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**MEDICARE AMBULATORY CARE
INDICATORS FOR THE ELDERLY:
REFINEMENT OF THE ACCESS TO CARE
FOR THE ELDERLY PROJECT
INDICATORS**

FINAL REPORT

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Executive Summary

The Medicare Payment Advisory Commission contracted with MagnaCare Health Services Improvement, Inc. (MagnaCare-HSI) to coordinate an effort to refine the Access to Care for the Elderly Project (ACE-PRO) indicators, for the purposes of measuring and tracking the quality of ambulatory care and the access to ambulatory care for Medicare beneficiaries.

The ACE-PRO indicators were developed for MedPAC (known then as the Physician Payment Review Commission) by RAND, which received guidance from a panel of leading clinicians using a structured rating process. MedPAC has used these indicators to study the access to and quality of care associated with various geographic and socioeconomic factors, and has used the results of these analyses in their reports to Congress.

The delivery of health care has changed since these indicators were originally developed. Medical science has advanced as newer technologies and therapeutic interventions have been introduced. The science of performance measurement has also advanced, and indicators of appropriate care are now commonly used for evaluation and in quality improvement efforts across health care settings. MedPAC required a refined set of indicators for use in evaluating the quality of ambulatory care to Medicare beneficiaries. It is essential that the Medicare Ambulatory Care Indicator for the Elderly (MACIE) set reflects important aspects of routine care for health conditions that are common to the Medicare population, while also maintaining consistency with contemporary methods for performance measurement.

In their role as coordinators of this refinement effort, staff from MagnaCare Health Service Improvement, Inc. conducted a comprehensive evaluation of the ACE-PRO measure set which included: 1.) The identification and consideration of health conditions and clinical topics; 2.) A review of the evidence; 3.) The identification of existing measures from other sources; 4.) The contrasting of ACE-PRO indicators with similar performance measures used by others; 5.) The consideration of the appropriateness of indicators given existing limitations (e.g. data availability) and the intended purpose of the measures (e.g. must be sensitive to ambulatory care); 6.) Convening a meeting of technical experts in performance measurement; 7.) Facilitating a meeting of these technical experts to receive guidance pertaining to clinical and measurement issues; 8.) Reviewing the results of initial analyses; and 9) Incorporating the recommendations of the technical experts and results of initial analyses into recommendations for a revised set of indicators that can be used to evaluate access and quality of ambulatory care provided to Medicare beneficiaries.

This report provides detail describing the methods employed and rationale for decision-making that generated the recommendations for inclusion in the

Medicare Ambulatory Care Indicator for the Elderly set. This report details various attributes of the candidate indicators including the clinical logic, supporting evidence and rationale, existing measure versions, and considerations for refinement.

Overall, the results from the testing of the measure set indicated that relevant numerators and denominators were identifiable, and in most instances the ranges of scores were consistent with previous analyses. Results for several of the measures differed from expectation. However, only one of the tested measures is recommended to be excluded from further consideration leaving 39 measures recommended for inclusion in the Medicare Ambulatory Care Indicators for the Elderly set (see table below). The use of subsets of these measures for various purposes should be based upon careful consideration of validity testing and appropriateness at specific units of analysis. Approaches to validity testing are discussed.

Table 1: Measures Recommended for Inclusion in Medicare Ambulatory Care Indicators for the Elderly set

Indicator Name	Additional Description
1. Eye Exam In Diabetes Mellitus	Comprehensive Eye Exam Every 2 Years
2. A1C Testing In Diabetes Mellitus	Hemoglobin A1C Test In One Year
3. Lipid Testing In Diabetes Mellitus	Lipid Profile In One Year
4. Clinical Assessment In Diabetes Mellitus	Two Out-Patient Visits In One Year
5. Follow-Up After Hospitalization For Diabetes Mellitus	Visit Within 4 Weeks Of Discharge
6. Serious Short Term Complications Of Diabetes Mellitus	Hospitalizations For Diabetic, Hyperosmolar, Ketotic Coma, And Uncontrolled Diabetes Mellitus
7. Serious Long Term Complications Of Diabetes Mellitus	Hospitalizations For Renal, Ophthalmologic, Neurologic And Circulatory Complications Of Diabetes Mellitus And Non-Traumatic Lower Extremity Amputation
8. Lipid Testing In Coronary Artery Disease	Annual Lipid Profile
9. Follow-Up After Hospitalization For Acute MI	Visit Within 4 Weeks Of Discharge
10. Clinical Assessment In Coronary Artery Disease	Two Out-Patient Visits In One Year
11. ER Use For Unstable Angina	3 Or More ER Visits In One Year
12. Carotid Imaging At Initial Diagnosis Of Carotid Artery Stroke	Within 2 Weeks Of Hospitalization
13. Carotid Imaging In Carotid Territory Event	Within 2 Months Prior To Carotid Endarterectomy
14. Follow-Up After Hospitalization For Stroke/TIA	Visit Within 4 Weeks Of Discharge
15. Clinical Assessment For History Of Stroke/TIA	Two Out-Patient Visits In One Year
16. LVEF Assessment In Heart Failure: At Initial Diagnosis	Within 3 Months Before Or After Initial Diagnosis
17. LVEF Assessment In Heart Failure: Associated With Hospitalization	Within 3 Months Before Or After Hospitalization
18. Laboratory Testing In Heart Failure	Electrolytes And Renal Function Within One Year
19. EKG After Initial Diagnosis Of Heart Failure	Within One Month Before Or 3 Months After Diagnosis
20. CXR After Initial Diagnosis Of Heart Failure	Within One Month Before Or 3 Months After Diagnosis
21. Follow-Up After Hospitalization For Heart Failure	Visit Within 4 Weeks Of Discharge
22. Clinical Assessment In Heart Failure	Two Out-Patient Visits In One Year
23. Hospitalizations For Heart Failure	Hospital Admission Within One Year

Table 1: Measures Recommended for Inclusion in Medicare Ambulatory Care Indicators for the Elderly set (continued)

Indicator Name	Additional Description
24. Breast Cancer Screening	Mammogram Within 2 Years
25. Biopsy To Therapy Interval In Breast Cancer	Less Than 3 Months
26. CXR At Initial Diagnosis Of Breast Cancer	Within 3 Months Before Or After Diagnosis
27. Breast Imaging At Initial Dx Of Breast Cancer	Within 3 Months Before Or After Diagnosis
28. Mammography Surveillance In Breast Cancer	Within One Year Of Visit For Breast Cancer
29. Colonoscopic Surveillance After Colon Cancer	Within One Year Of Resection
30. Follow-Up Visit After Hospitalization For GI Bleed	Visit Within 4 Weeks Of Discharge
31. Follow-Up Visit After Initial Diagnosis Of GI Bleed	Visit Within 4 Weeks Of Diagnosis
32. Follow-Up Lab Test After Hospitalization For GI Bleed	Hemoglobin Or Hematocrit Within 4 Weeks Of Discharge
33. Follow-Up Lab Test After Initial Diagnosis Of Anemia	Hemoglobin Or Hematocrit Within One Month Before To 6 Months After Diagnosis
34. GI Tract Work-Up After Initial Diagnosis Of Iron Deficiency Anemia	Colonoscopy Or Barium Enema Within One Month Before To 3 Months After Diagnosis
35. Clinical Assessment In COPD/Asthma	Two Out-Patient Visits In One Year
36. Hospitalization For Respiratory Diagnosis In COPD/Asthma	Hospital Admission Within One Year
37. Follow-Up After Hospitalization For Depression	Within Two Weeks Of Discharge
38. Hospitalization For Hypertension	Hospital Admission Within One Year
39. Annual Visit	Out-Patient Visit In One Year

Project Background

The Medicare Payment Advisory Commission (MedPAC) has responsibility for advising Congress primarily on matters of payment, quality, and access in the Medicare program. MedPAC explicitly recognized the importance of measurement many years ago when the Physician Payment Review Commission (PPRC) contracted with RAND to develop the Access to Care for the Elderly Project (ACE-PRO) measures. The commission has used these measures to study the quality of and access to care associated with various geographic and socioeconomic factors¹ and has used the results of these analyses in their reports to Congress.²

Approximately ten years ago, under congressional mandate to monitor Medicare beneficiaries' access to care, the PPRC contracted with RAND to develop measures of access to care, using administrative data. RAND reviewed the literature, selected medical conditions/topics, created a conceptual framework (taxonomy) for measure development and produced indicators to be considered by an expert panel. The taxonomy assigned measures within clinical conditions into the following categories:

Conditions/Topics initially considered by RAND

- Acute MI
- Anemia
- Angina
- Appendicitis
- Breast Cancer
- Cerebrovascular Disease/TIA
- Cholelithiasis
- COPD
- Heart Failure
- Depression
- Diabetes Mellitus
- Dyspepsia/PUD/UGI Bleed
- Hip Fracture
- Hypertension
- Pneumonia
- Preventive Care

A group of experts was assembled to assess the feasibility, suitability, outcome improvement, and necessity of the services associated with the candidate measures.

Forty seven indicators were selected representing fifteen medical conditions. Technical specifications were developed by RAND to be used in subsequent analyses (RAND 1995) including a peer reviewed publication.³ The original measure set is presented below.

Access to Care for the Elderly Project (ACE-PRO): Originally Developed Clinically-based Indicators

Anemia

- For patients with iron deficiency anemia: gastrointestinal workup
- Hematocrit/hemoglobin between one and six months following initial diagnosis of anemia

Breast cancer

- For patients with breast cancer and eventual mastectomy: interval from biopsy to definitive therapy (surgery delay time) should be less than three months
- Visit every six months for breast cancer patients who have undergone mastectomy and cytotoxic chemotherapy
- Mammography every year for patients with a history of breast cancer
- At initial diagnosis of breast cancer, mammogram
- At initial diagnosis of breast cancer, chest X-ray
- Visit every year for breast cancer patients who have undergone mastectomy without cytotoxic chemotherapy

Diabetes Mellitus

- Glycosolated hemoglobin or fructosamine every six months for patients with diabetes
- Eye exam every year for patients with diabetes
- Visit within four weeks following discharge of patients hospitalized with diabetes
- Visit every six months for patients with diabetes

Gastrointestinal bleeding

- Visit within four weeks following discharge of patients hospitalized with gastrointestinal bleeding
- Hematocrit within four weeks following discharge of patients hospitalized with gastrointestinal bleeding
- Follow-up visit within four weeks of initial diagnosis of gastrointestinal bleeding

Heart and circulatory system

- Visit within four weeks following discharge of patients hospitalized with myocardial infarction (MI) or heart attack
- Cholesterol test every six months for patients hospitalized with MI who have an elevated cholesterol level
- Electrocardiogram (EKG) during emergency department visit for unstable angina
- Visit within four weeks following discharge of patients hospitalized with unstable angina
- Visit every six months for patients with stable angina
- Follow-up visit or hospitalization within one week of initial diagnosis of unstable angina
- Chest X-ray within three months of initial diagnosis of congestive heart failure (CHF)
- Visit within four weeks following discharge of patients hospitalized for CHF
- EKG within three months of initial diagnosis of CHF
- Visit every six months for patients with CHF

- Visit within four weeks following discharge of patients hospitalized with malignant or otherwise severe high blood pressure

Pulmonary system

- Visit every six months for patients with chronic obstructive pulmonary disease (COPD)

Stroke

- EKG within two days of initial diagnosis of transient ischemic attack (TIA)
- For TIA patients with eventual carotid endarterectomy: interval between carotid imaging and endarterectomy less than two months
- Visit within four weeks following discharge of patients hospitalized for TIA
- Visit every year for patients with diagnosis of TIA
- For patients hospitalized for carotid territory stroke: carotid imaging within two weeks of initial diagnosis
- For cerebral vascular accident (CVA) patients with eventual carotid endarterectomy: interval between carotid imaging and endarterectomy less than two months
- Visit within four weeks of discharge of patients hospitalized with CVA

Avoidable outcomes

- Among patients with angina, three or more emergency department visits for heart-related diagnoses in one year
- Among patients with gall stones, diagnosis of perforated gallbladder
- Among patients with COPD, subsequent admission for respiratory diagnosis
- Non-elective admission for CHF
- Among patients with diabetes, admission for diabetic coma
- Among patients with pneumonia, diagnosis of lung abscess or empyema

Preventive care

- Visit every year
- Assessment of visual impairment every two years
- Mammography every two years in female patients

Other

- Cholecystectomy (open or laparoscopic) for patients with gall stones and inflammation of the gall bladder, bile duct and/or pancreas
- Arthroplasty or internal fixation of hip during hospital stay for broken hip
- Visit within two weeks following discharge of patients hospitalized for depression

Quality measurement in health care has advanced considerably over the last ten years. A wide variety of efforts have led to increased use of quality measures for health plans, hospitals, physicians, home health agencies, nursing homes and other providers of care. The purposes of measurement have also become clearer. Modern quality improvement theory acknowledges two primary purposes for performance measurement as described by the National Quality Forum:⁵ Measurement for self-assessment and measurement for accountability. Measurement for self-assessment is meant to identify opportunities for improvement and to test the effectiveness of process changes designed to improve performance. Measurement for accountability can be used in selection and potentially as the basis for financial incentives.

The science and practice of medicine have also advanced over the last 10 years. Given these advances in science, practice, and performance measurement, the MedPAC acknowledged the need to refine the ACE-PRO measure set and contracted with MagnaCare Health Services Improvement, Inc. to assist in this refinement. The remainder of this report describes the methods, results, and recommendations of this effort.

There were important assumptions underlying this work:

- Claims data would remain the only data source.
- Medication use in the out-patient setting would not be available.
- The measures had to focus on ambulatory care or be sensitive to ambulatory care.
- The measures had to be sensitive to quality or access (without necessarily defining the difference).
- The primary population of focus was to be the community dwelling elderly.
- Special populations (e.g. end stage renal disease, nursing home residents, disabled, dually enrolled, chronic severe mental illness) would not be excluded from the measures, but the special needs of these populations would not be the primary focus of the refined measure set.
- Selection from potential measures for the refined set would follow the following prioritization scheme:
 - (1) Original ACE-PRO measures;
 - (2) Modifications of original ACE-PRO measures;
 - (3) Elimination of ACE-PRO measures;
 - (4) Existing measures from other sources;
 - (5) *De novo* measure development (minimal).

Methods

The methods included the identification of conditions and clinical topics, the identification of existing measures, evidence review, the development of a conceptual framework, the identification of issues for consideration in making recommendations, management of the expert panel, and providing recommendations regarding refinement of the ACE-PRO set as the Medicare Ambulatory Care Indicators for the Elderly (new list of measures with analytic logic and specifications).

The potential universe of topics and clinical conditions was composed from lists of priority conditions and topics identified by the Institute of Medicine, and topics and clinical conditions used in existing quality measures (see table of sources of conditions, Appendix 1). Inclusions and exclusions from this universe of topics and clinical conditions were made based upon the following considerations. Topics were included if they were: 1.) on the original ACE-PRO condition/topic list; 2.) an ambulatory care sensitive condition; 3.) logically clustered with original ACE-PRO topics; and 4.) other conditions/topics that appeared to be feasible and potentially useful. Topics were excluded if they were: 1.) primarily associated with hospital rather than ambulatory care; 2.) not particularly pertinent to the general population of community dwelling elderly; and 3.) data for measuring processes of care are unavailable. Clinical conditions and topics that survived this selection process included:

- Coronary Artery Disease
- Dyslipidemia
- Heart Failure
- Cerebrovascular Disease
- Diabetes Mellitus
- Cancer
- Chronic Obstructive Pulmonary Disease
- Hypertension
- Depression
- Pneumonia
- Dyspepsia / Peptic Ulcer Disease
- Upper GI Bleed
- Anemia
- Preventive Care
 - Immunization
 - Cancer Screening
 - Cardiovascular Disease Risk Factor Detection
 - Vision Testing
- Dehydration
- Urinary Tract Infection
- Lower Extremity Amputation
- Mental Illness
- Pain Control

Clinical Conditions/Topics Excluded from Further Consideration

Rationale for excluding the following conditions / topics is provided below.

Tobacco Dependence

Despite being a priority area for national action and being a condition in multiple measure sources, potential process measures will not be accessible via claims data alone.

Obesity

Despite being a priority area for national action, this condition is not included in any existing measure sets. Data for measuring processes of care will not be accessible from claims data alone.

Medication Management

Despite being a priority area for national action and being a topic in multiple measure sources, it is assumed that pharmacy claims data will not be available for the analysis.

HIV Infection/AIDS

Despite inclusion in the Quality Chasm priority list and in NQMC, this condition is not particularly pertinent to the population of elderly Medicare beneficiaries.

Nosocomial Infection

Despite being a priority area for national action, the topic is unrelated to ambulatory care.

Hepatitis C

Despite inclusion in the NQMC, the condition is mostly applicable to a special subset (ESRD) of the Medicare beneficiary population but not particularly pertinent to the general population of elderly Medicare beneficiaries.

Renal Disease

Despite inclusion in the NQMC, the measures are specific to ESRD-related processes of care, but not pertinent to the general population of elderly Medicare beneficiaries.

Self-management/Health Literacy

Despite being a priority area for national action, this topic is not included in any existing measure sets. Processes of care associated with this topic would not be accessible through claims data alone.

Anxiety Disorders

Despite inclusion on the original Quality Chasm priority list, this condition did not make the list of priority areas for national action. This condition is not associated with any existing measure sets. Processes of care associated with this condition

would not be accessible through claims data alone. It is assumed that pharmacy claims data will not be available for analyses.

Alzheimer's Disease

Despite inclusion on the original Quality Chasm priority list, this condition did not make the list of priority areas for national action. This condition is not associated with any commonly used measure sets. Processes of care associated with this condition would not be accessible through claims data alone. It is assumed that pharmacy claims data will not be available for analyses.

Incontinence

Despite inclusion in ACOVE and NCQA measure sets, the data necessary for measure composition would not be accessible through claims data alone.

Frailty in Old Age

Despite inclusion in priority areas for national action, the conditions/topics: preventing falls and pressure ulcers; maximizing function; and developing advanced care plans; are particularly pertinent to Medicare beneficiaries residing in long term care facilities, but not pertinent to the general population of elderly Medicare beneficiaries. Measures associated with prevention of falls and prevention of pressure ulcers are restricted to institutional settings. Data elements required for measure composition would not be available from claims data alone.

Severe and Persistent Mental Illness

Despite inclusion in the priority areas for national action the focus is on treatment in the public sector. Data elements for measure composition would not be available from the public sector.

Patient Safety

On the list of eight priority areas for hospital care performance measurement from NQF's hospital measures. No measures actually specified. Only potentially related to hospital care. Hospital-Level Patient Safety Indicators from AHRQ are not sensitive to ambulatory care practices.

Care Coordination

Despite inclusion in the priority areas for national action and the existence of one related measure in the NQMC, the elements required to compose the measure are not available from claims data alone. Other potential measures of care coordination would suffer from the same limitation.

Osteoarthritis

Despite inclusion on the Quality Chasm list of prioritized conditions and existence of measures within the NQMC and AMA, none of the measures associated with ambulatory care can be composed from claims data alone and the AHRQ

measure of hip replacement mortality rate is not an outcome sensitive to ambulatory care.

Chronic Back Problems

Despite inclusion in Quality Chasm list of prioritized conditions this topic did not make the priority areas for national action list. The only measure within NQMC, the laminectomy or spinal fusion rate, is not sensitive to ambulatory care. Processes of care associated with this topic would not be measurable using claims data alone.

Cholelithiasis, Hip Fracture, Appendicitis

Despite inclusion in original ACE-PRO set these measures are primarily associated with hospital care and are not sensitive to ambulatory care.

Falls with Fracture

This topic could be considered an ambulatory care sensitive condition. Data elements could be captured from claims data alone. Outcome should be sensitive to 2 ambulatory care processes: treatment/prevention of osteoporosis and prevention of falls. However, this would involve de novo measure development.

Identification of Existing Measures

The identification of existing measures involved the examination of nationally recognized lists of health care quality measures. The sources of these lists were:

- Access to Care for the Elderly Project (ACE-PRO)
- Agency for Healthcare Research and Quality: Prevention Quality Indicators (AHRQ-PQI)
- National Diabetes Quality Improvement Alliance (Alliance)
- Physician Consortium for Performance Improvement (Consortium)
- American Medical Association (AMA)
- American Heart Association (AHA)
- American College of Cardiology (ACC)
- National Committee for Quality Assurance (NCQA)
- Centers for Medicare and Medicaid Services (CMS)
- National Health Quality Report (NHQR)
- Diabetes Quality Improvement Project (DQIP)
- Veterans Administration (VA)
- Assessing Care of Vulnerable Elders (ACOVE)
- Study of Clinically Relevant Indicators of Pharmacologic Therapy (SCRIPT)
- Institute for Clinical Systems Improvement (ICSI)
- National Quality Measures Clearinghouse (NQMC)

The evidence review involved inspection of existing guidelines pertaining to the management of the selected clinical conditions and topics, with supplementation from subsequently published literature where necessary. Evidence grading schemes were studied and considered for use in this evaluation.⁶⁻⁸ For the purpose of this evaluation however, there was no clearly superior grading method. The predominant level of evidence substantiating the measures was expert opinion. Therefore the evidence grading scheme for each guideline was used to categorize evidence level for each proposed measure. These guidelines were obtained from the following sources:

- American College of Cardiology (ACC)
- American Heart Association (AHA)
- American Diabetes Association (ADA)
- Institute for Clinical Systems Improvement (ICSI)
- Infectious Disease Society of America (IDSA)
- United States Preventive Services Task Force (USPSTF)
- Veterans Administration (VA)
- American College of Surgeons (ACS)
- Agency for Healthcare Research and Quality (AHRQ)
- National Guidelines Clearinghouse
- American College of Physician (ACP)
- Physicians' Consortium for Performance Improvement (PCPI)
- National Cholesterol Education Program (NCEP)
- Joint National Commission on Hypertension (JNC VII)
- American Gastroenterological Association
- American Geriatric Society (AGS)
- The Global Initiative for Chronic Obstructive Lung Disease (GOLD)
- Society for Surgery of the Alimentary Tract (SSAT)
- American Academy of Neurology (AAN)
- Centers for Disease Control and Prevention (CDC)
- American Psychiatric Association (APA)

Clinical Logic

The conceptual framework for our approach was influenced by the clinical logic paradigm attributed to David Eddy, MD. The conceptual framework captured the natural history of disease, the processes of care and outcomes associated with disease progression. The natural history starts with the pre-disease state, progresses to a pre-symptomatic state, and to a diagnosed disease state, usually prior to the development of serious clinical manifestations of disease.

During the pre-disease state, health care processes of care are designed for prevention. Immunizations are the primary example.

There is commonly a pre-symptomatic state early in the disease. Early detection is a common goal in this pre-symptomatic state. Common examples include dilated fundoscopic examination in patients with diabetes mellitus without visual loss and cholesterol measurement in patients with risk factors for but not overt coronary artery disease. Therapeutic interventions are also common in this pre-symptomatic state. Lipid lowering therapy for dyslipidemia is an example. Follow-up, monitoring and continuing care are also important processes of care in this pre-symptomatic state. Blood pressure measurement during hypertension management is an example of monitoring to assess response to therapy.

The diagnosed disease state is characterized by the known presence of disease either by symptom-prompted diagnosis or via early detection. In this state there are typically initial diagnostic work-ups, therapeutic interventions, and follow-up, monitoring, continuing care.

Eventually the disease progresses such that there might be serious clinical manifestations such as death, disability, hospitalizations, or emergency care.

Therapeutic interventions and follow-up, monitoring, continuing care occur in both pre-symptomatic and diagnosed disease states. Therefore, these states do not provide much value in categorization. The conceptual framework adapted for this measure refinement consisted of the following categories:

- Prevention, Early Detection
- Therapeutic Intervention
- Work-up at Initial Diagnosis
- Follow-up, Monitoring, Continuing Care
- Serious Clinical Manifestations of Disease.

The clinical logic category was identified for each measure considered for the refined set.

Expert Panel

MedPAC and MagnaCare staff developed criteria for identifying organizations and individuals to be considered for inclusion on the expert panel. The original goal was to empanel 6 to 8 individuals with a mix of methodologic and clinical expertise. A particular premium was placed on expertise in the use of administrative data in quality measurement.

Based upon knowledge of the measurement work of various national organizations a preliminary list of organization to consider included: Centers for Medicare and Medicaid Services, American Medical Association, Veterans Administration, National Committee for Quality Assurance, Joint Commission for the Accreditation of Healthcare Organizations, Agency for Healthcare Research and Quality, National Institutes of Health, National Quality Forum, American Heart Association, American College of Cardiology, American Health Quality Association, American Academy of Family Practice, American College of Physicians, and America's Health Insurance Plans. After an iterative process of considering individuals' strengths and organizational affiliations, a final panel of expert panelists were invited. The list below identifies those individuals who participated significantly in the evaluation of the candidate measures. MagnaCare staff (listed below) acted as facilitators of the session.

MagnaCare staff provided the panelists with a packet of preparatory materials prior to an in-person meeting in May of 2004 at MedPAC offices. The materials included a summary of initial recommendations and relevant considerations (Appendix 2), and served as a guide for the panelist meeting. This meeting was additionally supplemented by information provided by MagnaCare staff via PowerPoint presentation. MedPAC and MagnaCare staff later met to review the meeting results, and a summary of initial recommendations was provided to the panelists for comment.

Expert Panelists

Denise Remus, PhD, RN
Senior Research Scientist, Quality Indicators
Center for Organization and Delivery Studies
Agency for Healthcare Research and Quality

Steve Clauser, PhD
Senior Scientist, Performance Measurement and Program Evaluation
Applied Research Program
Division of Cancer Control and Population Sciences
National Cancer Institute

Karen Kmetik, PhD
Director for Clinical Performance Evaluation and Improvement
American Medical Association

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Refinement of the ACE-PRO Indicators: Evaluation and Recommendations of the Expert Panel

The measures are presented below in groups organized by clinical condition. These groups include: diabetes mellitus, coronary artery disease, stroke and transient ischemia, heart failure, cancer, anemia and gastrointestinal bleeding, and miscellaneous. Within each group, all of the measures are listed, including those eliminated in intermediate steps of consideration and those identified as useful to MedPAC in current form but not requiring composition by MedPAC (i.e. AHRQ PQIs). The measures that were eliminated in intermediate steps were eliminated from further consideration for a variety of reasons, including:

- insensitive to ambulatory care
- data not available in claims database
- problems with interpretation
- reliability of the data source
- require *de novo* measure development
- timeframe too long
- ceiling effects
- lack of consensus among experts

The considerations specific to particular measures can be found in the preparatory materials for the expert panel meeting at MedPAC (Appendix 2).

For each measure that is considered for refinement the name, the clinical logic, the evidence and rationale, the known measure versions, the considerations for ACE-PRO refinement, and the final recommendations are presented. The final recommendations include a summary version of the analysis logic. The diagnosis and procedure codes required for the analyses are presented in appendix 6. General analytic rules include: the age range for measures is 65 or older unless otherwise specified; patients eligible for inclusion must be enrolled in Medicare Parts A and B, and continuously enrolled throughout the identified measurement periods. The measures were presented in clinical related groups. Examples appear below. The full set of measures is detailed in Appendix 5.

Diabetes Mellitus Group

Eye Exam

A1C Testing

Lipid Testing

Clinical Assessment

Follow-up After Hospitalization

Serious Short Term Complication

Serious Long Term Complications

Coronary Artery Disease Group

Lipid Testing

Follow-up After Hospitalization

Clinical Assessment
Emergency Room Use

Stroke/Transient Ischemia/Hypertension Group

EKG
Carotid Imaging
Follow-up After Hospitalization
Clinical Assessment

Heart Failure Group

LVEF Assessment
Lab Testing
EKG
Chest X-ray
Follow-up After Hospitalization
Clinical Assessment
Admissions

Cancer Group

Breast Cancer Screening
Biopsy to Therapy Interval
Chest X-ray
Breast Imaging
Mammographic Surveillance
Colonoscopic Surveillance
GI Tract Work-up in Iron Deficiency Anemia

Anemia and GI Bleed Group

Follow-up After Hospitalization
Follow-up After Initial Diagnosis
Lab Testing After Hospitalization
Lab Testing After Initial Diagnosis
GI Tract Work-up in Iron Deficiency Anemia

Miscellaneous Group

Clinical Assessment in COPD
Admissions in COPD
Admissions for Hypertension
Follow-up After Hospitalization for Depression
Annual Visit

Recommendations were divided into three categories: (1) Useful measures, compose using Medicare claims data; (2) Exclude from further consideration; and (3) Useful measures, composed by AHRQ, no need to compose using Medicare data. The useful measures were later composed using Medicare data. Measures excluded from further consideration were not composed using Medicare data.

Justifications for exclusion are provided in each disease/topic chapter. Useful measures composed by AHRQ were recommended for use via citations to AHRQ reports. These measures would not be composed using Medicare data. However, modified versions of some AHRQ-PQI measures were placed into category one, requiring composition using Medicare data because of the denominator modification.

Indicator description and analytic logic are presented in Appendix 4. Further detail on code lists and results of testing can be obtained by request to MedPAC.

Diabetes Mellitus

Useful measures, compose using Medicare data:

- Eye Exam
- A1C
- Lipid Testing
- Clinical Assessment
- Follow-up after Hospitalization
- Serious Short Term Complications
- Serious Long Term Complications

Exclude the following measures from further consideration:

- Visual acuity screening in general Medicare population
- Nephropathy
- BP Control
- Foot Exam

Cite AHRQ-PQI Measures

- Uncontrolled diabetes admission rate
- Short term complications admission rate
- Long term complications admission rate
- Rate of lower extremity amputations in diabetes

Indicator Name: Eye Exam in Diabetes Mellitus

Indicator Description: Comprehensive eye exam, at least every two years (measurement year or prior year), with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Eye exam refers to a dilated fundusoscopic examination that is typically part of a comprehensive ophthalmologic examination. It is part of Early Detection because it is done in the pre-symptomatic stage in order to detect reversible disease early. Eye Exam is part of the FMCC because patients with known diabetes should continue to have dilated fundusoscopic exams with and without known retinopathy. Patients with known retinopathy will see the eye doctor to follow progression of disease.

Evidence/Rationale:

Early detection of diabetic retinopathy leads to timely laser photocoagulation delaying the progression to visual loss. The efficacy of laser photocoagulation is supported by well-controlled RCTs.⁹⁻¹¹ Evidence supporting dilated and comprehensive eye exams comes from well-conducted cohort studies.^{12, 13}

Measure Versions: ACE-PRO, NCQA, VA, CMS, Consortium, Alliance

ACE-PRO

- Eye exam every year

NCQA

- Eye exam every year
- Or every 2 years with A1c < 8 and not using insulin
- Age 18 to 75
- # diagnosis codes: 2 outpatient or 1 inpatient

VA

- Eye exam every year
- Or every 2 years with 2/3: A1c<8, not using insulin, and normal eye exam within 2 years
- Age unspecified
- # diagnosis codes: one

CMS

- Eye exam every year
- Or every 2 years with 2/3: A1c<8, not using insulin, and normal eye exam within 2 years
- Age 18 to 75
- # diagnosis codes: 2 outpatient or 1 inpatient

Consortium

- Eye exam at initial assessment and annually

- Age 18 to 75

Alliance

- Eye exam every year
- Or every 2 years with 3/3: A1c<8, not using insulin, and normal eye exam within 2 years

Considerations for ACE-PRO Refinement

Numerator

A comprehensive eye exam was used to satisfy the numerator in the original ACE-PRO set and by others who specify such measurement.

Measurement Period

Arguments were made for a two year measurement period and for a one year measurement period. A two year measurement period is justified by other measure sets when patients are considered to be at low risk for retinopathy. A one year measurement period is justified for patients at unknown or higher risk. Risk factors are indicators of glycemic control, insulin use, and history of retinopathy. These risk factors are not accessible from claims data, however, it is assumed that a far greater proportion of cases are at low risk than at higher risk. Based upon the assumption that the proportion of patients on insulin was less than 80% the two year measurement period was selected.

Age Range

Age greater than 65 was used in the original ACE-PRO set. Consideration was given to modifying the age range to 65-75 for consistency with other measures. Evidence supporting age range comes from the ETDRS¹⁰ in which efficacy for treatment was established. Patients with diabetes mellitus up to age 69 were enrolled in this 7 year study. The ADA guideline does not specify an upper age limit. There are many Medicare beneficiaries with diabetes mellitus less than age 65. However, the ACE-PRO measures are meant to be sensitive to care for the elderly. The panel expressed value in various age stratifications: 18-64, 65-75, 76+, and 18+.

Case ID

The original ACE-PRO set used one code for diabetes mellitus (in-patient or out-patient) during the measurement year to identify cases. All other measure sets use a common case identification algorithm that was validated since the original ACE-PRO set was developed. This case-ID algorithm calls for 2 out-patient or 1 in-patient code for diabetes mellitus in a one year period of time. The requirement for an additional out-patient code reduces the risk for errors of inclusion due to coding for testing purposes.

Exclusions

Consideration was given to using exclusion criteria of the NCQA. Polycystic ovarian syndrome, gestational diabetes, and steroid induced diabetes are not highly prevalent and are relatively inaccessible from claims data.

Final Recommendation

Modify the original ACE-PRO measure to be specified as:

comprehensive eye exam, at least every two years (measurement year or prior year), with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year

The numerator specification and Case ID algorithm are consistent with other measures of this care process. The measurement period is consistent with the NCQA specification without the measurement of risk status. NCQA exclusion criteria not accessible from claims data were not included.

Indicator Name: A1C Testing in Diabetes Mellitus

Indicator Description: A1C test at least once per year (the measurement year), in patients with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Hemoglobin A1C Testing refers to the common practice of testing for long-term glycemic control in patients with diabetes mellitus. A1C testing is part of the FMCC because glycemic monitoring is used to assess response to hypoglycemic therapy and to prompt adjustments in therapy.

Evidence/Rationale: guideline (2004)

Based upon expert consensus or clinical experience, the American Diabetes Association¹⁴ recommends A1C testing at least twice yearly for patients at goal, and at least four times per year for patients not at goal. According to well-conducted RCTs, control of blood glucose (measured as A1C) is associated with reduction in incidence of diabetes-related complications.^{11, 15}

Measure Versions: ACE-PRO, NCQA, VA, CMS, Consortium, Alliance

ACE-PRO

- A1C or fructosamine every 6 months

NCQA

- At least one A1C performed per year
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus (or)
- Identification of diabetes mellitus status by use of pharmacy claims for glycemic lowering drugs
- Exclude where:
 - Diagnosis of polycystic ovaries and < 2 face to face encounters with diagnosis of diabetes mellitus
 - Diagnosis of steroid-induced diabetes
 - Diagnosis of gestational diabetes

VA

- A1C test result > 11, or test not performed
- Age unspecified
- One outpatient code from specified clinic visit during measurement year

CMS (DQIP)

- At least one A1C test performed during measurement year
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus

Consortium

- At least one A1C test performed during initial assessment and during follow-up
- Age 18 to 75

Alliance

- At least one A1C test performed during measurement year

Considerations for ACE-PRO Refinement:

Numerator

Any glycosylated hemoglobin test was used to satisfy the numerator in the original ACE-PRO set. Hemoglobin A1C tests are used by the others who specify such measurement.

Measurement Period

The measurement period used in the original ACE-PRO set was 6 months. The measurement period used by others who specify such measurement is one year.

Age Range

Age greater than 65 was used in the original ACE-PRO set. Consideration was given to modifying the age range to 65-75 for consistency with other measures. The study sample in UKPDS was age 25 to 65 at baseline and were followed for a median period of ten years. There are many Medicare beneficiaries with diabetes mellitus less than age 65. However, the ACE-PRO measures are meant to be sensitive to care for the elderly. The panel expressed value in various age stratifications: 18-64, 65-75, 76+, and 18+.

Case ID

The original ACE-PRO set used one code for diabetes mellitus (in-patient or out-patient) during the measurement year to identify cases. All other measure sets use a common case identification algorithm that was validated since the original ACE-PRO set was developed. This case-ID algorithm calls for 2 out-patient or 1 in-patient code for diabetes mellitus in a one year period of time. The requirement for an additional out-patient code reduces the risk for errors of inclusion due to coding for testing purposes.

Exclusions

Consideration was given to using exclusion criteria of the NCQA. Polycystic ovarian syndrome, gestational diabetes, and steroid induced diabetes are not highly prevalent and are relatively inaccessible from claims data.

Final Recommendation

Modify the original ACE-PRO measure to be specified as:

A1C test at least once per year (the measurement year), in patients with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year.

The numerator specification and Case ID algorithm are consistent with other measures of this care process. The measurement period is consistent with the NCQA specification. NCQA exclusion criteria not accessible from claims data were not included.

Indicator Name: Lipid Testing in Diabetes Mellitus

Indicator Description: lipid profile, at least every year in patients with 2 outpatient or 1 in-patient visits with diabetes mellitus codes, within a calendar year.

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Lipid testing refers to cholesterol and lipoprotein analysis in patients with diabetes mellitus. It is part of Early Detection because it is done in the pre-symptomatic stage in order to detect dyslipidemia prior to the development of overt cardiovascular disease. Lipid testing part of the FMCC because patients with known dyslipidemia should continue to have lipid testing done to assess response to therapy and to prompt adjustments to therapy.

Evidence / Rationale:

Based upon expert consensus or clinical experience, the American Diabetes Association¹⁶ recommends lipid testing at least annually and more often if needed to achieve goals. In adults with low-risk values the ADA recommends repeat lipid assessments every two years. In well-conducted RCTs, lowering LDL-C cholesterol with diet or medication is associated with reduction in cardiovascular events.¹⁷

Versions: NCQA, CMS, Consortium, Alliance

NCQA

- Lipid profile every 2 years
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus (or)
- Identification of diabetes mellitus status by use of pharmacy claims for glycemic lowering drugs
- Exclude where:
 - Diagnosis of polycystic ovaries and < 2 face to face encounters with diagnosis of diabetes mellitus
 - Diagnosis of steroid-induced diabetes
 - Diagnosis of gestational diabetes

CMS

- Lipid profile every 2 years
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus

Consortium

- Lipid profile, time not specified
- Age 18 to 75

Alliance

- LDL-C, time not specified

Considerations for ACE-PRO Refinement

Numerator

LDL-C tests are used by the NCQA and the Alliance. Lipid Profile tests are used by CMS and the Consortium.

Measurement Period

The measurement period used by the NCQA and CMS is two years. The measurement period used by the Consortium and the Alliance is one year. Panelist feedback suggests an impending agreement among the four to use one year.

Age Range

NCQA, CMS, and the Consortium use the age range of 18 to 75. Risk reduction is similar in patients with diabetes, and patients older than 75 (heart protection study).

Case ID

NCQA and CMS measure sets use a common case identification algorithm that was validated since the original ACE-PRO set was developed. This case-ID algorithm calls for 2 out-patient or 1 in-patient code for diabetes mellitus in a one year period of time. The requirement for an additional out-patient code reduces the risk for errors of inclusion due to coding for testing purposes.

Exclusions

Consideration was given to using exclusion criteria of the NCQA. Polycystic ovarian syndrome, gestational diabetes, and steroid induced diabetes are not highly prevalent and are relatively inaccessible from claims data.

Final Recommendations

Include this measure in the Medicare Ambulatory Care Indicator set as specified:

lipid profile, at least every year (the measurement year), in patients aged 65 or older, with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year.

The numerator specification and Case ID algorithm are consistent with other measures of this care process. The measurement period is not consistent with the NCQA specification however anticipation of measure modification by other systems justified the change to a one year period. NCQA exclusion criteria not accessible from claims data were not included.

Indicator Name: Clinical Assessment in Diabetes Mellitus

Indicator Description: Two out-patient visits (with or without code for diabetes mellitus) during the measurement year, in patients identified as having diabetes mellitus in the year prior to the measurement year (with 2 out-patient or 1 in-patient visits)

Clinical Logic: Follow-up, Monitoring, Continuing Care

Clinical Assessment refers to office visits for the clinical management of diabetes mellitus. It is part of the FMCC because blood pressure monitoring, assessment of treatment progress and self-management training require frequent office visits.

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel justified office visits every three to six months.

ACE-PRO Measure

Visit every 6 months

Considerations for ACE-PRO Refinement

Numerator

The original ACE-PRO measure accepted any out-patient visits with or without codes for diabetes mellitus as coding may not be adequately precise to demand a visit coded for diabetes mellitus. The out-patient visits could have been office visits, emergency room visits, nursing home visits, or home visits. Clinical assessment in emergency room visits is different from the clinical assessment that this measure is designed to detect (i.e. clinical assessment in chronic disease management). Two visits within one year would allow standardization on a one year measurement period (below) and retention of the logic of the original ACE-PRO measure. It is acknowledged that there are potential differences between these specifications but that these differences are not compelling enough to continue using one visit every six months.

Measurement Period

The measurement period used in the original ACE-PRO set was 6 months. In order to standardize with other diabetes mellitus measures, a one year period would be required. Case identification (below) will specify the requirement of a visit for inclusion in the measurement sample. This visit should not count as satisfying the numerator as well. Therefore, the measurement period must be distinct from the case identification period. The measurement period (measurement year) will follow the one year case identification period.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one code for diabetes mellitus (in-patient or out-patient) during the measurement year to identify cases. All other measure sets use a common case identification algorithm that was validated since the original ACE-PRO set was developed. This case-ID algorithm calls for 2 out-patient or 1 in-patient code for diabetes mellitus in a one year period of time. The requirement for an additional out-patient code reduces the risk for errors of inclusion due to coding for testing purposes. Since case identification must precede clinical assessment, the case ID should occur in the year prior to the measurement year.

Final Recommendation

Modify the original ACE-PRO measure to be specified as:

Two out-patient visits (with or without code for diabetes mellitus) during the measurement year, in patients identified as having diabetes mellitus in the year prior to the measurement year (with 2 out-patient or 1 in-patient visits).

Two visits in one year was chosen over one visit in 6 months for denominator standardization purposes. Only non-emergent physician visits count in the numerator.

Indicator Name: Visit after hospitalization

Indicator Description: At least one visit within four weeks following discharge of patients, hospitalized *for* diabetes mellitus.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Visit after hospitalization refers to an out-patient physician (or physician extender) office visit during the 4 week period after discharge from the hospitalization for diabetes mellitus. Visit after hospitalization is part of FMCC because post-discharge treatment plans require out-patient follow-up.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel established a standard for follow-up after hospitalization of four weeks.

Version:

ACE-PRO Measure

Visit \leq 4 weeks after discharge from hospital for patients hospitalized for diabetes mellitus

Considerations for ACE-PRO Refinement

Numerator

At least one office visit, emergency room visit, nursing home visit, or home visit. This does not include visits by home care providers or case managers.

Measurement Period

The measurement period used in the original ACE-PRO set was 4 weeks post-discharge.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one hospitalization with a primary diagnosis code for diabetes mellitus to identify cases.

Final Recommendations:

Continue to use the original ACE-PRO measure as specified:

At least one ambulatory, non-emergent visit (with or without code for diabetes mellitus) within four weeks following discharge of patients, hospitalized for diabetes mellitus.

Indicator Name: Serious Short Term Complications of Diabetes Mellitus

Indicator Description: Admissions for diabetic, hyperosmolar and ketotic coma and admissions *for* uncontrolled diabetes mellitus among patients with 2 outpatient or 1 in-patient visit with diabetes mellitus within a calendar year.

Clinical Logic: Serious Clinical Manifestations of Disease

Serious Short Term Complications refers to hospital admissions for diabetic, hyperosmolar, and ketotic coma, and uncontrolled diabetes mellitus. It is part of Serious Clinical Manifestations of Disease because all require hospitalization. Uncontrolled diabetes is included here but restricted to uncontrolled diabetes requiring hospitalization.

Evidence/Rationale:

It was the opinion of the original ACE-PRO panel that effective outpatient management of diabetes mellitus, infections and other stressors, may prevent hospitalizations for hyperosmolar and ketotic states. The AHRQ PQI report¹⁸ noted that high quality outpatient management of patients with diabetes has been shown to reduce almost all types of serious hospitalizations.

Versions:

ACE-PRO

Admission for diabetic coma, hyperosmolar or ketotic coma
among patients with diabetes mellitus

AHRQ PQI

Diabetes Short Term Complications Admission Rate
Discharges for Ketoacidosis, Hyperosmolarity, Coma
Per 100,000 in the population

Considerations for ACE-PRO Refinement:

Use numerator of PQI version and denominator of ACE-PRO version to restrict to population with diabetes

Use in composite measure with Uncontrolled DM (below)

Numerator

The original ACE-PRO measure uses admissions for diabetic coma, hyperosmolar or ketotic coma. The AHRQ PQI measure uses discharges for ketoacidosis, hyperosmolarity, and coma for the measure of serious short term complications. The AHRQ PQI measure for uncontrolled diabetes admission rate, uses discharges for uncontrolled diabetes mellitus without mention of short term or long term complications. The proposed measure combines the two numerators.

Measurement Period

The measurement period used in the original ACE-PRO set is one year. The measurement period used by the AHRQ PQIs is one year.

Age Range

Age greater than 65 was used in the original ACE-PRO set. Age 18 or older was used in the AHRQ PQI measures.

Case ID

The original ACE-PRO set used one code for diabetes mellitus (in-patient or out-patient) during the measurement year to identify cases. The AHRQ PQI measures use 100,000 in the population as the denominator.

Exclusions

The AHRQ PQI measures excluded transfers from other institutions to avoid double-counting of cases, and hospitalizations associated with pregnancy and childbirth.

Final Recommendation:

Modify the original ACE-PRO measure to be specified as:

Admissions for diabetic, hyperosmolar and ketotic coma and admissions for uncontrolled diabetes mellitus among patients with 2 out-patient or 1 in-patient visit with diabetes mellitus within a calendar year.

Uses numerator consistent with AHRQ PQI and original ACE-PRO. Unlike AHRQ PQI version, denominator restricts measurement to population with diabetes mellitus.

Indicator Name: Serious Long Term Complications of Diabetes Mellitus

Indicator Description: hospitalizations for renal, ophthalmologic, neurologic and circulatory complications of diabetes mellitus and non-traumatic lower extremity amputation, in patients with 2 or more out-patient visits or 1 in-patient visit with a diagnosis code for diabetes mellitus within a calendar year.

Clinical Logic: Serious Clinical Manifestations of Disease

Serious Long Term Complications of Diabetes Mellitus refers to renal, ophthalmologic, neurologic and circulatory complications. It is part of Serious Long Term Complications of Diabetes Mellitus because all are associated with significant morbidity or mortality and all are defined here as admissions for these complications.

Evidence/Rationale:

According to the AHRQ PQI report,¹⁸ long term complications of diabetes mellitus arise from sustained, long-term, poor control of diabetes mellitus and intensive treatment programs have been shown to decrease the incidence of long term complications in both type 1¹¹ and type 2¹⁵ disease. Long term glycemic control, foot care, and diabetes education are interventions that can reduce the incidence of infection, neuropathy, and microvascular diseases.¹⁵

Versions:

AHRQ PQI

Diabetes Long Term Complications Admission Rate

Discharges for
Renal, Eye, Neurological, Circulatory, &
Complications not otherwise specified
Per 100,000 in population

Rate of LEA in Diabetes

Discharges for LEA and Diagnosis of DM
Per 100,000 in population

Considerations for ACE-PRO Refinement:

Numerator

The AHRQ PQI set includes two measures: 1) long term complications of diabetes mellitus admission rate; and 2) lower extremity amputation rate. The numerator of the former includes hospitalizations for renal, ophthalmologic, neurologic and circulatory complications of diabetes mellitus. The numerator of the latter includes amputations among patients with diabetes mellitus for non-traumatic indications. Lower extremity amputation is another long term complication of diabetes mellitus. Lower extremity amputation and the other long

term complications are all consequences of the same processes of care. Therefore, the proposed measure combines these numerators.

Measurement Period

The measurement period used in the AHRQ PQI measures is one year.

Age Range

The age range used in the AHRQ PQI measures is 18 and older.

Case ID

The population used for the denominator of the AHRQ PQI measures is 100,000. The common case identification algorithm used in the other refined measures is proposed here (i.e. 2 or more out-patient visits or 1 in-patient visit with a diagnosis code for diabetes mellitus within a calendar year).

Exclusions

The AHRQ PQI measures excluded transfers from other institutions to avoid double-counting of cases, and hospitalizations associated with pregnancy and childbirth. Lower extremity amputations associated with trauma were excluded.

Final Recommendations:

Include in Medicare Ambulatory Care Indicator set to be specified as:

Hospitalizations for renal, ophthalmologic, neurologic and circulatory complications of diabetes mellitus and non-traumatic lower extremity amputation, with 2 or more out-patient visits or 1 in-patient visit with a diagnosis code for diabetes mellitus within a calendar year.

Combines numerators of AHRQ-PQI measures since both sets of complications are due to problems in long-term glycemic control. Denominator restricts measurement to patients with diabetes mellitus.

Justification For Exclusion Of Measures From Further Consideration

The analysis logic for visual acuity screening used procedure codes with more specificity than visual acuity screening and in the same time frame as eye exams for patients with diabetes mellitus. This was essentially a measure of comprehensive eye exams in the general Medicare population.

Nephropathy monitoring was previously tested by CMS as an evaluation measure and eliminated for technical difficulties. Variation in reimbursement policies across carriers was an issue. Clinically, the case for nephropathy testing has become less compelling since ACEI utilization in diabetes mellitus is so common.

BP Control and Foot Exam require chart abstraction for composition of these measures.

Coronary Artery Disease

Useful measures, compose using Medicare data:

- Lipid Testing in Coronary Artery Disease
- Visit after Hospitalization for Acute MI
- Clinical Assessment in CAD
- ER Use for Unstable Angina

Exclude the following measures from further consideration:

- Screening for Diabetes Mellitus in CAD
- Follow-up after initial diagnosis of unstable angina
- EKG in ER for Unstable Angina
- Hospitalization for Angina (without procedures)

Cite AHRQ-PQI Measures

- Angina without procedure admission rate

Indicator Name: Lipid Testing in Coronary Artery Disease

Indicator Description: lipid profile, at least every year, in patients with 2 out-patient or 1 in-patient visits with coronary artery disease codes, within a calendar year.

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Lipid Testing refers to cholesterol and lipoprotein analysis in patients with coronary artery disease (CAD). It is part of Early Detection because dyslipidemia is common in CAD and treatment requires identification. Lipid testing is part of the FMCC because patients with known dyslipidemia should continue to have lipid testing done to assess response to therapy and to prompt adjustments to therapy.

Evidence / Rationale:

Based upon expert consensus or clinical experience, the ACC/AHA Task Force on Practice Guidelines^{19, 20} recommends initial fasting lipid profile testing and treatment to achieve goals. Treatment to goal requires assessment of lipidemia status and modification of therapy. The National Cholesterol Education Program's Adult Treatment Panel¹⁷ recommends lipid profile testing at least annually in patients at goal. In well-conducted RCTs, lowering LDL cholesterol with medication is associated with reduction in cardiovascular events.¹⁷

Versions: ACE-PRO, NCQA, Consortium

ACE-PRO

- Cholesterol test every 6 months after discharge for acute myocardial infarction with co-morbid dyslipidemia

NCQA

- LDL-C 60 days to one year after acute coronary event
- Age 18 to 75
- Coronary event is acute myocardial infarction or revascularization procedure

Consortium

- Annual lipid profile in patients with CAD
- Age not specified

Considerations for ACE-PRO Refinement

Numerator

Cholesterol tests were used by the original ACE-PRO set. LDL-C tests are used by the NCQA. Lipid profile is used by the Consortium and for the refined ACE-PRO measure on lipid testing in diabetes mellitus. Lipid profile testing is used to

calculate LDL-C and to measure other targets of therapy: triglycerides and HDL-C. Direct measurement of LDL-C is possible but is done infrequently.

Measurement Period

The measurement period for the ACE-PRO measure was one year to identify cases and six months to identify cholesterol tests. The NCQA uses a one year time frame, following an acute cardiac event. The measurement period used by the Consortium is one year.

Age Range

The age range used by the ACE-PRO measure was age 65 and older. The NCQA uses the age range of 18 to 75. The Consortium does not specify age range. Risk reduction is similar in patients older than 75 years²¹.

Case ID

The original ACE-PRO measure identified cases as post-myocardial infarction with dyslipidemia. NCQA identifies cases as post-acute event alone. Acute events include acute myocardial infarctions and revascularization procedures. A large proportion of CAD cases will not experience an acute event within the timeframe and are worthy inclusions for this measure. One of the purposes of lipid profile measurement is to find dyslipidemia worthy of treatment. Requiring the presence of dyslipidemia in the case identification algorithm would defeat the measure's ability to detect this practice.

Final Recommendations

Include this measure in the refined ACE-PRO set as specified:

lipid profile, at least every year (the measurement year), in patients with 2 out-patient or one in-patient visits with coronary artery disease codes, within a calendar year.

Uses a one year time frame consistent with other existing measures.

Denominator is broader than the NCQA version, including all patients with CAD, not just those after an acute event.

Indicator Name: Follow-up after Hospitalization for Acute Myocardial Infarction

Indicator Description: At least one out-patient visit within four weeks following discharge of patients, hospitalized *for* acute myocardial infarction.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Follow-up after hospitalization refers to an out-patient physician (or physician extender) office visit during the 4 week period after discharge from the hospitalization for acute myocardial infarction. It is part of FMCC because post-discharge treatment plans require out-patient follow-up.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel established a standard for follow-up after hospitalization of four weeks.

Version:

ACE-PRO Measure

Visit \leq 4 weeks after discharge from hospital for patients hospitalized for acute myocardial infarction

Considerations for ACE-PRO Refinement

Numerator

at least one office visit, emergency room visit, nursing home visit, or home visit. This does not include visits by home care providers or case managers. Discussion on this topic appears in section XX. This is the same as the original ACE-PRO specification.

Measurement Period

The measurement period used in the original ACE-PRO set was one year for identification of hospitalizations for acute myocardial infarction and 4 weeks for the post-discharge follow-up.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one hospitalization with a primary diagnosis code for acute myocardial infarction to identify cases.

Final Recommendation

Continue to use the original ACE-PRO measure as specified:

At least one out-patient, non-emergent visit within four weeks following discharge of patients, hospitalized for acute myocardial infarction.

Indicator Name: Clinical Assessment in Coronary Artery Disease

Indicator Description: Two out-patient visits during the measurement year, in patients, identified as having CAD in the year prior to the measurement year (with 2 out-patient or in-patient visits).

Clinical Logic: Follow-up, Monitoring, Continuing Care

Clinical Assessment refers to office visits for the clinical management of coronary artery disease (CAD). It is part of the FMCC because regular symptom and activity assessment and risk factor modification require frequent office visits.

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel justified office visits every six months.

ACE-PRO Measure

Visit every 6 months

Considerations for ACE-PRO Refinement

Numerator

The original ACE-PRO measure accepted any out-patient visits with or without codes for CAD as coding may not be adequately precise to demand a visit coded for CAD. The out-patient visits could have been office visits, emergency room visits, nursing home visits, or home visits. Clinical assessment in emergency room visits is different from the clinical assessment that this measure is designed to detect (i.e. clinical assessment in chronic disease management). Two visits within one year would allow standardization on a one year measurement period (below) and retention of the logic of the original ACE-PRO measure. It is acknowledged that there are potential differences between these specifications but that these differences are not compelling enough to continue using one visit every six months.

Measurement Period

The measurement period used in the original ACE-PRO set was 6 months. In order to standardize with other clinical assessment measures, a one year period would be required. Case identification (below) will specify the requirement of a visit for inclusion in the measurement sample. This visit should not count as satisfying the numerator as well. Therefore, the measurement period must be distinct from the case identification period. The measurement period (measurement year) will follow the one year case identification period.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one code for chronic stable angina (in-patient or out-patient) during the measurement year to identify cases. There are additional diagnosis codes that identify CAD. A stricter case identification algorithm (requiring at least two visits coded for CAD within a year) improves the predictive value significantly (SCRIPT). The requirement for an additional out-patient code reduces the risk for errors of inclusion due to coding for testing purposes. Since case identification must precede clinical assessment, the case ID should occur in the year prior to the measurement year.

Final Recommendation

Modify the original ACE-PRO measure to be specified as:

Two out-patient visits during the measurement year, identified as having CAD in the year prior to the measurement year (with 2 out-patient or in-patient visits).

Two visits in one year was chosen over one visit in 6 months for denominator standardization purposes. Only non-emergent physician visits count in the numerator.

Indicator Name: Emergency Room Use for Unstable Angina

Indicator Description: Three or more emergency department visits for coronary artery disease, unassociated with admission, identified with coronary artery disease (with 2 out-patient or in-patient visits with CAD codes) in the measurement year.

Clinical Logic: Serious Clinical Manifestations of Disease

Emergency Room use for Unstable Angina refers to emergency visits for cardiovascular related diagnoses in patients with coronary artery disease. It is part of Serious Clinical Manifestations of Disease because the morbidity requiring emergency utilization is serious.

Evidence/Rationale:

It was the opinion of the original ACE-PRO panel that effective outpatient management of angina should prevent multiple emergency department visits for unstable angina. According to the ACC/AHA/ACP-ASIM^{19, 20}... effective treatments for CAD reduce admissions for serious complications of ischemic heart disease including unstable angina.

Versions:

ACE-PRO

3 or more ER visits in one year for heart related diagnoses in unstable angina
Exclude ER visits resulting in hospitalizations

AHRQ-PQI

Admissions for Angina
Per 100,000 in the population
Exclude admissions with procedures
Age >= 18

Considerations for ACE-PRO Refinement:

Numerator

The original ACE-PRO measure uses emergency department visits for heart related diagnoses. The heart related diagnoses specified in this measure include diseases of the respiratory system and vascular insufficiency of the intestines. These diagnoses are distantly related to the unstable angina. Elimination of these diagnoses from the numerator will make the measure more specific to its intent. The AHRQ-PQI measure uses admissions for angina. Hospital use in the treatment of unstable angina is complex. This complexity makes it difficult to interpret the quality of care based upon a measure of admissions for CAD. This issue is discussed in greater detail in section x. For this reason, only emergency department visits without associated admissions should be considered further.

Measurement Period

The measurement period used in the original ACE-PRO set is one year. The measurement period used by the AHRQ PQI is one year.

Age Range

Age greater than 65 was used in the original ACE-PRO set. Age 18 or older was used in the AHRQ PQI measures.

Case ID

The original ACE-PRO set used one code for stable or unstable angina (in-patient or out-patient) during the measurement year to identify cases. The AHRQ PQI measure uses 100,000 in the population as the denominator.

Exclusions

The AHRQ PQI measure excludes admissions with procedures. The ACE-PRO measure excludes emergency department visits with admissions.

Final Recommendations:

Modify the original ACE-PRO measure to be specified as:

Three or more emergency department visits for coronary artery disease, unassociated with admission, identified with coronary artery disease (with 2 out-patient or one in-patient visits with CAD codes) in the measurement year.

Eliminated diagnoses from the numerator specification of the original ACE-PRO version that are not closely related to complications of angina.

Justification For Exclusion Of Measures From Further Consideration

Screening for Diabetes Mellitus in CAD was excluded primarily because it would involve a three year measurement interval that poses problems in denominator standardization. These conditions are already well represented in set recommended for composition using Medicare claims data.

Follow-up after initial diagnosis of unstable angina was excluded because of clinical relevance considerations. Initial diagnosis of unstable angina almost always leads to hospitalization. Previous compositions of this measure gave conflicting results.

EKG in ER for Unstable Angina was excluded for two major reasons. It was deemed to be sensitive more to hospital care than ambulatory care and appeared to have reached a ceiling (>95%) in previous compositions of the measure.

Hospitalization for Angina (without procedures) was excluded primarily because of the changing roles of procedures in coronary artery disease care.

Stroke, Transient Ischemia, Atrial Fibrillation, Hypertension

Useful measures, compose using Medicare data:

- EKG in Initial Diagnosis of Transient Ischemic Attack (TIA)
- Carotid Imaging at Initial Diagnosis of Carotid Artery Stroke
- Carotid Imaging in Carotid Territory Event
- Follow-up after Hospitalization for Stroke/TIA
- Clinical Assessment for History of Stroke/TIA
- Hospitalization for Hypertension

Exclude the following measures from further consideration:

- Other tests at Initial Dx of TIA
- Anticoagulation in Atrial Fibrillation
- Visit after Hospitalization for Hypertension

Cite AHRQ-PQI Measures

- Hypertension admission rate

Indicator Name: EKG in Initial Diagnosis of TIA

Indicator Description: EKG or Holter Monitor within 2 days of initial diagnosis of TIA, with a period of one year free of TIA codes prior to the diagnosis of TIA.

Clinical Logic: Work-up at initial diagnosis

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel identified a list of diagnostic tests that are part of the diagnostic work-up of all patients with a new presentation. This list is consistent with a more recent recommendation (AHA Stroke Guideline 2003²²). The list includes: ESR, EKG, CXR, echocardiogram, Holter monitoring, CT or MRI of the brain, CBC, electrolytes, renal function, blood glucose, and lipids.

Measure Version: ACE-PRO

EKG or Holter monitor within 2 days of initial diagnosis of TIA

Considerations for ACE-PRO Refinement:

Numerator

EKG or Holter Monitor

Measurement Period

One year for case identification and two days post diagnosis for EKG or Holter

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

One code for TIA served as the index diagnosis. Initial diagnosis was defined by an accompanying lookback period of xxxx, free of TIA codes.

Exclusions

TIA's associated with admissions

Final Recommendations:

Continue to use the original ACE-PRO measure as specified:

EKG or Holter Monitor with 2 days of initial diagnosis of TIA, in patients with a period of one year free of TIA codes prior to the diagnosis of TIA.

Indicator Name: Carotid Imaging at Initial Diagnosis of Carotid Artery Stroke

Indicator Description: Carotid angiogram or non-invasive carotid imaging procedure within two week of initial diagnosis in patients, hospitalized for carotid artery stroke.

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

According to expert opinion, the original ACE-PRO panel cited strong evidence supporting efficacy of Carotid Endarterectomy (CEA) but weaker evidence demonstrating harm in delay greater than 30 days, and made the point that carotid imaging is necessary to establish candidacy for CEA.

Measure Versions: ACE-PRO

Carotid imaging within 2 weeks of initial diagnosis in patients hospitalized for carotid artery stroke

Considerations for ACE-PRO Refinement:

Numerator

The original ACE-PRO measures used carotid angiogram and non-invasive carotid imaging.

Measurement Period

The measurement period used in the original ACE-PRO set was two years to identify carotid artery strokes and two weeks to identify imaging procedures post stroke.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

Patients hospitalized with a primary diagnosis of carotid territory stroke.

Final Recommendation:

Continue to use the original ACE-PRO measure as specified:

Carotid angiogram or non-invasive carotid imaging procedure within two week of initial diagnosis in patients, hospitalized for carotid artery stroke.

Indicator Name: Carotid Imaging in Carotid Endarterectomy

Indicator Description: Carotid imaging to CEA interval less than 2 months, in patients with a hospitalization for stroke or TIA as a primary diagnosis prior to the CEA.

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel cited strong evidence supporting the efficacy of CEA, weaker evidence demonstrating harm in delay, and no argument for an *optimal* interval between imaging and CEA. The panel offered that the delay time between imaging and surgery could serve as a surrogate measure of access.

Measure Versions: ACE-PRO

Interval between carotid imaging and CEA less than 2 months in patients with TIA and eventual CEA

Interval between carotid imaging and CEA less than 2 months in patients with stroke and eventual CEA

Considerations for ACE-PRO Refinement:

Numerator

Cases of CEA in which imaging to CEA interval was less than 2 months.

Measurement Period

The measurement period used in the original ACE-PRO set was 2 years to identify cases of CEA and 2 months to identify carotid imaging pre-CEA.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used a CEA, a carotid imaging test and either a hospitalization for stroke or for TIA. The original ACE-PRO set used separate measures, one for TIA and one for stroke. Since the processes of care are the same in TIA and stroke these two measures should be combined into one with a denominator that consists of strokes and TIAs.

Final Recommendation:

Modify the original ACE-PRO measure to be specified as:

Carotid imaging to CEA interval less than 2 months, in patients with a hospitalization for stroke or TIA as a primary diagnosis prior to the CEA.

Indicator Name: Follow-up after Hospitalization for Stroke or TIA

Indicator Description: At least one out-patient visit (with or without code for stroke or TIA) within four weeks following discharge of patients, hospitalized for stroke or TIA.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Visit after hospitalization is part of FMCC because post-discharge treatment plans require out-patient follow-up.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel established a standard of follow-up after hospitalization within four weeks.

Version:

ACE-PRO Measure

Visit \leq 4 weeks after discharge from hospital for patients hospitalized for stroke or TIA

Considerations for ACE-PRO Refinement

Numerator

at least one office visit, emergency room visit, nursing home visit, or home visit. This does not include visits by home care providers or case managers. This is the same as the original ACE-PRO specification.

Measurement Period

The measurement period used in the original ACE-PRO set was one year for identification of hospitalizations for acute myocardial infarction and 4 weeks for the post-discharge follow-up.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one hospitalization with a primary diagnosis code for cerebrovascular accident to identify cases.

Final Recommendation

Continue to use the original ACE-PRO measure as specified:

At least one out-patient, non-emergent visit (with or without code for stroke or TIA) within four weeks following discharge of patients, hospitalized for stroke or TIA.

Indicator Name: Clinical Assessment for History of Stroke/TIA

Indicator Description: Two out-patient visits (with or without code for stroke or TIA) during the measurement year, in patients, identified as having stroke or TIA in the year prior to the measurement year (with 2 out-patient or in-patient visits).

Clinical Logic: Follow-up, Monitoring, Continuing Care

Clinical Assessment is part of the FMCC because symptom assessment and risk factor modification require frequent office visits.

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel justified office visits two times a year.

ACE-PRO Measure

Visit every year

Considerations for ACE-PRO Refinement

Numerator

The original ACE-PRO measure accepted any out-patient visits with or without codes for cerebrovascular disease as coding may not be adequately precise to demand a visit coded for cerebrovascular disease. Those out-patient visits could have been office visits, emergency room visits, nursing home visits, or home visits. Clinical assessment in emergency room visits is different from the clinical assessment that this measure is designed to detect (i.e. clinical assessment in chronic disease management). In order to standardize with other clinical assessment measures, two visits would be required. This standard is certainly consistent with the demands of managing such patients.

Measurement Period

The measurement period used in the original ACE-PRO set was 1 year. Case identification (below) will specify the requirement of a visit for inclusion in the measurement sample. This visit should not count as satisfying the numerator as well. Therefore, the measurement period must be distinct from the case identification period. The measurement period (measurement year) will follow the one year case identification period.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one code for TIA (in-patient or out-patient) during the measurement year to identify cases. Patients with history of stroke should be included as well. A stricter case identification algorithm (requiring at least two visits coded for stroke or TIA within a year) should improve the

predictive value significantly (SCRIPT). The requirement for an additional out-patient code reduces the risk for errors of inclusion due to coding for testing purposes. Since case identification must precede clinical assessment, the case ID should occur in the year prior to the measurement year.

Final Recommendation

Modify the original ACE-PRO measure to be specified as:

Two out-patient visits (with or without code for stroke or TIA) during the measurement year, in patients, identified as having stroke or TIA in the year prior to the measurement year (with 2 out-patient or in-patient visits).

Combined the denominators of separate Stroke and TIA measures. Only non-emergent physician visits count in the numerator.

Indicator Name: Hospitalization for Hypertension

Indicator Description: Hospitalizations *for* hypertension in patients with 2 or more out-patient visits or one in-patient visits with a diagnosis code for hypertension in the measurement year.

Clinical Logic: Serious Clinical Manifestations of Disease

Hospitalization for Hypertension is part of Serious Clinical Manifestations of Disease because the morbidity associated with hypertension requiring hospitalization is serious.

Evidence/Rationale:

The AHRQ-PQI authors ¹⁸ argued that hypertension can be controlled with appropriate use of drug therapy in the out-patient setting making this a measure sensitive to ambulatory care.

Versions:

AHRQ PQI

Admissions for hypertension
Per 100,000 in the population

Considerations for ACE-PRO Refinement:

Numerator

The AHRQ-PQI measure used admissions for hypertension with associated ICD-9 codes not including secondary and benign hypertension.

Measurement Period

The measurement period used by the AHRQ PQI is one year.

Age Range

Age 18 or older was used in the AHRQ PQI measure.

Case ID

The AHRQ PQI measure uses 100,000 in the population as the denominator. This specification does not allow the identification of the higher risk population, patients with known hypertension and may be biased by differences in hypertension prevalence. Therefore, this measure should identify cases as those with known hypertension in the year prior to measurement.

Exclusions

The AHRQ PQI measure excludes admissions with procedures, transfers from other institutions, and admissions associated with pregnancy and childbirth.

Final Recommendation:

Include a revised version of the AHRQ-PQI measure as specified:

At least one hospitalization with hypertension as the primary diagnosis, in patients with 2 or more out-patient visits or one in-patient visits with a diagnosis code for hypertension in the measurement year.

Justification For Exclusion Of Measures From Further Consideration

Other Tests at Initial Diagnosis of TIA was eliminated as falling into the category of *de novo* measure development. There are additional tests recommended in the initial clinical work-up for TIA: ESR, CXR, Echocardiogram, Holter Monitor, CT/MRI, CBC, Electrolytes, Renal Function Tests, Glucose, and Lipids. However, a measure of such utilization does not currently exist.

Anticoagulation in Atrial Fibrillation was eliminated because it requires data on medication use. This measure should become feasible when Part D data become available for this purpose. A potential proxy measure of INR testing was discussed but that fell into the category of *de novo* measure development.

Visit after Hospitalization for Hypertension was excluded because of the low incidence of hospitalization for hypertension.

Heart Failure

Useful measures, compose using Medicare data:

- Left Ventricular Ejection Fraction (LVEF) Assessment in Heart Failure: at Initial Diagnosis
- LVEF Assessment in Heart Failure: Associated with Hospitalization
- Laboratory Testing in Heart Failure
- EKG after Initial Diagnosis of Heart Failure
- CXR after Initial Diagnosis of Heart Failure
- Follow-up after Hospitalization for Heart Failure
- Clinical Assessment in Heart Failure
- Admissions for Heart Failure

Exclude the following measures from further consideration:

- Weight measurement
- BP measurement
- Symptoms-activity assessment
- Examination of the heart
- Beta blocker therapy
- ACEI therapy
- Patient education
- Warfarin in comorbid atrial fibrillation

Cite AHRQ-PQI Measures

- Admissions for Heart Failure

Indicator Name: LVEF Assessment in Heart Failure: At Initial Diagnosis

Indicator Description: Diagnostic ultrasound, Radionuclide Ventriculography (RVG) or Left Ventriculogram within 3 months, before or after, initial diagnosis of heart failure. Initial diagnosis defined by one year look back period free of diagnosis codes for heart failure.

Indicator Name: LVEF Assessment in Heart Failure: Associated with Hospitalization

Indicator Description: Diagnostic ultrasound, RVG or Left Ventriculogram within 3 months, before or after, hospitalization for heart failure.

Clinical Logic: Work-up at initial diagnosis

Evidence/Rationale: ACC/AHA Chronic Heart Failure Guideline 2001
Echo with Doppler or RVG to assess Left Ventricular Systolic Function
expert opinion

Measure Versions: Consortium, CMS

Consortium

Quantitative or qualitative results of LVEF assessment recorded in patients with heart failure, age ≥ 18

CMS

LVEF assessment before arrival, during hospitalization, or planned for after discharge in patients admitted for heart failure, age ≥ 18

Recommendations/Considerations:

Consider adding measure(s) to ACE-PRO set:

- Diagnostic ultrasound, RVG, or Left Ventriculogram in incident cases of heart failure
 - Look back to establish incident case
 - 1 year
 - Look forward (and back) to detect LVEF assessment
 - 3 months
- Diagnostic ultrasound, RVG, or Left Ventriculogram in patients hospitalized for heart failure
 - Look back, look during, look after the hospitalization
 - 3 months before and after
- Consider case ID algorithm that requires 2 outpatient or 1 inpatient code

Final Recommendation

Test two new measures to be specified as:

Diagnostic ultrasound, RVG or Left Ventriculogram within 3 months, before or after, initial diagnosis of heart failure. Initial diagnosis defined by one year look back period free of diagnosis codes for heart failure.

Diagnostic ultrasound, RVG or Left Ventriculogram within 3 months, before or after, hospitalization for heart failure.

Indicator Name: Laboratory Testing in Heart Failure

Indicator Description: Measurement of electrolytes and renal function during the measurement in year in patients with 2 out-patient or 1 in-patient visits with heart failure codes, within the previous calendar year

Clinical Logic: Work-up at Initial Diagnosis and Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACC/AHA Chronic Heart Failure Guideline 2001

Initial measurement of CBC, UA, electrolytes, renal function, blood glucose, LFTs, TFTs

expert opinion

ACC/AHA Chronic Heart Failure Guideline 2001

Serial measurement of electrolytes and renal function

expert opinion

Measure Versions: Consortium, SCRIPT

Consortium

Patients for whom initial lab testing was performed in patients with heart failure, age ≥ 18

SCRIPT

Potassium and renal function testing annually in patients with heart failure on ACEI inhibitor therapy or digoxin

Recommendations/Considerations:

Consider adding measure(s) to ACE-PRO set

- Annual measurement of electrolytes and renal function in patients with heart failure
 - High likelihood of treatment with ACEI, ARB, Digoxin or loop diuretic
 - High level of performance in SCRIPT
 - Suspect high numbers of non-discriminate testing

- CBC, UA, electrolytes, renal function, blood glucose, LFTs, TFTs after initial diagnosis of heart failure
 - Same level recommendation and evidence as CXR and EKG

Final Recommendation

Test new measure to be specified as:

Measurement of electrolytes and renal function during the measurement in year in patients with 2 out-patient or 1 in-patient visits with heart failure codes, within the previous calendar year

Indicator Name: EKG after Initial Diagnosis of Heart Failure

Indicator Description: EKG within one month prior or three months after initial diagnosis of heart failure. Initial diagnosis requires 12 month look back period free of heart failure codes.

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

ACE-PRO Original Panel
AHCPR Heart Failure Guideline 1994
ACC/AHA Chronic Heart Failure Guideline 2001
expert opinion

Recommendations/Considerations:

Keep the measure in the ACE-PRO set to be specified as:

EKG within one month prior or three months after initial diagnosis of heart failure. Initial diagnosis requires 12 month look back period free of heart failure codes.

Remain aware of potential difficulty with establishing initial diagnosis via lookback.

Indicator Name: CXR after Initial Diagnosis of Heart Failure

Indicator Description: CXR within one month prior or three months after initial diagnosis of heart failure. Initial diagnosis requires 12 month look back period free of heart failure codes.

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

ACE-PRO Original Panel
AHCPR Heart Failure Guideline 1994
ACC/AHA Chronic Heart Failure Guideline 2001
expert opinion

Recommendations/Considerations:

Keep the measure in the ACE-PRO set to be specified as:

CXR within one month prior or three months after initial diagnosis of heart failure. Initial diagnosis requires 12 month look back period free of heart failure codes.

Remain aware of potential difficulty with establishing initial diagnosis via lookback.

Indicator Name: Follow-up after hospitalization for heart failure

Indicator Description: Visit within 4 weeks of discharge in patients hospitalized for heart failure

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel

Made argument for followup in 1 week

expert opinion

Measure Version: ACE-PRO

Visit within 4 weeks of discharge in patients hospitalized for heart failure

Numerator and denominators specified to be consistent with other Clinical Assessment indicators in other conditions.

Final Recommendations:

Keep measure in ACE-PRO set to be specified as:

At least one ambulatory, non-emergent visit (with or without code for heart failure) within four weeks following discharge of patients, hospitalized for heart failure.

Probably sensitive to discharge planning. Would be useful in a continuity of care composite. Non-emergent ambulatory physician visits count in the numerator.

Indicator Name: Clinical Assessment in Heart Failure

Indicator Description: At least two out-patient visits (with or without code for heart failure) during the measurement year, in patients identified as having heart failure in the year prior to the measurement year (with 2 out-patient or 1 in-patient visits)

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel

Most practitioners schedule follow-up visits for CHF patients at 2-4 month intervals. Panel recommends every 6 months as indicator of minimal care.
expert opinion

Measure Versions:

ACE-PRO

Visit every 6 months in Heart Failure

Consortium

Symptom-activity assessment

BP measurement

Weight measurement

Examination of the heart

Final Recommendations:

Modify measure for inclusion in ACE-PRO set to be specified as:

At least two out-patient visits (with or without code for heart failure) during the measurement year, in patients identified as having heart failure in the year prior to the measurement year (with 2 out-patient or 1 in-patient visits)

Use 2 visits in one year to standardize denominator. Symptom and activity assessment, BP measurement, weight measurement, and examination of the heart cannot be directly measured but can be inferred to have occurred as part of “subjective” and “objective” assessments

Indicator Name: Hospitalization for Heart Failure

Indicator Description: Admissions for heart failure in the measurement year among patients with 2 out-patient or 1 in-patient visits with failure in the year prior to the measurement year.

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

ACE-PRO Original Panel and AHRQ PQI

Timely out-patient therapy can eliminate the need for some hospitalizations for heart failure.

expert opinion

Measure Versions

ACE-PRO

Non-elective admissions for heart failure

AHRQ PQI

Admissions for Heart Failure

Per 100,000 in the population

Recommendations/Considerations:

Keep the measure for the ACE-PRO set to be specified as:

Admissions for heart failure in the measurement year among patients with 2 out-patient or 1 in-patient visits with failure in the year prior to the measurement year.

Consistent with AHRQ PQI version using known heart failure patients in the denominator.

Justification For Exclusion Of Measures From Further Consideration

Weight measurement, BP measurement, symptoms-activity assessment, examination of the heart, beta blocker therapy, ACEI therapy, patient education and warfarin in comorbid atrial fibrillation were all excluded for absence of adequate data elements in available source. BP measurement, symptom activity assessment, examination of the heart, and patient education were logically lumped into the clinical assessment variable, assuming these processes of care occur during out-patient visits. Beta blocker, ACEI and warfarin therapy indicators should become feasible when Part D data become available for this purpose.

Cancer

Use the following measures:

- Breast Cancer Screening
- Bx to Rx Interval
- CXR at Initial Dx
- Breast Imaging at Initial Dx
- Mammography Surveillance
- Colonoscopic Surveillance after Colon Cancer
- GI Tract Work-up after Dx of Iron Deficiency Anemia

Eliminate the following measures from consideration:

- Colorectal Cancer Screening
- Cervical Cancer Screening
- Visit after Mastectomy
- Staging in Colorectal Cancer
- Stage at Dx
- Death Rates

Indicator Name: Screening for Breast Cancer

Indicator Description: Mammogram every two years in female patients.

Clinical Logic: Early Detection

Screening for Breast Cancer is part of Early Detection because it is done in the pre-symptomatic stage in order to detect reversible disease early.

Evidence/Rationale:

The USPSTF ²⁵ (2002) recommended screening mammography with or without clinical breast exam every one to two years for women age 40 and older based upon at least fair evidence that the service improves important health outcomes and concludes that benefits outweigh harms. Similar recommendations are made by the AMA, ACOG, ACR, ACS, NCI, CTFPHC, AAFP, and ACPM. These organizations differ only on ages and screening intervals.

Measure Versions: ACE-PRO, NCQA, VA, CMS, Consortium, NHQR
All measure versions below specify in female patients

ACE-PRO

- Mammography every 2 years ages 65 to 75

NCQA and Consortium

- Mammography every 2 years ages 50 to 69

VA and CMS

- Mammography every 2 years ages 52 to 69

NHQR

- Mammography every 2 years age ≥ 40

Considerations for ACE-PRO Refinement

Numerator

Mammography every two years is used by all who measure this process of care.

Measurement Period

A two year measurement period is used by all who measure this process of care.

Age Range

The original ACE-PRO measure used ages 65 to 75. Others who measure this process of care use ages less than 65 as the beginning of eligibility interval and ages less than 75 as the end of the eligibility interval. The refined ACE-PRO measure set will again be restricted to patients aged 65 and older.

The rationale behind the use of 69 as the end of the eligibility interval is based upon better evidence than any other age ceiling. An age restriction so limited would compromise the utility of such an important measure. There are good studies that demonstrate the benefit of mammography in women up to age 74. Clinical recommendations do not recommend against mammography screening in women older than 69. Given the evidence and recommendations consistent with older age screening it is reasonable to set the upper end of the eligibility interval at 74.

Case ID

The original ACE-PRO set used female gender.

Exclusions

History of breast cancer would be a reasonable exclusion from a measure of screening. However, this contribution to the denominator is assumed to be negligible by all organization that measure this process of care.

Final Recommendation

Use the original ACE-PRO measure to be specified as:

Mammogram every two years in female patients age 65-74

Indicator Name: Biopsy to Treatment Interval in Breast Cancer

Indicator Description: Biopsy to definitive therapy (surgical, radiation, chemotherapy) interval less than 3 months in patients with breast cancer and eventual definitive therapy.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Biopsy to Treatment Interval is part of FMCC because appropriate follow-up care after initial diagnosis is definitive therapy.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel established a standard for follow-up after biopsy of three months.

Version:

ACE-PRO Measure

Interval from biopsy to definitive therapy less than three months in patients with breast cancer and eventual mastectomy.

Considerations for ACE-PRO Refinement

Numerator

Number of patients in which biopsy to mastectomy interval is less than 3 months. Definitive therapy in breast cancer can include interventions other than mastectomy. These interventions can be surgical, chemotherapeutic, and radiotherapeutic. In order to accommodate these additional forms of definitive therapy, the refined ACE-PRO measure should be modified to include other surgical interventions, chemotherapy, and radiation therapy in breast cancer.

Measurement Period

The measurement period used in the original ACE-PRO set was 2 years

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used patients with breast cancer and eventual mastectomy to identify cases.

Final Recommendation:

Modify the original ACE-PRO measure as specified:

Biopsy to definitive therapy (surgical, radiation, chemotherapy) interval less than 3 months in patients with breast cancer and eventual definitive

therapy. Breast cancer is defined as a visit (in-patient or out-patient) for breast cancer. A biopsy is defined as a breast biopsy.

Indicator Name: CXR in Breast Cancer

Indicator Description: CXR within three months before or three months after initial diagnosis of breast cancer.

Clinical Logic: Work-up at initial diagnosis

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel concluded that a CXR is part of the staging evaluation in breast cancer.

Measure Version: ACE-PRO

CXR within three months before or three months after initial diagnosis of breast cancer

Considerations for ACE-PRO Refinement:

Numerator

CXR within three months prior to or three months after the initial diagnosis of breast cancer

Measurement Period

The original ACE-PRO measure uses two years as the measurement period.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

One out-patient or in-patient visit, coded for breast cancer served as the index diagnosis. Initial diagnosis was defined by an accompanying lookback period of 12 months free of breast cancer codes.

Final Recommendation:

Use the original ACE-PRO measure as specified:

CXR within three months before or three months after initial diagnosis of breast cancer. Index diagnosis of breast cancer must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of breast cancer must be preceded by at least 12 months free of breast cancer codes.

Indicator Name: Breast Imaging in Breast Cancer

Indicator Description: Mammogram or other breast imaging within three months before or three months after initial diagnosis of breast cancer.

Clinical Logic: Work-up at initial diagnosis

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel concluded that a contralateral mammogram is part of the staging evaluation in breast cancer.

Measure Version: ACE-PRO

Mammogram within three months before or three months after initial diagnosis of breast cancer

Considerations for ACE-PRO Refinement:

Numerator

Mammogram within three months prior to or three months after the initial diagnosis of breast cancer was used by the original ACE-PRO measure. Breast imaging has advanced during the past several years such that other imaging tests are often used. Therefore, a refined measure should include newer imaging tests as well as mammograms.

Measurement Period

The original ACE-PRO measure uses two years as the measurement period.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

One out-patient or in-patient visit, coded for breast cancer served as the index diagnosis. Initial diagnosis was defined by an accompanying lookback period of 12 months free of breast cancer codes.

Final Recommendation:

Modify the original ACE-PRO measure as specified:

Mammogram or other breast imaging within three months before or three months after initial diagnosis of breast cancer. Index diagnosis of breast cancer must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of breast cancer must be preceded by at least 12 months free of breast cancer codes.

Indicator Name: Surveillance Mammography with history of breast cancer

Indicator Description: At least one mammogram (in-patient or out-patient) within a 12 month period that includes a visit (in-patient or out-patient) for breast cancer.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Surveillance Mammography refers to mammography in patients after the treatment of breast cancer. It is part of FMCC because it is important in the detection of breast cancer recurrence.

Evidence/Rationale:

Based upon expert opinion and the control arm of the GIVIO trial,²⁶ the original ACE-PRO panel established a standard of contralateral mammography within one year after the treatment of breast cancer.

Version:

ACE-PRO Measure

Mammography every year for patients with history of breast cancer

Considerations for ACE-PRO Refinement

Numerator

Patients with mammogram every year with history of breast cancer

Measurement Period

The measurement period used in the original ACE-PRO set was one year.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one visit for breast cancer (in-patient or out-patient).

Final Recommendation

Continue to use the original ACE-PRO measure as specified:

At least one mammogram (in-patient or out-patient) within a 12 month period that includes a visit (in-patient or out-patient) for breast cancer.

Indicator Name: Surveillance Colonoscopy in Colon Cancer

Indicator Description: At least one visit (in-patient or out-patient) coded for colonoscopy within 12 months of visit (in-patient) coded for resection of colorectal cancer

Clinical Logic: Follow-up, Monitoring, Continuing Care

Surveillance Colonoscopy refers to colonoscopic follow-up in patients with known colon cancer. It is part of FMCC because it is important in the detection of colon cancer recurrence.

Evidence/Rationale:

Based upon expert opinion cited in the American Cancer Society Guideline,²⁷ Screening and Surveillance,²⁸ Colon Cancer (2001) standards can be set for colonoscopy within 1 year of colon resection and within 3-6 years of polypectomy.

Version:

None

Considerations for ACE-PRO Refinement

Numerator

Patients with colonoscopy within one year following resection of colorectal cancer

Measurement Period

The measurement period will require one year of claims after the occurrence of the resection of colorectal cancer.

Age Range

To be consistent with the other ACE-PRO measures, age 65 or older should be used.

Case ID

patients with one code for resection of colon cancer

Final Recommendation:

Develop a new measure to be specified as:

at least one visit (in-patient or out-patient) coded for colonoscopy within 12 months of visit (in-patient) coded for resection of colorectal cancer

Indicator Name: GI Tract Work-up in Iron Deficiency Anemia

Indicator Description: Colonoscopy or barium enema within one month before or three months after the initial diagnosis of iron deficiency anemia.

Clinical Logic: Work-up at initial diagnosis

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel concluded that imaging of the colon for the detection of colon cancer should be part of the work-up in iron deficiency anemia.

Measure Version: ACE-PRO

GI Work-up in patients with iron deficiency anemia

Considerations for ACE-PRO Refinement:

Numerator

The original ACE-PRO measure upper and lower endoscopy and barium enema within one month before and three months after initial diagnosis of iron deficiency anemia. An upper endoscopy will not detect colon cancer. The refined measure should be restricted to colonoscopy and barium enema.

Measurement Period

The original ACE-PRO measure uses two years as the measurement period.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO measure used an index diagnosis of iron deficiency anemia with a one year lookback free of diagnoses of iron deficiency anemia to establish initial diagnosis.

Final Recommendation:

Modify the original ACE-PRO measure as specified:

Colonoscopy or barium enema within one month before or three months after the initial diagnosis of iron deficiency anemia. The index diagnosis of iron deficiency anemia must be preceded by a 12 month period free of the diagnosis of iron deficiency anemia.

Justification For Exclusion Of Measures From Further Consideration

Colorectal Cancer Screening and Cervical Cancer Screening were eliminated because of the need for lookbacks of several years duration. Staging measures and death rates were excluded for limited access to data elements in the source available.

Anemia and GI Bleed

Use the following measures:

- Visit after Hospitalization for GI Bleed
- Visit after Initial Dx of GI Bleed
- H/H after Hospitalization for GI Bleed
- H/H after Initial Dx of Anemia
- GI Tract Work-up after Initial Dx of Iron Deficiency Anemia *

* Indicator workup in Cancer Chapter

Indicator Name: Follow-up Visit after Hospitalization for GI Bleed

Indicator Description: At least one visit (with or without code for GI bleed) within four weeks following discharge of patients, hospitalized for GI bleed.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Visit after hospitalization is part of FMCC because post-discharge treatment plans require out-patient follow-up.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel established a standard for follow-up after hospitalization of four weeks.

Version:

ACE-PRO Measure

Visit <= 4 weeks after discharge from hospital for patients hospitalized for GI bleed

Considerations for ACE-PRO Refinement

Numerator

at least one office visit, emergency room visit, nursing home visit, or home visit. This does not include visits by home care providers or case managers. Discussion on this topic appears in section XX. This is the same as the original ACE-PRO specification.

Measurement Period

The measurement period used in the original ACE-PRO set was two years.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one hospitalization with a primary diagnosis code for GI bleed to identify cases.

Final Recommendation

Continue to use the original ACE-PRO measure as specified:

At least one visit (with or without code for GI bleed) within four weeks following discharge of patients, hospitalized for GI bleed.

Indicator Name: Follow-up Visit after Initial Diagnosis of GI Bleed

Indicator Description: At least one visit, in-patient or out-patient, with or without code for GI bleed, within four weeks following initial diagnosis of GI bleed (out-patient only).

Clinical Logic: Follow-up, Monitoring, Continuing Care

Visit after initial diagnosis of GI bleed is part of FMCC because a clinical assessment if required to monitor patient status early in treatment.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel established a standard for follow-up after initial diagnosis of GI bleed of four weeks.

Version:

ACE-PRO Measure

Visit <= 4 weeks after initial diagnosis of GI bleed

Considerations for ACE-PRO Refinement

Numerator

The original ACE-PRO measure used at least one office visit, emergency room visit, nursing home visit, or home visit. This does not include visits by home care providers or case managers. A hospitalization within the 4 week period of time would not be counted. These cases were not eliminated. Since GI bleed can have a high rate of hospitalization this may cause a significant bias in the measurement. The refined measure should acknowledge hospital-based care in the numerator.

Measurement Period

The measurement period used in the original ACE-PRO set was two years.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used an index diagnosis of GI bleed in the out-patient setting with a lookback period of 12 months free of diagnoses of GI bleed to identify cases.

Final Recommendation:

Modify the original ACE-PRO measure as specified:

At least one visit, in-patient or out-patient, with or without code for GI bleed, within four weeks following initial diagnosis of GI bleed (out-patient

only). Index diagnosis of GI bleed must be preceded by a 12 month period free of diagnosis of GI bleed.

Indicator Name: Follow-up Lab Test after Hospitalization for GI Bleed

Indicator Description: At least one hemoglobin or hematocrit test within four weeks following discharge of patients, hospitalized *for* GI bleed.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Hemoglobin/hematocrit after hospitalization is part of FMCC because post-discharge follow-up requires assessment of blood volume status.

Evidence/Rationale:

Based upon expert opinion and the possibility of recurrent bleed after discharge, the original ACE-PRO panel established a standard for hemoglobin/hematocrit testing after hospitalization for GI bleed of four weeks.

Version:

ACE-PRO Measure

Hemoglobin/hematocrit test \leq 4 weeks after discharge from hospital for patients hospitalized for GI bleed

Considerations for ACE-PRO Refinement

Numerator

Hemoglobin or hematocrit test within four weeks of discharge after hospitalization for GI bleed.

Measurement Period

The measurement period used in the original ACE-PRO set was two years.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one hospitalization with a primary diagnosis code for GI bleed to identify cases.

Final Recommendation

Continue to use the original ACE-PRO measure as specified:

At least one hemoglobin or hematocrit test within four weeks following discharge of patients, hospitalized for (primary diagnosis of) GI bleed.

Indicator Name: Follow-up Lab Test after Initial Diagnosis of Anemia

Indicator Description: Hemoglobin or hematocrit test within one to six months after an initial diagnosis of anemia.

Clinical Logic: Work-up at Initial Diagnosis

Hemoglobin/hematocrit test in anemia is part of Work-up at Initial Diagnosis because it is part of a standardized diagnostic algorithm for anemia.

Evidence/Rationale:

The original ACE-PRO panel identified hemoglobin or hematocrit testing as part of a standardized diagnostic algorithm in the initial work-up of anemia.

Version:

ACE-PRO Measure

Hemoglobin/hematocrit test one to six months after the initial diagnosis of anemia.

Considerations for ACE-PRO Refinement

Numerator

Hemoglobin or hematocrit test within one to six months after initial diagnosis of anemia

Measurement Period

The measurement period used in the original ACE-PRO set was two years.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used an index diagnosis of anemia accompanied by a one year lookback free of codes for anemia in order to define initial diagnosis.

Final Recommendation:

Continue to use the original ACE-PRO measure as specified:

Hemoglobin or hematocrit test within one to six months after an initial diagnosis of anemia. Index diagnosis of heart failure must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of anemia must be preceded by at least 12 months free of anemia codes.

Miscellaneous

COPD

Use the following measures:

- Clinical Assessment in COPD/Asthma
- Hospitalization for Respiratory Dx in COPD/Asthma

Refer to the following measures as done by AHRQ-PQI

- COPD admission rate
- Adult asthma admission rate

Depression

Use the following measures:

- Follow-up after Hospitalization for Depression

Eliminate the following measures from consideration:

- Out-patient screening
- Thyroid function testing
- Psychotherapy
- Follow-up after positive screen for depression
- Deaths due to suicide

Infectious Disease

Refer to the following measures as done by AHRQ-PQI:

- Admissions for UTI
- Admissions for Bacterial Pneumonia

Eliminate the following measures from consideration:

- Influenza Immunization
- Pneumococcal Immunization

Other

Use the following measure:

- Annual visit

Refer to the following measures as done by AHRQ-PQI

- Admissions for Dehydration

Eliminate from consideration the following measures:

- H. pylori testing
- Surgical repair of hip fx
- Pain Management

Indicator Name: Clinical Assessment in COPD/Asthma

Indicator Description: At least two out-patient visits during the measurement year, in patients, identified as having COPD or asthma in the year prior to the measurement year.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Clinical Assessment is part of the FMCC because regular symptom and activity assessment and risk factor modification require frequent office visits.

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel justified office visits every six months.

ACE-PRO Measure

Visit every 6 months in patients with COPD (not asthma)

Considerations for ACE-PRO Refinement

Numerator

The original ACE-PRO measure accepted any out-patient visits with or without codes for COPD as coding may not be adequately precise to demand a visit coded for COPD. The out-patient visits could have been office visits, emergency room visits, nursing home visits, or home visits. Clinical assessment in emergency room visits is different from the clinical assessment that this measure is designed to detect (i.e. clinical assessment in chronic disease management). Two visits within one year would allow standardization on a one year measurement period (below) and retention of the logic of the original ACE-PRO measure. It is acknowledged that there are potential differences between these specifications but that these differences are not compelling enough to continue using one visit every six months.

Measurement Period

The measurement period used in the original ACE-PRO set was 6 months. In order to standardize with other clinical assessment measures, a one year period would be required. Case identification (below) will specify the requirement of a visit for inclusion in the measurement sample. This visit should not count as satisfying the numerator as well. Therefore, the measurement period must be distinct from the case identification period. The measurement period (measurement year) will follow the one year case identification period.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one code for COPD (in-patient or out-patient) during the measurement year to identify cases. A stricter case identification algorithm (requiring at least two visits coded for COPD within a year) could improve the predictive value significantly (SCRIPT). The requirement for an additional out-patient code reduces the risk for errors of inclusion due to coding for testing purposes. Since case identification must precede clinical assessment, the case ID should occur in the year prior to the measurement year. Asthma was not included in the original ACE-PRO specification. Asthma is a chronic obstructive pulmonary disease and not discretely separable from other COPD (chronic bronchitis and emphysema) in the elderly population. Broadening the denominator to include asthma increases the precision of the measure.

Final Recommendation:

Modify the original ACE-PRO measure to be specified as:

At least two out-patient visits (with or without code for COPD or asthma) during the measurement year, in patients, identified as having COPD or asthma in the year prior to the measurement year (with 2 out-patient or in-patient visits).

Indicator Name: Hospitalizations for COPD/Asthma

Indicator Description: Admissions for respiratory diagnoses among patients with COPD or asthma

Clinical Logic: Serious Clinical Manifestations of Disease

Hospitalizations for COPD/Asthma is part of Serious Clinical Manifestations of Disease because hospital admissions for these respiratory diagnoses require significant deteriorations in clinical status.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel made the case that effective out-patient management can prevent hospitalizations for COPD.

Versions: ACE-PRO, AHRQ-PQI

ACE-PRO

Hospitalizations for respiratory diagnoses in patients with COPD

AHRQ PQIs

Admissions for COPD

Per 100,000 in the population

Admissions for Asthma (in adults)

Per 100,000 in the population

Considerations for ACE-PRO Refinement:

Numerator

The original ACE-PRO measure uses admissions for respiratory diagnoses. The AHRQ PQI uses admissions for COPD and admissions for asthma in two separate measures. The respiratory diagnoses used by the original ACE-PRO measure are all potentially avoidable with effective out-patient management.

Measurement Period

The measurement period used in the original ACE-PRO set is two years. The measurement period used by the AHRQ PQIs is one year.

Age Range

Age greater than 65 was used in the original ACE-PRO set. Age 18 or older was used in the AHRQ PQI measures.

Case ID

The original ACE-PRO set used one code for COPD (in-patient or out-patient) during the measurement year to identify cases. The AHRQ PQI measures use 100,000 in the population as the denominator.

Exclusions

The AHRQ PQI measures excluded transfers from other institutions to avoid double-counting of cases, and hospitalizations associated with pregnancy and childbirth.

Final Recommendations:

Modify the original ACE-PRO measure to be specified as:

Admissions for respiratory diagnoses among patients with COPD (including asthma) defined as 2 visits (out-patient or in-patient) with coded for COPD or asthma in the measurement year.

Indicator Name: Visit After Hospitalization For Depression

Indicator Description: Visit within two weeks following discharge of patients, hospitalized *for* depression.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Visit after hospitalization is part of FMCC because post-discharge treatment plans require out-patient follow-up.

Evidence/Rationale:

Based upon expert opinion the original ACE-PRO panel established a standard for follow-up after hospitalization of 14 days. This opinion was supported by an AHCPR guideline.²⁹

Version:

ACE-PRO Measure

Visit <= 14 days after discharge from hospital for patients hospitalized for depression

Considerations for ACE-PRO Refinement

Numerator

at least one office visit, emergency room visit, nursing home visit, home visit, or psych visit. This does not include visits by home care providers or case managers. This is the same as the original ACE-PRO specification.

Measurement Period

The measurement period used in the original ACE-PRO set was one year for identification of hospitalizations for depression and 14 days for the post-discharge follow-up.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set used one hospitalization with a primary diagnosis code for depression to identify cases.

Final Recommendation:

Continue to use the original ACE-PRO measure as specified:

At least one out-patient visit (with or without code for depression) within two weeks following discharge of patients, hospitalized for depression.

Indicator Name: Annual Visit

Indicator Description: Out-patient visit during the measurement year, in patients identified as Medicare enrolled in the eligibility file.

Clinical Logic: Follow-up, Monitoring, Continuing Care

Annual Visit is part of the FMCC because routine monitoring and preventive services (e.g. blood pressure monitoring, immunizations, arrangements for screenings) requires annual contact.

Evidence/Rationale:

Based upon expert opinion, the original ACE-PRO panel justified annual visits.

ACE-PRO Measure

Office visit every year

Considerations for ACE-PRO Refinement

Numerator

The original ACE-PRO measure accepted any out-patient visit. The out-patient visits could have been office visits, emergency room visits, nursing home visits, or home visits. Clinical assessment in emergency room visits is different from the clinical assessment that this measure is designed to detect (i.e. clinical assessment in chronic disease management).

Measurement Period

The measurement period used in the original ACE-PRO set was one year.

Age Range

Age greater than 65 was used in the original ACE-PRO set.

Case ID

The original ACE-PRO set identified all patients as cases. This identification algorithm cannot rely upon visits to identify cases unless the cases are identified in the previous year. Case identification should come from an independent source (i.e. the eligibility file).

Final Recommendation:

Modify the original ACE-PRO measure to be specified as:

At least one out-patient visit during the measurement year, in patients identified as Medicare enrolled in the eligibility file.

Justification for exclusion of measures from further consideration

Surgical repair of hip fracture was excluded for lack of sensitivity to ambulatory care. Influenza and pneumococcal immunization measures were excluded because of their known measurement reliability problems using claims data. Depression measures were excluded due to the known problems in using claims data to identify depression. H. pylori testing and pain management were excluded since both required *de novo* measure development.

Measurement Issues and Recommendations

Use of Composites

Various potential composites for measurement were identified. The expert panel recommended that MedPAC follow national guidance on the use of composite measures since there is a national workgroup studying the use of composites in performance measurement.

Potential Measure Composites

Clinical Assessment in Chronic Disease

- Diabetes Mellitus
- CAD
- Stroke/TIA
- COPD/Asthma
- Heart Failure

Follow-up After Hospitalization

- Diabetes Mellitus
- Acute MI
- Stroke/TIA
- Heart Failure
- Depression
- GI Bleed

Avoidable Hospitalizations

- Diabetes Mellitus
- CAD (ER)
- Heart Failure
- COPD/Asthma
- AHRQ PQIs (cite)

Work-up at Initial Dx

- EKG in TIA
- Carotid Imaging
- LVEF in Heart Failure
- EKG in Heart Failure
- CXR in Heart Failure
- Imaging in Breast Cancer
- GI Work-up in Iron Def Anemia

Cancer Staging

The expert panel reinforced the need for improved coding in cancer diagnosis because many potential quality measures in cancer therapy require staging information. This would be particularly valuable in developing new measures using administrative data.

Temporality

For some measures it is important to identify cases prior to the measurement year (e.g. Clinical Assessment). In other measures a period prevalence approach is justified in which the presence of the disease throughout the measurement period is inferred from the presence of defining codes any time within that measurement period (e.g. A1C testing in diabetes mellitus).

Age Intervals

The expert panel reinforced the value of using age intervals other than 65 and older, since there are Medicare beneficiaries in younger age groups, and other performance measurement systems use different age ranges. However, since this measure set is designed for the elderly, the default age range starts at age 65. Where evidence compels an age ceiling (e.g. screening for breast cancer) that age ceiling is specified in the measure specification.

Follow-up intervals

Various follow-up intervals are used in the measure specifications. The evidence behind such intervals is often lacking. The expert panel suggested the testing of various intervals in search of potential thresholds that could inform future measurement specification decisions.

Reliability of Codes

The original ACE-PRO measure set used the presence of one or more visits with a defining diagnosis code to establish cases. The SCRIPT project has demonstrated merit in enhanced predictive value of requiring at least two visits within a defining diagnosis code to establish cases. This algorithm eliminates potential false positives, enhancing specificity, due to coding for the purpose of diagnostic testing. Thus, it was decided that the refined ACE-PRO measure set use this stricter case identification algorithm.

Coding in Mental Illness

Mental health diagnosis codes are often under-used due to decreased reimbursement given perceptions of payment policies. For the purposes of quality measurement this problem creates an under-identification bias and led to the disqualification of many potentially suitable measures. The expert panel recommended either correction of this misperception or modification of the payment policy.

Uses of measures

Performance measures can be used for self-assessment or accountability purposes. These measures should be suitable for the following levels of analysis: national, regional, and certain sub-populations (rural/urban, dually enrolled).

Relative weakness of the evidence

Ideally, quality measures should be supported by strong evidence. In the strength of evidence hierarchy randomized trials are considered to be the strongest form of support. Observational studies are not as strong, while expert opinion and current practice are considered weaker support. While reflecting standards of care, most of the measures recommended in this report, are based upon expert opinion. It is important to note that other measurement systems and the vast majority of clinical practice guidelines include recommendations supported by similar strength of evidence.

Paucity of measures on interventions

The final list of recommended measures does not have any from the category of Therapeutic Intervention from the Clinical Logic. While some measures were considered (e.g. psychotherapy) and some were actually based upon very strong evidence (e.g. anticoagulation) all were eliminated for the lack of available data in claims databases. Medication use measures will have the potential to solve this problem after the Medicare Modernization Act of 2003 is fully implemented.

Updating the measures

As performance measurement, clinical practice, and evidence evolve, quality measures need to be periodically updated. The expert panel reinforced this recommendation.

Consistency with other measure sets

When performance measures have already been developed by other organizations, such specifications should be considered by MedPAC for the sakes of consistency and cost-effectiveness in measurement.

Consistency with self for time series analyses

MedPAC has been using the original ACE-PRO measures for several years now. Consistency with original specifications has value in allowing time series analyses. As such, original specifications were given preferential consideration and were altered only after careful consideration by staff and expert panelists. It is possible to perform retrospective time series analyses using the refined measures.

Measures to follow but not compose

Expert panelists and staff found the several measures useful in current form that would not require composition by MedPAC. The AHRQ PQIs are useful in this regard and can be cited by MedPAC without the burden of analysis.

Table 2: Measures Recommended for Inclusion in Medicare Ambulatory Care Indicators for the Elderly

1. Eye Exam in Diabetes Mellitus
2. A1C Testing in Diabetes Mellitus
3. Lipid Testing in Diabetes Mellitus
4. Clinical Assessment in Diabetes Mellitus
5. Follow-up after Hospitalization for Diabetes Mellitus
6. Serious Short Term Complications of Diabetes Mellitus
7. Serious Long Term Complications of Diabetes Mellitus
8. Lipid Testing in Coronary Artery Disease
9. Follow-up after Hospitalization for Acute MI
10. Clinical Assessment in Coronary Artery Disease
11. ER Use for Unstable Angina
12. Carotid Imaging at Initial Diagnosis of Carotid Artery Stroke
13. Carotid Imaging in Carotid Endarterectomy
14. Follow-up after Hospitalization for Stroke/TIA
15. Clinical Assessment for History of Stroke/TIA
16. Hospitalization for Hypertension
17. LVEF Assessment in Heart Failure: at Initial Diagnosis
18. LVEF Assessment in Heart Failure: Associated with Hospitalization
19. Laboratory Testing in Heart Failure
20. EKG after Initial Diagnosis of Heart Failure
21. CXR after Initial Diagnosis of Heart Failure
22. Follow-up after Hospitalization for Heart Failure
23. Clinical Assessment in Heart Failure
24. Admissions for Heart Failure
25. Breast Cancer Screening
26. Biopsy to Therapy Interval in Breast Cancer
27. CXR at Initial Diagnosis of Breast Cancer
28. Breast Imaging at Initial Dx of Breast Cancer
29. Mammography Surveillance in Breast Cancer
30. Colonoscopic Surveillance after Colon Cancer
31. Follow-up Visit after Hospitalization for GI Bleed
32. Follow-up Visit after Initial Diagnosis of GI Bleed
33. Follow-up Lab Test after Hospitalization for GI Bleed
34. Follow-up Lab Test after Initial Diagnosis of Anemia
35. GI Tract Work-up after Initial Diagnosis of Iron Deficiency Anemia
36. Clinical Assessment in COPD/Asthma
37. Hospitalization for Respiratory Diagnosis in COPD/Asthma
38. Follow-up after Hospitalization for Depression
39. Annual visit

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Appendices

1. Summary Matrix of Conditions / Topics Considered
 2. Preparatory Materials for Expert Panel Meeting
 3. Summary of Expert Panel Recommendations
 4. Revised ACE-PRO Indicator Set: Measure Short Descriptions
 5. Revised ACE-PRO Measures General Analytic Rules
 6. Bibliography
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Appendix 2. Preparatory Materials for Expert Panelist Meeting

Refinement of ACE-PRO Indicators

Preparatory Materials for Expert Panel

Meeting at MedPAC

May 17, 2004

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Introduction

Diabetes Mellitus

Coronary Artery Disease

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Heart Failure

Cancer

COPD/Asthma

Mental Health

Infectious Disease

Anemia, GI Bleed, and Miscellaneous

Background

MedPAC's purpose for this project is to refine the Access to Care for the Elderly Project (ACE-PRO) indicators. These were originally developed by RAND for the Physician Payment Review Commission (PPRC) nearly ten years ago. They have been used to measure quality and access in national and sub-group analyses including comparisons among geographic locations and disadvantaged populations. Clinical science and quality measurement have advanced during the past decade presenting the need to modernize the measure set.

Methods

Measure development requires selection of topics, review of evidence, design of operational definitions, and testing. In preparation for testing, the current work on topic selection, guideline review, and measure definitions are presented in summary form in this document. During the panel meeting in which you will participate, details of this work will be presented along with recommendations for refinement of the measure set. We are interested in your opinions regarding the clinical logic, evidence support, recommendations for specification and for use of the measures in national and sub-group analyses.

Condition/Topic Selection

An initial list of conditions/topics for consideration was developed that included the original ACE-PRO topics, high priority conditions identified by the Institute of Medicine, and conditions used in existing measures. Specific conditions/topics and their sources are displayed in table 1.

In prioritizing the conditions certain assumptions were made: 1) only claims data would be available for measurement; 2) medication data would not be available; 3) the population of focus would be community dwelling elderly (age ≥ 65); 4) special sub-populations (end stage renal disease, nursing home, disabled, dually enrolled, chronic and severe mental illness) would be included in analyses but not necessarily serve as a population of focus; 5) the indicators would measure ambulatory care processes directly or be sensitive to ambulatory care; 6) additions to the ACE-PRO measure set would be limited to measures currently in use by others. Justification for including and excluding conditions/topics will be presented during the panel meeting.

Clinical Logic

The conceptual framework for the presentation of measures was adapted from David Eddy's "Clinical Logic" paradigm. The natural history of disease generally progresses from a pre-disease state, to a pre-symptomatic state, to diagnosis and management, and serious clinical manifestations. Process and outcome measures are localized within categories that follow this progression: prevention; early detection; work-up at initial diagnosis; therapeutic interventions; follow-up, monitoring, continuing care; and serious clinical manifestations of disease.

The evidence review focused on existing guidelines and evidence that became available after the publication of the most recent guidelines. Sources of guidelines included: the National Guidelines Clearinghouse, the American Heart Association (AHA), US Preventive Services Task Force (USPSTF), the American Diabetes Association (ADA), the Institute for Clinical Systems Improvement (ICSI), the National Cholesterol Education Program's Third Adult Treatment Panel (NCEP), and the National Cancer Institute (NCI).

Measures Review

In addition to the original ACE-PRO indicators, measures for consideration in the selected conditions/topics were identified from the following sources: the National Quality Measures Clearinghouse, the Physician Consortium for Performance Improvement (Consortium), the National Health Quality Report (NHQR), the Veterans Administration (VA), National Committee for Quality Assurance (NCQA), National Diabetes Quality Improvement Alliance (Alliance), ICSI, Centers for Medicare & Medicaid Services (CMS), the Agency for Healthcare Research and Quality (AHRQ), and the SCRIPT Project (SCRIPT).

Orientation to the Materials

Potential measures are organized into condition-specific chapters. Within each chapter, the locus within the clinical logic is identified for each process or outcome. Process measures that are obviously infeasible are identified. For each measure that is feasible, a title, clinical logic locus, evidence/rationale, measure versions (including source and description), and recommendations with considerations are presented.

This packet of materials is designed to give a brief summary of the background work described above and to stimulate thought on these measures prior to the panel meeting. The rich discussion during the meeting will be the primary source of feedback. Feel free to jot down comments while you are reviewing this document for your own use during the panel meeting. Thank you for your participation.

Diabetes Mellitus

The Clinical Logic for diabetes mellitus is outlined here in greatest detail to establish the methodology. Here, examples of recommendations that fit the clinical logic are presented even where they are not under consideration for measurement. Only existing measures, either in the current ACE-PRO set or those currently in use elsewhere will be considered in this refinement. In subsequent chapters, identification of non-candidate measures will be minimized. The 2004 ADA guidelines served as the primary source for these processes of care recommendations.

Clinical Logic

Prevention

Prevention of Diabetes Mellitus can be achieved through early identification of pre-diabetes and either intensive lifestyle modification or medication therapy. A fasting blood sugar is used for early identification of diabetes.

Early detection of complications and co-morbidities

- Retinopathy
- Nephropathy
- Neuropathy
- Dyslipidemia
- Hypertension
- Coronary Artery Disease

Work-up at initial diagnosis

- Diagnosis
- H & P
- Laboratory Evaluation
 - A1C
 - Fasting Lipid Profile
 - Microalbuminuria
 - Creatinine
 - UA
 - ECG
- Referrals
 - Eye Exam
 - Nutrition
 - Foot Specialist
 - Behavior Specialist
 - Diabetes Educator
 - Endocrinologist
 - Nephrologist
 - Cardiologist

Therapeutic interventions

- Glycemic control
- Laser Photocoagulation
- ACEI or ARB
- Lipid Lowering
- BP Control
- Antiplatelet

Follow-up, monitoring, continuing care

- A1C testing
- Lipid profile
- Nephropathy
- Eye exam
- Visits

Serious manifestations of disease

Hospitalizations

Short term complications

- Uncontrolled DM
- DKA, HONK, Coma

Long term complications

- Renal, Eye, Neuro, Vasc
- LEA

Existing Measures

- Eye exam
- A1C testing
- Lipid testing
- Nephropathy
- BP
- Foot exam
- Visit
- Visit after hospitalization
- Diabetic coma
- Short-term complications
- Uncontrolled diabetes
- Long-term complications
- Lower extremity amputation

Processes of care not candidates for measurement but supported by evidence or expert opinion

Therapeutic Interventions

- Glycemic lowering therapy (Evidence A)
 - Medical Nutrition Therapy
 - Pharmacotherapy
 - Multiple classes
- Dyslipidemia
 - Lifestyle modification (Evidence A)
 - Pharmacotherapy if not enough (Evidence A)
- LDL goal < 100 (Evidence B)
 - Statin therapy preferred (Evidence A)
 - Fibrates in patients with CVD and near-normal LDL (Evidence A)
- Anti-platelet Therapy
 - Aspirin in comorbid CVD (Evidence A)
 - Aspirin in high-risk for CVD (Evidence A)
- Smoking Cessation
 - Advise all patient not to smoke (Evidence A)
- Hypertension
 - BP goal < 130/80 (Evidence B)
 - ACEI, ARB, thiazides
- CAD
 - Cardiologist referral (Evidence E)

Measure: Eye Exam

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Evidence/Rationale: ADA Guideline (2004)

Dilated and comprehensive eye exam by ophthalmologist or optometrist annually
Less often with advice from eye doctor in patients with normal exam
well-conducted cohort studies

Laser photocoagulation reduces risk of visual loss
well-conducted RCTs

Measure Versions: ACE-PRO, NCQA, VA, CMS, Consortium, Alliance

ACE-PRO

- Eye exam every year

NCQA

- Eye exam every year
- Or every 2 years with A1c < 8 and not using insulin
- Age 18 to 75
- # diagnosis codes: 2 outpatient or 1 inpatient

VA

- Eye exam every year
- Or every 2 years with 2/3: A1c < 8, not using insulin, and normal eye exam within 2 years
- Age unspecified
- # diagnosis codes: one

CMS

- Eye exam every year
- Or every 2 years with 2/3: A1c < 8, not using insulin, and normal eye exam within 2 years
- Age 18 to 75
- # diagnosis codes: 2 outpatient or 1 inpatient

Consortium

- Eye exam at initial assessment and annually
- Age 18 to 75

Alliance

- Eye exam every year
- Or every 2 years with 3/3: A1c < 8, not using insulin, and normal eye exam within 2 years

Recommendations/Considerations for ACE-PRO Refinement

- Keep ACE-PRO measure
- Consider modifying age range to 65-75 for consistency with other measures
- Consider using case ID algorithm of others for consistency
 - # diagnosis codes: 2 outpatient or 1 inpatient in 1 year
- Eye exam every year
 - No access to data on glycemic control, insulin use, or results of previous eye exams
 - Could justify every 2 years since majority of cases are likely to be low risk – normal eye exam, not using insulin, A1c <8

The case ID algorithm for diabetes mellitus will come up repeatedly throughout this chapter. We recommend a single approach to case ID across all diabetes measures. The use of 2 codes within a year increases positive predictive value, eliminating false positives likely associated with testing for diabetes mellitus. The case ID algorithm adopted by the other organizations is based upon a formal test of criterion validity.

This issue will come up in many of the other chapters as well.

Measure: A1C Testing

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale: American Diabetes Association guideline (2004)

- HgbA1c testing: Recommendation of A1C testing at least twice yearly for patients at goal, and at least four times per year for patients not at goal
expert consensus or clinical experience
- Glycemic lowering therapy: Control of blood glucose (measured as A1C) is associated with reduction in incidence of diabetes-related complications
well-conducted RCTs

Measure Versions:

ACE-PRO

- A1C or fructosamine every 6 months

NCQA

- At least one A1C performed per year
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus (or)
- Identification of diabetes mellitus status by use of pharmacy claims for glycemic lowering drugs
- Exclude where:
 - Diagnosis of polycystic ovaries and < 2 face to face encounters with diagnosis of diabetes mellitus
 - Diagnosis of steroid-induced diabetes
 - Diagnosis of gestational diabetes

VA

- A1C test result > 11, or test not performed
- Age unspecified
- One outpatient code from specified clinic visit during measurement year

CMS (DQIP)

- At least one A1C test performed during measurement year
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus

Consortium

- At least one A1C test performed during initial assessment and during follow-up
- Age 18 to 75

Alliance

- At least one A1C test performed during measurement year

Recommendations/Considerations:

- Modify ACE-PRO measure to A1C test at least once per year to be consistent with other measures
- Could justify 2 per year based upon guidelines and for more consistency with original ACE-PRO version
- Consider using case ID algorithm of others for consistency
 - # diagnosis codes: 2 outpatient or 1 inpatient in 1 year
 - Restrict age group eligible for measure to those with diabetes mellitus age 65-75 years for consistency with others
- Ignore polycystic ovaries, steroid-induced, gestational status (HEDIS exclusions)

Measure: Lipid Testing

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Evidence / Rationale: American Diabetes Association guideline (2004)

- Lipid monitoring: Test for lipid disorders at least annually and more often if needed to achieve goals. In adults with low-risk values repeat lipid assessments every two years
expert consensus or clinical experience
- Lipid lowering therapy: Lowering LDL-C cholesterol with diet or medication is associated with a reduction in cardiovascular events
well-conducted RCTs

Versions:

NCQA

- Lipid profile every 2 years
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus (or)
- Identification of diabetes mellitus status by use of pharmacy claims for glycemic lowering drugs
- Exclude where:
 - Diagnosis of polycystic ovaries and < 2 face to face encounters with diagnosis of diabetes mellitus
 - Diagnosis of steroid-induced diabetes
 - Diagnosis of gestational diabetes

CMS

- Lipid profile every 2 years
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus

Consortium

- Lipid profile, time not specified
- Age 18 to 75

Alliance

- LDL-C, time not specified

Recommendations/Considerations

- Include in ACE-PRO measure set as *Lipid profile every 2 years*
- Consider using case ID algorithm of others for consistency
diagnosis codes: 2 outpatient or 1 inpatient in 1 year
Include age 65 to 75 only (for consistency)
- Ignore polycystic ovaries, steroid-induced, gestational status as exclusions
- Could justify eliminating age ceiling, given demonstrated benefit of lipid lowering in older populations

Measure: Nephropathy

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Evidence/Rationale: American Diabetes Association guideline (2004)

- Monitoring of Kidney Disease / Function: Test for microalbuminuria annually in patients with Type 2 diabetes mellitus. In patients with Type 1 disease, test annually after 6 years post-diagnosis
expert consensus or clinical experience
- Treatment with ACEIs/ARBs: In hypertensive type 1 DM patients with any degree of albuminuria, ACEIs have been shown to delay the progression of nephropathy. In hypertensive Type 2 patients with microalbuminuria, ACEIs and ARBs have been shown to delay the progression to microalbuminuria and nephropathy (ARBs only)
well-conducted RCTs
- Blood Pressure Control: To reduce risk and/or slow the progression of nephropathy, optimize blood pressure control
well-conducted RCTs

Versions: NCQA, CMS, Consortium, Alliance

NCQA

- Screening for nephropathy, or diagnosis of nephropathy, or evidence of macroalbuminuria in measurement year
- Screening in previous year acceptable if patient not receiving insulin and if A1C < 8
- Age 18 to 75
- 2 outpatient or 1 inpatient code for diabetes mellitus (or)
- Identification of diabetes mellitus status by use of pharmacy claims for glycemic lowering drugs
- Exclude where:
 - Diagnosis of polycystic ovaries and < 2 face to face encounters with diagnosis of diabetes mellitus
 - Diagnosis of steroid-induced diabetes
 - Diagnosis of gestational diabetes

CMS

- Eliminated this measure from 6th SoW due to coding and clinical issues
 - Microalbuminuria testing reimbursement
 - Use of ACEI therapy

Consortium

- Any test for microalbuminuria
- In urinalysis negative or urinalysis absent
- Age 18 to 75

Alliance

- Screening for nephropathy, or diagnosis of nephropathy, or evidence of macroalbuminuria in measurement year
- Omitted the complex 2 year option
- Age 18 to 75

Recommendations/Considerations

- Consider including in ACE-PRO
 - Microalbuminuria test or diagnosis of nephropathy during 12 month period
 - Ignore insulin and A1C status as allowance for two-year timeframe
 - Age 18 to 75
 - 2 outpatient or 1 inpatient code for diabetes mellitus
- Could justify not adopting the measure
 - Coding issues from 6th SoW
 - Clinical issues
 - Increasing prevalence of ACEI and ARB use

Measure: Blood Pressure Control

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Evidence:

- Blood pressure control: ADA guideline (2004). BP control decreases morbidity and mortality in diabetes mellitus.
well-conducted RCTs

Versions:

Consortium

- Check blood pressure at initial visit and all follow-up assessments

Alliance

- Percent of patients with most recent BP < 140/90

DQIP

- Percent of patients with most recent BP < 140/90

Recommendations/Considerations:

- Despite strength of evidence and use of measure, do not adopt due to lack of relevant data from claims
 - Consider use of visit (an existing ACE-PRO measure) as proxy for BP check
-

Measure: Foot Exam

Clinical Logic: Early Detection and Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ADA Guideline 2004

Visual inspection of feet at each visit

expert consensus or clinical experience

Comprehensive foot exam annually

expert consensus or clinical experience

Versions:

VA

- Sensory foot exam annually

Consortium

- Comprehensive foot exam during follow-up assessments

Alliance and CMS

- Comprehensive foot exam annually

Recommendations/Considerations:

Despite use of measure by others do not adopt due to lack of relevant data from claims.

Measure: Visit every 6 months

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

AACE Guideline 2002

ADA Guideline (old) cited by Original ACE-PRO Panel
expert opinion

ACE-PRO Measure

Visit every 6 months

Recommendations/Considerations

Modify measure to 2 visits per year

- Despite lack of strong current guideline support, complexity of management including BP control, assessment of treatment progress and self-management training requires frequent office visits
 - Standardize denominator on 1 year
-

Measure: Visit after hospitalization

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

Original ACE-PRO Panel

expert opinion

ACE-PRO Measure

Visit \leq 4 weeks after discharge from hospital for patients hospitalized for diabetes mellitus

Performance score: 43% in Asch et al 2000

Recommendations/Considerations

- Modify the measure to exclude patients discharged to other facilities, and patients who died
- Consider for inclusion in continuity of care composite

Measure: Serious Short Term Complications of Diabetes Mellitus

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

Original ACE-PRO Panel

Effective outpatient management of diabetes mellitus, infections and other stressors, may prevent hospitalizations for hyperosmolar and ketotic states

AHRQ PQI

High quality outpatient management of patients with diabetes has been shown to reduce almost all types of serious hospitalizations

Versions:

ACE-PRO

- Admission for diabetic coma, hyperosmolar or ketotic coma among patients with diabetes mellitus

AHRQ PQI

- Diabetes Short Term Complications Admission Rate
Discharges for Ketoacidosis, Hyperosmolarity, Coma
Per 100,000 in the population

Recommendations/Considerations:

- Use numerator of PQI version and denominator of ACE-PRO version to restrict to population with diabetes
- Use in composite measure with Uncontrolled DM (below)

Measure: Uncontrolled Diabetes Mellitus

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale: AHRQ PQI

High quality outpatient management of diabetic patients has been shown to lead to reductions in almost all types of serious hospitalizations.

Version:

AHRQ PQI

Uncontrolled Diabetes Admission Rate

Discharges

Uncontrolled DM without mention of ST or LT complications

Per 100,000 in population

Recommendations/Considerations

- Use numerator of PQI and denominator of ACE-PRO (above)
 - Restrict to population with diabetes
- Consider combining numerators with short term serious complications (above)
 - Both outcomes due to same processes of care
 - Would provide for more statistically useful numerator

Measure: Serious Long Term Complications of Diabetes Mellitus

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

AHRQ PQI

long term complications of diabetes mellitus arise from sustained, long-term, poor control of diabetes mellitus

intensive treatment programs have been shown to decrease the incidence of long term complications in both type 1 and type 2 (UKPDS, DCCT)

AHRQ PQI

Long term glycemic control, foot care, and diabetes education are interventions that can reduce the incidence of infection, neuropathy, and microvascular diseases

Versions:

AHRQ PQI

- Diabetes Long Term Complications Admission Rate
Discharges for
Renal, Eye, Neurological, Circulatory, &
Complications not otherwise specified
Per 100,000 in population

- Rate of LEA in Diabetes
Discharges for LEA and Diagnosis of DM
Per 100,000 in population

Recommendations/Considerations

- Use numerators of PQIs and denominator of ACE-PRO version (above)
 - Restrict to population with diabetes
- Combine numerators long term complications and LEAs
 - Both outcomes due to same processes of care
 - Would provide for more statistically useful numerator
- Combine numerators with long term complications
 - Both outcomes due to same processes of care
 - Would provide for more statistically useful numerator

Coronary Artery Disease

Prevention

- Cholesterol Screening

Early Detection

- Screening for diabetes mellitus in CAD
- Lipid Testing
- LDL-C after acute cardiovascular event (MI, CABG, PCI)

Work-up at Initial Diagnosis

- EKG in ER for Unstable Angina

Therapeutic Interventions

- Smoking Cessation Counseling
- Anti-platelet therapy
- Beta blocker therapy
- Statin therapy
- ACEI therapy

Follow-up, Monitoring, Continuing Care

- Follow-up visit or hospitalization within 1 week of initial diagnosis of Unstable Angina
- Cholesterol Test every 6 months post discharge for AMI with comorbid dyslipidemia
- Visit within 4 weeks of hospitalization for MI
- Follow-up visit or hospitalization within 1 week of initial diagnosis of Unstable Angina
- Visit every 6 months in Stable Angina
- Symptom-activity assessment
- BP measurement

Serious Clinical Manifestations of Disease

- 3 or more ER visits in one year for heart related diagnoses
- Angina Admission Rate

Eliminate for Data Access Limitations

- Smoking Cessation Counseling
- Anti-platelet therapy
- Beta blocker therapy
- Statin therapy
- ACEI therapy
- Symptom-activity assessment (visit)
- BP measurement (visit)

Cholesterol screening considered and eliminated by original ACE-PRO panel for recommended 5-year interval. This creates difficulty in composing and interpreting an annual indicator. Current recommendations do not specify a more useful interval for such measurement purposes.

Measure: Screening for diabetes mellitus in CAD

Clinical Logic: Early detection (of diabetes mellitus)

Evidence/Rationale:

ADA guideline 2003

American College of Endocrinology Consensus Statement

Screening for diabetes is recommended in patients who are considered high risk (e.g. coronary artery disease)

Diabetes is associated with poor outcomes in patients with established coronary disease (ACC/AHA/ACP-ASIM Guidelines for ... Chronic Stable Angina)

Measure Version: Physician Consortium for Performance Measurement

Screen for diabetes mellitus (FBS or 2 hr GTT) every 3 years
in patients with coronary artery disease

Recommendations/Considerations:

- Consider adding to ACE-PRO measure set
 - Data are available, codes for FBS and GTT
 - Three year time frame inconsistent with denominator standardization and for use in trend analyses
 - Clinical recommended indicates screening should be *considered* at three year intervals
 - Use 2 year as in lipid profile and expect lower proportion

Measure: Lipid Testing

Clinical Logic: Early detection and Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACC/AHA/ACP-ASIM Guidelines for ... Chronic Stable Angina

- Measurement of LDL cholesterol is warranted in all patients with coronary disease
expert opinion
- Lipid lowering therapy prevents death in coronary artery disease
well-conducted RCTs

NCEP ATP III

- LDL is the primary target of lipid lowering therapy
Management may require attention to other lipid components

Measure Versions: ACE-PRO, Consortium, NCQA

ACE-PRO

Cholesterol Test every 6 months post discharge for AMI with comorbid dyslipidemia

Age > 65

Consortium

Annual lipid profile in patients with CAD

Age not specified

Exclusions none

NCQA

LDL-C 60 days to 1 year after acute coronary event (Acute MI, CABG, PTCA)

Age 18 to 75

Exclusions none

Recommendations/Considerations:

Modify ACE-PRO version

- Use broader denominator from Consortium
- Use lipid profile from Consortium
- Consider using 2 outpatient or 1 inpatient code
- No upper age limit

Measure: Follow-Up After Initial Diagnosis Of Unstable Angina

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel

Patients with unstable angina not hospitalized require aggressive outpatient treatment.
expert opinion

Recommendations/Considerations:

Exclude measure.

- It's hard to imagine patients with UA not being sent to the hospital these days. A one week delay would be cause for concern. In the Asch paper the performance level was 89%.
 - Establishing incident cases (initial diagnosis) of UA will be quite difficult to interpret.
-

Measure: Visit after hospitalization for MI

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel

“Although not specifically recommended by the ACC/AHA, it seems reasonable that all patients discharged with acute MI should have an office visit within four weeks of leaving the hospital.”

expert opinion

Measure Version: ACE-PRO

Visit within 4 weeks of discharge in patients hospitalized for acute MI

Recommendations/Considerations:

- Keep measure.
 - Probably sensitive to discharge planning.
 - Would be useful in a continuity of care composite.

Measure: Clinical Assessment in CAD

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel

Management of CAD requires risk factor modification, symptom and activity assessment.

expert opinion

Measure Versions:

ACE-PRO

Visit every 6 months in Stable Angina

Consortium

Regular symptom & activity assessment in CAD

BP measurement

Recommendations/Considerations:

- Modify measure to 2 visits in one year to standardize denominator.
- Symptom and activity assessment cannot be directly measured but can be inferred to have occurred as part of “subjective” assessment.
- BP measurement cannot be directly ascertained but can be inferred to have occurred as part of “objective” assessment.

Measure: Hospital Use in Unstable Angina

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

ACE-PRO Original Panel

After one ER visit patients should have access to treatment that would prevent subsequent ER visits. Hospitalization is often necessary and should not be considered avoidable.

expert opinion

AHRQ PQI

(ACC/AHA/ACP-ASIM Guideline ... Chronic Stable Angina)

Effective treatments for CAD reduce admissions for serious complications of ischemic heart disease including unstable angina

Measure Versions

ACE-PRO

3 or more ER visits in one year for heart related diagnoses in unstable angina

Exclude ER visits resulting in hospitalizations

AHRQ PQI

Admissions for Angina

Per 100,000 in the population

Exclude admissions with procedures

Age \geq 18

Recommendations/Considerations:

Keep ACE-PRO Version

Add AHRQ PQI measure with modification

- Admissions for angina (without procedures)
 - Use CAD denominator

Measure: EKG in ER for Unstable Angina

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

ACE-PRO Original Panel

EKG to rule out MI is considered necessary care.

expert opinion

Measure Versions

ACE-PRO

EKG during emergency department visit for unstable angina

Recommendations/Considerations:

Eliminate the measure. Sensitive to hospital-based care, not ambulatory care.

Performance in Asch paper was $> 97\%$.

Stroke, TIA, Atrial Fibrillation, Hypertension

Prevention

-

Early Detection

-

Work-up at Initial Diagnosis

- EKG within 2 days of initial diagnosis of TIA
- Carotid imaging within 2 weeks of initial diagnosis in patients hospitalized for carotid artery stroke

Therapeutic Interventions

- Antiplatelet therapy
- BP lowering therapy
- Anticoagulation in atrial fibrillation

Follow-up, Monitoring, Continuing Care

- Carotid imaging to carotid endarterectomy interval less than 2 months
 - TIA
 - Stroke
- Visit within 4 weeks of hospitalization for
 - Stroke
 - TIA
- Visit every year for patients with TIA
- Visit within 4 weeks of hospitalization for malignant or otherwise severe hypertension

Serious Clinical Manifestations of Disease

- Hypertension Admission

Eliminate for Data Access Limitations

- Antiplatelet therapy
- BP lowering therapy
- Anticoagulation therapy

Measure: EKG within 2 days of initial diagnosis of TIA

Clinical Logic: Work-up at initial diagnosis

Evidence/Rationale:

Original ACE-PRO panel

AHA Stroke Guideline 2003

EKG on the list of recommended tests for TIA: ESR, EKG, CXR, echo, Holter, CT/MRI, CBC, electrolytes, renal function, blood glucose, and lipids
expert opinion

Measure Version: ACE-PRO

Recommendations/Considerations:

Keep measure. Consider other tests on list.

Difficulty identifying initial diagnosis could justify elimination of measure.

Measure: Carotid imaging at initial diagnosis of carotid artery stroke

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

Original ACE-PRO Panel

Strong evidence supporting efficacy of CEA, weaker evidence demonstrating harm in delay > 30 days, carotid imaging is necessary to establish candidacy for CEA.

expert opinion

Measure Versions: ACE-PRO

Carotid imaging within 2 weeks of initial diagnosis in patients hospitalized for carotid artery stroke

Recommendations/Considerations:

Consider keeping measure.

- Seems sensitive to post-discharge follow-up.
- However, may have difficulty establishing initial diagnosis

Measure: Carotid imaging in carotid territory event

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

Original ACE-PRO Panel

Strong evidence supporting efficacy of CEA, weaker evidence demonstrating harm in delay > 30 days, ? evidence for optimal interval between imaging and surgery
non-randomized trial

Measure Versions: ACE-PRO

Interval between carotid imaging and CEA less than 2 months in patients with TIA and eventual CEA

Interval between carotid imaging and CEA less than 2 months in patients with stroke and eventual CEA

Recommendations/Considerations:

- Currently 2 measures in ACE-PRO, one with TIA denominator, one with stroke
- Consider keeping measures and combining denominators to create 1 measure
- Consider dropping measure
 - Rationale for interval not clear

Measure: Anticoagulation therapy in atrial fibrillation

Clinical Logic: Therapeutic intervention

Evidence/Rationale:

multiple RCTs

Measure Versions

Consortium

Warfarin therapy in heart failure with comorbid atrial fibrillation

SCRIPT

Warfarin therapy in atrial fibrillation

Recommendations/Considerations:

- Consider INR monitoring as proxy for anticoagulation therapy
 - Drug use data not available
 - High proportion of INR monitoring in anticoagulation therapy
 - ~ 90% in SCRIPT Project
 - Contraindications to anticoagulation can be identified from codes
- However, this would be a measure development exercise

Measures:

Visit after hospitalization for stroke
Visit after hospitalization for TIA
Visit after hospitalization for hypertension

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel
Recommended by panel as minimum standard
expert opinion

Measure Versions: ACE-PRO

Visit within 4 weeks of hospitalization for stroke
Visit within 4 weeks of hospitalization for TIA
Visit within 4 weeks of hospitalization for malignant or otherwise severe hypertension

Recommendations/Considerations:

- Keep measures
 - Consider combining the denominators for stroke and TIA into one measure.
 - Consider dropping hypertension measure due to infrequency of such hospitalizations
 - Consider as part of composite measure of continuity of care.
-

Measure: Clinical Assessment in TIA

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel
Minimum standard
expert opinion

Measure Versions:

ACE-PRO

Visit every year in TIA

Recommendations/Considerations:

- Keep measure
- Consider modifications
 - 2 visits per year
 - Case ID algorithm that requires 2 codes in one year

Measure: Admissions for Hypertension

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

AHRQ PQI

Hypertension is controllable in the out-patient setting

Measure Version:

Admissions for hypertension per 100,000 in the population

Recommendations/Considerations:

- Consider not adding the measure to ACE-PRO
 - Infrequency of admissions for hypertension
- Consider changing to denominator of patients with hypertension
- Would be useful in composite measure of continuity of care

Heart Failure

Prevention

-

Early Detection

-

Work-up at Initial Diagnosis

- LVEF assessment
- Lab testing
- EKG
- CXR
- Weight measurement
- BP measurement
- Symptoms-activity assessment
- Examination of the heart

Therapeutic Interventions

- Beta blocker therapy
- ACEI therapy
- Patient education
- Warfarin in comorbid atrial fibrillation

Follow-up, Monitoring, Continuing Care

- Visit within 4 weeks of hospitalization for heart failure
- Visit every 6 months in Heart Failure
- Weight measurement
- BP measurement
- Symptoms-activity assessment
- Examination of the heart

Serious Clinical Manifestations of Disease

- Admission for Heart Failure
- Admission Rate for Heart Failure

Eliminate for Data Access Limitations

- Beta blocker therapy
- ACEI therapy
- Warfarin therapy
- Patient education
- Symptom-activity assessment (visit)
- BP measurement (visit)
- Weight measurement (visit)
- Examination of the heart (visit)

Measure: LVEF Assessment

Clinical Logic: Work-up at initial diagnosis

Evidence/Rationale:

ACC/AHA Chronic Heart Failure Guideline 2001

Echo with Doppler or RVG to assess Left Ventricular Systolic Function
expert opinion

Measure Versions: Consortium, CMS

Consortium

Quantitative or qualitative results of LVEF assessment recorded in patients with heart failure, age ≥ 18

CMS

LVEF assessment before arrival, during hospitalization, or planned for after discharge in patients admitted for heart failure, age ≥ 18

Recommendations/Considerations:

Consider adding measure(s) to ACE-PRO set:

- Diagnostic ultrasound, RVG, or Left Ventriculogram in incident cases of heart failure
 - Look back to establish incident case
 - 1 year
 - Look forward (and back) to detect LVEF assessment
 - 3 months
- Diagnostic ultrasound, RVG, or Left Ventriculogram in patients hospitalized for heart failure
 - Look back, look during, look after the hospitalization
 - 3 months before and after
- Consider case ID algorithm that requires 2 outpatient or 1 inpatient code

Measure: Laboratory Testing

Clinical Logic: Work-up at Initial Diagnosis and Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACC/AHA Chronic Heart Failure Guideline 2001

Initial measurement of CBC, UA, electrolytes, renal function, blood glucose, LFTs, TFTs
expert opinion

ACC/AHA Chronic Heart Failure Guideline 2001

Serial measurement of electrolytes and renal function
expert opinion

Measure Versions: Consortium, SCRIPT

Consortium

Patients for whom initial lab testing was performed in patients with heart failure, age \geq 18

SCRIPT

Potassium and renal function testing annually in patients with heart failure on ACEI inhibitor therapy or digoxin

Recommendations/Considerations:

Consider adding measure(s) to ACE-PRO set

- Annual measurement of electrolytes and renal function in patients with heart failure
 - High likelihood of treatment with ACEI, ARB, Digoxin or loop diuretic
 - High level of performance in SCRIPT
 - Suspect high numbers of non-discriminate testing
- CBC, UA, electrolytes, renal function, blood glucose, LFTs, TFTs after initial diagnosis of heart failure
 - Same level recommendation and evidence as CXR and EKG (below)

Measure: EKG after Initial Diagnosis of Heart Failure

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

ACE-PRO Original Panel

AHCPR Heart Failure Guideline 1994

ACC/AHA Chronic Heart Failure Guideline 2001

expert opinion

Recommendations/Considerations:

Keep the measure in the ACE-PRO set

- Despite difficulty with establishing initial diagnosis
 - Look-back
 - Consider combining with CXR (below)
-

Measure: CXR after Initial Diagnosis of Heart Failure

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

ACE-PRO Original Panel

AHCPR Heart Failure Guideline 1994

ACC/AHA Chronic Heart Failure Guideline 2001

expert opinion

Recommendations/Considerations:

Keep the measure in the ACE-PRO set

- Despite difficulty with establishing initial diagnosis
 - Look-back
- Consider combining with EKG (above)

Measure: Visit after hospitalization for heart failure

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel

Made argument for followup in 1 week

expert opinion

Measure Version: ACE-PRO

Visit within 4 weeks of discharge in patients hospitalized for heart failure

Recommendations/Considerations:

Keep measure in ACE-PRO set.

- Probably sensitive to discharge planning.
- Would be useful in a continuity of care composite.

Measure: Clinical Assessment in Heart Failure

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel

Most practitioners schedule follow-up visits for CHF patients at 2-4 month intervals.

Panel recommends every 6 months as indicator of minimal care.

expert opinion

Measure Versions:

ACE-PRO

Visit every 6 months in Heart Failure

Consortium

Symptom-activity assessment

BP measurement

Weight measurement

Examination of the heart

Recommendations/Considerations:

Modify measure for inclusion in ACE-PRO set

- 2 visits in one year to standardize denominator
- Symptom and activity assessment, BP measurement, weight measurement, and examination of the heart cannot be directly measured but can be inferred to have occurred as part of “subjective” and “objective” assessments

Measure: Hospital admissions for heart failure

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

ACE-PRO Original Panel and AHRQ PQI

Timely out-patient therapy can eliminate the need for some hospitalizations for heart failure.

expert opinion

Measure Versions

ACE-PRO

Non-elective admissions for heart failure

AHRQ PQI

Admissions for Heart Failure

Per 100,000 in the population

Recommendations/Considerations:

Keep the measure for the ACE-PRO set with heart failure patients in denominator

Cancer

Prevention

-

Early Detection

- Breast Cancer Screening
- Cervical Cancer Screening
- Colon Cancer Screening
- GI Work-up in Iron Deficiency Anemia (in Anemia Chapter)
- Prostate Cancer Screening
- Lung Cancer Screening

- Stage at Diagnosis
 - Breast Cancer
 - Cervical Cancer
 - Colorectal Cancer

Work-up at Initial Diagnosis (Staging)

- Staging in Breast Cancer
- Staging Colon Cancer

Therapeutic Intervention

- Chemo
- Radiation
- Surgery

Follow-up, Monitoring, Continuing Care

- Surveillance
- Imaging
- Visits

Serious Clinical Manifestations of Disease

- Death rates

Prostate Cancer Screening

No current measures and the U.S. Preventive Services Task Force (USPSTF) concludes that the evidence is insufficient to recommend for or against routine screening for prostate cancer using prostate specific antigen (PSA) testing or digital rectal examination (DRE).

Lung Cancer Screening

No current measures and the USPSTF statement that routine screening for lung cancer with chest radiography or sputum cytology in asymptomatic persons is not recommended.

No existing measures for therapeutic interventions. Interventions are highly stage-specific and stage information will not be available from claims. No such measures will be presented.

Measure: Breast Cancer Screening

Clinical Logic: Early Detection

Evidence/Rationale:

USPSTF 2002

Screening mammography with or without clinical breast exam every one to two years for women age 40 and older.

at least fair evidence that [the service] improves important health outcomes and concludes that benefits outweigh harms.

AMA, ACOG, ACR, ACS, NCI

all support mammography with CBE starting at age 40

CTFPHC, AAFP, ACPM recommend mammography starting at age 50 for average risk, 40 for high risk

Annual screening recommended by AMA, ACR, ACS

Every one to two years recommended by AAFP, ACPM, CTFPHC, NCI

Every year age 50 and older recommended by ACOG

Measure Version:

ACE-PRO

Mammography every 2 years in female patients
Age < 75 (in sub-analysis)

CMS, VA

Mammography every 2 years in female patients
Ages 52-69

NCQA, Consortium

Mammography every 2 years in female patients
Ages 50-69

NHQR (Healthy People 2010)

Mammography every 2 years in female patients
Age >= 40

Recommendations/Considerations:

Keep the measure in the ACE-PRO set.

Consider modifying the denominator to use common age range up to age 69

Measure: Colorectal Cancer Screening

Clinical Logic: Early Detection

Evidence/Rationale:

USPSTF Guideline 2002

Strongly recommends screening men and women age 50 and older
good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.

NCI

FOBT

well-conducted RCT

Sigmoidoscopy

well-conducted cohort or case-control studies, multiple-time series studies, expert opinion

Measure Versions:

NHQR (Healthy People 2010)

- Proportion of men and women ages 50 and older who reported ever having a flexible sigmoidoscopy or colonoscopy
- Proportion of men and women ages 50 and older who reported having a FOBT within the past 2 years

Consortium

- Percentage of patients aged 50 or older screened for colorectal cancer (FOBT annually, sigmoidoscopy every 5 years, double contrast barium enema every 5 years, colonoscopy every 10 years)

NCQA

- One or more screenings for colorectal cancer
 - FOBT in one year or
 - Sigmoidoscopy in 5 years or
 - DCBE in 5 years or
 - Colonoscopy in 10 years
 - Ages 52-80
 - Exclusions: Colorectal cancer

VA

- Percent of patients receiving timely colorectal cancer screening
 - FOBT 3 samples in 12 months
 - Sigmoidoscopy in 5 years
 - Colonoscopy in 10 years
 - Exclusions: malignancy, short life-expectancy

Recommendations/Considerations:

A measure worth developing. Data access and enrollment limitations may preclude 5 year and 10 year look backs. Consider waiting for NCQA experience.

Measure: Cervical Cancer Screening

Clinical Logic: Early Detection

Evidence/Rationale:

USPSTF 2003

- recommends against routinely screening women older than age 65 for cervical cancer if they have had adequate recent screening with normal Pap smears and are not otherwise at high risk for cervical cancer.
- recommends against routine Pap smear screening in women who have had a total hysterectomy for benign disease.

Measure Versions:

NCQA

PAP test within 3 years for women ages 18-65

NHQR (Healthy People 2010)

PAP test within 3 years on survey, age > 18

Recommendations/Considerations:

Do not use this measure.

- It could be composed using 3 year look backs to identify women who shouldn't have PAP smear.
- Probably too complex to justify.

Measure: Staging in Breast Cancer

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

Original ACE-PRO Panel

Surgery delay time and timeliness of staging
non-randomized trial

Measure Versions:

ACE-PRO

Interval from biopsy to definitive therapy < 3 months

Recommendations/Considerations:

Keep the measure.

Measures:

CXR at Initial Diagnosis

Mammography at Initial Diagnosis

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

ACE-PRO Original Panel

Part of Staging Evaluation
expert opinion

Measure Version:

ACE-PRO

Recommendations/Considerations:

Keep measures in the ACE-PRO set.

- Although recommendations may be dependent upon stage and stage will not be accessible in claims database, these measures seem to be sensitive to thoroughness in staging work-up.

Measures:

Visit after Mastectomy with Cytotoxic Chemotherapy
without Cytotoxic Chemotherapy

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO Original Panel
Follow-up schedules in controlled trial (GIVIO)
expert opinion

Measure Versions:ACE-PRO

Visit every year after Mastectomy without Chemo
Visit every six months after Mastectomy with Chemo

Recommendations/Considerations:

Keep measures in ACE-PRO set.

- Consider combining measures into one.
 - Very high rates in Asch paper, 99-100% and in Hogan paper 92-100%.
 - Denominator size potentially too small for subgroup analyses.

Measure: Mammography surveillance with history of breast cancer

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

Original ACE-PRO panel
Standard of control arm of GIVIO
non-randomized trial

Measure Version:

Annual mammogram after diagnosis of breast cancer

Recommendations/Considerations:

Keep the measure in the ACE-PRO set.

Measure: Colonoscopic surveillance with a history of colon cancer

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACS Guideline, Screening and Surveillance, Colon CA (2001)

Colonoscopy 1 year after resection

Colonoscopy 3-6 years after polypectomy

Measure Version: None

Recommendation:

Consider testing a measure looking at colonoscopy 1 year after resection

Measure: Staging in colorectal cancer

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

ACR Appropriateness Criteria For Pretreatment Staging Of Colorectal Cancer (1999)

TRUS, CT or MRI in initial staging of colorectal cancer

Measure Version: None

Recommendation: Consider testing a measure looking at TRUS, CT or MRI in initial staging of colorectal cancer

Measure: Stage at diagnosis of breast cancer, cervical cancer, colorectal cancer

Clinical Logic: Early detection (failure of)

Evidence/Rationale:

Late stage diagnosis should be inversely associated with effectiveness of early detection.

Measure Version:

NHQR

Rate of cancers (breast, cervical, colorectal) diagnosed at late stage

Uses SEER

Recommendations/Considerations:

Data not accessible from claims. Cite SEER statistics rather than attempting measurement. Could use to validate screening measures. Improvements in screening should lead to decreases in late stage diagnosis.

Measures:

Death rate for all cancers

Death rate for individual cancers

Prostate

Breast

Lung

Colorectal

Clinical Logic: Serious Clinical Manifestations of Disease

Measure Version:

NHQR (Healthy People 2010)

Recommendations/Considerations:

Data not accessible from claims. Questionable sensitivity to ambulatory care process. Cite NHQR in providing overall picture of cancer care.

COPD/Asthma

Prevention

- Smoking Cessation Advice

Early Detection

-

Work-up at Initial Diagnosis

- PFTs
- Sleep study
- Oxygenation assessment

Therapeutic Interventions

- Pharmacotherapy
- O2 therapy

Follow-up, Monitoring, Continuing Care

- Visits
- Oxygenation assessment
- Compliance
- Symptom assessment
- Smoking cessation advice

Serious Clinical Manifestations of Disease

- Hospitalizations

Eliminate for Data Access Limitations

- Smoking cessation advice
- Pharmacotherapy
- Symptom assessment
- Compliance assessment

Eliminate, No Current Measure

- PFTs
- Sleep study
- Oxygenation assessment

Measure: Clinical Assessment in COPD

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

Original ACE-PRO Panel

Cites guideline recommending at least quarterly visits. Sets 6 month interval as minimum standard.

expert opinion

Measure Version:

ACE-PRO

Visit every 6 months for COPD

Consortium

Asthma assessment

Symptom assessment during at least one office visit in a year

Recommendations/Considerations:

Modify ACE-PRO measure.

- Original ACE-PRO measure used COPD as denominator.
 - Expand to include asthma diagnoses
 - Consider 2 visits/year to keep standard denominator of one year.
- Symptom assessment data not available without chart review.
 - Can infer as part of “subjective” assessment of visit.

Measure: Hospitalization in COPD

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

Original ACE-PRO Panel and AHRQ PQI

- Proper management of symptoms of COPD can reduce admissions.
- Appropriate out-patient treatment and compliance can reduce hospitalizations for COPD exacerbations and decline in lung function.

expert opinion

Measure Versions:

ACE-PRO

Admission for respiratory diagnosis in patients with known COPD

AHRQP QI

Admissions for COPD per 100,000 in the population

Admissions for Asthma per 100,000 in the population

Recommendations:

Modify measure for inclusion in measure set.

- Consider adding asthma to denominator.

Depression and Other Mental Illness

Prevention

-

Early Detection

- Out-patient screening

Work-up at Initial Diagnosis

- Diagnostic Evaluation
- Severity Classification
- Medication history
- Lab
 - TSH

Therapeutic Interventions

- Pharmacotherapy
- Psychotherapy

Follow-up, Monitoring, Continuing Care

- Out-patient follow-up after hospitalization
- Suicide Risk Assessment

Serious Clinical Manifestations of Disease

- Hospitalizations
- Suicides

Eliminate for Data Access Limitations

- Out-patient screening
- Symptom assessment in diagnostic evaluation
- Severity classification in diagnostic evaluation
- Medication history
- Pharmacotherapy
- Suicide risk assessment

Hospitalizations for depression not an existing measure.

Measure: Out-patient screening

Clinical Logic: Early detection

Evidence/Rationale:

ICSI

Presentation for depression typically includes multiple somatic complaints, weight gain or loss, mild dementia, fatigue, sleep disturbances

expert opinion

Measure Version: ICSI

Screen for depression in patients newly seen for fatigue

Recommendations/Considerations:

Do not adopt measure for reasons of data access limitation.

- Although fatigue can be identified by diagnosis code, screen for depression relies upon chart abstraction. A visit could serve as a proxy for such a clinical assessment. Such an assumption would deserve some validation.

Measure: Thyroid function testing in depression

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

Original ACE-PRO Panel, AHCPR Guideline 1993

Hypothyroidism is potential secondary cause of depression.

non-randomized trial

Measure Versions: ACE-PRO

TSH within 1 month of initial diagnosis for depression

Recommendations/Considerations:

Do not include in ACE-PRO set.

- Deemed unsuitable by Original ACE-PRO Panel.
- Anticipate difficulty with establishing initial diagnosis.
- Recommendation not as strong for men.
- Consider testing such a measure.

Measure: Psychotherapy

Clinical Logic: Therapeutic Intervention

Evidence/Rationale:

Psychotherapy alone or in combination with pharmacotherapy improves clinical condition in depression.

Measure Versions:

Consortium

Therapy appropriate to classification in depression

- Psychotherapy
- Medication management
- ECT

Recommendations/Considerations:

Data access and validity problems. Chart review would be necessary for establishing classification in depression, therapeutic monitoring in medication management, and specifics of psychotherapy. Reliability of depression identification using codes is questionable. Underuse of depression codes is driven by reimbursement rules that substantially decrease reimbursement when depression is included as a diagnosis.

Do not adopt such measures. Consider a recommendation to modify coding reimbursement policy in the future.

Measures:

Follow-up after positive screen for depression

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

VA/DoD guideline on depression

Screening identifies potential cases, needs more specific diagnostic evaluation

Measure Version:

VA/DoD

Follow-up assessment or referral after positive screen for depression

Recommendations:

Measure composition would require chart abstraction. Do not adopt measure.

Measure: Out-patient follow-up after hospitalization

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACE-PRO and NCQA

Follow-up for readmission prevention, transitional care

Continuation of therapy

expert opinion

Measure Versions

NCQA

- Out-patient follow-up within 7 days of hospital discharge for depression and other mental health diagnoses
- Out-patient follow-up within 30 days of hospital discharge for depression and other mental health diagnoses

Age 6 and older

Exclusions: rehospitalizations

ACE-PRO

Out-patient follow-up within 14 days of hospital discharge for depression

Recommendations/Considerations:

Keep measure without modification unless compelling reason to modify

- Choose among 7 day, 14 day, and 30 day thresholds.
- Ceiling effect in Asch et al 2000 (95% performance)
- The addition of other mental health diagnoses should increase denominator size although many of the other diagnoses are specific to children and adolescents and many of the other diagnoses are infrequently associated with hospitalization.

Consider testing multiple approaches.

	7 days	14 days	30 days
Depression		ACE-PRO	
Depression and other mental health diagnoses	NCQA		NCQA

Other Mental Health Diagnoses

Schizophrenia, Other Psychotic Disorders, OCD, Personality Disorders, Acute Reactions To Stress, Adjustment Reactions, Disorders Of Childhood And Adolescence

Measure: Deaths due to suicide

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

Original ACE-PRO Panel

Suicide attempts may indicate inadequate prior therapy

Versions:

NHQR/Healthy People 2010

National Vital Statistics System

Deaths due to suicide per 100,000 in population

Recommendations:

Do not develop measure. Refer to NHQR.

- Measure is already part of NHQR via NVSS.
- Consider building measure specific to population with depression.
 - Could identify deaths due to suicide that included hospitalizations.
 - Anticipate problem identifying denominator of depression due to undercoding.

Infectious Diseases

Prevention

- Influenza Immunization
- Pneumococcal Immunization

Early Detection

-

Work-up at Initial Diagnosis

- Cultures
- Imaging

Therapeutic Interventions

- Antibiotic Therapy
- Surgery
 - Cholecystectomy

Follow-up, Monitoring, Continuing Care

-

Serious Clinical Manifestations of Disease

- Admissions for Urinary Tract Infection
- Admissions for Perforated Appendix
- Admissions for Bacterial Pneumonia
- Empyema or Lung Abscess
- Perforated Gall Bladder

Eliminate for Data Access Limitations

- Antibiotic Therapy

Eliminate, no existing measures

- Cultures and Imaging

Eliminate, not sensitive to ambulatory care

- Cholecystectomy
- Admission for Perforated Appendix
- Empyema or Lung Abscess
- Perforated Gall Bladder

Measure: Influenza Immunization

Clinical Logic: Prevention

Evidence/Rationale:

USPSTF (1996)

Annual influenza vaccine is recommended for all persons aged 65 and older and persons in selected high-risk groups.

Consortium

Annual influenza immunization is recommended for all groups who are at increased risk for complications from influenza including persons age ≥ 50 years, B Recommendation, Evidence Level I, II-2

NCQA, ACP, CDC ACIP, IDSA

Annual influenza immunization for age ≥ 65

Measure Version:

CMS

Percentage of persons ≥ 65 reporting influenza immunization within the last 12 months (BRFSS)

NHQR

Percentage of persons ≥ 65 reporting influenza immunization within the last 12 months (BRFSS)

Has a diabetes mellitus subgroup
Has high risk subgroup for ages 18-64

NCQA

Percentage of members ≥ 65 reporting influenza immunization during September through December.

Consortium

Percentage of patients ≥ 50 and others at increased risk, receiving an annual influenza immunization.

Has a diabetes mellitus denominator

Recommendations/Considerations:

Do not add measure to ACE-PRO set. Refer to survey results.

- There are claims for immunizations available for analysis.
- The analysis methodology is quite simple.
- The population at risk is large.
- However, CMS considered a claims based analysis a few years ago but decided to go with the survey methodology instead.
- There is widespread belief that measurement based upon billing for immunizations is unreliable.
- Claims based analyses yield smaller percentages than do survey methodologies.

Consider using claims-based measure with survey methodology

- Claims based analysis can serve as a lower bound and the survey based methodology as the upper bound on the estimate.

Measure: Pneumococcal Immunization

Clinical Logic: Prevention

Evidence/Rationale:

USPSTF (1996)

recommended for all immunocompetent individuals who are age 65 years and older or otherwise at increased risk for pneumococcal disease

Measure Versions:

CMS

Percentage of persons ≥ 65 reporting ever having received a pneumococcal vaccination (BRFSS)

NHQR

Percentage of persons ≥ 65 reporting ever having received a pneumococcal vaccination (BRFSS)

NCQA

Medicare members age ≥ 65 who reported ever having a pneumococcal vaccination.

Recommendations/Considerations:

Do not add to ACE-PRO measure set.

- Analytically more complex than influenza vaccination requiring multi-year look backs.
- Same concerns exist regarding validity of claims.

Measure: Admissions for Urinary Tract Infection

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

AHRQ PQI

Inappropriate treatment of uncomplicated urinary tract infections can lead to more serious complications.

Measure Versions:

AHRQ PQI

Admissions for Urinary Tract Infection per 100,000 in the population.

Recommendations/Considerations:

Add to ACE-PRO measure set.

- There is no easily identifiable subset for a denominator.
 - Use measure in a composite of avoidable hospitalizations.
-

Measure: Admissions for Bacterial Pneumonia

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

AHRQ PQI

“Vaccination for pneumococcal pneumonia in the elderly and early management of bacterial respiratory infections on an ambulatory basis may reduce admissions with pneumonia.”

Measure Versions:

AHRQ PQI

Admissions for Bacterial Pneumonia per 100,000 in the population.

Recommendations/Considerations:

Add to ACE-PRO measure set.

- There is no easily identifiable subset for a denominator.
- Use measure in a composite of avoidable hospitalizations.

Anemia, GI Bleed, Miscellaneous

Prevention

-

Early Detection

-

Work-up at Initial Diagnosis

- H pylori Testing in Dyspepsia

Therapeutic Interventions

- Surgical Repair of Hip Fracture

Follow-up, Monitoring, Continuing Care

- Visit After Hospitalization for GI Bleeding
- Visit After Initial Diagnosis of GI Bleeding
- Hematocrit After Hospitalization for GI Bleeding
- Hematocrit After Initial Diagnosis of Anemia
- GI Tract Work Up After Diagnosis Of Iron Deficiency Anemia
- Assessment in Chronic Pain

Serious Clinical Manifestations of Disease

- Admissions for Dehydration

Measure: Admissions for Dehydration

Clinical Logic: Serious Clinical Manifestations of Disease

Evidence/Rationale:

AHRQ PQI

Appropriate attention to fluid status can prevent dehydration, a potentially fatal condition.

Admissions for Dehydration per 100,000 in the population

Recommendations/Considerations:

Add to ACE-PRO measure set.

- There is no easily identifiable subset for a denominator.
- Use measure in a composite of avoidable hospitalizations.

Measure: H pylori Testing in Dyspepsia

Clinical Logic: Work-up at Initial Diagnosis

Evidence/Rationale:

H pylori eradication can cure PUD, reducing the need for acid suppression therapy.

Measure Version:

Rejected by Original ACE-PRO Panel for lack of evidence.

Recommendations/Considerations:

Specificity of PUD, distinct from GERD and dyspepsia is clinically complicated, often requiring endoscopic evaluation. Empiric therapy is a common and justifiable practice.

Wait for science on H pylori in dyspepsia to be further developed. Wait for measure development from another source.

Measure: Surgical Repair of Hip Fracture

Clinical Logic: Therapeutic Intervention

Evidence/Rationale:

Original ACE-PRO Panel

“Surgical treatment is associated with survival benefits in patients with fractures of the femoral neck.”

Measure Version:

Arthroplasty or Internal Fixation of Hip During Hospital Stay for Fracture

88% in Asch et al 2000

Recommendations/Considerations:

Eliminate measure.

Not sensitive to ambulatory care.

Measure: Visits for GI Bleed

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

Original ACE-PRO Panel

Minimum standards of care

Measure Versions:

ACE-PRO

- Visit Within 4 Weeks Of Discharge For Patients Hospitalized For GI Bleed
- Visit Within 4 Weeks Of Initial Diagnosis Of GI Bleed

Recommendations/Considerations:

Keep both measures.

Use in continuity of care composite.

Measure: Hematocrits in Anemia and GI Bleed

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

Original ACE-PRO Panel

Minimum standards of care

Measure Versions:

- Hematocrit/Hemoglobin Test Within 4 Weeks Of Discharge For Patients Hospitalized With GI Bleeding.
- Hematocrit/Hemoglobin Test 1 To 6 Months After Initial Diagnosis Of Anemia.

Recommendations/Considerations:

Keep both measures.

Use in continuity of care composite.

Measure: GI Tract Work Up After Diagnosis of Iron Deficiency Anemia

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

Original ACE-PRO Panel

Detect underlying GI malignancy

Measure Versions:

ACE-PRO

GI Tract Work Up After Initial Diagnosis of Iron Deficiency Anemia
(1 month before to 3 months after initial diagnosis)

Recommendations/Considerations:

Keep measure.

Use in cancer chapter as well

Measure: Pain Management

Clinical Logic: Follow-up, Monitoring, Continuing Care

Evidence/Rationale:

ACOVE

If a vulnerable elder is treated for a chronic painful condition then he or she should be assessed for a response within 6 months.

Recommendations:

Do not add to ACE-PRO set.

- Designed for medical record abstraction.
- A visit could serve as the proxy for assessment.

Consider testing a measure: Visit within 6 months for patients diagnosed with chronic pain conditions.

Appendix 3. Summary of Expert Panel Recommendations

Refinement of ACE-PRO Indicators

Recommendations of the Expert Panel

from the Meeting of

May 17, 2004

The purpose of this document is to aid in confirming that we have correctly interpreted the guidance provided during the expert panel meeting. Please review this summary of the recommendations and share any additional thoughts you would like to express.

Again, thank you for your participation.

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-MagnaCare HSI, Inc.

Overview

Measures are presented in order of condition/topic as reviewed during the expert panelist meeting. Within each topic/condition is presented a listing of measures recommended to be included in the ACE-PRO set, and those recommended to be excluded from consideration. General recommendations regarding case identification are described (where relevant), followed by definitions and general specifications for each measure.

Conditions/topics

- Diabetes Mellitus
- Coronary Artery Disease
- Cerebrovascular Disease, Atrial Fibrillation and Hypertension
- Heart Failure
- Cancer
- COPD/Asthma
- Mental Health
- Infectious Disease
- Anemia, GI Bleed, and Miscellaneous

Diabetes Mellitus

Use the following measures:

- Eye Exam
- A1C
- Lipid Testing
- Clinical Assessment
- Follow-up after Hospitalization
- Serious Short Term Complications
- Serious Long Term Complications

Eliminate the following measures from consideration:

- Visual acuity screening in general Medicare population
- Nephropathy
- BP Control
- Foot Exam

Denominators:

Unless otherwise specified use the following Case ID rules:

1. No age ceiling, no age floor,
(would be useful to stratify)
18-64
65-75
76+
65+
2. Use 2 out-patient or 1 in-patient code within 12 months (per Alliance specifications)
3. Ignore HEDIS exclusions: PCOS, gestational diabetes mellitus, and steroid induced diabetes.

MEASURES

Eye Exam in Diabetes Mellitus

Comprehensive eye exam every 2 years presuming that prevalence of high risk* is less than 80%

*operationally defined as insulin users

A1C Testing

Annual A1C test

Lipid Testing

Lipid Profile every 2 years

Clinical Assessment in Diabetes Mellitus

2 out-patient visits for any diagnosis in year following case identification of diabetes mellitus

Visit after Hospitalization for Diabetes Mellitus

Denominator: Patients with one or more hospitalizations for diabetes mellitus, discharged home

Numerator: Out-patient visit for any diagnosis within 4 weeks of discharge

Question about home health, case management, etc. (*see last page: general issues and recommendations*)

Serious Short Term Complications of Diabetes Mellitus

Denominator: 2 out-patient or 1 in-patient code within 12 months

Numerator: Hospitalizations for uncontrolled diabetes mellitus, hyperosmolar and ketotic states, coma

Note: This is a combination of the AHRQ PQI numerators with a diabetes specific denominator.

In addition, continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Serious Long Term Complications of Diabetes Mellitus

Denominator: 2 out-patient or 1 in-patient code within 12 months

Numerator: Hospitalizations for renal, eye, neurological, circulatory and other complications not specified (per AHRQ PQI definition)

? include lower extremity amputations in this numerator

In addition, continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Coronary Artery Disease

Use the following measures:

- Lipid Testing
- Visit after hospitalization for Acute MI
- Clinical Assessment in CAD
- ER Use for Unstable Angina

Eliminate the following measures from consideration:

- Screening for Diabetes Mellitus in CAD
- Follow-up after initial diagnosis of unstable angina
- EKG in ER for Unstable Angina
- Hospitalization for Angina (without procedures)

Denominators:

Unless otherwise specified use the following Case ID rules:

1. No age ceiling, no age floor,
2. Use 2 codes (out-patient or in-patient) within 12 months

MEASURES

Lipid Testing

Denominator: Broader CAD denominator (from Consortium)
(not specific to co-morbid dyslipidemia)

Numerator: Lipid profile every year

Visit after Hospitalization for Acute MI

Denominator: Patients with one or more hospitalizations for Acute MI

Numerator: Out-patient visit for any diagnosis within 4 weeks of discharge

Question about home health, case management, etc. (*see last page: general issues and recommendations*)

Clinical Assessment in CAD

Denominator: Broad CAD denominator (from Consortium)

Numerator: 2 out-patient visits for any diagnosis in year following case identification of CAD

ER use in Unstable Angina

Denominator: Broad CAD denominator

Numerator: 3 or more ER visits for heart-related diagnoses, in the year following case identification of CAD

Stroke, TIA, Atrial Fibrillation, Hypertension

Use the following measures:

- EKG within 2 days of Initial Dx of TIA
- Carotid imaging at Initial Dx of Carotid Artery Stroke
- Carotid imaging in Carotid Territory Event
- Visit after Hospitalization for Stroke/TIA
- Clinical Assessment after Stroke/TIA
- Hospitalizations for Hypertension

Eliminate the following measures from consideration:

- Other tests at Initial Dx of TIA
- Anticoagulation in Atrial Fibrillation
- Visit after Hospitalization for Hypertension

Denominators:

Unless otherwise specified use the following Case ID rules:

1. No age ceiling, no age floor
2. Use 2 codes (out-patient or in-patient) within 12 months

MEASURES

EKG within 2 days of Initial Dx of TIA

Denominator: 1 code for initial dx with 1 year look-back to establish as initial diagnosis

Numerator: Code for EKG within 2 days of initial dx

Carotid Imaging at Initial Dx of Carotid Artery Stroke

Denominator: 1 (hospitalization) code for initial dx with 1 year look-back to establish as initial diagnosis

Numerator: Carotid Imaging within 2 weeks of initial dx of carotid artery stroke

Carotid Imaging in Carotid Territory Event

Denominator: Patients with Carotid Endarterectomy after TIA or Stroke

Numerator: Interval between Carotid Imaging and CEA less than two months

Visit after Hospitalization for Stroke/TIA

Denominator: Patients hospitalized for stroke or TIA

Numerator: Out-patient visit for any diagnosis within 4 weeks of discharge

Question about home health, case management, etc.

Clinical Assessment after Stroke/TIA

Denominator: 2 visits for stroke/TIA within 12 months

Numerator: 2 out-patient visits for any diagnosis in 12 month period following case identification

Admissions for Hypertension

Denominator: 2 codes for hypertension within 12 months

Numerator: Admissions for hypertension in 12 months following case identification

In addition, continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Heart Failure

Use the following measures:

- LVEF Assessment in Heart Failure
- Laboratory Testing in Heart Failure
- EKG after Initial Dx of Heart Failure
- CXR after Initial Dx of Heart Failure
- Visits after Hospitalization for Heart Failure
- Clinical Assessment in Heart Failure
- Admissions for Heart Failure

Eliminate the following measures from consideration:

- Lab tests at initial dx

Denominators:

Unless otherwise specified use the following Case ID rules:

1. No age ceiling, no age floor
2. Use 2 codes (out-patient or in-patient) within 12 months

MEASURES

LVEF Assessment in Heart Failure

Denominator 1: Hospitalizations for Heart Failure

Denominator 2: Initial Dx of Heart Failure, 2 codes for case ID, one year look-back to establish initial dx

Numerator 1: echo, RVG, or LV gram 3 months before or after hospitalization

Numerator 2: echo, RVG, or LV gram 3 months before or after initial dx

Laboratory Testing in Heart Failure

Potassium and renal function test within the year of case identification

EKG after Initial Dx of Heart Failure

Denominator: 2 codes for case ID, one year look-back to establish initial dx

Numerator: EKG within 3 months of initial dx

CXR after Initial Dx of Heart Failure

Denominator: 2 codes for case ID, one year look-back to establish initial dx

Numerator: CXR within 3 months of initial dx

Visits after Hospitalization for Heart Failure

Denominator: Hospitalizations for Heart Failure

Numerator: Out-patient visit for any diagnosis within 4 weeks of discharge

Question about home health, case management, etc. (*see last page: general issues and recommendations*)

Clinical Assessment in Heart Failure

2 out-patient visits for any diagnosis in year following case identification of heart failure

Admissions for Heart Failure

Admissions for heart failure in 12 months following case identification

In addition, continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Cancer

Use the following measures:

- Breast Cancer Screening
- Staging in Breast Cancer (Bx to Rx Interval)
- CXR at Initial Dx
- Breast Imaging at Initial Dx
- Mammography Surveillance
- Colonoscopic Surveillance after Colon Cancer
- GI Tract Work-up after Dx of Iron Deficiency Anemia

Eliminate the following measures from consideration:

- Colorectal Cancer Screening
- Cervical Cancer Screening
- Visit after Mastectomy

- Staging in Colorectal Cancer
- Stage at Dx
- Death Rates

Breast Cancer Screening

Denominator: Age 50 to 74, Female

Numerator: Mammogram within 2 year timeframe

Staging in Breast Cancer (Bx to Rx Interval)

Denominator: Diagnosis of Breast Cancer with surgical, chemo, or radiation therapy

Numerator: Interval from biopsy to beginning of therapy less than 3 months

CXR at Initial Dx

Denominator: Diagnosis of Breast Cancer with one year look-back to establish initial dx

Numerator: CXR within 3 months before or after initial dx

Breast Imaging at Initial Dx

Denominator: Diagnosis of Breast Cancer with one year look-back to establish initial dx

Numerator: Breast Imaging (Mammogram or other) within 3 months before or after initial dx

Mammography Surveillance

Denominator: 2 codes for breast cancer in 12 months

Numerator: Mammogram in 12 months of case identification

Colonoscopic Surveillance after Colon Cancer

Denominator: Resection for Colon Cancer
(not polypectomy)

Numerator: Colonoscopy within 1 year of resection

GI Tract Work-up after Dx of Iron Deficiency Anemia

Denominator: Dx of iron deficiency anemia, one year look-back to establish initial dx

Numerator: Colonoscopy or Double Contrast Barium Enema within 1 month before or 3 months after initial dx

COPD/Asthma

Use the following measures

- Clinical Assessment in COPD/Asthma
- Hospitalization for Respiratory Dx in COPD/Asthma

MEASURES

Clinical Assessment in COPD/Asthma

Denominator: No age ceiling, no age floor, 2 codes (out-patient or in-patient) within 12 months for COPD or Asthma diagnoses

Numerator: 2 out-patient visits for any diagnosis in year following case identification of diabetes mellitus

Hospitalization for Respiratory Dx in COPD/Asthma

Denominator: 2 codes for COPD or Asthma diagnoses in 12 months

Numerator: Hospitalization for respiratory diagnoses

In addition, continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Depression/Other Mental Illness

Use the following measures:

- Follow-up after Hospitalization for Depression

Eliminate the following measures from consideration:

- Out-patient screening
- Thyroid function testing
- Psychotherapy
- Follow-up after positive screen for depression
- Deaths due to suicide

MEASURES

Follow-up after Hospitalization for Depression

Denominator: Patients hospitalized for depression

Numerator: Out-patient visit for any diagnosis within 14 days of discharge after hospitalization for depression

Infectious Disease

Use the following measures:

- Admissions for UTI
- Admissions for Bacterial Pneumonia

Eliminate the following measures from consideration:

- Influenza Immunization
- Pneumococcal Immunization

MEASURES

Admissions for UTI

Continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Admissions for Bacterial Pneumonia

Continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Anemia, GI Bleed, Misc

Use the following measures:

- Admissions for Dehydration
- Annual Visit
- Visit after Hospitalization for GI Bleed
- Visit after Initial Dx of GI Bleed
- H/H after Hospitalization for GI Bleed
- H/H after Initial Dx of Anemia
- GI Tract Work-up after Initial Dx of Iron Deficiency Anemia

Eliminate from consideration the following measures:

- H. pylori testing
- Surgical repair of hip fx
- Pain Management

MEASURES

Admissions for Dehydration

Continue to refer to AHRQ PQIs using per 100,000 in the population as denominator.

Annual Visit

Denominator: Medicare eligibility

Numerator: One out-patient visit for any diagnosis

Visit after Hospitalization for GI Bleed

Denominator: Hospitalization for GI Bleed

Numerator: Visit for any dx within 4 weeks if discharge

Question about home health, case management, etc. (*see last page: general issues and recommendations*)

Visit after Initial Dx of GI Bleed

Denominator: One year look-back to establish initial dx

Numerator: Visit for any dx after initial dx of GI Bleed
? 4 weeks

H/H after Hospitalization for GI Bleed

Denominator: Hospitalization for GI Bleed

Numerator: Hemoglobin or hematocrit within 4 weeks of discharge after hospitalization for GI Bleed

H/H after Initial Dx of Anemia

Denominator: One year look back to establish initial dx

Numerator: Hemoglobin or hematocrit 1 to 6 months after initial dx

GI Tract Work-up after Initial Dx of Iron Deficiency Anemia

Denominator: Dx of iron deficiency anemia, one year look-back to establish initial dx

Numerator: Colonoscopy or Double Contrast Barium Enema within 1 month before or 3 months after initial dx

Composites

Clinical Assessment in Chronic Disease

Diabetes Mellitus
CAD
Stroke/TIA
COPD/Asthma
Heart Failure

Follow-up After Hospitalization

Diabetes Mellitus
Acute MI
Stroke/TIA
Heart Failure
Depression
GI Bleed

Avoidable Hospitalizations

Diabetes Mellitus
Multiple
CAD (ER)
Heart Failure
COPD/Asthma
AHRQ PQIs

Work-up at Initial Dx

EKG in TIA
Carotid Imaging
LVEF in Heart Failure
EKG in Heart Failure
CXR in Heart Failure
Imaging in Breast Cancer
GI Work-up in Iron Def Anemia

General Issues / Panel Recommendations

- Follow national guidance on use of composites
 - National workgroup studying use of composites in performance measurement. Question: Name of entity?
- Coding for mental illnesses
 - Mental health diagnosis codes under-used due to decreased reimbursement given perceptions of payment policies.
 - Recommendation to correct misperception or change policy
- Identification of cancer stage in coding
 - Many potential cancer measures require staging information
 - Would be useful for new measures using administrative data
- Sub-group analyses by age
(would be useful to stratify for diabetes measures)
18-64; 65-75; 65+; 76+

Further Research

- Home care, case management, other follow-up after hospitalizations
 - For measures of follow-up after hospitalization:
 - Should home care visits count as follow-up?
 - What proportion of hospitalizations have home care discharge dispositions?
 - How does home care or case management affect measurement?
- Distribution of scores by various intervals
 - In measures where evidence is lacking regarding interval (in days or weeks, months) recommended for follow-up:
 - Distribution of the time between event (diagnosis, hospitalization, etc.) and follow-up may identify critical threshold
 - e.g. Staging in Breast Cancer: Bx to Rx interval less than 3 months
- Validity testing
 - Further validation of measures would be useful, including:
 - Specificity and positive predictive value of case identification algorithms
 - Construct validity: Use longitudinal data to determine if improvement in measures leads to improved health outcomes
 - NCI to report on results of validity testing of colon cancer screening measure

Appendix 4. Revised ACE-PRO Indicator Set: Measure Short Descriptions

Diabetes Mellitus

D1. Eye Exam

comprehensive eye exam, at least every two years (measurement year or prior year), with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year.

D2. A1C

A1C test at least once per year (the measurement year), in patients with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year.

D3. Lipid Testing

lipid profile, at least every year (the measurement year), in patients aged 65 or older, with 2 out-patient or 1 in-patient visits with diabetes mellitus codes, within a calendar year.

D4. Clinical Assessment

Two out-patient visits (with or without code for diabetes mellitus) during the measurement year, in patients identified as having diabetes mellitus in the year prior to the measurement year (with 2 out-patient or 1 in-patient visits).

D5. Follow-up after Hospitalization

At least one out-patient visit (with or without code for diabetes mellitus) within four weeks following discharge of patients, 65 or older, hospitalized for diabetes mellitus.

D6. Serious Short Term Complications

Use numerator of PQI version and denominator of ACE-PRO version to restrict to population with diabetes

Admissions for diabetic, hyperosmolar and ketotic coma and admissions for uncontrolled diabetes mellitus among patients with 2 out-patient or 1 in-patient visit with diabetes mellitus within a calendar year.

D7. Serious Long Term Complications

hospitalizations for renal, ophthalmologic, neurologic and circulatory complications of diabetes mellitus and non-traumatic lower extremity amputation, in patients aged 65 and older, with 2 or more out-patient visits or 1 in-patient visit with a diagnosis code for diabetes mellitus within a calendar year.

Coronary Artery Disease

C1. Lipid Testing

lipid profile, at least every year (the measurement year), in patients with 2 out-patient or in-patient visits with coronary artery disease codes, within a calendar year.

C2. Visit after hospitalization for Acute MI

At least one out-patient visit (with or without code for coronary artery disease) within four weeks following discharge of patients, hospitalized for acute myocardial infarction.

C3. Clinical Assessment in CAD

Two out-patient visits (with or without code for CAD) during the measurement year, in patients, 65 or older, identified as having CAD in the year prior to the measurement year (with 2 out-patient or in-patient visits).

C4. ER Use for Unstable Angina

Three or more emergency department visits for coronary artery disease, unassociated with admission, identified with coronary artery disease (with 2 out-patient or in-patient visits with CAD codes) in the measurement year.

Stroke, Transient Ischemia

S1. Carotid imaging at Initial Dx of Carotid Artery Stroke

Carotid angiogram or non-invasive carotid imaging procedure within two week of initial diagnosis in patients, age 65 or older, hospitalized for carotid artery stroke.

S2. Carotid imaging in Carotid Territory Event

Carotid imaging to CEA interval less than 2 months, in patients age 65 or older, with a hospitalization for stroke or TIA as a primary diagnosis prior to the CEA.

S3. Visit after Hospitalization for Stroke/TIA

At least one out-patient visit (with or without code for stroke or TIA) within four weeks following discharge of patients, 65 or older, hospitalized for stroke or TIA.

S4. Clinical Assessment after Stroke/TIA

Two out-patient visits (with or without code for stroke or TIA) during the measurement year, in patients, 65 or older, identified as having stroke or TIA in the year prior to the measurement year (with 2 out-patient or in-patient visits).

Heart Failure

H1, H2. LVEF Assessment in Heart Failure

H1 Initial Diagnosis Version:

LVEF assessment (diagnostic ultrasound, RVG, or LVG) within three months before or after the initial diagnosis of heart failure. One out-patient visit, coded for heart failure serves as the index diagnosis. Initial diagnosis is defined by an accompanying lookback period of 12 months free of heart failure codes.

H2 Hospitalization Version:

LVEF assessment (diagnostic ultrasound, RVG, or LVG) within three months before or after hospitalization for heart failure. Hospitalization for heart failure is defined as one hospital visit for (primary diagnosis of) heart failure. For multiple hospitalizations for heart failure in one patient, only the first hospitalization should be used.

H3. Laboratory Testing in Heart Failure

Test for potassium and renal function (BUN and/or Creatinine) at least once during the measurement year in patients identified as having heart failure by 2 visits (in-patient or out-patient) coded for heart failure in the measurement year.

H4. EKG after Initial Dx of Heart Failure

EKG or Holter Monitor within one month before or three months after initial diagnosis of heart failure. Index diagnosis of heart failure must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of heart failure must be preceded by at least 12 months free of heart failure codes.

H5. CXR after Initial Dx of Heart Failure

CXR within one month before or three months after initial diagnosis of heart failure. Index diagnosis of heart failure must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of heart failure must be preceded by at least 12 months free of heart failure codes.

H6. Visits after Hospitalization for Heart Failure

At least one out-patient visit (with or without code for heart failure) within four weeks following discharge of patients hospitalized for (with a primary diagnosis of) heart failure.

H7. Clinical Assessment in Heart Failure

Two out-patient visits (with or without code for heart failure) during the measurement year, in patients identified as having heart failure in the year prior to the measurement year (with 2 out-patient or in-patient visits).

H8. Admissions for Heart Failure

Admissions for (primary diagnosis of) heart failure among patients with known heart failure (2 out-patient or in-patient visits with heart failure) within a calendar year.

Cancer

B1. Breast Cancer Screening

Mammogram every two years in female patients. Set the upper end of the eligibility interval at 74.

B2. Bx to Rx Interval

Biopsy to definitive therapy (surgical, radiation, chemotherapy) interval less than 3 months in patients with breast cancer and eventual definitive therapy. Breast cancer is defined as a visit (in-patient or out-patient) for breast cancer. A biopsy is defined as a breast biopsy.

B3. CXR at Initial Dx

CXR within three months before or three months after initial diagnosis of breast cancer. Index diagnosis of breast cancer must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of breast cancer must be preceded by at least 12 months free of breast cancer codes.

B4. Breast Imaging at Initial Dx

Mammogram or other breast imaging within three months before or three months after initial diagnosis of breast cancer. Index diagnosis of breast cancer must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of breast cancer must be preceded by at least 12 months free of breast cancer codes.

B5. Mammography Surveillance

At least one mammogram (in-patient or out-patient) within a 12 month period that includes a visit (in-patient or out-patient) for breast cancer.

B6. Colonoscopic Surveillance after Colon Cancer

at least one visit (in-patient or out-patient) coded for colonoscopy within 12 months of visit (in-patient) coded for resection of colorectal cancer

B7. GI Tract Work-up after Dx of Iron Deficiency Anemia

Colonoscopy or barium enema within one month before or three months after the initial diagnosis of iron deficiency anemia. The index diagnosis of iron deficiency anemia must be preceded by a 12 month period free of the diagnosis of iron deficiency anemia.

Anemia and GI Bleed

A1. Visit after Hospitalization for GI Bleed

At least one visit (with or without code for GI bleed) within four weeks following discharge of patients, hospitalized for GI bleed.

A2. Visit after Initial Dx of GI Bleed

At least one visit, in-patient or out-patient, with or without code for GI bleed, within four weeks following initial diagnosis of GI bleed (out-patient only). Index

A3. H/H after Hospitalization for GI Bleed

At least one hemoglobin or hematocrit test within four weeks following discharge of patients, hospitalized for (primary diagnosis of) GI bleed.

A4. H/H after Initial Dx of Anemia

Hemoglobin or hematocrit test within one to six months after an initial diagnosis of anemia. Index diagnosis of heart failure must occur 3 months or longer prior to the end of the measurement year. Index diagnosis of heart failure must be preceded by at least 12 months free of heart failure codes.

A5. GI Tract Work-up after Initial Dx of Iron Deficiency Anemia

Colonoscopy or barium enema within one month before or three months after the initial diagnosis of iron deficiency anemia. The index diagnosis of iron deficiency anemia must be preceded by a 12 month period free of the diagnosis of iron deficiency anemia.

Miscellaneous

COPD

P1. Clinical Assessment in COPD/Asthma

Two out-patient visits (with or without code for COPD or asthma) during the measurement year, in patients, identified as having COPD or asthma in the year prior to the measurement year (with 2 out-patient or in-patient visits).

P2. Hospitalization for Respiratory Dx in COPD/Asthma

Admissions for respiratory diagnoses among patients with COPD (including asthma) defined as 2 visits (out-patient or in-patient) with coded for COPD or asthma in the measurement year.

Depression

M1. Follow-up after Hospitalization for Depression

At least one out-patient visit (with or without code for depression) within two weeks following discharge of patients, hospitalized for depression.

Hypertension

H1. Hospitalizations for Hypertension

hospitalizations with hypertension as the primary diagnosis, in patients aged 65 and older, with 2 or more out-patient visits or in-patient visits with a diagnosis code for hypertension in the measurement year.

Other

V1. Annual visit

One out-patient visit during the measurement year, in patients, 65 or older, identified as Medicare enrolled in the eligibility file.

Appendix 5. Revised ACE-PRO Measures General Analytic Rules

Case Eligibility

Within a two year timeframe beneficiary cases are included if:

- The beneficiaries are age 65 or older as of the beginning of the two year timeframe.
- Enrolled in Parts A and B for the entire two year timeframe.
- Not receiving hospice care during the two year timeframe.
- Remained alive during the two year time frame.
- Living in the United States during the two year time frame.
- Not enrolled in managed care during the two year time frame.

Case ID general rules

The **index visit** is the first (physician or extender) coded visit with one or more of the target ICD-9 codes in the **measurement year**. The index visit may occur in the in-patient or out-patient setting. Index visits define the case without a **confirmatory visit** when the index visit occurs in the in-patient setting. Confirmatory visits are required to define cases when the index visit occurs in the out-patient setting. The confirmatory visit must occur within the measurement year.

Case ID in Follow-up after Hospitalization measures

The **index visit** is the first hospital admission with the principle diagnosis (ICD-9 code for defining disease) during the **measurement year**. The **discharge date** for the index visit must occur early enough in the measurement year to allow a full detection period (as specified in the measure) to follow the discharge date.

e.g. Follow-up after hospitalization in CHF – discharge date for the index visit for CHF must occur no later than December 3 to provide for a 4 week **detection period** for the follow-up visit.

Case ID in Initial Diagnosis measures

The **index visit** is the first (physician or extender) coded visit with one or more of the target ICD-9 codes in the **measurement year**. The index visit may occur in the in-patient or out-patient setting. Index visits define the case without a **confirmatory visit** when the index visit occurs in the in-patient setting. Confirmatory visits are required to define cases when the index visit occurs in the out-patient setting. The confirmatory visit must occur within the measurement year.

Initial diagnosis is defined when an index visit is preceded by a one year period free of in-patient or out-patient visits coded for the target diagnosis.

The index visit must occur early enough in the measurement year to allow a full **detection period** (as specified in the measure) to follow the index visit.
e.g. EKG in CHF – index visit for CHF must occur no later than September 30th to provide for a 3 month detection period for the EKG.

Case ID in Clinical Assessment

The **index visit** is the first (physician or extender) coded visit with one or more of the target ICD-9 codes in the **case identification year** (the year prior to the **measurement year**). The index visit may occur in the in-patient or out-patient setting. Index visits define the case without a **confirmatory visit** when the index visit occurs in the in-patient setting. Confirmatory visits are required to define cases when the index visit occurs in the out-patient setting. The confirmatory visit must occur within the case identification year. The **detection period** for clinical assessment measures is the measurement year.

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