ACO 2018 Quality Measure Narratives

Overview

The ACO quality measures are reported to CMS at the beginning of each year for all patient encounters for the prior year. A random sample of patients is taken and their services, conditions, and diagnoses are used in order to determine the measure outcome. The data for these patient encounters comes from three distinct locations:

- CAHPS Surveys
  - These are sent by a third party vendor (RMS) and all results are collected and sent to CMS directly. Neither the providers nor the ACO administrative staff are involved in the measure calculations.
- Claims
  - The measures are calculated by CMS directly through the use of provider claims. The ACO administrative staff are involved in the measure processing only to the extent of educating the providers on coding techniques and practices. The final measure results are calculated and reported by CMS.
- Electronic Health Record/Population Health Management Tool
  - These measures are produced by the ACO administrative staff by utilizing the clinical data from the provider's EHR and the patient registry/population health management tool. These measures must be reported to CMS through their GPRO web interface.

Measures obtained through CAHPS Surveys

MEASURE CODE	MEASURE NAME
ACO-1	Getting Timely Care, Appointments, and Information
ACO-2	How Well Your Providers Communicate
ACO-3	Patients' Rating of Provider
ACO-4	Access to Specialists
ACO-5	Health Promotion and Education
ACO-6	Shared Decision Making
ACO-7	Health Status/Functional Status
ACO-34	Stewardship of Patient Resources

Measures obtained through provider claims

MEASURE CODE	MEASURE NAME
ACO-8	Risk- Standardized, All Condition Readmission
ACO-35	Skilled Nursing Facility 30-Day All-Cause Readmission Measure (SNFRM)
ACO-36	All-Cause Unplanned Admissions for Patients with Diabetes
ACO-37	All-Cause Unplanned Admissions for Patients with Heart Failure
ACO-38	All-Cause Unplanned Admissions for Patients with Multiple Chronic Conditions
ACO-43	Ambulatory Sensitive Condition Acute Composite (AHRQ Prevention Quality Indicator (PQI) #91)
ACO-44	Use of Imaging Studies for Low Back Pain

Measures obtained through EHR/PMH Tool

MEASURE CODE	MEASURE NAME
ACO-12	Medication Reconciliation Post-Discharge
ACO-13	Falls: Screening for Future Fall Risk
ACO-14	Preventive Care and Screening: Influenza Immunization
ACO-15	Pneumonia Vaccination Status for Older Adults
ACO-16	Preventive Care and Screening: Body Mass Index Screening and Follow-up Plan
ACO-17	Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention
ACO-18	Preventive Care and Screening: Screening for Clinical Depression and Follow Up Plan
ACO-19	Colorectal Cancer Screening
ACO-20	Breast Cancer Screening
ACO-27	ACO-27: Diabetes Mellitus: Hemoglobin A1c Poor Control
ACO-41	ACO-41: Diabetes: Eye Exam
ACO-28	Controlling High Blood Pressure
ACO-30	Ischemic Vascular Disease: Use of Aspirin of Another Antithrombotic
ACO-40	Depression Remission at Twelve Months
ACO-42	Statin Therapy for the Prevention and Treatment of Cardiovascular Disease

Measures obtained via Quality Payment Program Data

MEASURE CODE	MEASURE NAME
ACO-11	Use of certified EHR technology

Measure Narratives

Survey claims

The surveys are composed of questions to measure patient experience of care. These questions are sourced from previous surveys with additional ACO-specific questions that include information on English proficiency, disability, and self-reported race and ethnicity categories. For additional information regarding the surveys, please refer to http://acocahps.cms.gov/.

CMS Claims

ACO 8: Risk Standardized All Condition Readmission

Description:

Risk-adjusted percentage of ACO assigned beneficiaries who were hospitalized and who were hospitalized and readmitted to a hospital within 30 days following discharge from the hospital for the index admission

Rationale:

Readmission following an acute care hospitalization is a costly and often preventable event. During 2003 and 2004, almost one-fifth of Medicare beneficiaries—more than 2.3 million patients—were readmitted within 30 days of discharge[1]. A Commonwealth Fund report estimated that if national readmission rates were lowered to the levels achieved by the top performing regions, Medicare would save $1.9 billion annually.

Hospital readmission is also disruptive to patients and caregivers, and puts patients at additional risk of hospital-acquired infections and complications[2]. Some readmissions are unavoidable, but studies have shown that readmissions may also result from poor quality of care, inadequate coordination of care, or lack of effective discharge planning and transitional care. High readmission rates and institutional variations in readmission rates indicate an opportunity for improvement. Given that interventions have been able to reduce 30-day readmission rates for a variety of medical conditions, it is important to consider an all-condition 30-day readmission rate as a quality measure[2].

This ACO quality measure is adapted from a hospital risk standardized, all condition readmission quality measure developed for CMS by Yale[2].

Clinical Recommendation Statements

Randomized controlled trials have shown that improvement in health care can directly reduce readmission rates, including the following interventions: quality of care during the initial admission; improvement in communication with patients, caregivers and clinicians; patient education; pre-discharge assessment; and coordination of care after discharge[3]. Successful randomized trials have reduced 30-day readmission rates by as much as 20-40%[2].

ACOs have incentives under the Shared Savings Program and Pioneer Model to manage the range of medical care, coordination of care, and other factors affecting readmission rates for their assigned beneficiaries. By taking responsibility for all aspects of the medical care of their assigned beneficiaries, ACOs will be able to assess the range of possible interventions affecting readmissions and then select the interventions appropriate for each population of patients included among their assigned beneficiaries.

ACO 35: Skilled Nursing Facility 30-Day Readmission (SNFRM)

Description:

Risk-adjusted rate of all-cause, unplanned hospital readmissions within 30 days for ACO assigned beneficiaries who had been admitted to a Skilled Nursing Facility (SNF) after discharge from their prior proximal hospitalization.

Rationale:

The anticipated benefit of this quality measure is that if consumers are informed of SNF readmission rates, they will make more educated choices with regard to SNF providers. The SNFRM was developed using FFS claims to harmonize with CMS' current Hospital-Wide Readmission measure and other readmission measures being developed for other post-acute care settings [i.e., IRF, (LTCH, home health agencies (HHA), and end-stage renal disease (ESRD) facilities], and to promote shared accountability for improving care transitions across all settings. Additionally, providers will be encouraged to compete on quality by focusing on improvement efforts to reduce readmissions. The measure can also be used by providers for tracking results of their internal quality improvement initiatives.

Hospital readmissions of Medicare beneficiaries discharged from a hospital to a SNF are prevalent and expensive, and prior studies suggest that a large proportion of readmissions from SNFs are preventable; based an analysis of SNF data from 2006 Medicare claims merged with the Minimum Data Set (MDS), 23.5 percent of SNF stays resulted in a rehospitalization within 30 days of the initial hospital discharge[4]. The average Medicare payment for each readmission was $10,352 per hospitalization, for a total of $4.34 billion. Of these rehospitalizations, 78 percent were deemed potentially avoidable, and applying this figure to the aggregate cost indicates that avoidable hospitalizations resulted in an excess cost of $3.39 billion (78 percent of $4.34 billion) to Medicare[4]. Several analyses of hospital readmissions of SNF beneficiaries suggest there is opportunity for reducing hospital readmissions among SNF beneficiaries[5], and multiple studies suggest that SNF structural and process characteristics can impact readmission rates[6].

In addition to being costly, readmission to the hospital interrupts the SNF beneficiary's therapy and care plan, causes anxiety and discomfort, and exposes the beneficiary to hospital-acquired adverse events such as decline in functional status, healthcare-associated infections or medication errors[7].

Clinical Recommendation Statements

ACOs will have financial incentives under the Shared Savings Program and Pioneer Model to manage the range of medical care, coordination of care, and other factors affecting readmission rates for their assigned beneficiaries. By taking responsibility for all aspects of the medical care of their assigned beneficiaries, ACOs may be able to influence SNF choices based on quality, and/or be able to assess the range of possible interventions affecting readmissions and then select the interventions appropriate for their beneficiaries.

ACO 36: All-Cause Unplanned Admissions for Patients with Diabetes

Description:

Rate of risk-standardized, acute, unplanned hospital admissions among beneficiaries 65 years and older with diabetes who are assigned or aligned to the ACO.

Rationale:

The goal of this measure is to evaluate and to improve the quality of care for patients with diabetes cared for by ACOs. These patients account for a significant proportion of Medicare beneficiaries and they experience high morbidity and costs associated with their disease. These patients need efficient, coordinated, and patient-centered care management. They also benefit from provider support and infrastructure that facilitate effective chronic disease management. This measure is focused on hospital admissions for acute illness as the outcome because these admissions are often sentinel events associated with high morbidity as well as physical and emotional stress; they also result in high costs for both the patient and the ACO. Research shows that effective health care can lower the risk of admission for these vulnerable groups of patients.

This measure is intended to incentivize ACOs to provide high-quality, coordinated care that focuses on the whole patient. ACOs were conceptualized and created to achieve the goals of improved care, improved population health, and lower cost. Consistent with this mission, we envision that the measure will incentivize providers participating in ACOs to collaborate to provide the best system of clinical care and to partner with health and non-health related organizations in their communities, as appropriate, to improve the health of their patient population.

Clinical Recommendation Statements

Research shows that effective health care can lower the risk of admission for patients with diabetes[12]. For example, specific system-based interventions such as seeing a physician involved in a pay-for-performance program for diabetes care or participation in group outpatient visits with a diabetes nurse educator have been associated with lower all-cause hospitalization rates among these patients[13]. It is our vision that these measures will illuminate variation in hospital admission rates and incentivize ACOs to develop efficient and coordinated chronic disease management strategies that anticipate and respond to patients' needs and preferences. This vision is consistent with ACOs' commitment to deliver patient-centered care that fulfills the goals of the Department of Health and Human Services' National Quality Strategy—improving population health, providing better care, and lowering healthcare costs (U.S. Department of Health and Human Services, 2010).

ACO 37: All-Cause Unplanned Admission for Patients with Heart Failure

Description:

Rate of risk-standardized, acute, unplanned hospital admissions among beneficiaries 65 years and older with heart failure who are assigned or aligned to the ACO.

Rationale:

The goal of this measure is to evaluate and to improve the quality of care for patients with heart failure cared for by ACOs. These patients account for a significant proportion of Medicare beneficiaries and they experience high morbidity and costs associated with their disease. These patients need efficient, coordinated, and patient-centered care management. They also benefit from provider support and infrastructure that facilitate effective chronic disease management. This measure is focused on hospital admissions for acute illness as the outcome because these admissions are often sentinel events associated with high morbidity as well as physical and emotional stress; they also result in high costs for both the patient and the ACO. Research shows that effective health care can lower the risk of admission for these vulnerable groups of patients.

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Clinical Recommendation Statements

Research shows that effective health care can lower the risk of admission for patients with heart failure[15]. For example, efforts to improve coordination and navigation of the healthcare system, along with home-based interventions and exercise-based rehabilitation therapy among patients with heart failure may reduce the risk of hospitalization[14].

It is our vision that these measures will illuminate variation among ACOs in hospital admission rates and incentivize ACOs to develop efficient and coordinated chronic disease management strategies that anticipate and respond to patients' needs and preferences. This vision is consistent with ACOs' commitment to deliver patient-centered care that fulfills the goals of the Department of Health and Human Services' National Quality Strategy—improving population health, providing better care, and lowering healthcare costs (U.S. Department of Health and Human Services, 2010).

ACO 38: All-Cause Unplanned Admissions for Patients with Multiple Chronic Conditions

Description:

Rate of risk-standardized acute, unplanned hospital admissions among beneficiaries 65 years and older with multiple chronic conditions (MCCs) who are assigned or aligned to the ACO.

Rationale:

As of 2010, more than two-thirds of Medicare beneficiaries had been diagnosed with or treated for two or more chronic conditions (CMS, 2012a). People with MCCs are more likely to be admitted to the hospital than those without chronic conditions or with a single chronic condition. Additionally, they are more likely to visit the emergency department, use post-acute care (such as skilled nursing facilities), and require home health assistance (CMS, 2012a). No quality measures specifically designed for this population exist to assess quality of care or to enable the evaluation of whether current efforts to improve care are successful; this measure is designed to help fill that gap.

The measure is focused on ACOs because providers in ACOs share responsibility for patients' ambulatory care, and better coordinated care should lower the risk of hospitalization for this vulnerable population. The measure is designed to illuminate variation in hospital admission rates and incentivize ACOs to develop efficient and coordinated chronic disease management strategies that anticipate and respond to patients' needs and preferences. The measure is also consistent with ACOs' commitment to deliver patient-centered care that fulfills the goals of the Department of Health and Human Services' National Quality Strategy—improving population health, providing better care, and lowering healthcare costs.

The rationale for measuring all-cause acute admissions is to assess the quality of care as experienced by the patient and to drive overall improvements in care quality, coordination, and efficiency that are not specific to certain diseases.

Clinical Recommendation Statements

A number of studies have shown that improvements in the delivery of healthcare services for ambulatory patients with MCCs can lower the risk of admission[16]. Demonstrated strategies include: improving access to care; supporting self-care in the home; better coordinating care across providers; and, integrating social work, nursing, and medical services. It is our vision that this measure will illuminate variation among ACOs in hospital admission rates for people with MCCs and incentivize ACOs to expand efforts to develop and implement efficient and coordinated chronic disease management strategies that anticipate and respond to patients' needs and preferences.

ACO 43: Ambulatory Sensitive Condition Acute Composite- Prevention Quality Indicator (PQI)

Description:

Risk adjusted rate of admissions for acute Prevention Quality Indicator (PQI) conditions: dehydration, bacterial pneumonia, or urinary tract infection.

Rationale:

Hospital admissions for dehydration, bacterial pneumonia, or urinary tract infection are a PQI of interest to comprehensive health care delivery systems, including ACOs. These acute conditions can often be treated and addressed in an outpatient setting. Evidence suggests that these hospital admissions could potentially have been avoided through high-quality outpatient care. Timely receipt of outpatient treatment and follow-up monitoring of treatment effectiveness may reduce the rate of occurrence for this event, and thus of hospital admissions.

This measure is intended to incentivize ACOs to provide high-quality, coordinated outpatient care that promotes smarter spending, healthier people, and higher-quality care. Consistent with this mission, we envision that the measure will incentivize providers participating in ACOs to collaborate to provide the best system of clinical care and to partner with health and non-health-related organizations in their communities, as appropriate, to improve the health of their patient population.

Clinical Recommendation Statements

Research suggests that lower access to coordinated outpatient primary care is associated with higher rates of preventable hospital admissions (AHRQ, 2007; Bindman et al., 1995; Moy, Ho, and Barrett, 2011, Jan. 14; Rosenthal et al., 1997). High-quality outpatient care can lower the risk of hospitalizations for ambulatory care–sensitive conditions, such as dehydration, bacterial pneumonia, and urinary tract infection. We envision that these measures will shed light on variation in hospital admission rates across ACOs and incentivize ACOs to promote efficient and coordinated care management strategies that anticipate and respond to patient needs and preferences. This vision is consistent with ACOs' commitment to deliver patient-centered care that fulfills the goals of the Department of Health and Human Services' National Quality Strategy: improving population health, providing better care, and lowering health care costs (U.S. Department of Health and Human Services, 2010).

ACO 44: Use of Imaging Studies for Low Back Pain

Description:

The proportion of ACO assigned beneficiaries with a primary diagnosis of low back pain who did not have an imaging study (plain X-ray, MRI, or CT scan) within 28 days of diagnosis.

Rationale:

This measure assesses the overuse of imaging studies (plain x-ray, MRI, and CT scans) in beneficiaries with acute, uncomplicated low back pain. The improvement in quality envisioned by the use of this measure is reducing the frequency of inappropriate imaging in adults 18–50 years of age. Evidence shows that there is excessive imaging

and surgery for low back pain in the United States, and many experts believe the problem has been overmedicalized. In 80% of this population, the pain goes away with or without treatment, and most acute low back pain sufferers improve within 2 weeks of onset (Goertz et al., 2012).

Clinical Recommendation Statements

Low back pain is a pervasive problem that affects three-quarters of adults at some time in their lives (Chou, Deyo, and Jarvik, 2012). Each year in the United States, 25 to 50 percent of adults experience low back pain, making it one of the most common reasons for seeking health care services (Haldeman and Dagenais, 2008).

According to the U.S. Preventive Services Task Force (USPSTF), it is second only to upper respiratory problems as a symptom-related reason for visits to a physician (USPSTF, 2004, February), and accounts for over 4.7 million missed work days per year (Dagenais, Caro, and Haldeman, 2008).

Low back pain also results in high indirect costs from disability, lost time from work, and decreased productivity while at work, and is the number one cause for activity limitations in younger adults (Chou, Deyo, and Jarvik, 2012). Given the high prevalence of back pain, it is not surprising that its economic consequences are severe. The costs associated with health care services for spine pain (primarily low back pain) in the United States increased from $45.9 billion in 1997 to $102.6 billion in 2004 (Martin et al., 2008). Research suggests that the reasons for the increase in cost and use of diagnostic imaging can be attributed to multiple factors, including changing demographics, increased care seeking and patient expectations about low back pain, increased physician ownership of imaging facilities, and FFS payment models (Pham et al., 2009). The supply of imaging equipment may also play a role, as the number of MRI scanners in the U.S. increased from 7.6 per 1 million people to 26.6 per 1 million people between 2000 and 2005 (Baras and Baker, 2009).

The three imaging modalities included in this measure are x-ray, CT scan, and MRI, all of which have varying individual costs. Generally, the reimbursement rates and charges for lumbar spine CT run 5 to 10 times higher than low back radiography, and MRI rates and charges run 10 to 15 times higher than low back radiography. Although radiography is relatively lower in cost, it represents a financial burden because it is used much more frequently than the two other imaging mechanisms. In 2004, an estimated 66 million lumbar radiographs were performed in the United States (Chou, Deyo, and Jarvik, 2012). These imaging practices directly affect the patient and result in downstream costs associated with invasive and expensive operations and procedures.

ACO 12: Medication Reconciliation Post-Discharge

Description:

The percentage of discharges from any inpatient facility (e.g. hospital, skilled nursing facility, or rehabilitation facility) for patients 18 years and older of age seen within 30 days following discharge in the office by the physician, prescribing practitioner, registered nurse, or clinical pharmacist providing on-going care for whom the discharge medication list was reconciled with the current medication list in the outpatient medical record

*Rationale and Clinical Recommendation Statements not available for this measure.

ACO 13: Falls: Screening for Future Fall Risk

Description:

Percentage of patients 65 years of age and older who were screened for future fall risk during the measurement period

Rationale:

As the leading cause of both fatal and nonfatal injuries for older adults, falls are one of the most common and significant health issues facing people aged 65 years or older[18]. Moreover, the rate of falls increases with age (Dykes et al. 2010). Older adults are five times more likely to be hospitalized for fall-related injuries than any other cause-related injury. It is estimated that one in every three adults over 65 will fall each year[19]. In those over age 80, the rate of falls increases to fifty percent (Doherty et al. 2009). Falls are also associated with substantial cost and resource use, approaching $30,000 per fall hospitalization (Woolcott et al. 2011). Identifying at-risk patients is the most important part of management, as applying preventive measures in this vulnerable population can have a profound effect on public health (al-Aama 2011). Family physicians have a pivotal role in screening older patients for risk of falls, and applying preventive strategies for patients at risk (al-Aama 2011).

Clinical Recommendation Statements

All other persons who are under the care of a health professional (or their caregivers) should be asked at least once a year about falls.

Older persons who present for medical attention because of a fall, report recurrent falls in the past year, or demonstrate abnormalities of gait and/or balance should have a fall evaluation performed. This evaluation should be performed by a clinical with appropriate skills and experience, which may necessitate referral to a specialist (eg, geriatrician).

Older people in contact with health care professionals should be asked routinely whether they have fallen in the past year and asked about the frequency, context, and characteristics of the falls.

Older people reporting a fall or considered at risk of falling should be observed for balance and gait deficits and considered for their ability to benefit from interventions to improve strength and balance.

ACO 14: Preventive Care and Screening: Influenza Immunization

Description:

Percentage of patients aged 6 months and older seen for a visit between October 1 and March 31 who received an influenza immunization OR who reported previous receipt of an influenza immunization

Rationale:

Annual influenza vaccination is the most effective method for preventing influenza virus infection and its complications. Influenza vaccine is recommended for all persons aged >=6 months who do not have contraindications to vaccination.

Clinical Recommendation Statements

Routine annual influenza vaccination is recommended for all persons aged >=6 months. To permit time for production of protective antibody levels, vaccination should optimally occur before onset of influenza activity in the community, and providers should offer vaccination as soon as vaccine is available. Vaccination also should continue to be offered throughout the influenza season. (CDC/ACIP, 2011)

ACO 15: Pneumonia Vaccination Status for Older Adults

Description:

Percentage of patients 65 years of age and older who have ever received a pneumococcal vaccine

Rationale:

Pneumonia is a common cause of illness and death in the elderly and persons with certain underlying conditions such as heart failure, diabetes, cystic fibrosis, asthma, sickle cell anemia, or chronic obstructive pulmonary disease. (NHLBI, 2011) In 1998, an estimated 3,400 adults aged > 65 years died as a result of invasive pneumococcal disease. (IPD) (CDC, 2003)

Among the 91.5 million US adults aged > 50 years, 29,500 cases of IPD, 502,600 cases of nonbacteremic pneumococcal pneumonia and 25,400 pneumococcal-related deaths are estimated to occur yearly; annual direct and indirect costs are estimated to total $3.7 billion and $1.8 billion, respectively. Pneumococcal disease remains a substantial burden among older US adults, despite increased coverage with 23-valent pneumococcal polysaccharide vaccine, (PPV23) and indirect benefits afforded by PCV7 vaccination of young children. (Weycker, et al., 2011)

Vaccination has been found to be effective against bacteremic cases (OR: 0.34; 95% CI: 0.27–0.66) as well as nonbacteremic cases (OR: 0.58; 95% CI: 0.39–0.86). Vaccine effectiveness was highest against bacteremic infections caused by vaccine types (OR: 0.24; 95% CI: 0.09–0.66). (Vila-Corcoles, et al., 2009)

Clinical Recommendation Statements

The Advisory Committee on Immunization Practices' (ACIP) Updated Recommendations for Prevention of Invasive Pneumococcal Disease Among Adults Using the 23-Valent Pneumococcal Polysaccharide Vaccine recommends pneumococcal vaccine for all immunocompetent individuals who are 65 and older or otherwise at increased risk for pneumococcal disease. Routine revaccination is not recommended, but a second dose is appropriate for those who received PPV23 before age 65 years for any indication if at least 5 years have passed since their previous dose (USPSTF, 1989; ACIP, 2010).

The major updates for the 2010 update are: 1) the indications for which PPSV23 vaccination is recommended now include smoking and asthma, and 2) routine use of PPSV23 is no longer recommended for Alaska Natives or American Indians aged <65 years unless they have medical or other indications for PPV23.

ACO 16: Preventive Care and Screening: Body Mass Index (BMI) Screening and Follow-Up Plan

Description:

Percentage of patients aged 18 years and older with a BMI documented during the current encounter or during the previous six months AND with a BMI outside of normal parameters, a follow-up plan is documented during the encounter or during the previous six months of the current encounter. A follow-up plan may include, but is not limited to: documentation of education, referral (for example a registered dietician, nutritionist, occupational therapist, primary care provider, exercise physiologist, mental health professional or surgeon), pharmacological interventions, dietary supplements, exercise counseling or nutrition counseling.

Normal Parameters: Age 18 years and older BMI = >18.5 and <25 kg/m2

Variation has been noted in studies exploring optimal BMI ranges for the elderly (see Donini et al., (2012); Holme and Tonstad (2015); and Diehr et al. (2008). Notably however, all these studies have arrived at ranges that differ from the standard range for ages 18 and older, which is >=18.5 and < 25 kg/m2. For instance, both Donini et al. (2012) and Holme and Tonstad (2015) reported findings that suggest that higher BMI (higher than the upper end of 25kg/m2) in the elderly may be beneficial. Similarly, worse outcomes have been associated with being underweight (at a threshold higher than 18.5 kg/m2) at age 65 (Diehr et al. 2008). Because of optimal BMI range variation recommendations from these studies, no specific optimal BMI range for the elderly is used. However, It may be appropriate to exempt certain patients from a follow-up plan by applying the exception criteria. Review the following to apply the Medical Reason exception criteria:

The Medical Reason exception could include, but is not limited to, the following patients as deemed appropriate by the health care provider:

• Elderly Patients (65 or older) for whom weight reduction/weight gain would complicate other underlying health conditions such as the following examples:

     o Illness or physical disability

     o Mental illness, dementia, confusion o Nutritional deficiency such as Vitamin/mineral deficiency

 • Patients in an urgent or emergent medical situation where time is of the essence and to delay treatment would jeopardize the patient's health status

Rationale:

Winter et al. (2014) performed a meta-analysis looking at the relationship between BMI and all-cause mortality among adults 65 and older. They identified a higher risk of mortality among those with a BMI <23 kg/m2 and recommended monitoring weight status in this group to address any modifiable causes of weight loss promptly with due consideration of individual comorbidities. Dahl et al. (2013) reported that old persons (70-79) who were overweight had a lower mortality risk than old persons who were of normal weight, even after controlling for weight change and multimorbidity. The study also shows that persons who increased or decreased in BMI had a greater mortality risk than those who had a stable BMI, particularly those aged 70 to 79. Their results provide support to the belief that the World Health Organization guidelines for BMI are overly restrictive in old age.

Obesity is also associated with an increased risk of death, particularly in adults younger than age 65 years and has been shown to reduce life expectancy by 6 to 20 years depending on age and race (LeBlanc et al., 2011). Masters et al. (2013) also showed mortality due to obesity varied by race and gender. They estimated adult deaths between 1986 and 2006 associated with overweight and obesity was 5.0% and 15.6% for Black and White men, and 26.8% and 21.7% for Black and White women, respectively. They also found a stronger association than previous research demonstrated between obesity and mortality risk at older ages.

Finkelstein, Trogdon, Cohen & Dietz (2009) found that in 2006, across all payers, per capita medical spending for the obese is $1,429 higher per year (42 percent) than for someone of normal weight. Using 2008 dollars, this was estimated to be equivalent to $147 billion dollars in medical care costs related to obesity.

Clinical Recommendation Statements

Although multiple clinical recommendations addressing obesity have been developed by professional organizations, societies and associations, two recommendations have been identified which exemplify the intent of the measure and address the numerator and denominator.

The US Preventive Health Services Task Force (USPSTF) recommends that clinicians screen all adults (aged 18 years and older) for obesity. Clinicians should offer or refer patients with a BMI of 30 or higher to intensive, multicomponent behavioral interventions. This is a B recommendation (Moyer, 2012).

ACO 17: Preventive Care and Screening: Tobacco Use: Screening and Cessation Intervention

Description:

Percentage of patients aged 18 years and older who were screened for tobacco use one or more times within 24 months AND who received cessation counseling intervention if identified as a tobacco user

Rationale:

This measure is intended to promote adult tobacco screening and tobacco cessation interventions for those who use tobacco products. There is good evidence that tobacco screening and brief cessation intervention (including counseling and/or pharmacotherapy) is successful in helping tobacco users quit. Tobacco users who are able to stop smoking lower their risk for heart disease, lung disease, and stroke.

Clinical Recommendation Statements

All patients should be asked if they use tobacco and should have their tobacco use status documented on a regular basis. Evidence has shown that clinic screening systems, such as expanding the vital signs to include tobacco use status or the use of other reminder systems such as chart stickers or computer prompts, significantly increase rates of clinician intervention. (Strength of Evidence = A) (U.S. Department of Health and Human Services. Public Health Service, 2008)

All physicians should strongly advise every patient who smokes to quit because evidence shows that physician advice to quit smoking increases abstinence rates. (Strength of Evidence = A) (U.S. Department of Health and Human Services. Public Health Service, 2008)

Minimal interventions lasting less than 3 minutes increase overall tobacco abstinence rates. Every tobacco user should be offered at least a minimal intervention, whether or not he or she is referred to an intensive intervention. (Strength of Evidence = A) (U.S. Department of Health and Human Services. Public Health Service, 2008)

The combination of counseling and medication is more effective for smoking cessation than either medication or counseling alone. Therefore, whenever feasible and appropriate, both counseling and medication should be provided to patients trying to quit smoking. (Strength of Evidence = A) (U.S. Department of Health and Human Services. Public Health Service, 2008)

Clinicians should encourage all patients attempting to quit to use effective medications for tobacco dependence treatment, except where contraindicated or for specific populations for which there is insufficient evidence of effectiveness (i.e., pregnant women, smokeless tobacco users, light smokers, and adolescents). (Strength of Evidence = A) (U.S. Department of Health and Human Services. Public Health Service, 2008)

The USPSTF recommends that clinicians ask all adults about tobacco use and provide tobacco cessation interventions for those who use tobacco products. (A Recommendation) (U.S. Preventive Services Task Force, 2009)

ACO 18: Preventive Care and Screening: Screening for Clinical Depression and Follow-Up Plan

Description:

Percentage of patients aged 12 years and older screened for clinical depression on the date of the encounter using an age appropriate standardized depression screening tool AND if positive, a follow-up plan is documented on the date of the positive screen.

Rationale:

The World Health Organization, as seen in Pratt & Brody (2008), found that major depression was the leading cause of disability worldwide. Depression causes suffering, decreases quality of life, and causes impairment in social and occupational functioning. It is associated with increased health care costs as well as with higher rates of many chronic medical conditions. Studies have shown that a higher number of depression symptoms are associated with poor health and impaired functioning, whether or not the criteria for a diagnosis of major depression are met. Persons 40-59 years of age had higher rates of depression than any other age group. Persons 12-17, 18-39 and 60 years of age and older had similar rates of depression. Depression was more common in females than in males. Non-Hispanic black persons had higher rates of depression than non-Hispanic white persons. In the 18-39 and 40-59 age groups, those with income below the federal poverty level had higher rates of depression than those with higher income. Among persons 12-17 and 60 years of age and older, raters of depression did not vary significantly by poverty status. Overall, approximately 80% of persons with depression reported some level of difficulty in functioning because of their depressive symptoms. In addition, 35% of males and 22% of females with depression reported that their depressive symptoms make it very or extremely difficult for them to work, get things done at home, or get along with other people. More than one-half of all persons with mild depressive symptoms also reported some difficulty in daily functioning attributable to their symptoms.

The negative outcomes associated with early onset depression, make it crucial to identify and treat depression in its early stages. As reported in Borner (2010), a study conducted by the World Health Organization (WHO) reported that in North America, primary care and family physicians are likely to provide the first line of treatment for depressive disorders. Others consistently report a 10% prevalence rate of depression in primary care patients. But studies have shown that primary care physicians fail to recognize up to 50% of depressed patients, purportedly because of time constraints and a lack of brief, sensitive, easy-to administer psychiatric screening instruments. Coyle et al. (2003) suggested that the picture is more grim for adolescents, and that more than 70% of children and adolescents suffering from serious mood disorders go unrecognized or inadequately treated. Healthy People 2020 recommends routine screening for mental health problems as a part of primary care for both children and adults (U.S. Department of Health and Human Services, 2014).

Clinical Recommendation Statements

The USPSTF recommends screening adults for depression when staff-assisted depression care supports are in place to assure accurate diagnosis, effective treatment, and follow-up.

ACO 19: Colorectal Cancer Screening

Description:

Percentage of adults 50-75 years of age who had appropriate screening for colorectal cancer.

Rationale:

An estimated 142,570 men and women were diagnosed with colon cancer in 2010. In the same year, 51,370 were estimated to have died from the disease, making colorectal cancer the third leading cause of cancer death in the United States[28].

Screening for colorectal cancer is extremely important as there are no signs and symptoms of the cancer in the early stages. If the disease is caught in its earliest stages, it has a five-year survival rate of 91%; however, the disease is often not caught this early. While screening is extremely effective in detecting colorectal cancer, it remains underutilized[28].

Fecal occult blood tests, colonoscopy, and flexible sigmoidoscopy are shown to be effective screening methods. Colorectal screening of individuals with no symptoms can identify polyps whose removal can prevent more than 90% of colorectal cancers (Rozen 2004).

Studies have shown that the cost-effectiveness of colorectal cancer is $40,000 per life year gained, which is similar to the cost-effectiveness of mammography for breast cancer screening (Hawk and Levin 2005).

Clinical Recommendation Statements

The United States Preventive Services Task Force (2008):

1. The USPSTF recommends screening for colorectal cancer using fecal occult blood testing, sigmoidoscopy, or colonoscopy in adults, beginning at age 50 years and continuing until age 75 years (A recommendation).
2. The USPSTF concludes that the evidence is insufficient to assess the benefits and harms of computed tomographic (CT) colonography and fecal DNA testing as screening modalities for colorectal cancer (I statement).

The American Cancer Society, The American College of Radiology, and the U.S. Multi-Society Task Force on Colorectal Cancer (Levin et al. 2008):

Tests that Detect Adenomatous Polyps and Cancer

1. Colonoscopy (every 10 years)
2. Flexible sigmoidoscopy (every 5 years)
3. Double contrast barium enema (DCBE) (every 5 years)
4. Computed tomographic colonography (CTC) (every 5 years)

ACO 20: Breast Cancer Screening

Description:

Percentage of women 50 through 74 years of age who had a mammogram to screen for breast cancer within 27 months.

Rationale:

Breast cancer is one of the most common types of cancers, accounting for a quarter of all new cancer diagnoses for women in the U.S. It ranks as the second leading cause of cancer-related mortality in women, accounting for nearly 40,000 estimated deaths in 2013[28].

According to the National Cancer Institute's Surveillance Epidemiology and End Results program, the chance of a woman being diagnosed with breast cancer in a given year increases with age. By age 30, it is one in 2,212. By age 40, the chances increase to one in 235, by age 50, it becomes one in 54, and, by age 60, it is one in 25. From 2004 to 2008, the median age at the time of breast cancer diagnosis was 61 years among adult women (Tangka et al, 2010).

In the U.S., costs associated with a diagnosis of breast cancer range from $451 to $2,520, factoring in continued testing, multiple office visits and varying procedures. The total costs related to breast cancer add up to nearly $7 billion per year in the U.S., including $2 billion spent on late-stage treatment[30].

Clinical Recommendation Statements

U.S. Preventive Services Task Force (2009)

Grade: B recommendation. The USPSTF recommends biennial screening mammography for women aged 50 to 74 years.

Grade: C recommendation. The decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take patient context into account, including the patient's values regarding specific benefits and harms.

Grade: I Statement. The USPSTF concludes that the current evidence is insufficient to assess the additional benefits and harms of screening mammography in women 75 years or older.

Grade: D recommendation. The USPSTF recommends against teaching breast self-examination (BSE). Grade: I Statement. The USPSTF concludes that the current evidence is insufficient to assess the additional benefits and harms of clinical breast examination (CBE) beyond screening mammography in women 40 years or older.

Grade: I Statement. The USPSTF concludes that the current evidence is insufficient to assess the additional benefits and harms of either digital mammography or magnetic resonance imaging (MRI) instead of film mammography as screening modalities for breast cancer.

ACO 27: Diabetes: Hemoglobin A1C Poor Control

Description:

Percentage of patients 18 - 75 years of age with diabetes who had hemoglobin A1c > 9.0% during the measurement period.

Rationale:

Diabetes mellitus (diabetes) is a group of diseases characterized by high blood glucose levels caused by the body's inability to correctly produce or utilize the hormone insulin. It is recognized as a leading cause of death and disability in the U.S. and is highly underreported as a cause of death. Diabetes may cause life-threatening, life ending or life-altering complications, including poor circulation, nerve damage or neuropathy in the feet and eventual amputation. Nearly 60 - 70 percent of diabetics suffer from mild or severe nervous system damage (American Diabetes Association 2009).

Randomized clinical trials have demonstrated that improved glycemic control, as evidenced by reduced levels of glycohemoglobin, correlates with a reduction in the development of microvascular complications in both Type 1 and Type 2 diabetes (Diabetes Control and Complications Trial Research Group 1993; Ohkubo 1995). In particular, the Diabetes Control and Complications Trial (DCCT) showed that for patients with Type 1 diabetes mellitus, important clinical outcomes such as retinopathy (an important precursor to blindness), nephropathy (which precedes renal failure), and neuropathy (a significant cause of foot ulcers and amputation in patients with diabetes) are directly related to level of glycemic control (Diabetes Control and Complications Trial Research Group 1993). Similar reductions in complications were noted in a smaller study of intensive therapy of patients with Type 2 diabetes by Ohkubo and co-workers, which was conducted in the Japanese population (Ohkubo et al. 1995).

Clinical Recommendation Statements

American Geriatrics Society (Brown et al. 2003):

For frail older adults, persons with life expectancy of less than 5 years, and others in whom the risks of intensive glycemic control appear to outweigh the benefits, a less stringent target such as 8% is appropriate. (Quality of Evidence: Level III; Strength of Evidence: Grade B)

American Diabetes Association (2009):

Lowering A1C to below or around 7% has been shown to reduce microvascular and neuropathic complications of type 1 and type 2 diabetes. Therefore, for microvascular disease prevention, the A1C goal for non-pregnant adults in general is <7%. (Level of Evidence: A)

In type 1 and type 2 diabetes, randomized controlled trials of intensive versus standard glycemic control have not shown a significant reduction in CVD outcomes during the randomized portion of the trials. Long-term follow-up of the Diabetes Control and Complications Trial (DCCT) and UK Prospective Diabetes Study (UKPDS) cohorts suggests that treatment to A1C targets below or around 7% in the years soon after the diagnosis of diabetes is associated with long-term reduction in risk of macrovascular disease. Until more evidence becomes

available, the general goal of <7% appears reasonable for many adults for macrovascular risk reduction. (Level of Evidence: B)

DM-41: Diabetes: Eye Exam

Description:

Percentage of patients 18 - 75 years of age with diabetes who had a retinal or dilated eye exam by an eye care professional during the measurement period or a negative retinal exam (no evidence of retinopathy) in the 12 months prior to the measurement period

Rationale:

Diabetes mellitus (diabetes) is a group of diseases characterized by high blood glucose levels caused by the body's inability to correctly produce or utilize the hormone insulin. It is recognized as a leading cause of death and disability in the U.S. and is highly underreported as a cause of death. Diabetes of either type may cause life-threatening, life-ending or life-altering complications, including glaucoma and blindness. Diabetic retinopathy is the most common diabetic eye disease and causes 21,000–24,000 new cases of blindness annually. The consensus among established clinical guidelines is that patients with both types of diabetes should have an initial dilated and comprehensive eye exam soon after diagnosis. Guidelines also recommend consultation with an ophthalmologist for treatment options if a patient has any level of macular edema or diabetic retinopathy (proliferative and nonproliferative)[21]

Clinical Recommendation Statements

American Diabetes Association (ADA) (2009):

- Adults and children aged 10 years or older with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist within 5 years after the onset of diabetes. (B recommendation)
- Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist shortly after the diagnosis of diabetes. (B recommendation)
- Subsequent examinations for type 1 and type 2 diabetic patients should be repeated annually by an ophthalmologist or optometrist. Less frequent exams (every 2–3 years) may be considered following one or more normal eye exams. Examinations will be required more frequently if retinopathy is progressing. (B recommendation)
- Women with preexisting diabetes who are planning pregnancy or who have become pregnant should have a comprehensive eye examination and be counseled on the risk of development and/or progression of diabetic retinopathy. (B recommendation)
- Eye examination should occur in the first trimester with close follow-up throughout pregnancy and for 1 year postpartum. (B recommendation)
- Laser photocoagulation therapy is indicated to reduce the risk of vision loss in patients with high-risk PDR, clinically significant macular edema, and in some cases of severe NPDR. (A recommendation)

The presence of retinopathy is not a contraindication to aspirin therapy for cardioprotection, as this therapy does not increase the risk of retinal hemorrhage. (A recommendation)

ACO 28: Controlling High Blood Pressure

Description:

Percentage of patients 18 - 85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (< 140/90 mmHg) during the measurement period

Rationale:

Hypertension is a very significant health issue in the United States. Fifty million or more Americans have high blood pressure that warrants treatment, according to the National Health and Nutrition Examination Survey (NHANES) survey[22]. The United States Preventive Services Task Force (USPSTF) recommends that clinicians screen adults aged 18 and older for high blood pressure[23].

The most frequent and serious complications of uncontrolled hypertension include coronary heart disease, congestive heart failure, stroke, ruptured aortic aneurysm, renal disease, and retinopathy. The increased risks of hypertension are present in individuals ranging from 40 to 89 years of age. For every 20 mmHg systolic or 10 mmHg diastolic increase in blood pressure, there is a doubling of mortality from both ischemic heart disease and stroke[22].

Better control of blood pressure has been shown to significantly reduce the probability that these undesirable and costly outcomes will occur. The relationship between the measure (control of hypertension) and the long-term clinical outcomes listed is well established. In clinical trials, antihypertensive therapy has been associated with reductions in stroke incidence (35-40 percent), myocardial infarction incidence (20-25 percent) and heart failure incidence (>50 percent)[22].

Clinical Recommendation Statements

The United States Preventive Services Task Force (2007) recommends screening for high blood pressure in adults age 18 years and older. This is a grade A recommendation.

Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (2003): Treating systolic blood pressure and diastolic blood pressure to targets that are <140/90 mmHg is associated with a decrease in cardiovascular disease complications.
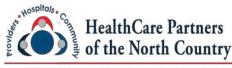
ACO 30: Ischemic Vascular Disease (IVD): Use of Aspirin or Another Antithrombotic

Description:

Percentage of patients 18 years of age and older who were diagnosed with acute myocardial infarction (AMI), coronary artery bypass graft (CABG) or percutaneous coronary interventions (PCI) in the 12 months prior to the measurement period, or who had an active diagnosis of ischemic vascular disease (IVD) during the measurement period, and who had documentation of use of aspirin or another antiplatelet during the measurement period.

Rationale:

Coronary heart disease (CHD) is a major cause of death in the United States – in 2004, it was an underlying or contributing cause of death for 451,300 people (1 of every 5 deaths). Acute myocardial infarction (AMI) was an

underlying or contributing cause of death for 156,000 people[25]. In addition, 7.3 percent of the American population had CHD in 2005[25]. The cost of cardiovascular diseases and stroke in the United States for 2008 was estimated at $448.5 billion[25]. This figure includes health expenditures and lost productivity resulting from morbidity and mortality (indirect costs). AMI accounts for 18 percent of hospital discharges and 28 percent of deaths due to heart disease[26]. Research has shown that costs associated with cardiovascular disease for hospitals are easily $156 billion[25].

Aspirin treatments reduce MI in men (127 events per 100,000 person-years) and women (17 events per 100,000 person-years) (Grieving et al. 2008). While studies have shown warfarin to be more effective, aspirin is a safer, more convenient, and less expensive form of therapy (Patrono et al. 2004). Aspirin therapy has been shown to directly reduce the odds of cardiovascular events among men by 14 percent and among women by 12 percent (Berger et al. 2006). Aspirin use has been shown to reduce the number of strokes by 20 percent, MI by 30 percent, and other vascular events by 30 percent (Weisman and Graham 2002).

Clinical Recommendation Statements

U.S. Preventive Services Task Force (2009):

The U.S. Preventive Services Task Force (USPSTF) strongly recommends that clinicians discuss aspirin chemoprevention with adults who are at increased risk (5-year risk of greater than or equal to 3 percent) for coronary heart disease (CHD). Discussions with patients should address both the potential benefits and harms of aspirin therapy.

The USPSTF found good evidence that aspirin decreases the incidence of coronary heart disease in adults who are at increased risk for heart disease. They also found good evidence that aspirin increases the incidence of gastrointestinal bleeding and fair evidence that aspirin increases the incidence of hemorrhagic strokes. The USPSTF concluded that the balance of benefits and harms is most favorable in patients at high risk of CHD (5year risk of greater than or equal to 3 percent) but is also influenced by patient preferences.

USPSTF encourages men age 45 to 79 years to use aspirin when the potential benefit of a reduction in myocardial infarctions outweighs the potential harm of an increase in gastrointestinal hemorrhage. They encourage women age 55 to 79 years to use aspirin when the potential benefit of a reduction in ischemic strokes outweighs the potential harm of an increase in gastrointestinal hemorrhage.

ACO 40: Depression Remission at Twelve Months

Description:

Adult patients age 18 and older with major depression or dysthymia and an initial PHQ-9 score >9 who demonstrate remission at twelve months defined as PHQ-9 score less than 5. This measure applies to both patients with newly diagnosed and existing depression whose current PHQ-9 score indicates a need for treatment.

Rationale:

The Centers for Disease Control and Prevention states that nationally 15.7% of people report being told by a health care professional that they had depression at some point in their lifetime. Persons with a current

diagnosis of depression and a lifetime diagnosis of depression or anxiety were significantly more likely than persons without these conditions to have cardiovascular disease, diabetes, asthma and obesity and to be a current smoker, to be physically inactive and to drink heavily. According to National Institute of Mental Health (NIMH), 6.7 percent of the U.S. population ages 18 and older (14.8 million people) in any given year have a diagnosis of a major depressive disorder. Major depression is the leading cause of disability in the U.S. for ages 15 - 44. Additionally, dysthymia accounts for an additional 3.3 million Americans.

Clinical Recommendation Statements

Improvement in the symptoms of depression and an ongoing assessment of the current treatment plan is crucial to the reduction of symptoms and psychosocial well-being of patients with major depression. Most people treated for initial depression need to be on medication at least six to twelve months after adequate response to symptoms, patients with recurrent depression need to be treated for three years or more and response with psychotherapy can take eight to twelve weeks of regular and frequent therapy to show improvement. Remission is defined as a PHQ-9 score of less than five at twelve months. The Patient Health Questionnaire (PHQ-9) tool is a widely accepted, standardized tool[27] that is completed by the patient, ideally at each visit, and utilized by the provider to monitor treatment progress. This tool was selected for measuring outcomes for this population because it is 1) validated with a sensitivity of .080 and a specificity of 0.92 with substantial heterogeneity I2 = 82%, 2) widely accepted and utilized in Minnesota, 3) available for clinical use, 4) translated into many languages and 5) easy for the patient to complete and the provider to score. This nine question tool contains the following questions which are scored on a scale of 0 to 27 for responses to the questions over the last 2 weeks.

- Little interest or pleasure in doing things
- Feeling down, depressed, or hopeless
- Feeling tired or having little energy
- Poor appetite or overeating
- Feeling bad about yourself - that you are a failure or have let yourself or your family down
- Trouble concentrating on things, such as reading the newspaper or watching television
- Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual
- Thoughts that you would be better off dead or of hurting yourself in some way

ACO 42: Statin Therapy for the Prevention and Treatment of Cardiovascular Disease

Description:

Percentage of the following patients—all considered at high risk of cardiovascular events—who were prescribed or were on statin therapy during the measurement period:

- Adults aged >= 21 years who were previously diagnosed with or currently have an active diagnosis of clinical atherosclerotic cardiovascular disease (ASCVD); **OR**
- Adults aged >=21 years with a fasting or direct low-density lipoprotein cholesterol (LDL-C) level >= 190 mg/dL; **OR**
- Adults aged 40-75 years with a diagnosis of diabetes with a fasting or direct LDL-C level of 70-189 mg/dL
  Rationale and Clinical Recommendation Statements not available for this measure.

ACO 11: Use of Certified EHR Technology

Description:

Percentage of eligible clinicians (ECs) participating in the ACO who successfully meet the Advancing Care Information (ACI) Base Score.

Rationale:

Health information technology (IT) has been shown to improve quality of care by increasing adherence to guidelines, supporting disease surveillance and monitoring, and decreasing medication errors through decision support and data aggregation capabilities (Chaudhry et al., 2006). According to a 2008 Congressional Budget Office (CBO) study, in addition to enabling providers to deliver care more efficiently, there is a potential to gain both internal and external savings from widespread adoption of health IT (CBO, 2008).

The American Recovery and Reinvestment Act of 2009 (ARRA) provides incentive payments for Medicare and Medicaid providers who "adopt, implement, upgrade, or meaningfully use certified electronic health records (EHR) technology." These incentives are intended to significantly improve health care processes and outcomes, and are part of the larger Health Information Technology for Economic and Clinical Health (HITECH) Act (Blumenthal and Tavenner, 2010). The goal of the HITECH act is to accelerate the adoption of health IT and utilization of qualified EHRs. The final rule for the EHR incentive program serves to establish guidelines and implement the HITECH incentive payments for meaningful use (CMS, 2010).

The Medicare Access and Children's Health Insurance Program (CHIP) Reauthorization Act of 2015 transitioned the EHR Incentive Program into the Advancing Care Information category of the MIPS under the new QPP (CMS, 2016b). To qualify for the base score under this category, an EC must report on five measures related to the abilities and usage of their EHR. Additional points will be awarded based on performance on nine other measures and two opportunities to earn bonus points.

Clinical Recommendation Statements

Electronic data capture and information sharing is critical to good care coordination and high-quality patient care. For the purposes of the QPP, eligible clinicians (ECs) must use certified EHR technology. Certified EHR technology gives assurance to purchasers and other users that an EHR system or module offers the necessary technological capability, functionality, and security to help them meet the meaningful use criteria. Certification also helps providers and patients be confident that the health IT products and systems they use are secure, can maintain data confidentially, and can work with other systems to share information.

[1](Jencks, Williams, and Coleman, 2009)

[2](Horwitz et al., 2011)

[3](Naylor et al., 1994; Naylor et al., 1999; Krumholz et al., 2002; van Walraven et al., 2002; Conley et al., 2003; Coleman et al., 2004; Phillips et al., 2004; Jovicic, Holroyd-Leduc, and Straus, 2006; Garasen, Windspoll, and Johnsen, 2007; Mistiaen, Francke, and Poot, 2007; Courtney et al., 2009; Jack et al., 2009; Koehler et al., 2009; Weiss, Yakusheva, and Bobay, 2010; Stauffer et al., 2011; Voss et al., 2011)

[4](Mor et al., 2010)

[5](Mor et al., 2010; Li et al., 2011)

[6](Coleman et al., 2004; Medicare Payment Advisory Commission (U.S.), 2011)

[7](Covinsky et al., 2003; Boockvar et al., 2004; Ouslander et al., 2011)

[8](Hackner et al., 1999)

[9](Agency for Healthcare Research and Quality, 2007)

[10](Edep et al., 1997; Reis et al., 1997)

[11](Bindman et al., 1995; Rosenthal et al., 1997)

[12](Sadur et al., 1999; Chen et al., 2010; United States Congress, 2010; Brown et al., 2012; CMS, 2012b; Leong et al., 2013; McCarthy, Cohen, and Johnson, 2013)

[13](Levine et al., 2012)

[14](Inglis et al., 2006; Austin et al., 2008; Zhang et al., 2008; United States Congress, 2010; Taylor et al., 2014)

[15](United States Congress, 2010; Brown et al., 2012; CMS, 2012b; McCarthy, Cohen, and Johnson, 2013)

[16](Littleford and Kralik, 2000; Sommers et al., 2000; Dorr et al., 2008; Zhang et al., 2008; Chan et al., 2012; Levine et al., 2012)

[17](Blumenthal and Tavenner, 2010)

[18](Schneider, Shubert and Harmon 2010)

[19](Centers for Disease Control and Prevention 2012)

[20](Joint Commission, 2014, retrieved at: http://www.jointcommission.org/assets/1/6/2014_AHC_NPSG_E.pdf)

[21](American Diabetes Association 2009).

[22](Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure 2003)

[23](United States Preventive Services Task Force 2007)

[24](Nassaralla et al., 2007)

[25](American Heart Association 2008)

[26](National Heart, Lung, and Blood Institute 2000)

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[28](American Cancer Society, 2011)

[30](Lavigne et al, 2008; Boykoff et al, 2009)

[31](Appleton SL, et. al., 2012 and Luehr D, et. al., 2012)