



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 #: 1524

Corresponding Measures:

De.2. Measure Title: Atrial Fibrillation: Assessment of Thromboembolic Risk Factors (CHADS2)

Co.1.1. Measure Steward: American College of Cardiology

De.3. Brief Description of Measure: Percentage of patients aged 18 years and older with a diagnosis of nonvalvular atrial fibrillation (AF) or atrial flutter in whom assessment of all the specified thromboembolic risk factors using the CHADS2 risk criteria is documented

1b.1. Developer Rationale: Assessment of thromboembolic risk factors is an essential initial step in evaluating the risks of stroke and the benefits of

anticoagulant therapy in all patients with nonvalvular AF.(1-9) While several clinical schemes have been proposed to stratify the risk of ischemic stroke in patients with AF, the CHADS2 Score has become the risk stratification scheme recommended in AHA/ACC performance measures. (9) The CHADS2 (Cardiac failure, Hypertension, Age, Diabetes,Stroke [Doubled]) index integrates elements from several schemes and is based on a point system in which 2 points are assigned for a history of stroke or TIA and 1 point each is assigned for age over 75 years and a history of hypertension, diabetes mellitus, or recent heart failure. (9) This classification scheme has been validated. (9) Furthermore, evidence based medicine supports a clinically and statistically significant reduction in the risk of stroke by 66% in patients treated with warfarin with the greatest benefit in those with the highest CHADS2 Score. (9)

1)Gage BF, Waterman AD, Shannon W, et al. Validation of clinical classification schemes for predicting stroke: results from the National Registry of Atrial Fibrillation. JAMA 2001;285:2864–70. <http://jama.ama-assn.org/content/285/22/2864.full>

2)Go AS, Hylek EM, Chang Y, et al. Anticoagulation therapy for stroke prevention in atrial fibrillation: how well do randomized trials translate into clinical practice? JAMA. 2003;290:2685–92. <http://jama.ama-assn.org/content/290/20/2685.full>

3)Hart RG, Pearce LA, McBride R, et al; the Stroke Prevention in Atrial Fibrillation (SPAF) Investigators. Factors associated with ischemic stroke during aspirin therapy in atrial fibrillation: analysis of 2012 participants in the SPAF I–III clinical trials. Stroke. 1999;30:1223–9. <http://stroke.ahajournals.org/cgi/content/full/30/6/1223>

4)Landefeld CS, Goldman L. Major bleeding in outpatients treated with warfarin: incidence and prediction by factors known at the start of outpatient therapy. Am J Med. 1989;87:144–52. <http://www.amjmed.com/article/S0002-9343%2889%2980689-8/abstract>

5)Atrial Fibrillation Investigators. Risk factors for stroke and efficacy of antithrombotic therapy in atrial fibrillation: analysis of pooled data from five randomized controlled trials [published correction appears in Arch Intern Med. 1994;154:2254]. Arch Intern Med. 1994;154:1449–57. <http://archinte.ama-assn.org/cgi/content/abstract/154/13/1449>

6)Moulton AW, Singer DE, Haas JS. Risk factors for stroke in patients with nonrheumatic atrial fibrillation: a case-control study. Am J Med. 1991; 91:156–61. <http://www.amjmed.com/article/0002-9343%2891%2990008-L/abstract>

7)Van Walraven C, Hart RG, Wells GA, et al. A clinical prediction rule to identify patients with atrial fibrillation and a low risk for stroke while taking aspirin. Arch Intern Med. 2003;163:936–43. <http://archinte.ama-assn.org/cgi/content/abstract/163/8/936>

8)Gage BF, van Walraven C, Pearce L, et al. Selecting patients with atrial fibrillation for anticoagulation. Stroke risk stratification in patients taking aspirin. Circulation. 2004;110:2287–92. <http://circ.ahajournals.org/cgi/content/full/110/16/2287>

9)Estes NAM III et al. ACC/AHA/Physician Consortium 2008 Clinical Performance Measures for Adults With Nonvalvular Atrial Fibrillation or Atrial Flutter A Report of the American College of Cardiology/American Heart Association Task Force on Performance Measures and the Physician Consortium for Performance Improvement (Writing Committee to Develop Clinical Performance Measures for Atrial Fibrillation)Circulation 2008;117;1101-1120. <http://content.onlinejacc.org/cgi/content/full/51/8/865>.

S.4. Numerator Statement: Patients in whom assessment of all of the specified thromboembolic risk factors using the CHADS2 risk criteria is documented

<p>S.7. Denominator Statement: All patients aged 18 years and older with a diagnosis of nonvalvular atrial fibrillation (AF) or atrial flutter</p> <p>S.10. Denominator Exclusions: Denominator exclusions include patients with mitral stenosis or prosthetic heart valves, patients with transient or reversible cause of AF (eg, pneumonia, hyperthyroidism, pregnancy, cardiac surgery).</p>
<p>De.1. Measure Type: Process</p> <p>S.23. Data Source: Registry Data</p> <p>S.26. Level of Analysis: Clinician : Individual</p>
<p>IF Endorsement Maintenance – Original Endorsement Date: Jan 18, 2012 Most Recent Endorsement Date: Jan 18, 2012</p>
<p>IF this measure is included in a composite, NQF Composite#/title:</p> <p>IF this measure is paired/grouped, NQF#/title:</p> <p>De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?</p>

<p>1. Evidence, Performance Gap, Priority – Importance to Measure and Report</p>
<p>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. <i>Measures must be judged to meet all subcriteria to pass this criterion and be evaluated against the remaining criteria.</i></p>
<p>1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form NQF_Submission_-_AfibCHADs_Evidence-635234013107152792.docx</p>
<p>1b. Performance Gap</p> <p>Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:</p> <ul style="list-style-type: none"> considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or disparities in care across population groups. <p>1b.1. Briefly explain the rationale for this measure (e.g., the benefits or improvements in quality envisioned by use of this measure)</p> <p>Assessment of thromboembolic risk factors is an essential initial step in evaluating the risks of stroke and the benefits of anticoagulant therapy in all patients with nonvalvular AF.(1-9) While several clinical schemes have been proposed to stratify the risk of ischemic stroke in patients with AF, the CHADS2 Score has become the risk stratification scheme recommended in AHA/ACC performance measures. (9) The CHADS2 (Cardiac failure, Hypertension, Age, Diabetes,Stroke [Doubled]) index integrates elements from several schemes and is based on a point system in which 2 points are assigned for a history of stroke or TIA and 1 point each is assigned for age over 75 years and a history of hypertension, diabetes mellitus, or recent heart failure. (9) This classification scheme has been validated. (9) Furthermore, evidence based medicine supports a clinically and statistically significant reduction in the risk of stroke by 66% in patients treated with warfarin with the greatest benefit in those with the highest CHADS2 Score. (9)</p> <p>1)Gage BF, Waterman AD, Shannon W, et al. Validation of clinical classification schemes for predicting stroke: results from the National Registry of Atrial Fibrillation. JAMA 2001;285:2864–70. http://jama.ama-assn.org/content/285/22/2864.full</p> <p>2)Go AS, Hylek EM, Chang Y, et al. Anticoagulation therapy for stroke prevention in atrial fibrillation: how well do randomized trials translate into clinical practice? JAMA. 2003;290:2685–92. http://jama.ama-assn.org/content/290/20/2685.full</p> <p>3)Hart RG, Pearce LA, McBride R, et al; the Stroke Prevention in Atrial Fibrillation (SPAF) Investigators. Factors associated with ischemic stroke during aspirin therapy in atrial fibrillation: analysis of 2012 participants in the SPAF I–III clinical trials. Stroke. 1999;30:1223–9. http://stroke.ahajournals.org/cgi/content/full/30/6/1223</p> <p>4)Landefeld CS, Goldman L. Major bleeding in outpatients treated with warfarin: incidence and prediction by factors known at the start of outpatient therapy. Am J Med. 1989;87:144 –52. http://www.amjmed.com/article/S0002-9343%2889%2980689-8/abstract</p> <p>5)Atrial Fibrillation Investigators. Risk factors for stroke and efficacy of antithrombotic therapy in atrial fibrillation: analysis of pooled data from five randomized controlled trials [published correction appears in Arch Intern Med. 1994;154:2254]. Arch Intern Med. 1994;154:1449 –57. http://archinte.ama-assn.org/cgi/content/abstract/154/13/1449</p> <p>6)Moulton AW, Singer DE, Haas JS. Risk factors for stroke in patients with nonrheumatic atrial fibrillation: a case-control study. Am J Med. 1991; 91:156–61. http://www.amjmed.com/article/0002-9343%2891%2990008-L/abstract</p>

- 7) Van Walraven C, Hart RG, Wells GA, et al. A clinical prediction rule to identify patients with atrial fibrillation and a low risk for stroke while taking aspirin. *Arch Intern Med*. 2003;163:936–43. <http://archinte.ama-assn.org/cgi/content/abstract/163/8/936>
- 8) Gage BF, van Walraven C, Pearce L, et al. Selecting patients with atrial fibrillation for anticoagulation. Stroke risk stratification in patients taking aspirin. *Circulation*. 2004;110:2287–92. <http://circ.ahajournals.org/cgi/content/full/110/16/2287>
- 9) Estes NAM III et al. ACC/AHA/Physician Consortium 2008 Clinical Performance Measures for Adults With Nonvalvular Atrial Fibrillation or Atrial Flutter A Report of the American College of Cardiology/American Heart Association Task Force on Performance Measures and the Physician Consortium for Performance Improvement (Writing Committee to Develop Clinical Performance Measures for Atrial Fibrillation) *Circulation* 2008;117;1101-1120. <http://content.onlinejacc.org/cgi/content/full/51/8/865>.

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. See appendix A.1 for data depicted below (for 2012 and 2011).*

2012

Overall mean performance on this measure is 20.5%, with a standard deviation of 30.6%. The data source is the PINNACLE registry, from calendar year 2012. The minimum score equals 0.00%, while the maximum score equals 100.00%. The interquartile score is equal to 25.4%. 912 providers were measured, and the patient study sample equals 222063. Deciles appear below.

Mean Rate

Decile 3	0.0%
Decile 4	0.8%
Decile 5	2.9%
Decile 6	6.9%
Decile 7	14.3%
Decile 8	26.3%
Decile 9	58.7%
Decile 10	93.9%

2011

Overall mean performance on this measure is 22.8%, with a standard deviation of 33.2%. The data source is the PINNACLE registry, from calendar year 2011. The minimum score equals 0.00%, while the maximum score equals 100.00%. The interquartile score is equal to 31.6%. 705 providers were measured, and the patient study sample equals 137949. Deciles appear below.

Mean rate

Decile 3	0.1%
Decile 4	1.2%
Decile 5	2.8%
Decile 6	6.5%
Decile 7	13.2%
Decile 8	34.2%
Decile 9	75.0%
Decile 10	94.4%

Literature

Evidence-based guidelines on the use of warfarin in nonvalvular AF recommend that estimated risk of stroke be part of the decision process regarding long-term anticoagulation. (1) While risk stratification with the CHADS2 Score is an essential initial step in assessing the risk and benefits of anticoagulation therapy with warfarin, available data indicates that the risk factors for stroke are not systematically collected by many healthcare providers in patients presenting with AF. (2-9) Multiple appropriately designed prospective randomized trials with placebo controls have demonstrated that warfarin therapy reduces the stroke risk by 66% in patient with nonvalvular AF. (1) However, warfarin therapy remains widely underutilized. (2-9) Multiple studies using a range of methodologies have consistently documented that between 45-55% of patients who are candidates for anticoagulant therapy do not receive appropriate risk stratification or therapy. (2-9) Disease modeling methodology has estimated that the 1.25 million (55%) patients currently not receiving appropriate stroke prophylaxis in the United States suffer approximately 58,000 strokes annually with an associated total direct cost to Medicare of \$ 4.8 billion. (10)

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.

PINNACLE registry

Literature

- 1) Fuster V, Rydén LE, Cannom DS, et al. ACC/AHA/ESC 2006 guidelines for the management of patients with atrial fibrillation—executive summary: a report of the American College of Cardiology/ American Heart Association Task Force on Practice Guidelines and the European Society of Cardiology Committee for Practice Guidelines (writing committee to revise the 2001 Guidelines for the Management of Patients With Atrial Fibrillation). J Am Coll Cardiol 2006;48:854-906.
<http://content.onlinejacc.org/cgi/content/full/48/4/854>
- 2) Srivastava A, Hudson M, Hamoud I, Cavalcante J, Pai C, Kaatz S. Examining warfarin underutilization rates in patients with atrial fibrillation: Detailed chart review essential to capture contraindications to warfarin therapy. Thromb J. 2008 Jun 3;6:6.
<http://www.ncbi.nlm.nih.gov/pubmed/18522741>
- 3) Darkow T, Vanderplas AM, Lew KH, Kim J, Hauch O: Treatment patterns and real-world effectiveness of warfarin in nonvalvular atrial fibrillation within a managed care system. CurrMed Res Opin 2005, 21(10):1583-1594.
<http://www.ncbi.nlm.nih.gov/pubmed/16238898>
- 4) Hylek EM, D'Antonio J, Evans-Molina C, Shea C, Henault LE, Regan S: Translating the results of randomized trials into clinical practice: the challenge of warfarin candidacy among hospitalized elderly patients with atrial fibrillation. Stroke 2006, 7(4):1075-1080. <http://stroke.ahajournals.org/cgi/content/short/37/4/1075>
- 5) Waldo AL, Becker RC, Tapson VF, Colgan KJ: Hospitalized patients with atrial fibrillation and a high risk of stroke are not being provided with adequate anticoagulation. J Am Coll Cardiol 2005, 46(9):1729-1736.
<http://content.onlinejacc.org/cgi/content/full/46/9/1729>
- 6) Go AS, Hylek EM, Phillips KA, Borowsky LH, Henault LE, Chang Y, Selby JV, Singer DE: Implications of stroke risk criteria on the anticoagulation decision in nonvalvular atrial fibrillation: the Anticoagulation and Risk Factors in Atrial Fibrillation (ATRIA) study. Circulation 2000, 102(1):11-13. <http://www.ncbi.nlm.nih.gov/pubmed/10880408>
- 7) Go AS, Hylek EM, Phillips KA, Chang Y, Henault LE, Selby JV, Singer DE: Prevalence of diagnosed atrial fibrillation in adults: national implications for rhythm management and stroke prevention: the AnTicoagulation and Risk Factors in Atrial Fibrillation (ATRIA) Study. Jama 2001, 285(18):2370-2375. <http://www.ncbi.nlm.nih.gov/pubmed/11343485>
- 8) McCormick D, Gurwitz JH, Goldberg RJ, Becker R, Tate JP, Elwell A, Radford MJ: Prevalence and quality of warfarin use for patients with atrial fibrillation in the long-term care setting. Arch Intern Med 2001, 161(20):2458-2463.
<http://archinte.ama-assn.org/cgi/content/full/161/20/2458>
- 9) Weisbord SD, Whittle J, Brooks RC: Is warfarin really underused in patients with atrial fibrillation? J Gen Intern Med 2001, 16(11):743-749. <http://onlinelibrary.wiley.com/doi/10.1111/j.1525-1497.2001.10432.x/pdf>
- 10) Caro JJ. An economic model of stroke in atrial fibrillation: the cost of suboptimal oral anticoagulation. Am J Manag Care. 2004 Dec;10:451-58. <http://www.ajmc.com/media/pdf/AFib451.pdf>

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. See appendix A.1 for data depicted below (for 2012 and 2011).

2012											
label	# of Providers	# of patients	Minimum	Lower Quartile	Mean	Upper Quartile	Maximum	Quartile			
Range	Std Dev										
Male	909	102666	0.00%	0.00%	20.2%	24.4%	100%	24.4%	30.6%		
Female	909	81422	0.00%	0.00%	20.0%	25.0%	100%	25.0%	31.0%		
Age: <60	898	20924	0.00%	0.00%	19.7%	25.0%	100%	25.0%	30.5%		
Age: 60 -< 70	904	36035	0.00%	0.00%	20.6%	27.1%	100%	27.1%	30.9%		
Age: 70 -< 80	908	59056	0.00%	0.00%	20.4%	25.8%	100%	25.8%	31.2%		
Age: >= 80	905	68086	0.00%	0.00%	19.4%	24.0%	100%	24.0%	31.1%		
Insurance: None	314	11735	0.00%	0.00%	14.6%	0.00%	100%	0.00%	32.0%		
Insurance: Private		871	97786	0.00%	0.00%	21.0%	25.6%	100%	25.6%	31.3%	
Insurance: Medicaid		852	59143	0.00%	0.00%	18.1%	22.1%	100%	22.1%	29.4%	

Insurance: Medicare	447	1804	0.00%	0.00%	19.6%	25.0%	100%	25.0%	35.4%
Insurance: Other	202	712	0.00%	0.00%	10.2%	0.00%	100%	0.00%	23.8%
Race: White	848	121269	0.00%	0.00%	21.1%	25.9%	100%	25.9%	31.6%
Race: Black	587	6580	0.00%	0.00%	24.3%	40.0%	100%	40.0%	37.4%
Race: Other	451	1598	0.00%	0.00%	17.3%	0.00%	100%	0.00%	35.3%

2011									
label	# of Providers	# of patients	Minimum	Lower Quartile	Mean	Upper Quartile	Maximum	Quartile	
Range	Std Dev								
Male	701	61518	0.00%	0.00%	22.3%	29.6%	100%	29.6%	33.2%
Female	699	49890	0.00%	0.00%	22.1%	30.3%	100%	30.3%	33.7%
Age: <60	683	13009	0.00%	0.00%	22.8%	33.3%	100%	33.3%	34.5%
Age: 60 -< 70	700	21894	0.00%	0.00%	23.3%	33.3%	100%	33.3%	34.4%
Age: 70 -< 80	696	35291	0.00%	0.00%	21.9%	28.7%	100%	28.7%	33.4%
Age: >= 80	695	41281	0.00%	0.00%	21.4%	27.5%	100%	27.5%	34.0%
Insurance: None	206	9126	0.00%	0.00%	17.7%	0.00%	100%	0.00%	35.8%
Insurance: Private	645	51071	0.00%	0.00%	22.8%	33.7%	100%	33.7%	33.5%
Insurance: Medicaid	638	31193	0.00%	0.00%	19.7%	20.0%	100%	20.0%	32.8%
Insurance: Medicare	338	1188	0.00%	0.00%	15.8%	0.00%	100%	0.00%	33.4%
Insurance: Other	150	600	0.00%	0.00%	14.6%	16.7%	100%	16.7%	29.3%
Race: White	642	54865	0.00%	0.00%	23.8%	37.0%	100%	37.0%	34.7%
Race: Black	445	4223	0.00%	0.00%	25.6%	50.0%	100%	50.0%	39.3%
Race: Other	288	782	0.00%	0.00%	18.6%	0.00%	100%	0.00%	36.5%

Literature

Among individuals confirmed to have AF by ECG, blacks were approximately one third as likely to be aware that they had AF as whites in this US national biracial large sample of adult men and women. (1) Because AF is such a powerful risk factor for incident stroke, these findings suggest that lower awareness of AF and reduced likelihood of treatment among blacks may place blacks at higher risk of a stroke event, which in turn could contribute to the higher stroke mortality among blacks. (1) The reasons for disparities in awareness of the diagnosis of atrial fibrillation, risk stratification, and appropriate therapy remain largely unknown. (1-10) Many of the study participants may be undiagnosed, because often AF itself is not symptomatic. (1) Alternatively, these persons may have been diagnosed with the condition but simply did not remember or understand the condition. (1) Among those who were aware that they had AF and who had confirmation of the diagnosis of AF, blacks were approximately one fourth as likely to be treated with warfarin as whites. In striking contrast, risk of stroke as stratified by the CHADS2 score was not a predictor of warfarin use. (1) The fact that risk of future stroke did not significantly alter the likelihood of warfarin use would seem to reflect an evidence-practice gap. (1) In this large biracial cohort, blacks were less likely to be aware of AF and less likely to be treated with warfarin than whites. (1) These findings are consistent with prior studies demonstrating that blacks are less likely to achieve quality of care goals for stroke risk factors such as glycemic control in diabetes and blood pressure in hypertension. (2-10) Such differences may underlie racial disparities in stroke morbidity and mortality and should lend urgency to focused efforts to improve patient education and medical literacy. (2-10) The additional finding that CHADS2 score was not a predictor of warfarin use highlights an evidence practice gap that should prompt further efforts focused on practitioner awareness and education. (1)

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.

Data from PINNACLE registry

Literature

- 1) Meschia JF, Merrill P, Soliman EZ, Howard VJ, Barrett KM, Zakai NA, Kleindorfer D, Safford M, Howard G. Racial disparities in awareness and treatment of atrial fibrillation: the REasons for Geographic and Racial Differences in Stroke (REGARDS) study. *Stroke*. 2010 Apr;41(4):581-7. <http://www.ncbi.nlm.nih.gov/pubmed/20190000>
- 2) Howard G, Prineas R, Moy C, Cushman M, Kellum M, Temple E, Graham A, Howard V. Racial and geographic differences in awareness, treatment, and control of hypertension: the REasons for Geographic And Racial Differences in Stroke study. *Stroke*. 2006 May;37(5):1171-8. <http://www.ncbi.nlm.nih.gov/pubmed/16556884>
- 3) Howard VJ, Cushman M, Pulley L, Gomez CR, Go RC, Prineas RJ, Graham A, Moy CS, Howard G. The REasons for Geographic And

Racial Differences in Stroke study: objectives and design. *Neuroepidemiology*. 2005; 25: 135–143.

<http://stroke.ahajournals.org/cgi/content/full/37/5/1147>

4) Sacco RL, Boden-Albala B, Gan R, et al. Stroke incidence among white, black, and Hispanic residents of an urban community: the Northern Manhattan Stroke Study. *Am J Epidemiol* 1998;147:259–68. <http://aje.oxfordjournals.org/content/147/3/259.abstract>

5) Pandey DK, Gorelick PB. Epidemiology of stroke in African Americans and Hispanic Americans. *Med Clin North Am* 2005;89:739 – 52. <http://www.ophsource.org/periodicals/ophtha/medline/record/MDLN.15925647>

6) Thrift AG, Dewey HM, Macdonell RA, McNeil JJ, Donnan GA. Incidence of the major stroke subtypes: initial findings from the North East Melbourne stroke incidence study (NEMESIS). *Stroke* 2001;32: 1732–8.

<http://stroke.ahajournals.org/cgi/content/short/32/8/1732>

7) Hu HH, Sheng WY, Chu FL, Lan CF, Chiang BN. Incidence of stroke in Taiwan. *Stroke* 1992;23:1237– 41.

<http://stroke.ahajournals.org/cgi/content/short/23/9/1237>

8) Ayala C, Croft JB, Greenlund KJ, et al. Sex differences in US mortality rates for stroke and stroke subtypes by race/ethnicity and age, 1995– 1998. *Stroke* 2002;33:1197–201. <http://stroke.ahajournals.org/cgi/content/full/33/5/1197>

9) Hart RG, Pearce LA, Rothbart RM, McAnulty JH, Asinger RW, Halperin JL. Stroke with intermittent atrial fibrillation: incidence and predictors during aspirin therapy. *Stroke Prevention in Atrial Fibrillation Investigators*. *J Am Coll Cardiol* 2000;35:183–7.

<http://content.onlinejacc.org/cgi/content/full/35/1/183>

10) Sherman DG, Kim SG, Boop BS, et al. Occurrence and characteristics of stroke events in the Atrial Fibrillation Follow-up Investigation of Sinus Rhythm Management (AFFIRM) study. *Arch Intern Med* 2005;165:1185–91.

<http://archinte.ama-assn.org/cgi/reprint/165/10/1185.pdf>

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

Affects large numbers, A leading cause of morbidity/mortality, High resource use, Severity of illness

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.

Atrial fibrillation (AF) is the most common cardiac arrhythmia in the United States. (1-4) There are currently an estimated 3 million adults with AF, 70,000 with atrial flutter, and 190,000 with both AF and atrial flutter, and these figures are projected to rise to between approximately 5.6 and 12 million in 2050. (5-7) The incidence of AF increases with age (7) with lifetime risks for the development of AF estimated at 1 in 4 for men and women 40 years of age and older. (2) AF is the most common heart rhythm abnormality in people over the age of 65, with a median age of 75 years. Approximately 70% of AF patients are between 65 and 85 years old. (8) Hospitalizations with AF as the primary diagnosis exceed 460,000 each year, and atrial fibrillation contributes to 80,000 annual deaths. (9) Individuals with AF (37.5%) are approximately twice as likely to be hospitalized as age- and sex-matched control subjects (17.5%). (9) During the past 20 years, there has been a 66% increase in hospital admissions for AF due to a combination of factors, including the aging of the population, a rising prevalence of chronic heart disease, and more frequent diagnosis through use of ambulatory monitoring devices. (4)

AF results in significant morbidity, mortality, and costs through hemodynamic impairment, disabling symptoms, and thromboembolic events. (4, 10-17) AF is associated with significant morbidity and mortality, including a 4- to 5-fold increased risk for stroke, a doubling of risk for dementia, a tripling of risk for heart failure, and a 40% to 90% increased risk for overall mortality. (10-17) Without thromboprophylaxis, the risk of ischemic stroke in patients with nonrheumatic AF has been estimates at approximately 5% per year. (18) The national incremental AF cost is estimated to range from \$6.0 to \$26.0 billion. (9)

Growth in the size of the AF population and increased recognition of the morbidity, mortality, diminished quality of life, and high healthcare costs associated with AF have spurred numerous investigations to develop more effective treatments for AF and its complications. (4,10-17)

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

1. Benjamin EJ, Wolf PA, D'Agostino RB, Silbershatz H, Kannel WB, Levy D. Impact of atrial fibrillation on the risk of death: the Framingham Heart Study. *Circulation*. 1998;98:946–952.
2. Lloyd-Jones DM, Wang TJ, Leip EP, et al. Lifetime risk for development of atrial fibrillation: the Framingham Heart Study. *Circulation*. 2004;110:1042–1046.
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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.)

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, Cardiovascular : Arrhythmia

De.6. Non-Condition Specific (check all the areas that apply):

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.)

<http://www.ama-assn.org/apps/listserv/x-check/qmeasure.cgi?submit=PCPI>

S.2a. If this is an eMeasure, HQMF specifications must be attached. Attach the zipped 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)

This is not an eMeasure 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)

No data dictionary Attachment:

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

No changes.

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.

Patients in whom assessment of all of the specified thromboembolic risk factors using the CHADS2 risk criteria is documented

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.)

Denominator: during the 3 month (quarterly) measurement period

Numerator: at one or more visits during the measurement period

[evaluate every visit during quarter – evaluate that each patient got numerator intervention at one or more visits in quarter]

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.

The assessment of patients with nonvalvular AF for thromboembolic risk factors should include the following criteria:

[Risk Factors]	[Weighting]
Prior Stroke, TIA, or Systemic Embolism	High Risk
Age >= 75 Years	Moderate Risk
Hypertension	Moderate Risk
Diabetes Mellitus	Moderate Risk
Heart Failure or Impaired Left Ventricular Systolic Function	Moderate Risk

See 'Registry Supplemental Resources' attached in appendix field A.1.

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

All patients aged 18 years and older with a diagnosis of nonvalvular atrial fibrillation (AF) or atrial flutter

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

Elderly

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)

For the denominator -->

Atrial Flutter:

ICD-9-CM: 427.32

ICD-10-CM: I48.1

SNOMED-CT: 5370000, 195080001, 425615007, 427665004

Atrial Fibrillation:

ICD-9-CM: 427.31

ICD-10-CM: I48.0

SNOMED-CT: 7141000047109, 49436004, 195080001, 233910005, 233911009, 282825002, 314208002, 426749004, 440028005, 440059007

Encounters:

CPT: 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245

SNOMED-CT: 4525004, 12843005, 18170008, 19681004, 87790002, 90526000, 185349003, 185463005, 185465003, 207195004, 270427003, 270430005, 308335008, 390906007, 406547006, 439708006

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

Denominator exclusions include patients with mitral stenosis or prosthetic heart valves, patients with transient or reversible cause of AF (eg, pneumonia, hyperthyroidism, pregnancy, cardiac surgery).

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)

See 'Registry Supplemental Resources' attached in appendix field A.1.

For measures with exclusions and exceptions:

The ACCF/AHA/PCPI distinguishes between measure exceptions and measure exclusions. Exclusions arise when the intervention required by the numerator is not appropriate for a group of patients who are otherwise included in the initial patient or eligible population of a measure (ie, the denominator). Exclusions are absolute and are to be removed from the denominator of a measure and therefore clinical judgment does not enter the decision. For this measure, exclusions include patients with mitral stenosis or prosthetic heart valves, patients with transient or reversible cause of AF (eg, pneumonia, hyperthyroidism, pregnancy, cardiac surgery). Exclusions, including applicable value sets, are included in the measure specifications.

Measure Exceptions

Exceptions are used to remove a patient from the denominator of a performance measure when the patient does not receive a therapy or service AND that therapy or service would not be appropriate due to patient-specific reasons. The patient would otherwise meet the denominator criteria. Exceptions are not absolute, and are based on clinical judgment, individual patient characteristics, or patient preferences. The ACCF/AHA/PCPI exception methodology uses three categories of exception reasons for which a patient may be removed from the denominator of an individual measure. These measure exception categories are not uniformly relevant across all measures; for each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. Examples are provided in the measure exception language of instances that may constitute an exception and are intended to serve as a guide to clinicians. For this measure, exceptions may include medical reason(s): allergy to warfarin

and all other oral anticoagulant drugs that are FDA approved for the prevention of thromboembolism, risk of bleeding, or other medical reason.

Although this methodology does not require the external reporting of more detailed exception data, ACCF/AHA/PCPI recommends that physicians document the specific reasons for exception in patients' medical records for purposes of optimal patient management and audit-readiness. The PCPI also advocates the systematic review and analysis of each physician's exceptions data to identify practice patterns and opportunities for quality improvement.

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)*

We encourage the results of this measure be stratified by race, ethnicity, administrative sex, and payer consistent with data elements collected by PINNACLE registry.

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)*

No risk adjustment or risk stratification.

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.)*

For measures with an exception and an exclusion:

To calculate performance rates:

- 1) Find the patients who meet the initial patient population (ie, the general group of patients that a set of performance measures is designed to address).
- 2) From the patients within the initial patient population criteria, find the patients who qualify for the denominator. (ie, the specific group of patients for inclusion in a specific performance measure based on defined criteria). Note: in some cases the initial patient population and denominator are identical.
- 3) Find the patients who qualify for exclusions and subtract from the denominator.
- 4) From the patients within the denominator (after exclusions have been subtracted from the denominator), find the patients who qualify for the Numerator (ie, the group of patients in the denominator for whom a process or outcome of care occurs). Validate that the number of patients in the numerator is less than or equal to the number of patients in the denominator
- 5) From the patients who did not meet the numerator criteria, determine if the physician has documented that the patient meets any criteria for exception when exceptions have been specified [for this measure: medical reason(s) (eg, allergy to warfarin and all other oral anticoagulant drugs that are FDA approved for the prevention of thromboembolism, risk of bleeding, other

medical reason)). If the patient meets any exception criteria, they should be removed from the denominator for performance calculation. --Although the exception cases are removed from the denominator population for the performance calculation, the exception rate (ie, percentage of patients with valid exceptions) should be calculated and reported along with performance rates to track variations in care and highlight possible areas of focus for QI.

If the patient does not meet the numerator and a valid exception is not present, this case represents a quality failure.

Calculation algorithm is included in data dictionary/code table attachment (see A.1).

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. The measure is not based on a sample.

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. The measure is not based on a survey.

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

Required for Composites and PRO-PMs.

If data required to determine if an individual patient should be included in a specific performance measure based on defined criteria is missing, those cases would be ineligible for inclusion in the denominator and therefore the case would be deleted. If data required to determine if a denominator eligible patient qualifies for the numerator (or has a valid exclusion/exception) is missing, this case would represent a quality failure.

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

If other, please describe in S.24.

Registry Data

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.

PINNACLE registry

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 : Individual

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

Outpatient Services

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.)

2a. Reliability – See attached Measure Testing Submission Form

2b. Validity – See attached Measure Testing Submission Form

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.

Abstracted from a record by someone other than person obtaining original information (e.g., chart abstraction for quality measure or registry)

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 clinical data (e.g., clinical registry, nursing home MDS, home health OASIS)

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.

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.

We have not identified an areas of concern or made any modifications as a result of testing and operational use of the measure in relation to data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, and other feasibility issues unless otherwise noted.

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).

Limited proprietary coding is contained in the measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The AMA, the ACC, the AHA, the PCPI and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications.

CPT® contained in the measures specifications is copyright 2004-2012 American Medical Association. LOINC® copyright 2004-2012 Regenstrief Institute, Inc. This material contains SNOMED Clinical Terms® (SNOMED CT®) copyright 2004-2012 International Health Terminology Standards Development Organisation. ICD-10 Copyright 2012 World Health Organization. All Rights Reserved.

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)
Public Reporting	Professional Certification or Recognition Program ACC Cardiology Practice Improvement Pathway(CPIP)/Bridges to Excellence (BTE)
Quality Improvement (Internal to the specific organization)	Cardiovascular Practice Recognition Program: no URL available The BTE Cardiovascular Practice Recognition Program no URL available

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

PINNACLE Registry (URL: <http://www.ncdr.com/webncdr/pinnacle/>)

In 2008, the American College of Cardiology Foundation launched the PINNACLE program (Formerly known as the Improving Continuous Cardiac Care or IC3). The PINNACLE Registry® continues to grow rapidly, with more than 2400 providers representing almost 800 unique office locations across the U.S submitting data to the registry. As of the fourth quarter of 2013, the registry has more than 13 million patient encounter records. PINNACLE assists practices in understanding and improving care through the production and distribution of quarterly performance reports. These reports, covering all valid patient encounters, detail adherence to 28 cardiovascular clinical measures at the physician, location, and practice levels across coronary artery disease, hypertension, heart failure and atrial fibrillation. All jointly developed ACC/AHA/PCPI performance measures for these topics are reported by the registry.

ACC Cardiology Practice Improvement Pathway(CPIP)/Bridges to Excellence (BTE) Cardiovascular Practice Recognition Program: (no URL available)

The American College of Cardiology's Cardiology Practice Improvement Pathway (CPIP) is a practice-level performance improvement program designed specifically to enhance and instill quality in cardiovascular practice. Practices can submit their CPIP data to apply for the Bridges to Excellence Cardiology Practice Recognition endorsed by the ACCF.

CPIP provides a platform for practices to evaluate themselves against a comprehensive measure set designed to support the delivery of cardiovascular care that achieves the six national quality aims identified by the Institute of Medicine (IOM): safe, timely, effective, efficient, equitable, and patient-centered (STEEEP).

The CPIP uses clinical measure sets that are developed and specified by the Physician Consortium for Performance Improvement and is approved through the American Board of Internal Medicine's (ABIM) Approved Quality Improvement (AQI) Pathway and is eligible for 20 points towards the Self-Evaluation of Practice Performance requirement of Maintenance of Certification (MOC). The Atrial Fibrillation: Assessment of Thromboembolic Factors measure was tested in CPIP version 1.0 and most were scored in the Bridges to Excellence recognition program. The CPIP is no longer available as an ACC-sponsored option for MOC; however version 2 of the BTE Cardiology Practice Recognition endorsed by the ACC will be implemented in early 2014. All of the ACC/AHA/PCPI cardiovascular measures (whether NQF endorsed or not) will be included and scored in the BTE recognition program (see below).

The BTE Cardiovascular Practice Recognition Program is a practice-level recognition program designed to identify cardiovascular

practices that demonstrate a commitment to the delivery of quality care while providing clear direction about opportunities for improvement for practices that may not. Practice data are aggregated and sent to one of the independent Performance Assessment Organizations (PAOs) with which BTE has a relationship. The PAO applies the scoring rules and evaluates whether established recognition thresholds are achieved. Recognized practices and the individual cardiologists within the practice are reported to BTE for display on BTE's consumer portal for recognition information and transmission to BTE-licensed health plans for associated incentives.

PQRS Qualified Clinical Data Registry:

In addition to the current use for quality improvement with benchmarking in the PINNACLE registry, the measure will be reported to CMS by the registry as part of PQRS in 2014 if the PINNACLE registry's application to become a Qualified Clinical Data Registry is approved by CMS. Eligible professionals will be considered to have satisfactorily participated in PQRS if they submit quality measures data or results to CMS via a qualified clinical data registry. All measures currently collected in PINNACLE would be reported to CMS under this model.

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?)

We are continuously seeking opportunities to advocate for expanded use of this measure in government or other programs, including those intended for accountability or public reporting. The ACC, AHA and PCPI do not have any policies that would restrict access to the performance measure specifications or results or that would impede implementation of the measure for any application. We would welcome its implementation in emerging applications such as accountable care organizations (ACO), Medicare Advantage insurance plans or health plans selling on the new insurance marketplace.

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.)

In addition to the current use for quality improvement with benchmarking in the PINNACLE registry, the measure will be reported to CMS by the registry as part of PQRS in 2014 if the PINNACLE registry's application to become a Qualified Clinical Data Registry is approved by CMS. Eligible professionals will be considered to have satisfactorily participated in PQRS if they submit quality measures data or results to CMS via a qualified clinical data registry. All measures currently collected in PINNACLE would be reported to CMS under this model.

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

In 2012, the overall mean performance on this measure was 20.5%, with a standard deviation of 30.6%. In comparison, in 2011, the overall mean performance on this measure was slightly better at 22.8% with a standard deviation of 33.2%. The statistical significance of these results was not analyzed. Overall, there does not appear to have been meaningful difference in mean performance over the two years. However, there was an 29.4% increase in providers using the registry – from 705 in 2011 to 912 in 2012.

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.

While the ACCF/AHA/PCPI create measures with an ultimate goal of improving the quality of care, measurement is a mechanism to drive improvement but does not equate with improvement. Measurement can help identify opportunities for improvement with actual improvement requiring making changes to health care processes and structure. In order to promote improvement, quality

measurement systems need to provide feedback to front-line clinical staff in as close to real time as possible and at the point of care whenever possible. (1)

1.Conway PH, Mostashari F, Clancy C. The future of quality measurement for improvement and accountability. JAMA. 2013 Jun 5;309(21):2215-6.

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.

We are not aware of any unintended consequences at this time, but we continuously monitor for them.

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.

No

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

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

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?

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

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.)

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: 1524_Appendix_A.1.pdf</p>
Contact Information
<p>Co.1 Measure Steward (Intellectual Property Owner): American College of Cardiology</p> <p>Co.2 Point of Contact: Penelope, Solis, comment@acc.org, 202-375-6576-</p> <p>Co.3 Measure Developer if different from Measure Steward: American College of Cardiology</p> <p>Co.4 Point of Contact: Jensen, Chiu, jensen.chiu@acc.org, 202-375-6285-</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>Workgroup members: N.A Mark Estes, III MD, FACC, FAHA, FHRS, Jonathan L. Halperin, MD, FACC, FAHA, Hugh Calkins, MD, FACC, FAHA, Michael D. Ezekowitz, MB, ChB, DPhil, FACC, Paul Gitman, MD, MACP, Alan S. Go, MD, Robert L. McNamara, MD, MHS, FACC, Joseph V. Messer, MD, MACC, FAHA, James L. Ritchie, MD, FACC, FAHA, Sam J. W. Romeo, MD, MBA, Albert L. Waldo, MD, FACC, FAHA, FHRS, D. George Wyse, MD, PhD, FACC, FAHA, FHRS</p> <p>ACCF, AHA, and PCPI measures are developed through cross-specialty, multi-disciplinary work groups. All medical specialties and other health care professional disciplines participating in patient care for the clinical condition or topic under study are invited to participate as equal contributors to the measure development process. In addition, the PCPI strives to include on its work groups individuals representing the perspectives of patients, consumers, private health plans, and employers. This broad-based approach to measure development ensures buy-in on the measures from all stakeholders and minimizes bias toward any individual specialty or stakeholder group. All work groups have at least two co-chairs who have relevant clinical and/or measure development expertise and who are responsible for ensuring that consensus is achieved and that all perspectives are voiced.</p>
<p>Measure Developer/Steward Updates and Ongoing Maintenance</p> <p>Ad.2 Year the measure was first released: 2007</p> <p>Ad.3 Month and Year of most recent revision: 07, 2013</p> <p>Ad.4 What is your frequency for review/update of this measure? Coding specifications occur annually. For more information see the additional comments section.</p> <p>Ad.5 When is the next scheduled review/update for this measure? 12, 2014</p>
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Ad.8 Additional Information/Comments: The ACCF/AHA/PCPI has a formal measurement review process that stipulates regular (usually on a three-year cycle, when feasible) review of the measures. The process can also be activated if there is a major change in scientific evidence, results from testing or other implementation issues are noted that materially affect the integrity of the measure.