



CENTER FOR IMPROVING
VALUE IN HEALTH CARE

Low Value Care Analysis – Affordability Dashboard Methodology January 2022

Overview

This document summarizes methodology for the Low Value Care analysis which is part of the Affordability Dashboard available at civhc.org. Low-value health services include certain treatments and diagnostic and screening tests where the risk of harm or cost exceeds the likely benefit for patients. Low value care services have been defined by a variety of medical organizations, principally national boards and medical specialty societies, which documented low value services in the [Choosing Wisely guidelines](#).

To conduct the analysis, the Center for Improving Value in Health Care (CIVHC) engaged Milliman, a health care actuarial and consulting firm, to apply its MedInsight health waste calculator software to the Colorado All Payer Claims Database (CO APCD) to measure the use and cost of low value services. The output provided back to CIVHC analysts was then quality checked and analyzed further in order to provide the public display of the data in the Affordability Dashboard.

The low value care report summarizes findings from claims analysis for 48 measures of low value care from 2016 through 2020. It includes information across all payer types: commercial, Medicaid, and Medicare Fee-for-Service and Medicare Advantage. CHP+ information is included in Medicaid. The report provides information about the frequency and costs associated with low value care and comparisons across Colorado's Division of Insurance (DOI) rate setting regions. It also identifies the care that accounts for the majority of low value care volume and spending.

The Choosing Wisely guidelines were used to identify and define measures of low value care that could be produced from health insurance claims data. In many cases, the classification of care as low value depends on the patient's clinical condition and claims may not have the clinical details or patient history necessary to distinguish necessary from low value care. As a consequence, measures for only a small subset (48) of the guidelines are possible to produce using the CO APCD.

For a list of all potential low value services that were evaluated in this analysis, please refer to **Appendix A**.

Key points regarding measurement methods:

1. Milliman low value care measurements results are classified as necessary (clinically appropriate), likely wasteful (appropriateness of the service is questionable) or wasteful (service

was very likely unnecessary). **In this analysis, low value care results include services that are likely wasteful or wasteful.**

2. Low value care results were produced for **only measures with sufficient patient history to distinguish necessary from low value care.**
3. Different low value care services cause **different levels of potential patient harm.** Each measure of low value services has been classified as having a high, medium or low risk of causing patient harm, according to Milliman.
4. **Spending for low value care services represents the total allowed amount** (health insurance payment and patient portion combined) for the specified service(s). CIVHC chose to isolate spending estimates to the service only, rather than include additional services that may have resulted from the low value service, or occurred at the same time. For example, if a patient received an unnecessary diagnostic test, and the test produced a false positive or unclear result, they may undergo other tests and services as a consequence. Spending for these additional services is not included in the spending report estimates and would result in higher potential cost and savings estimates.
5. Statistical calculations, illustrated below, are presented throughout the report:

Measure	Numerator	Denominator	Calculation
Volume of Low Value Care	Volume of services that are low value (B)	Volume of potential low value services measured (A)	Percent Low Value Care (B/A)
Spending for Low Value Services	Spending for low value services (F)	Spending for potential low value services measured (E)	Percent low value care spending (F/E)

6. See Appendix A below for a list of all low value care services measured.

For additional questions related to this report, please contact us at info@civhc.org.

Appendix A: List of 48 Measures of Low Value Care Analyzed with CO APCD Data

Measure	Guideline Recommendation	Guideline	Population Age	Likely Ordering Physician: Specialist or PCP	Purpose (and Type) of Service	Risk of Patient Harm (High, Med, Low)
Two or more antipsychotic medications	Don't routinely prescribe two or more antipsychotic medications concurrently.	Choosing Wisely	All ages	PCP/SPEC	Disease Treatment (Medications)	M
Opiates in acute disabling low back pain	Don't prescribe opiates in acute disabling low back pain before evaluation and a trial of other alternatives is considered.	Choosing Wisely	≥ 18	PCP	Common Treatments (Medications)	H
PICC stage III–V CKD	Don't place peripherally inserted central catheters (PICC) in stage III–V CKD patients without consulting nephrology.	Choosing Wisely	All ages	SPEC	Disease Treatment (Procedures)	H
Coronary angiography	Don't perform coronary angiography in patients without cardiac symptoms unless high-risk markers present.	Choosing Wisely	≥ 18	SPEC	Screening Tests (Imaging)	M
Imaging tests for eye disease	Don't routinely order imaging tests for patients without symptoms or signs of significant eye disease.	Choosing Wisely	All ages	SPEC	Diagnostic Testing (Imaging)	L
Routine general health checks	Don't perform routine general health checks for asymptomatic adults	Choosing Wisely	18-64	PCP	Screening Tests (Procedures)	L
Preoperative baseline laboratory studies	Don't obtain baseline laboratory studies in patients without significant systemic disease (ASA I or II) undergoing low-risk surgery	Choosing Wisely	≥ 2	SPEC	Preoperative evaluation (Lab Tests)	L
Colorectal cancer screening in adults 50 Years and older	Don't order unnecessary screening for colorectal cancer in adults older than age 50 years.	USPSTF	≥ 50	PCP	Screening Tests (Procedures)	L
Vertebroplasty	Don't perform vertebroplasty for osteoporotic vertebral fractures.	MISC Research	≥ 18	SPEC	Disease Treatment (Procedures)	H
Headache image	Don't do imaging for uncomplicated headache.	Choosing Wisely	≥ 18	PCP	Diagnostic Testing (Imaging)	L

Measure	Guideline Recommendation	Guideline	Population Age	Likely Ordering Physician: Specialist or PCP	Purpose (and Type) of Service	Risk of Patient Harm
Annual resting EKGs	Don't order annual electrocardiograms (EKGs) or any other cardiac screening for low-risk patients without symptoms.	Choosing Wisely	≥ 18	PCP	Screening Tests (Procedures)	M
Cardiac stress testing	Don't perform stress cardiac imaging or advanced non-invasive imaging in the initial evaluation of patients without cardiac symptoms unless high-risk markers are present.	Choosing Wisely	≥ 18	PCP/SPEC	Diagnostic Testing (Cardiac Testing)	M
Renal artery revascularization	Don't perform revascularization without prior medical management for renal artery stenosis.	MISC Research	All ages	SPEC	Disease Treatment (Procedures)	H
Cervical cancer screening in women	Don't order unnecessary cervical cancer screening (Pap smear and HPV test) in all women who have had adequate prior screening and are not otherwise at high risk for cervical cancer	Choosing Wisely	All ages	PCP	Screening Tests (Lab Tests)	M
25-OH-Vitamin D deficiency	Don't perform population based screening for 25-OH-Vitamin D deficiency	Choosing Wisely	All ages	PCP	Screening Tests (Lab Tests)	L
Antibiotics for acute upper respiratory and ear infections	Don't prescribe oral antibiotics for members with upper URI or ear infection (acute sinusitis, URI, viral respiratory illness or acute otitis externa)	Choosing Wisely	≥ 3 months	PCP	Common Treatments (Medications)	L
Lower back pain image	Don't do imaging for low back pain within the first six weeks, unless red flags are present.	Choosing Wisely	≥ 18	PCP	Diagnostic Testing (Imaging)	M
Pediatric head computed tomography scans	Don't order computed tomography (CT) head imaging in children 1 month to 17 years of age unless indicated.	Choosing Wisely	1 month - 17 years	PCP/SPEC	Diagnostic Testing (Imaging)	L
CT Scans for abdominal pain in children	Don't perform Computed tomography (CT) scans in the routine evaluation of abdominal pain.	Choosing Wisely	1-17	PCP/SPEC	Disease Treatment (Imaging)	L
Immunoglobulin G / immunoglobulin E testing	Don't perform unproven diagnostic tests, such as immunoglobulin G (IgG) testing or an indiscriminate battery of immunoglobulin E (IgE) tests, in the evaluation of allergy.	Choosing Wisely	All ages	SPEC	Diagnostic Testing (Lab Tests)	L

Measure	Guideline Recommendation	Guideline	Population Age	Likely Ordering Physician: Specialist or PCP	Purpose (and Type) of Service	Risk of Patient Harm
Arthroscopic lavage and debridement for knee OA	Don't perform an arthroscopic knee surgery for knee osteoarthritis.	MISC Research	≥ 18	SPEC	Disease Treatment (Procedures)	M
Repeat CT for kidney stones	Don't order CT scans of the abdomen and pelvis in young otherwise healthy emergency department patients (age <50) with known histories of kidney stones, or ureterolithiasis, presenting with symptoms consistent with uncomplicated renal colic.	Choosing Wisely	≤ 49	SPEC	Diagnostic Testing (Imaging)	L
NSAIDs for hypertension, heart failure or CKD	Don't prescribe nonsteroidal anti-inflammatory drugs (NSAIDS) in individuals with hypertension or heart failure or CKD of all causes, including diabetes.	Choosing Wisely	≥ 18	PCP	Disease Treatment (Medications)	M
Electroencephalography (EEG) for headaches	Don't perform electroencephalography (EEG) for headaches.	Choosing Wisely	All ages	PCP	Diagnostic Testing (Imaging)	L
Preoperative EKG, chest X ray and PFT	Don't obtain EKG, chest X rays or Pulmonary function test in patients without significant systemic disease (ASA I or II) undergoing low-risk surgery	Choosing Wisely	≥ 2	PCP/SPEC	Preoperative evaluation (Imaging)	L
ED CT Scans For dizziness	Don't perform routine head CT scans for emergency room visits for severe dizziness.	MISC Research	≥ 18	SPEC	Diagnostic Testing (Imaging)	L
Imaging for uncomplicated acute rhinosinusitis	Don't routinely obtain radiographic imaging for patients who meet diagnostic criteria for uncomplicated acute rhinosinusitis.	Choosing Wisely	All ages	PCP	Diagnostic Testing (Imaging)	L
Syncope image	Don't obtain brain imaging studies (CT or MRI) in the evaluation of simple syncope and a normal neurological examination.	Choosing Wisely	≥ 18	PCP/SPEC	Diagnostic Testing (Imaging)	L

Measure	Guideline Recommendation	Guideline	Population Age	Likely Ordering Physician: Specialist or PCP	Purpose (and Type) of Service	Risk of Patient Harm
Multiple palliative radiation treatments in bone metastases	Don't recommend more than a single fraction of palliative radiation for an uncomplicated painful bone metastasis.	Choosing Wisely	All ages	SPEC	Disease Treatment (Procedures)	M
Preoperative cardiac echocardiography or stress testing	Don't obtain baseline diagnostic cardiac testing or cardiac stress testing in asymptomatic stable patients with known cardiac disease undergoing low or moderate risk non-cardiac surgery	Choosing Wisely	≥ 18	PCP/SPEC	Preoperative evaluation (Cardiac Testing)	M
Imaging of the carotid arteries for simple syncope	Don't perform imaging of the carotid arteries for simple syncope without other neurologic symptoms.	Choosing Wisely	All ages	PCP/SPEC	Diagnostic Testing (Imaging)	M
Coronary artery calcium scoring for known CAD	Don't use coronary artery calcium scoring for patients with known coronary artery disease (including stents and bypass grafts).	Choosing Wisely	≥ 18	PCP/SPEC	Diagnostic Testing (Imaging)	M
Dexa	Don't use dual-energy x-ray absorptiometry (DEXA) screening for osteoporosis in women younger than 65 or men younger than 70 with no risk factors.	Choosing Wisely	Women < 65 Men 50-69	PCP	Screening Tests (Imaging)	L

Measure	Guideline Recommendation	Guideline	Population Age	Likely Ordering Physician: Specialist or PCP	Purpose (and Type) of Service	Risk of Patient Harm
Cough and cold medicines in children <4 years	Don't prescribe or recommend cough and cold medicines for respiratory illnesses in children under four years of age.	Choosing Wisely	<4	PCP	Common Treatments (Medications)	L
CT head/brain for sudden hearing loss.	Don't order computed tomography (CT) scan of the head/brain for sudden hearing loss.	Choosing Wisely	All ages	PCP/SPEC	Diagnostic Testing (Imaging)	L
Antidepressants monotherapy in bipolar disorder	Don't prescribe antidepressants as monotherapy in patients with bipolar I disorder.	MISC Research	All ages	SPEC	Disease Treatment (Medications)	M
Diagnostics chronic urticaria	Don't routinely do diagnostic testing in patients with chronic urticaria.	Choosing Wisely	All ages	SPEC	Diagnostic Testing (Lab Tests)	L
Antibiotics for adenoviral conjunctivitis	Don't order antibiotics for adenoviral conjunctivitis (pink eye).	Choosing Wisely	All ages	PCP	Common Treatments (Medications)	L
MRI for rheumatoid arthritis	Don't perform MRI of the peripheral joints to routinely monitor inflammatory arthritis.	Choosing Wisely	≥ 18	PCP/SPEC	Routine FU/Monitoring (Imaging)	L
PFT prior to cardiac surgery	Don't recommend pulmonary function testing prior to cardiac surgery, in the absence of respiratory symptoms.	Choosing Wisely	≥ 18	PCP/SPEC	Preoperative evaluation (Lab Tests)	L
Oral antibiotics for uncomplicated acute TTO	Don't prescribe oral antibiotics for uncomplicated acute tympanostomy tube otorrhea.	Choosing Wisely	6 months-12 years	PCP	Common Treatments (Medications)	L

Measure	Guideline Recommendation	Guideline	Population Age	Likely Ordering Physician: Specialist or PCP	Purpose (and Type) of Service	Risk of Patient Harm
Postcoital test for infertility	Don't perform a postcoital test (PCT) for the evaluation of infertility.	Choosing Wisely	All ages	SPEC	Diagnostic Testing (Lab Tests)	N/A
Bleeding time testing	Don't use bleeding time test to guide patient care.	Choosing Wisely	All ages	PCP	Diagnostic Testing (Lab Tests)	L
Sperm function testing	Don't perform advanced sperm function testing, such as sperm penetration or hemizona assays, in the initial evaluation of the infertile couple.	Choosing Wisely	All ages	SPEC	Diagnostic Testing (Lab Tests)	N/A
Inductions of labor or cesarean deliveries	Don't schedule elective, non-medically indicated inductions of labor or Cesarean deliveries before 39 weeks, 0 days gestational age.	Choosing Wisely	8-64	SPEC	Disease Treatment (Procedures)	H
Voiding cystourethrogram for urinary tract infection	Don't perform voiding cystourethrogram (VCUG) routinely in first febrile urinary tract infection (UTI) in children aged 2–24 months	Choosing Wisely	2-24 months	PCP/SPEC	Diagnostic Testing (Imaging)	H
Prostate cancer screening (PSA)	Don't perform PSA-based screening for prostate cancer in all men regardless of age.	USPSTF	All ages	PCP	Screening Tests (Lab Tests)	M
Vision therapy for patients with dyslexia	Don't recommend vision therapy for patients with dyslexia	Choosing Wisely	2-17	PCP	Disease Treatment (Procedures)	L