apply):
Cardiovascular

De.6. Cross Cutting Areas (check all the areas that apply):
Disparities, Safety : Medication Safety

S.1. Measure-specific Web Page (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

Not applicable

S.2a. If this is an eMeasure, HQMF specifications must be attached. Attach the output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

No HQMF specs Attachment:

S.2b. Data Dictionary, Code Table, or Value Sets (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

Attachment Attachment: NQF2379_-_Codes_Table.xls

S.3. For endorsement maintenance, please briefly describe any changes to the measure specifications since last endorsement date and explain the reasons.

Not applicable

S.4. Numerator Statement (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome)

IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm.

The sum of the days covered by the days' supply of all antiplatelet prescriptions during the days measured in the denominator

S.5. Time Period for Data (What is the time period in which data will be aggregated for the measure, e.g., 12 mo, 3 years, look back to August for flu vaccination? Note if there are different time periods for the numerator and denominator.)

The measure requires 24 consecutive months of data.

Numerator time window: The time period is defined as the 12 consecutive months following earliest implantation of the coronary artery drug-eluting stent or the bare-metal stent, or until death date if the individual died within the 12 months following earliest implantation of the coronary artery stent.

S.6. Numerator Details (All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm.

Numerator

The sum of the days covered by the days' supply of all antiplatelet prescriptions during the days measured in the denominator

For prescriptions with a days' supply that extends beyond the end of the measurement period, count only the days for which the drug was available to the individual during the measurement period. If there are prescriptions for the same drug (generic name) on the same date of service, keep the prescription with the largest days' supply. If prescriptions for the same drug (generic name) overlap, then adjust the prescription start date to be the day after the previous fill has ended.

The following are the antiplatelet medications (P2Y12 receptor inhibitors). The route of administration includes all oral formulations of the medications listed below.

Table 1. P2Y12 Receptor Inhibitors

clopidogrel
prasugrel
ticagrelor

Note: Obsolete drug products are excluded from NDCs with an inactive date more than three years prior to the beginning of the measurement period or look-back period, if applicable.

S.7. Denominator Statement *(Brief, narrative description of the target population being measured)*

The sum of the days measured for all individuals who undergo a coronary artery drug-eluting stent (DES) or bare-metal stent (BMS) placement at any time during the first 12 months of the 24-month measurement period and have at least two prescriptions for antiplatelet therapy during the 12 months following stent placement

S.8. Target Population Category *(Check all the populations for which the measure is specified and tested if any):*

Populations at Risk, Populations at Risk : Dual eligible beneficiaries, Senior Care

S.9. Denominator Details *(All information required to identify and calculate the target population/denominator such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)*

Index Event: Placement of coronary artery drug-eluting stent or bare-metal stent identified using a procedure code within the hospital inpatient or hospital outpatient claims data during the first 12 months of the 24 month measurement period (shown below).

Days Measured: 365 days following placement of the stent or the number of days between stent placement and individual's death.

Table 2. Codes Used to Identify Coronary Artery Stent Placement

Acute Inpatient Setting

ICD-9-CM: 36.07, 36.06

ICD-10-CM: 0270046, 027004Z, 0270346, 027034Z, 0270446, 027044Z, 0271046, 027104Z, 0271346, 027134Z, 0271446, 027144Z, 0272046, 027204Z, 0272346, 027234Z, 0272446, 027244Z, 0273046, 027304Z, 0273346, 027334Z, 0273446, 027344Z

Hospital Outpatient Department Setting

ICD-9-CM: 36.07, 36.06

ICD-10-CM: 0270046, 027004Z, 0270346, 027034Z, 0270446, 027044Z, 0271046, 027104Z, 0271346, 027134Z, 0271446, 027144Z, 0272046, 027204Z, 0272346, 027234Z, 0272446, 027244Z, 0273046, 027304Z, 0273346, 027334Z, 0273446, 027344Z

Other Outpatient Setting

HCPCS: C1874, C1875, G0290, G0291

S.10. Denominator Exclusions *(Brief narrative description of exclusions from the target population)*

Individuals with a history of contraindication(s) to antiplatelet therapy are excluded. Contraindications include peptic ulcer disease, intracranial hemorrhage, and gastrointestinal (GI) bleed.

S.11. Denominator Exclusion Details *(All information required to identify and calculate exclusions from the denominator such as definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)*

Contraindications are identified by any diagnosis listed below any time during the measurement period (24 months).

Table 3. Codes Indicating a Contraindication to P2Y12 Receptor Inhibitor Therapy

Peptic Ulcer Disease

ICD-9-CM: V12.71, 531.xx, 532.xx, 533.xx

ICD-10-CM: K25.0, K25.1, K25.2, K25.3, K25.4, K25.5, K25.6, K25.7, K25.9, K26.0, K26.1, K26.2, K26.3, K26.4, K26.5, K26.6, K26.7, K26.9, K27.0, K27.1, K27.2, K27.3, K27.4, K27.5, K27.6, K27.7, K27.9, Z87.11

Intracranial Hemorrhage

ICD-9-CM: 094.87, 430, 431, 432.x, 800.1x, 800.2x, 800.3x, 800.6x, 800.7x, 800.8x, 801.1x, 801.2x, 801.3x, 801.6x, 801.7x, 801.8x, 803.1x, 803.2x, 803.3x, 803.6x, 803.7x, 803.8x, 804.1x, 804.2x, 804.3x, 804.6x, 804.7x, 804.8x, 851.xx, 852.xx, 853.xx, 854.1x, 997.02

ICD-10-CM: A52.19, G97.31, G97.32, I60.00, I60.01, I60.02, I60.10, I60.11, I60.12, I60.20, I60.21, I60.22, I60.30, I60.31, I60.32, I60.4, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62.00, I62.01, I62.02, I62.03, I62.1, I62.9, I97.810, I97.811, I97.820, I97.821, S01.90XA, S02.0XXA, S02.0XXB, S02.10XA, S02.10XB, S02.91XA, S02.91XB, S06.310A, S06.311A, S06.312A, S06.313A, S06.314A, S06.315A, S06.316A, S06.317A, S06.318A, S06.319A, S06.320A, S06.321A, S06.322A, S06.323A, S06.324A, S06.325A, S06.326A, S06.327A, S06.328A, S06.329A, S06.330A, S06.331A, S06.332A, S06.333A, S06.334A, S06.335A, S06.336A, S06.337A, S06.338A, S06.339A, S06.340A, S06.341A, S06.342A, S06.343A, S06.344A, S06.345A, S06.346A, S06.347A, S06.348A, S06.349A, S06.350A, S06.351A, S06.352A, S06.353A, S06.354A, S06.355A, S06.356A, S06.357A, S06.358A, S06.359A, S06.360A, S06.361A, S06.362A, S06.363A, S06.364A, S06.365A, S06.366A, S06.367A, S06.368A, S06.369A, S06.370A, S06.371A, S06.372A, S06.373A, S06.374A, S06.375A, S06.376A, S06.377A, S06.378A, S06.379A, S06.380A, S06.381A, S06.382A, S06.383A, S06.384A, S06.385A, S06.386A, S06.387A, S06.388A, S06.389A, S06.4X0A, S06.4X1A, S06.4X2A, S06.4X3A, S06.4X4A, S06.4X5A, S06.4X6A, S06.4X7A, S06.4X8A, S06.4X9A, S06.5X0A, S06.5X1A, S06.5X2A, S06.5X3A, S06.5X4A, S06.5X5A, S06.5X6A, S06.5X7A, S06.5X8A, S06.5X9A, S06.6X0A, S06.6X1A, S06.6X2A, S06.6X3A, S06.6X4A, S06.6X5A, S06.6X6A, S06.6X7A, S06.6X8A, S06.6X9A, S06.890A, S06.891A, S06.892A, S06.893A, S06.894A, S06.895A, S06.896A, S06.897A, S06.898A, S06.899A

Gastrointestinal Tract Hemorrhage

ICD-9-CM: 456.0, 456.20, 530.7, 530.82, 534.xx, 537.83, 537.84, 562.02, 562.03, 562.12, 562.13, 569.3, 569.85, 569.86, 578.x

ICD-10-CM: I85.01, I85.11, K22.6, K22.8, K28.0, K28.1, K28.2, K28.3, K28.4, K28.5, K28.6, K28.7, K28.9, K31.811, K31.82, K55.21, K57.01, K57.11, K57.13, K57.21, K57.31, K57.33, K57.41, K57.51, K57.53, K57.81, K57.91, K57.93, K62.5, K63.81, K92.0, K92.1, K92.2

S.12. Stratification Details/Variables (All information required to stratify the measure results including the stratification variables, definitions, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b)

Depending on the operational use of the measure, measure results may be stratified by:

- State
- Accountable Care Organizations (ACOs)*
- Plan
- Physician Group
- Age - Divided into 6 categories: 18-24, 25-44, 45-64, 65-74, 75-84, and 85+ years
- Race/Ethnicity
- Dual Eligibility

*ACO attribution methodology is based on where the beneficiary is receiving the plurality of his/her primary care services and subsequently assigned to the participating providers.

S.13. Risk Adjustment Type (Select type. Provide specifications for risk stratification in S.12 and for statistical model in S.14-15)

No risk adjustment or risk stratification

If other:

S.14. Identify the statistical risk model method and variables (Name the statistical method - e.g., logistic regression and list all the risk factor variables. Note - risk model development and testing should be addressed with measure testing under Scientific Acceptability)

Not applicable

S.15. Detailed risk model specifications (must be in attached data dictionary/code list Excel or csv file. Also indicate if available at measure-specific URL identified in S.1.)

Note: Risk model details (including coefficients, equations, codes with descriptors, definitions), should be provided on a separate worksheet in the suggested format in the Excel or csv file with data dictionary/code lists at S.2b.

S.15a. Detailed risk model specifications (if not provided in excel or csv file at S.2b)

S.16. Type of score:

Rate/proportion

If other:

S.17. Interpretation of Score (Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)

Better quality = Higher score

S.18. Calculation Algorithm/Measure Logic (Describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; aggregating data; risk adjustment; etc.)

To calculate this measure, Medicare administrative claims data and related files, as described in detail in Section S.24, will be required.

Denominator: The sum of the days measured for all individuals who undergo a coronary artery drug-eluting stent (DES) or bare-metal stent (BMS) placement at any time during the first 12 months of the 24-month measurement period and have at least two prescriptions for antiplatelet therapy during the 12 months following stent placement:

1. Include individuals who are 18 or older as of the beginning of the measurement period.
2. Include eligible individuals who were continuously enrolled in Part D coverage during the measurement year and the previous year, meaning those individuals with no more than a one-month gap in enrollment during the measurement year and no more than a one-month gap in enrollment during the previous year.
3. Include Fee-For-Service individuals only, meaning those who had no more than a one-month gap in Part A enrollment, no more than a 1-month gap in Part B enrollment, and no more than one month of HMO enrollment during both the current measurement year and the previous measurement year. If Yes, create an eligible individuals dataset. If No, exclude from the measure population.
4. Pull all Part A claims with a procedure code indicating a coronary artery DES or BMS implantation that occurred during the first 12 months of the 24-month measurement period.
5. If the DES or BMS procedure is identified by only a HCPCS code, then use the discharge date as the procedure date.
6. If there are multiple DES or BMS procedures for an individual, keep the claim with the earliest procedure date. Identify the date of the earliest stent implantation procedure as the index date.
7. Merge with the eligibility file from Step 3 to keep only those eligible individuals with a coronary artery stent implantation during the first 12 months of the 24-month measurement period.
8. Pull all Part A and Part B claims for the 24-month period that indicated a contraindication to P2Y12 receptor inhibitor therapy. Use all diagnosis codes for identifying contraindications to pull the data.
9. Exclude individuals with a contraindication to P2Y12 receptor inhibitor therapy (Step 8 dataset) from the eligible individuals with a coronary artery stent implantation during the first 12 months of the 24-month measurement period (Step 7 dataset).
10. Pull all Part D claims for the 24-month period for P2Y12 receptor inhibitors and attach the drug ID and the generic name to the dataset.
11. Retain eligible beneficiaries with at least two claims for P2Y12 receptor inhibitors within the one-year period after index stent implantation date.
12. For each individual calculate the measurable days as the number of days from the index date (original DES or BMS) to one year following the index date (365 days) or up until death, if death occurred within one year from the index date.
13. Sum the days measured for all eligible individuals.

Numerator: The sum of the days covered by the days' supply of all antiplatelet therapy prescriptions during the days measured in the denominator

1. For each individual in the denominator, calculate the days covered by P2Y12 receptor inhibitors during the year (365 days) following the index date or until death, without adjusting for hospitalization:
 - a. Use the dataset from Step 12 of the denominator logic, sort and de-duplicate claims by beneficiary ID, service date, generic

name, and descending days' supply. If prescriptions for the same drug (generic name) are dispensed on the same date of service for an individual, keep the dispensing with the largest days' supply.

b. Calculate the number of days covered by P2Y12 receptor inhibitor therapy per individual.

i. For prescriptions with a days' supply that extends beyond the end of the measurement period, count only the days for which the drug was available to the individual during the measurement period.

ii. If prescriptions for the same drug (generic name) overlap, then adjust the prescription start date to be the day after the previous fill has ended.

iii. If prescriptions for different drugs (different generic names) overlap, do not adjust the prescription start date.

2. The measure numerator is the sum of the days covered for all eligible individuals.

An example of SAS code for Step 5 was adapted from PQA and is also available at the URL:

<http://www2.sas.com/proceedings/forum2007/043-2007.pdf>.

S.19. Calculation Algorithm/Measure Logic Diagram URL or Attachment (You also may provide a diagram of the Calculation Algorithm/Measure Logic described above at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1) Available in attached appendix at A.1

S.20. Sampling (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)

IF a PRO-PM, identify whether (and how) proxy responses are allowed.

Not applicable; this measure does not use a sample or survey.

S.21. Survey/Patient-reported data (If measure is based on a survey, provide instructions for conducting the survey and guidance on minimum response rate.)

IF a PRO-PM, specify calculation of response rates to be reported with performance measure results.

Not applicable

S.22. Missing data (specify how missing data are handled, e.g., imputation, delete case.)

Required for Composites and PRO-PMs.

If data are missing for days' supply for any included drug, the individual is excluded from measurement.

S.23. Data Source (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.24.

Administrative claims

S.24. Data Source or Collection Instrument (Identify the specific data source/data collection instrument e.g. name of database, clinical registry, collection instrument, etc.)

IF a PRO-PM, identify the specific PROM(s); and standard methods, modes, and languages of administration.

For measure calculation, the following Medicare files were required:

- Denominator tables
- Prescription drug benefit (Part D) coverage tables
- Beneficiary file
- Institutional claims (Part A)
- Non-institutional claims (Part B)—physician carrier/non-DME
- Prescription drug benefit (Part D) claims

For ACO attribution, the following were required:

- Denominator tables for Parts A and B enrollment
- Prescription drug benefit (Part D) coverage tables
- Beneficiary file
- Institutional claims (Part A)
- Non-institutional claims (Part B)—physician carrier/non-DME
- Prescription drug benefit (Part D) claims

For physician group attribution, the following were required:

- Non-institutional claims (Part B)—physician carrier/non-DME

- [Denominator tables to determine individual enrollment](#)
- [Beneficiary file or coverage table to determine hospice benefit and Medicare as secondary payor status](#)
- [CMS physician and physician specialty tables](#)
- [National Plan & Provider Enumeration System \(NPPES\) database](#)

S.25. Data Source or Collection Instrument *(available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)*

[No data collection instrument provided](#)

S.26. Level of Analysis *(Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)*

[Clinician : Group/Practice, Health Plan, Integrated Delivery System, Population : State](#)

S.27. Care Setting *(Check ONLY the settings for which the measure is SPECIFIED AND TESTED)*

[Ambulatory Care : Clinician Office/Clinic](#)

If other:

S.28. COMPOSITE Performance Measure - Additional Specifications *(Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)*

[Not applicable](#)

2a. Reliability – See attached Measure Testing Submission Form

2b. Validity – See attached Measure Testing Submission Form

[NQF2379_Measure_Testing_Form-635231523201070124.docx](#)

3. Feasibility

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

3a. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

3a.1. Data Elements Generated as Byproduct of Care Processes.

[Coded by someone other than person obtaining original information \(e.g., DRG, ICD-9 codes on claims\)](#)

If other:

3b. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

3b.1. To what extent are the specified data elements available electronically in defined fields? *(i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields)*

[ALL data elements are in defined fields in electronic claims](#)

3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.

3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL.

[No feasibility assessment](#) Attachment:

3c. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements

and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

3c.1. Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

IF a PRO-PM, consider implications for both individuals providing PROM data (patients, service recipients, respondents) and those whose performance is being measured.

Testing demonstrated that the measure was feasible to specify and calculate using CMS administrative claims data. Data sources needed to implement the measure are readily available, accessible, and timely. The administrative claims data are used for payment of medical services and are routinely audited by Medicare.

3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, algorithm).

The administrative data (collected by CMS primarily for billing purposes) are used as the data source for this measure. Therefore, the cost of data collection is negligible.

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Planned	Current Use (for current use provide URL)
Not in use	

4a.1. For each CURRENT use, checked above, provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included

Not applicable

4a.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

Not applicable; the measure is being submitted for initial endorsement.

4a.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

The measure has been submitted through the Measures under Consideration process for the CMS ACO Shared Savings program.

4b. Improvement

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance

results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

4b.1. Progress on Improvement. (Not required for initial endorsement unless available.)

Performance results on this measure (current and over time) should be provided in 1b.2 and 1b.4. Discuss:

- Progress (trends in performance results, number and percentage of people receiving high-quality healthcare)
- Geographic area and number and percentage of accountable entities and patients included

Not applicable

4b.2. If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

The desired outcomes for this measure are better adherence to P2Y12 inhibitor therapy following the implantation of a drug-eluting stent or bare-metal stent. Better adherence should result in fewer stent thrombosis events and other adverse cardiovascular events and thus, fewer hospitalizations, lower costs, and fewer deaths. In addition, the National Strategy for Quality Improvement in Health Care supports the potential high impact of this measure as engaging patients as partners in their care and promoting effective treatment practices for the leading causes of mortality, starting with cardiovascular disease, were listed as two of the six priorities for quality improvement (U.S. Department of Health and Human Services, 2013).

Although this measure is not currently in use in any reporting programs, related measures assessing medication adherence with the PDC methodology have been used in multiple demonstration projects coordinated by PQA, Inc. These projects involved multiple health plans and community pharmacies across five states (in IA, IN, NC, PA, and WI). As part of the first phase of the demonstration, health plans provided data for calculation of the PDC and other performance measures related to medications. The performance results were made available to the plans and to hundreds of community pharmacies in the demonstration states. Two evaluations of the first phase were conducted. One of the evaluations involved academic investigators from multiple universities as well as PQA staff, while the second evaluation was conducted by an AHRQ-selected contractor (CNA in partnership with Thomas Jefferson University). Both evaluations gathered feedback on the feasibility and usability of the PDC and other performance metrics. The report funded by AHRQ was presented at the 2010 AHRQ Conference (<http://www.ahrq.gov/about/annualconf10/conf10trackb.htm>).

The PQA-funded evaluation by academic investigators has recently been accepted for publication by a scientific journal and is also available from PQA upon request. The evaluations determined that the health plan leadership and the community pharmacists found the PDC measure to be easy to understand and potentially helpful for performance improvement. PQA is currently engaged in the second phase of the demonstrations, wherein performance improvement interventions have been implemented to spur improvements in PDC scores. A new initiative is about to begin in the state of California wherein the Integrated Healthcare Association (IHA) is pilot-testing the PDC measures for a physician pay-for-performance program. The technical advisory panel for IHA felt that physicians and plans would likely be able to understand the PDC metric but are conducting a pilot test to assess the usefulness of this metric in public reporting and pay-for-performance (P4P) for physicians.

Citation

U.S. Department of Health and Human Services. (2013). National strategy for quality improvement in health care: 2013 Annual Report to Congress. Washington, DC: Author.

4c. Unintended Consequences

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

4c.1. Were any unintended negative consequences to individuals or populations identified during testing; OR has evidence of unintended negative consequences to individuals or populations been reported since implementation? If so, identify the negative unintended consequences and describe how benefits outweigh them or actions taken to mitigate them.

The measure has not been implemented in any reporting programs, and no unintended negative consequences were identified during testing.

5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

5. Relation to Other NQF-endorsed Measures

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.
Yes

5.1a. List of related or competing measures (selected from NQF-endorsed measures)

0001 : Asthma assessment

0541 : Proportion of Days Covered (PDC): 3 Rates by Therapeutic Category

0542 : Adherence to Chronic Medications

0545 : Adherence to Statins for Individuals with Diabetes Mellitus

0569 : ADHERENCE TO STATINS

1879 : Adherence to Antipsychotic Medications for Individuals with Schizophrenia

1880 : Adherence to Mood Stabilizers for Individuals with Bipolar I Disorder

5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

None identified

5a. Harmonization

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications completely harmonized?

No

5a.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

Differences between Proposed Measure and NQF 0541, 0542, 0543, 0545, 1879, and 1880 - Measure of Adherence: The proposed measure is expressed as a continuous adherence measure using the PDC method. The other six adherence measures are expressed as a dichotomous measure based on the PDC method, with a value =0.8 representing good adherence, and a value <0.8 representing poor adherence. Rationale - The proposed measures uses a continuous measure of proportion of days covered, rather than a dichotomous measure, to increase the reliability of the measure for provider comparisons. This is necessary since the sample size by provider is much smaller than other adherence measures due to the relatively low prevalence of stents compared to chronic disease. Impact on interpretability - The lack of harmonization should not have any impact on the interpretability of the proposed measure, because it uses the same adherence method (i.e., PDC) as the other six measures. In addition, the measure rate is presented as a proportion rather than percentage to avoid misinterpretation between the two methods. Data collection burden - Because the proposed measure and the other six NQF-endorsed adherence measures are based on administrative claims data, the data collection burden should be similar for all of them. NQF 0964: Therapy with Aspirin, P2Y12 Inhibitor, and Statin at Discharge following PCI in Eligible Patients (American College of Cardiology Foundation [ACCF]) - Numerator: Patients who receive all medications for which they are eligible: Aspirin prescribed at discharge (if eligible for aspirin as described in denominator) AND P2Y12 agent (clopidogrel, prasugrel, or ticlopidine) prescribed at discharge (if eligible for P2Y12 as described in denominator) AND 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: Eligible for aspirin (ASA): Patients undergoing PCI who do not have a contraindication to aspirin documented OR Eligibility for P2Y12 agent (clopidogrel, prasugrel, or ticlopidine): Patients undergoing PCI with stenting who do not have a contraindication to P2Y12 agent documented OR Eligibility for statin therapy: Patients undergoing PCI who do not have a contraindication to statin therapy. Differences between Proposed Measure and NQF 0964 - Medications: The proposed measure includes P2Y12 inhibitor medications (i.e., clopidogrel, prasugrel, or ticagrelor). NQF 0964 includes aspirin, P2Y12 inhibitors, and statins. Time Period for Medications: The proposed measure covers a 12-month period after stent implantation. NQF 0964 focuses only on whether the medication was prescribed at the time of discharge. How Medication Use Is Measured: The proposed measure calculates adherence over a 12-month period. NQF 0964 measures whether

the three medications were prescribed at discharge after a PCI. Index Procedure: The proposed measure includes only individuals with a drug-eluting or bare-metal stent placement. NQF 0964 includes individuals with a PCI, with or without stent placement.

Rationale - The specifications of the proposed measure align with the guideline recommendations for P2Y12 inhibitor therapy for stent placement patients (Levine et al., 2011). **Impact on Interpretability** - The proposed measure is easier to interpret than NQF 0964 because it focuses on a single indication and a single medication, compared with NQF 0964, which includes multiple indications and multiple medications. **Data Collection Burden** - The proposed measure is based on administrative claims data. NQF 0964 is based on registry data. Therefore, the proposed measure is less of a data collection burden.

NQF 0569: Adherence to Statins (Health Benchmarks-IMS Health) - **Numerator:** The numerator consists of members in the denominator who filled a sufficient days' supply of a statin to provide for at least 80% coverage (Medication Possession Ratio [MPR] =80%) during the measurement year. Of note, new users of a statin that started after the first three months of the measurement year will be excluded from the calculation. **Denominator:** Continuously enrolled members ages 19 years or older by the end of the measurement year who had a diagnosis of hyperlipidemia any time prior to the end of the measurement year, cardiovascular disease or diabetes during the year prior to the measurement year, and filled at least a 60 days' supply of statin during the measurement year.

Differences between Proposed Measure and NQF 0569 - **Method of Calculating Adherence:** The proposed measure uses the proportion of days covered (PDC) as the method of calculating adherence, whereas NQF 0569 (the related measure) uses the medication possession ratio (MPR). **Time Period Covered by Adherence:** The numerator of the proposed measure covers the entire measurement year, whereas NQF 0569 excludes "new users of a statin that started after the first three months of the measurement year."

Rationale - The PDC used in the proposed measure provides a more conservative estimate of adherence when a patient might be switching among several medications for the same indication or using multiple medications within a single class (Nau, undated) than the MPR used by NQF 0569. **Impact on Interpretability** - The proposed measure provides a better estimate of adherence over a longer time period. **Data Collection Burden** - Because both measures use administrative claims data, there should not be an impact on the data collection burden.

NQF 0588: Stent Drug-Eluting Clopidogrel (Resolution Health, Inc.) - **Numerator:** Patients in the denominator who filled prescription(s) for clopidogrel in the three months following placement of the drug-eluting intracoronary stent. ("Evidence suggests clopidogrel should be continued upwards of one year.") **Denominator:** Patients who underwent PCI with placement of a drug-eluting intracoronary stent, during the first nine months of the measurement year, excluding those with contraindications to clopidogrel.

Differences between Proposed Measure and NQF 0588 - **Type of Coronary Artery Stent:** NQF 0588 includes only individuals who had a drug-eluting stent implanted. The proposed measure includes individuals who had a drug-eluting stent or a bare-metal stent implanted. **Antiplatelet Medications Included:** NQF 0588 includes only one medication (i.e., clopidogrel). The proposed measure includes three medications (i.e., clopidogrel, prasugrel, or ticagrelor). **Measure of Medication Use and Time Period:** NQF 0588 identifies the percentage of eligible individuals who have received at least one prescription for clopidogrel during the three months following implantation of a drug-eluting stent. The proposed measure reports the proportion of days covered (PDC) for P2Y12 inhibitor therapy during the 12 months following implantation of a drug-eluting stent or a bare-metal stent.

Rationale - The definition of the proposed measure is consistent with the most recent clinical practice guidelines, which recommend 12 months of therapy with any P2Y12 inhibitor medication after implantation of a drug-eluting stent or a bare-metal stent (Levine et al., 2011). The definition of NQF 0588 is not consistent with the guidelines. **Impact on Interpretability.** The proposed measure provides more comprehensive information by estimating adherence over a 12-month period for any P2Y12 inhibitor medication following a drug-eluting stent or a bare-metal stent, compared to NQF 0588 measuring one or more prescription fills for clopidogrel during a three-month period following a drug-eluting stent. **Data collection burden** - Because the proposed measure uses administrative claims data, and NQF 0588 uses administrative claims data and electronic pharmacy data, the data collection burden would be similar for the two measures. **Citation for 5a.2** - Nau, D. P. (undated). Proportion of days covered (PDC) as a preferred method of measuring medication adherence. Pharmacy Quality Alliance. Retrieved November 12, 2013, from <http://www.pqaalliance.org/images/uploads/files/PQA%20PDC%20vs%20%20MPR.pdf> Levine, G. N., Bates, E. R., Blankenship, J. C., Bailey, S. R., Bittl, J. A., Cercek, B., . . . Ting, H. H. (2011). 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. *Circulation*, 124, e574–e651.

5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

OR

Multiple measures are justified.

5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):

Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)

Not applicable

Appendix
<p>A.1 Supplemental materials may be provided in an appendix. All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.</p> <p>Attachment Attachment: NQF2379_algorithm.pdf</p>
Contact Information
<p>Co.1 Measure Steward (Intellectual Property Owner): Centers for Medicare & Medicaid Services</p> <p>Co.2 Point of Contact: Corette, Byrd, MMSSupport@Battelle.org, 202-786-1158-</p> <p>Co.3 Measure Developer if different from Measure Steward: CMS/FMQAI</p> <p>Co.4 Point of Contact: Kyle, Campbell, kcampbell@flqio.sdps.org, 813-865-3199-</p>
Additional Information
<p>Ad.1 Workgroup/Expert Panel involved in measure development</p> <p>Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.</p> <p>Original Technical Expert Panel (TEP) Members</p> <p>Jill S. Borchert, Professor, Pharmacy Practice & PGY1 Residency Program Director, Northwestern University, Chicago College of Pharmacy</p> <p>Anne Burns, Vice President, Professional Affairs, American Pharmacists Association</p> <p>Jannet Carmichael, VISN 21 Pharmacy Executive, VA Sierra Pacific Network</p> <p>Marshall H. Chin, Professor of Medicine, University of Chicago</p> <p>Jay A. Gold, Senior Vice President and Medicare Chief Medical Officer, MetaStar, Inc.</p> <p>David Nau, Senior Director of Research & Performance Measurement, PQA, Inc.</p> <p>N. Lee Rucker, Senior Strategic Policy Advisor, AARP - Public Policy Institute</p> <p>Marissa Schlaifer, Director of Pharmacy Affairs Academy of Managed Care Pharmacy</p> <p>Brad Tice, Chief Clinical Officer, PharmMD Solutions, LLC</p> <p>Jennifer K. Thomas, Manager, Pharmacy Services, Delmarva Foundation for Medical Care/Delmarva Foundation of the District of Columbia</p> <p>Darren Triller, Director, Pharmacy Services, IPRO</p> <p>Neil Wenger, Professor of Medicine, UCLA Department of Medicine, Division of General Internal Medicine and Health Services Research</p> <p>Edward Eisenberg, Vice President and Chief Medical Officer, Medicare, Medco Health Solutions</p> <p>Douglas Bell, Associate Professor in Residence, UCLA Department of Medicine, Division of General Internal Medicine and Health Services Research</p> <p>The TEP evaluated proposed medication measures drafted by FMQAI in regard to the 4 primary measure evaluation criteria used in the NQF consensus endorsement process (importance, scientific acceptability, feasibility, and usability). The TEP discussed the strengths and weaknesses of the proposed measures and made recommendations regarding measure specifications, inclusion and exclusion criteria, and appropriate risk adjustment as applicable.</p>
<p>Measure Developer/Steward Updates and Ongoing Maintenance</p> <p>Ad.2 Year the measure was first released:</p> <p>Ad.3 Month and Year of most recent revision:</p> <p>Ad.4 What is your frequency for review/update of this measure? Annually</p> <p>Ad.5 When is the next scheduled review/update for this measure?</p>
<p>Ad.6 Copyright statement: Limited proprietary coding is contained in the measure specifications for user convenience. Use of these codes may require permission from the code owner or agreement to a license.</p> <p>ICD-10 codes are copyright © World Health Organization (WHO), Fourth Edition, 2010.</p> <p>Ad.7 Disclaimers: This performance measure does not establish a standard of medical care and has not been tested for all potential</p>

applications.
Ad.8 Additional Information/Comments: Not applicable