**Appendix Two.  Constructing Measures of the Quality of Primary Care provided to Medicare Beneficiaries by PCNPs and PCMDs**

This table provides the information used to construct each measure of primary care quality: the measure’s name, target population (if any), the CPT codes or other information contained in the claims data that specifies the service of interest, such as an imaging test or ED visit, and relevant exclusion criteria applied either to beneficiaries or services.

Many measures, such as the chronic disease management and screening measures, express the percentage of the target population (e.g., beneficiaries with diabetes) that received a specific service (e.g. an eye exam) detected by CPT codes in the beneficiaries’ claims. In these cases, higher rates indicate higher quality.   Other measures focus on utilization of services and adverse outcomes, which express the percentage of all beneficiaries who received an inappropriate service, such as a preventable hospitalization or a low-value imaging test. In these cases lower rates indicate higher quality.

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| **Measure** | **Target Cohort** | **Procedure codes and other information used for identifying the event (measured in 2013)** | **Exclusions** |
| Chronic Disease Management |
|  Hemoglobin A1c (HbA1c) screening(National Committee for Quality Assurance 2013) | Adults aged 18 to 75 with diabetes defined as ICD9 codes: 250, 357.2, 362.0, 366.41, 648.0 | CPT codes for hemoglobin screening: 83036, 83037 | Any months of Part CPolycystic ovaries: 256.4, Steroid induced: 249, 251.8, 962; gestational diabetes: 648.8 |
| Lipid screening for adults with diabetes (National Committee for Quality Assurance 2013) | Same as above | CPT codes for LDL screening: 80061,83700, 83701, 83704, 83721 | Same as above |
| Eye exam for adults with diabetes (National Committee for Quality Assurance 2013) | Same as above | CPT code for eye exam: 67028, 67030, 67031, 67036, 67039-67043, 67101, 67105, 67107, 67108, 67110, 67112, 67113, 67121, 67141, 67145, 67208, 67210, 67218, 67220', 67221, 67227, 67228, 92002, 92004, 92012, 92014, 92018, 92019, 92225, 92226, 92230, 92235, 92240, 92250, 92260, 99203-99205, 99213-99215, 99242-99245 | Same as above |
| Medical attention for nephropathy for adults with diabetes (National Committee for Quality Assurance 2013) | Same as above | 82042, 82043, 82044, 84156 | Same as above |
| Lipid screening for Coronary Artery Disease (CAD) (National Committee for Quality Assurance 2013) | Beneficiaries 18 years of age or older with at least two claims with a diagnosis code for CAD. CAD is defined by following ICD9 codes: ICD-9: 414.00-414.07, 414.8, 414.9, 410.00-410.92, 412, V45.81, V45.82, 411.0-411.89, 413.0-413.9Alternatively, you can use the following CTP codes to find services indicative of CAD: 33140, 92980, 92981, 92982, 92984, 92995, 92996, 33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33533, 33534, 33535, 33536 | Number of patients who received at least one lipid profile screening in measurement year.CPTs: 80061,83700, 83701,83704, 83721 | Any months of Part C |
| Spirometry testing for COPD (Institute for Clinical Systems Improvement 2013) | Adults 40 years old or older with a diagnosis related to COPD. COPD is defined by the following ICD9 codes:491, 492, 496 | The numerator is a flag for one or more claim with a spirometry CPT code: 94010, 94014-94016, 94060, 94070, 94375, 94620 | Any months of Part C |
| Preventable Hospitalizations  |
| AHRQ Prevention Quality Indicators (PQIs)(Agency for Healthcare Research and Quality 2001, 2013b, 2013c, 2013d) | Medicare beneficiaries attributed to a PCNP, PCMD or both in the sample | The numerators are defined by admissions for the following events:1. Diabetes short-term complication admission rate (PQI 1 - chronic)2. Perforated appendix admission rate (PQI 2)3. Diabetes long-term complication admission rate (PQI 3 - chronic) 4. Chronic obstructive pulmonary disease admission rate (PQI 5 -chronic)5.  Hypertension admission rate (PQI 7-chronic)6. Congestive heart failure admission rate (PQI 8-chronic)7. Dehydration admission rate (PQI 10 - acute)8. Bacterial pneumonia admission rate (PQI 11 - acute)9. Urinary Tract admission rate (PQI 12-acute)10. Angina admission without procedure (PQI 13-chronic)11. Uncontrolled diabetes admission rate (PQI 14-chronic)12. Adult asthma admission rate (PQI 15-chronic)13. Rate of lower-extremity amputation among patients with diabetes (PQI 16-chronic)  | • Transfer from a hospital (different facility) • Transfer from a skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) • Transfer from another health care facility • MDC 14 (pregnancy, childbirth, and puerperium) Any months of Part C enrollment |
| Adverse Outcomes |
| Inappropriate use of imaging for low back pain (National Quality Measures Clearinghouse 2016)  | Beneficiaries with a diagnosis of low back pain without prior claims-based evidence of antecedent conservative therapy.Low back pain is identified using the following ICD9 codes: 721.3, 722.10, 722.32, 722.52, 722.93, 724.02, 724.03, 724.2, 724.3, 724.5, 724.6, 724.7, 738.5, 739.3, 739.4, 846, 847.2 | Imaging events are identified using the following procedure codes: 72148, 72149, 72158 | Beneficiaries with cancer, trauma, IV drug abuse or neurologic impairment |
| Inappropriate ED visits (Billings et al. 2000; Billings and Raven 2013) | Adults with an ambulatory emergency department (ED) visit | Visits are coded as ambulatory care sensitive based on diagnosis | ED visits that lead to an inpatient stay are excluded.  |
| All cause 30 day hospital readmissions (National Committee for Quality Assurance 2013) | Adults 18 years old or older | Number of readmissions for any reason that happened within 30 days of initial/index admission | -Discharges from rehabilitation services, including acute rehabilitation-Discharges where the admission date is the same as the discharge date-Inpatient stays with a discharge date within 30 days prior to the initial/index admission date-Inpatient stays with death as the reason for discharge-Acute inpatient stays for pregnancy  |
|  Cancer Screening |
| Breast cancer (National Committee for Quality Assurance 2013) | Women 40-69 years old  | Percent of women 40-69 years of age who had a mammogram to screen for breast cancer in the measurement year + prior year. CPTs: 77055, 77056 77057, G0202, G0204, G0206 | Women who have had a mastectomy: CPTs: 19180, 19200, 19220, 19240, 19307 or ICD9s: 85.41-85.48 |
| Colorectal Cancer (National Committee for Quality Assurance 2013) | Adults 51-75 years old | Patients who have one or more of the following screenings for colorectal cancer: fecal occult blood test (FOBT) in past year; flexible sigmoidoscopy in past year or within the past five years; colonoscopy in past year or the past ten years.CPTs: 82270, 82274, 45330-45335, 45337, 45342, 45345, 44388-44394, 44397, 45355, 45378-45387, 45391, 45392 | Patients with a diagnosis of colorectal cancer or total colostomy: ICD9s: 153, 154, 154.1, 197.5, v10.05 |