

ONLINE APPENDIXES

10

**Medicare coverage policy
and use of low-value care**

10-A

ONLINE APPENDIX

Measures of low-value services

**TABLE
10-A1**

Measures of low-value services

| Measure | Source and supporting literature | Definition | |
|--|----------------------------------|--|---|
| | | Broader (Base definition) | Narrower (Additional restrictions) |
| Cancer screening | | | |
| Cancer screening for patients with CKD on dialysis | CW | Screening for cancer of the breast, cervix, colon, or prostate for patients with CKD receiving dialysis services | Only patients age ≥ 75 years ^a |
| Cervical cancer screening at age > 65 years | CW, USPSTF | Screening Papanicolaou test for women age ≥ 65 years | No personal history of cervical cancer or dysplasia noted in claim or in prior claims ^b ; no diagnoses of other female genital cancers, abnormal Papanicolaou findings, or human papillomavirus positivity in prior claims |
| Colon cancer screening for older adults | USPSTF | Colorectal cancer screening (colonoscopy, sigmoidoscopy, barium enema, or fecal occult blood testing) for patients age ≥ 75 years | No history of colon cancer; only screening (i.e., not diagnostic) procedure codes; only patients age ≥ 85 years |
| PSA screening at age ≥ 75 years | USPSTF | PSA test for patients age ≥ 75 years ^c | No history of prostate cancer; only screening (i.e., not diagnostic) procedure codes |
| Diagnostic and preventive testing | | | |
| Bone mineral density testing at frequent intervals | Literature | Bone mineral density test < 2 years after prior bone mineral density test | Only patients with a diagnosis of osteoporosis before initial bone mineral density test ^d |
| Homocysteine testing in cardiovascular disease | Literature | Homocysteine testing | No diagnoses of folate or B12 deficiencies in claim and no folate or B12 testing in prior claims |
| Hypercoagulability testing after deep vein thrombosis | CW | Laboratory tests for hypercoagulable states within 30 days after diagnosis of lower extremity deep vein thrombosis or pulmonary embolism | No evidence of recurrent thrombosis, defined by diagnosis of deep vein thrombosis or pulmonary embolism > 90 days before claim |
| PTH testing in early CKD | NICE | PTH measurement in patients with stage 1–3 CKD; no dialysis services before PTH testing or within 30 days after testing | No hypercalcemia diagnosis in any claim |
| T3 level testing for patients with hypothyroidism | CW | Total or free T3 measurement in a patient with a hypothyroidism diagnosis during the calendar year | |
| Vitamin D testing in absence of hypercalcemia or decreased kidney function | CW | Calcitriol testing for patients without hypercalcemia or secondary hyperparathyroidism of renal origin noted in claim and without a history of CKD | No diagnoses indicating non-PTH-mediated hypercalcemia; no diagnosis of hypercalcemia in past 30 days |

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| Measure | Source and supporting literature | Definition | |
|---|----------------------------------|--|---|
| | | Broader (Base definition) | Narrower (Additional restrictions) |
| Preoperative testing | | | |
| Preoperative chest radiography | CADTH, CW | Chest radiograph specified as a preoperative assessment or occurring within 30 days before a low- or intermediate-risk noncardiothoracic surgical procedure ^e | No radiographs related to inpatient or emergency care ^f ; only radiographs that preceded a low- or intermediate-risk noncardiothoracic surgical procedure (i.e., excluding those specified as preoperative before other procedures) ^e |
| Preoperative echocardiography | CW | Echocardiogram specified as a preoperative assessment or occurring within 30 days before a low- or intermediate-risk noncardiothoracic surgical procedure ^e | No echocardiograms related to inpatient or emergency care ^f ; only echocardiograms that preceded a low- or intermediate-risk noncardiothoracic surgical procedure ^e |
| Preoperative PFT | CW | PFT specified as a preoperative assessment or occurring within 30 days before a low- or intermediate-risk surgical procedure ^g | No PFT related to inpatient or emergency care ^f ; only PFT that preceded a low- or intermediate-risk surgical procedure ^g |
| Preoperative stress testing | CW | Stress electrocardiogram, echocardiogram, nuclear medicine imaging, cardiac MRI, or CT angiography specified as a preoperative assessment or occurring within 30 days before a low- or intermediate-risk noncardiothoracic surgical procedure ^e | No stress testing related to inpatient or emergency care ^f ; only stress testing that preceded a low- or intermediate-risk noncardiothoracic surgical procedure ^e |
| Imaging | | | |
| CT for rhinosinusitis | CW | Maxillofacial CT study with a diagnosis of sinusitis in the imaging claim | No complications of sinusitis ^h , immune deficiencies, nasal polyps, or head/face trauma noted in claim; no patients with chronic sinusitis, defined by sinusitis diagnosis between 30 days and 1 year before imaging |
| Head imaging for syncope | CW, NICE | CT or MR imaging of the head with a diagnosis of syncope in the imaging claim | No diagnoses in claim warranting imaging ⁱ |
| Head imaging for headache | CW | CT or MR imaging of the head with a diagnosis of nonthunderclap, nonposttraumatic headache | No diagnoses in claim warranting imaging ⁱ |
| EEG for headache | CW | EEG with headache diagnosis in the claim | No epilepsy or convulsions noted in current or prior claims |
| Imaging for patients with nonspecific low back pain | CW, NICE | Back imaging with a diagnosis of low back pain | No diagnoses in claim warranting imaging ^k ; imaging occurred within 6 weeks of the first diagnosis of back pain |

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| Measure | Source and supporting literature | Definition | |
|--|----------------------------------|---|---|
| | | Broader (Base definition) | Narrower (Additional restrictions) |
| Carotid artery disease screening in asymptomatic adults | CW, USPSTF | Carotid imaging for patients without a history of stroke or TIA and without a diagnosis of stroke, TIA, or focal neurological symptoms in claim | Test not associated with inpatient or emergency care ^l |
| Screening for carotid artery disease for syncope | CW | Carotid imaging with syncope diagnosis | No history of stroke or TIA; no stroke, TIA, or focal neurological symptoms in claim |
| Imaging for plantar fasciitis | CW | Radiographic or MR imaging with diagnosis of plantar fasciitis | Imaging was within 2 weeks of the first appearance of a foot pain diagnosis |
| Cardiovascular testing and procedures | | | |
| Stress testing for stable coronary disease | CW | Stress testing for patients with an established diagnosis of ischemic heart disease or angina (≥6 months before the stress test) and thus not done for screening; test not associated with inpatient or emergency care, which might be indicative of unstable angina ^l | Only patients with a past diagnosis of myocardial infarction to exclude patients with a history of noncardiac chest pain inaccurately coded as angina (i.e., those with no underlying ischemic heart disease who might benefit from screening and optimization of medical management) |
| Percutaneous coronary intervention with balloon angioplasty or stent placement for stable coronary disease | Literature | Coronary stent placement or balloon angioplasty for patients with an established diagnosis of ischemic heart disease or angina (≥6 months before the procedure); procedure not associated with emergency care ^l , which might be indicative of acute coronary syndrome | Only patients with a past diagnosis of myocardial infarction to exclude patients with a history of noncardiac chest pain inaccurately coded as angina |
| Renal artery stenting | Literature | Renal or visceral angioplasty or stent placement | Diagnosis of renal atherosclerosis or renovascular hypertension and no diagnosis of fibromuscular dysplasia of renal artery in procedure claim |
| Carotid endarterectomy for asymptomatic patients | CW | Carotid endarterectomy for patients without a history of stroke or TIA and without stroke, TIA, or focal neurological symptoms in claim | Operation not associated with emergency care ^l ; only female patients ^m |
| IVC filter placement to prevent pulmonary embolism | Literature | Any IVC filter placement | No additional restrictions |
| Pulmonary artery catheterization in ICU | Literature | Pulmonary artery catheterization for monitoring purposes during an inpatient stay that involved an ICU but not a surgical DRG | Excludes claims that involve pulmonary hypertension, cardiac tamponade, or preoperative assessment diagnoses |

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Measures of low-value services

| Measure | Source and supporting literature | Definition | |
|--|----------------------------------|--|--|
| | | Broader (Base definition) | Narrower (Additional restrictions) |
| Other surgical procedures | | | |
| Vertebroplasty or kyphoplasty for osteoporotic vertebral fractures | Literature | Vertebroplasty or kyphoplasty for vertebral fracture | No bone cancers, myeloma, or hemangioma in procedure claim |
| Arthroscopic surgery for knee osteoarthritis | NICE | Arthroscopic debridement/ chondroplasty of the knee with diagnosis of osteoarthritis or chondromalacia in procedure claim | No meniscal tear in procedure claim |
| Spinal injection for low back pain | Literature | Epidural (not indwelling), facet, or trigger point injections for lower back pain not associated with an inpatient stay (within 14 days) | Not etanercept; no diagnoses in claim indicating radiculopathy |

Note: CKD (chronic kidney disease), CW (Choosing Wisely), USPSTF (United States Preventive Services Task Force C or D recommendations), PSA (prostate-specific antigen), PTH (parathyroid hormone), NICE (National Institute for Health and Care Excellence “do not do” list), CADTH (Canadian Agency for Drugs and Technologies in Health technology assessments), PFT (pulmonary function testing), CT (computed tomography), MR (magnetic resonance), EEG (electroencephalography), TIA (transient ischemic attack), IVC (inferior vena cava), ICU (intensive care unit), DRG (diagnosis related group).

^aThis age cutoff is included because transplantation is uncommon in patients age 75 or older.

^bThroughout the table, “prior claims” refers to claims for services before the day of the measured service and during or after the prior calendar year.

^cThis measure is based on a 2008 recommendation from the USPSTF that men age 75 or older should not receive PSA-based screening for prostate cancer. In 2012, the USPSTF recommended against the use of PSA-based screening for men of all ages. This measure is based on the earlier recommendation because the measure was originally applied to claims data from 2009.

^dThis restriction limits the measure to testing of patients with osteoporosis.

^eIncludes breast procedures, colectomy, cholecystectomy, transurethral resection of the prostate, hysterectomy, orthopedic surgical procedures other than hip and knee replacement, corneal transplant, cataract removal, retinal detachment, hernia repair, lithotripsy, and arthroscopy. The 30-day window between preoperative testing and surgery was derived empirically based on distribution of intervals between the test and the procedure.

^f“Related to inpatient care” is defined as occurring during or within 30 days after an inpatient stay; “related to emergency care” is defined as occurring during or 1 day after an emergency department (ED) visit.

^gIncludes procedures listed in note “e” as well as coronary artery bypass graft, aneurysm repair, thromboendarterectomy, percutaneous transluminal coronary angioplasty, and pacemaker insertion.

^hIncludes inflammation of eyelid or orbit, orbital cellulitis, and visual problems.

ⁱDiagnoses that warrant imaging include epilepsy, head trauma, convulsions, altered mental status, nervous system symptoms (e.g., hemiplegia), speech problems, stroke, transient ischemic attack, and history of stroke.

^jDiagnoses that warrant imaging include those listed in the preceding note as well as giant cell arteritis, cancer, and history of cancer.

^kDiagnoses that warrant imaging include cancer, trauma, intravenous drug abuse, neurological impairment, endocarditis, septicemia, tuberculosis, osteomyelitis, fever, weight loss, loss of appetite, night sweats, and anemia.

^l“Associated with inpatient care” is defined as occurring during an inpatient stay; “associated with emergency care” is defined as occurring during or within 14 days after an ED visit.

^mRestriction is based on sex-specific subgroup analyses of procedure efficacy in the literature.

Source: Schwartz, A., B. Landon, A. Elshaug, et al. 2014. Measuring low-value care in Medicare. *JAMA Internal Medicine* 174, no. 7 (July): 1067–1076.
 Schwartz, A. L., M. E. Chernew, B. E. Landon, et al. 2015. Changes in low-value services in year 1 of the Medicare Pioneer Accountable Care Organization Program. *JAMA Internal Medicine* 175, no. 11 (November): 1815–1825.