



CENTER FOR IMPROVING  
VALUE IN HEALTH CARE

## Low Value Care Analysis – Affordability Dashboard Methodology Spring 2022

### Overview

This document summarizes methodology for the Low Value Care analysis which is part of the Affordability Dashboard available at [civhc.org](http://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 2017 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:

- 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.**

- Low value care results were produced for **only measures with sufficient patient history to distinguish necessary from low value care.**
- 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.
- **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.
- Statistical calculations, illustrated below, are presented throughout the report:

Measure	Numerator	Denominator	Calculation
<b>Volume of Low Value Care</b>	Volume of services that are low value (B)	Volume of potential low value services measured (A)	Percent Low Value Care (B/A)
<b>Spending for Low Value Services</b>	Spending for low value services (F)	Spending for potential low value services measured (E)	Percent low value care spending (F/E)
<b>Average Cost Per Service</b>	Total cost of services determined to be low value (C)	The total volume of low value services (D)	Cost of LVC per service (C/D)

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

## Data Vintage

This report is based on claims data in the CO ACPD data warehouse refresh of January 17th, 2022. For more information about number of claims in the CO ACPD during a particular reporting year and data discovery information regarding payer submissions, please visit our website at [civhc.org](http://civhc.org) or contact us at [ColoradoAPCD@civhc.org](mailto:ColoradoAPCD@civhc.org).

For additional questions related to this report, please contact us at [info@civhc.org](mailto: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)
<b>Two or more antipsychotic medications</b>	Don't routinely prescribe two or more antipsychotic medications concurrently.	Choosing Wisely	All ages	PCP/SPEC	Disease Treatment (Medications)	M
<b>Opiates in acute disabling low back pain</b>	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
<b>PICC stage III–V CKD</b>	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
<b>Coronary angiography</b>	Don't perform coronary angiography in patients without cardiac symptoms unless high-risk markers present.	Choosing Wisely	≥ 18	SPEC	Screening Tests (Imaging)	M
<b>Imaging tests for eye disease</b>	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
<b>Routine general health checks</b>	Don't perform routine general health checks for asymptomatic adults	Choosing Wisely	18-64	PCP	Screening Tests (Procedures)	L
<b>Preoperative baseline laboratory studies</b>	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
<b>Colorectal cancer screening in adults 50 Years and older</b>	Don't order unnecessary screening for colorectal cancer in adults older than age 50 years.	USPSTF	≥ 50	PCP	Screening Tests (Procedures)	L
<b>Vertebroplasty</b>	Don't perform vertebroplasty for osteoporotic vertebral fractures.	MISC Research	≥ 18	SPEC	Disease Treatment (Procedures)	H
<b>Headache image</b>	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
<b>Annual resting EKGs</b>	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
<b>Cardiac stress testing</b>	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
<b>Renal artery revascularization</b>	Don't perform revascularization without prior medical management for renal artery stenosis.	MISC Research	All ages	SPEC	Disease Treatment (Procedures)	H
<b>Cervical cancer screening in women</b>	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
<b>25-OH-Vitamin D deficiency</b>	Don't perform population based screening for 25-OH-Vitamin D deficiency	Choosing Wisely	All ages	PCP	Screening Tests (Lab Tests)	L
<b>Antibiotics for acute upper respiratory and ear infections</b>	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
<b>Lower back pain image</b>	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
<b>Pediatric head computed tomography scans</b>	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
<b>CT Scans for abdominal pain in children</b>	Don't perform Computed tomography (CT) scans in the routine evaluation of abdominal pain.	Choosing Wisely	1-17	PCP/SPEC	Disease Treatment (Imaging)	L
<b>Immunoglobulin G / immunoglobulin E testing</b>	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
<b>Arthroscopic lavage and debridement for knee OA</b>	Don't perform an arthroscopic knee surgery for knee osteoarthritis.	MISC Research	≥ 18	SPEC	Disease Treatment (Procedures)	M
<b>Repeat CT for kidney stones</b>	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
<b>NSAIDs for hypertension, heart failure or CKD</b>	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
<b>Electroencephalography (EEG) for headaches</b>	Don't perform electroencephalography (EEG) for headaches.	Choosing Wisely	All ages	PCP	Diagnostic Testing (Imaging)	L
<b>Preoperative EKG, chest X ray and PFT</b>	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
<b>ED CT Scans For dizziness</b>	Don't perform routine head CT scans for emergency room visits for severe dizziness.	MISC Research	≥ 18	SPEC	Diagnostic Testing (Imaging)	L
<b>Imaging for uncomplicated acute rhinosinusitis</b>	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
<b>Syncope image</b>	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
<b>Multiple palliative radiation treatments in bone metastases</b>	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
<b>Preoperative cardiac echocardiography or stress testing</b>	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
<b>Imaging of the carotid arteries for simple syncope</b>	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
<b>Coronary artery calcium scoring for known CAD</b>	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
<b>Dexa</b>	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
<b>Cough and cold medicines in children &lt;4 years</b>	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
<b>CT head/brain for sudden hearing loss.</b>	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
<b>Antidepressants monotherapy in bipolar disorder</b>	Don't prescribe antidepressants as monotherapy in patients with bipolar I disorder.	MISC Research	All ages	SPEC	Disease Treatment (Medications)	M
<b>Diagnostics chronic urticaria</b>	Don't routinely do diagnostic testing in patients with chronic urticaria.	Choosing Wisely	All ages	SPEC	Diagnostic Testing (Lab Tests)	L
<b>Antibiotics for adenoviral conjunctivitis</b>	Don't order antibiotics for adenoviral conjunctivitis (pink eye).	Choosing Wisely	All ages	PCP	Common Treatments (Medications)	L
<b>MRI for rheumatoid arthritis</b>	Don't perform MRI of the peripheral joints to routinely monitor inflammatory arthritis.	Choosing Wisely	≥ 18	PCP/SPEC	Routine FU/Monitoring (Imaging)	L
<b>PFT prior to cardiac surgery</b>	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
<b>Oral antibiotics for uncomplicated acute TTO</b>	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
<b>Postcoital test for infertility</b>	Don't perform a postcoital test (PCT) for the evaluation of infertility.	Choosing Wisely	All ages	SPEC	Diagnostic Testing (Lab Tests)	N/A
<b>Bleeding time testing</b>	Don't use bleeding time test to guide patient care.	Choosing Wisely	All ages	PCP	Diagnostic Testing (Lab Tests)	L
<b>Sperm function testing</b>	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
<b>Inductions of labor or cesarean deliveries</b>	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
<b>Voiding cystourethrogram for urinary tract infection</b>	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
<b>Prostate cancer screening (PSA)</b>	Don't perform PSA-based screening for prostate cancer in all men regardless of age.	USPSTF	All ages	PCP	Screening Tests (Lab Tests)	M
<b>Vision therapy for patients with dyslexia</b>	Don't recommend vision therapy for patients with dyslexia	Choosing Wisely	2-17	PCP	Disease Treatment (Procedures)	L