



BlueCross BlueShield of Montana



Physician Efficiency, Appropriateness, & QualitySM

PEAQSM

Program Methodology

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I. OVERVIEW OF PEAQ PROGRAM

At BCBSMT, we take the quality and affordability of the care provided to our members very seriously. As a part of this commitment, one of BCBSMT's core objectives is to maximize and improve the value of care our members receive.

To further this commitment, our BCBSMT Physician Efficiency, Appropriateness, and Quality Program evaluates physician performance in a transparent and multidimensional way. A goal of PEAQ is to work with the physician community to maximize physician efficiency, appropriateness, and quality of care. We are developing the PEAQ program with input from physicians currently in practice.

The guiding principles of our PEAQ Program include:

- **Metrics** – Selecting meaningful measures of health care efficiency, appropriateness, and quality
- **Collaboration** – Sharing with physicians to ensure measurement transparency and clinical relevance
- **Insights** – Providing physician-level insights on improving overall patient care
- **Transparency** – Equipping physicians with meaningful information about efficiency, appropriateness, and quality
- **Continuous Improvement** – Reevaluating our methodology and measures regularly based on feedback and recent clinical evidence
- **Member Focus** – Helping our members identify physicians who are right for them

PEAQ Uses

PEAQ slots providers in one of five performance tiers based on their calculated result and its relationship to their peer group's mean. Performance Group 5 is considered the highest performing group. Performance Group 3 includes the peer group's mean as well as the physicians closest to the mean. These insights culled from PEAQ data influence Provider Finder® results. High performers will receive a designation and members who get care from them will be eligible for Member Rewards. PEAQ data can also impact network optimization and employer insights. In the future, uses will expand as BCBSMT refines collection through feedback.

Composite Results

The PEAQ composite result is an overall look at the provider's Efficiency, Appropriateness, and Quality performance during the reporting period. A composite result allows BCBSMT to fairly compare providers within the same peer group that may have been scored in different PEAQ components. The results will be represented in Provider Performance Insight reports.

BCBSMT uses a weighted average to calculate the composite result based on which PEAQ components (Efficiency, Quality, Appropriateness) the provider is scored on during the reporting period. The calculated results are normalized between 0 and 7. Extreme outliers are removed.

Composite Scenario #1 – Efficiency, Quality, Appropriateness

Efficiency Result (60%) + Quality Result (20%) + Appropriateness (20%) = Composite Result

Composite Scenario #2 – Efficiency, Quality

Efficiency Result (60%) + Quality Result (40%) = Composite Result

Composite Scenario #3 – Efficiency, Appropriateness

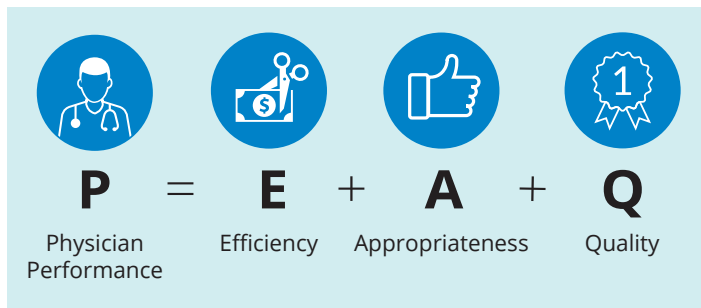
Efficiency Result (60%) + Appropriateness (40%) = Composite Result

Composite Scenario #4 – Efficiency Only

Efficiency Result (100%) = Composite Result

Summary Overview

The three key components of BCBSMT's PEAQ program are described below.



Efficiency

To evaluate physicians for cost-efficiency, we use BCBSMT's proprietary efficiency model. This is a comprehensive data analysis and reporting solution with financial and utilization metrics that provides users with the ability to identify potential efficiency improvement opportunities.

The efficiency component compares physicians and provider groups to their peers in the same Working Specialty with some regional adjustments. It applies dynamic drill-down capabilities at the episode of care level in order to compare physicians and provider groups with similar patients at similar disease stages. Comorbidity and demographic adjustments are applied to account for other factors influencing care delivery outcomes.

Appropriateness

The appropriateness measures reflect whether care provided is evidence-based and/or meets generally accepted standards of practice based on peer-reviewed evidence and clinical best practices. The methodology and results – produced by Motive Medical Intelligence (Practicing Wisely Solutions™) for the PEAQ program – are statistically valid and reviewed by expert physicians to ensure clinical appropriateness.

Quality

Health care quality has been defined by the National Academy of Medicine as “the degree to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”

Our methodology relies on evidence-based, endorsed

measures and it leverages existing nationally recognized quality measurement standards. The intent is to minimize the burden on physicians who are often asked to manage large volumes of measurements across various health plans.

Quality evaluation is made up of **1)** nationally endorsed quality measures; **2)** CMS MIPS / MIPS APM self-reported quality measures; and **3)** participation in national designation programs.

Current Specialties Measured

The PEAQ program measures physicians across primary care, medical, and surgical specialties where there is sufficient share of practice. Measured specialties are listed below:

Medical	Surgical	Primary Care
Cardiology	Cardiothoracic Surgery	Family Medicine
Endocrinology	Ophthalmology	Internal Medicine
Gastroenterology	Orthopedic Surgery	Pediatrics
Nephrology	Urology	
Obstetrics and Gynecology	Vascular Surgery	
Pulmonary		
Rheumatology		

Continuous Improvement

We continually reevaluate our methodology for accuracy and statistical rigor in each of the three components of BCBSMT's PEAQ program. Iterative improvements are made to account for feedback and future development. Notifications of any major methodological changes will be communicated to physicians.

Physicians Not Evaluated

For a variety of reasons, not all physicians are evaluated by the PEAQ program. These reasons may include:

- Specialty not included in current measurement
- Inadequate peer group information
- Non-MD/DO physician
- Not meeting minimum credibility thresholds

II. EFFICIENCY MEASUREMENT DETAILS

Key Components for Fair Comparisons

The proprietary efficiency model is an award-winning¹, data-driven approach to efficiency measurement that was developed by a team of data scientists and clinicians at BCBSMT with input from physicians. The model accounts for physicians, patients, and attributed benefits to ensure fair comparisons.

We use the latest machine learning methodologies and statistical controls to minimize outlier impact, align physicians to peer groups, and remove anomalous patient episodes. A key component of this review and basis for cost roll-up is care delivery by the team of physicians managing patient care.

Our efficiency methodology breaks down the impact of site of service, type of service, volume of service, and price of the various services to determine total cost.

¹ Honoree of the 2019 Digital Edge 50 Award from IDG (the publisher of CIO magazine) and one of Drexel University LeBow College of Business' 2016 Analytics 50 honorees.

Fair Comparison Component	Description and Application
Episode Condition and Disease Stage	The efficiency model matches patients to other patients with the same clinical condition using episodes of care. Episode categories are further segmented by severity and disease stage progression and grouped as Acute or Chronic. Only episodes marked as complete are utilized in efficiency results.
Working Specialty	Physicians are matched to other physicians in the same Working Specialty (WS) with some regional adjustments. The WS represents a physician's specialty and/or sub-specialty and is determined using information from BCBSMT's physician demographics database as well as claims submitted by the physician. The WS may be more specific than a physician's self-declared specialty. For example, WS may distinguish an interventional cardiologist from a non-interventional cardiologist based on claims submitted by the physician.
Contracted Network	Physicians are matched to other physicians practicing in the same network model type, such as a Preferred Provider Organization (PPO), with similarly aligned BCBSMT network products grouped to model type.
Patient Risk	The model employs the latest machine learning and predictive modeling techniques to accurately adjust for patient population differences related to comorbidities and demographics.
Pharmacy Coverage	Comparative groups are defined separately depending on whether patients are enrolled in a prescription program with a Pharmacy Benefits Manager (PBM) that reports financial data to BCBSMT or not. Patients in PBM programs that do not include such prescription financial data are evaluated on medical cost only.
Outliers	Outlier patient episodes and their associated costs can positively or negatively skew physicians' results. In order to control for such anomalous data, episodes' Total Allowed Costs are truncated for each episode group and disease stage combination. In addition, machine learning methods are used to identify remaining outliers in further analysis.

Methodology

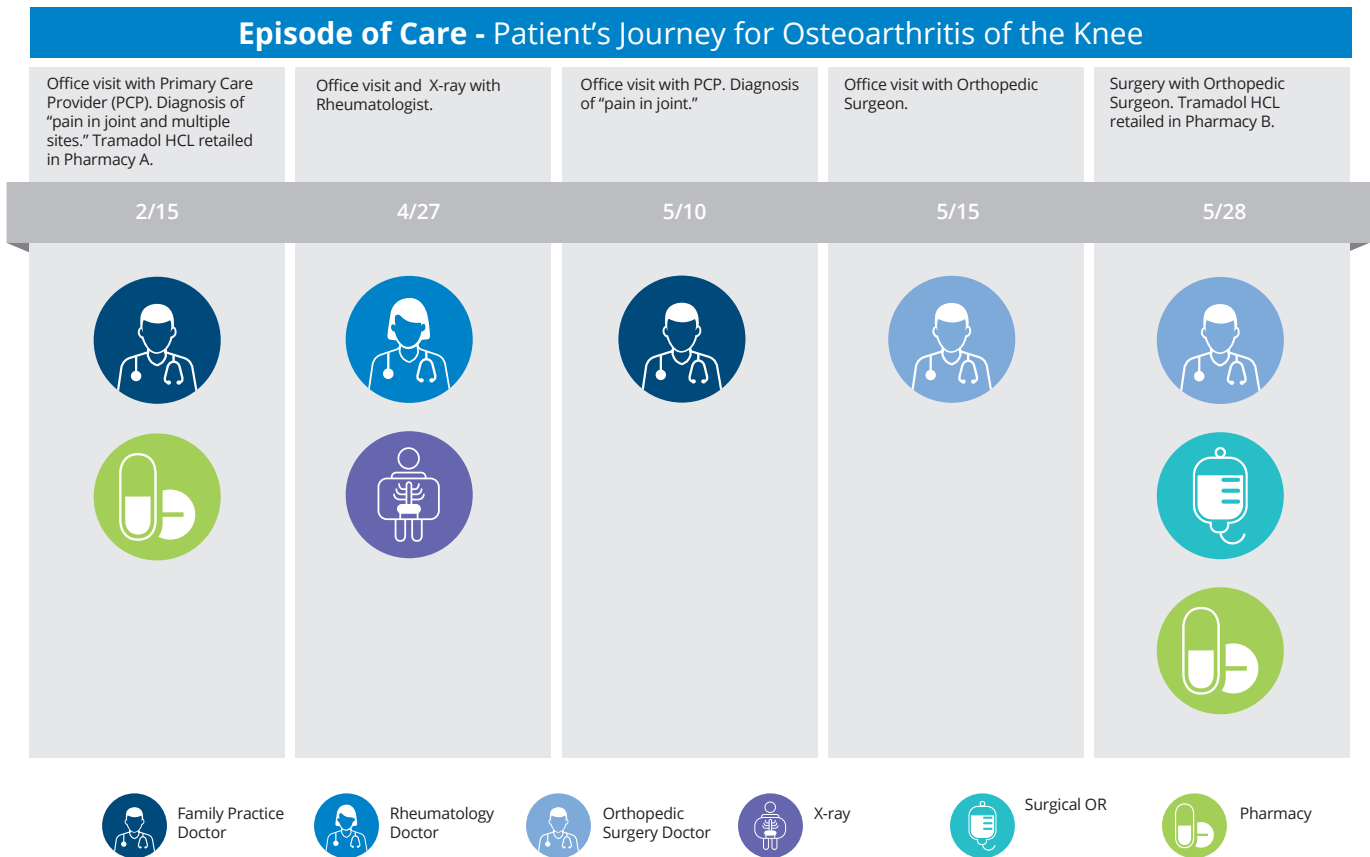
A physician's overall efficiency is a weighted average of efficiencies across their episodes of care. All related claims are combined to form an episode of care to identify treatment teams. Episodes are diagnosis-based rather than procedure-based. For example, if a patient had a procedure, the episode of care would include all related care provided before and after the procedure, across working specialties. This model captures the impact of site of service, type of service, volume of services, and price points for each service and includes all types of services (e.g., IP, OP, Prof, Ancillary, Rx).

The total cost for each of a physician's episodes of care is compared to the total expected cost of the episode – an average across episodes of the same type / stage, treated by the same type of physician, in the same area and network. The expected cost of the episode is further adjusted for patient comorbidities and demographic risks. A physician's episode measurement result is the ratio of the episode's actual cost to its expected cost, with a lower ratio providing a more favorable cost-efficiency result. A physician's overall efficiency is equal to the weighted average of the episode measurement results across episodes for all included networks, weighted based on the size of the episode and proportion of care provided.



Time Period and Frequency

Our model considers episodic data during up to 24 months of incurred services. See the graphic for an example of services that are combined into a clinically coherent episode of care. The services displayed are a selection for demonstration only. Actual episodes may include additional services based on actual care delivery.



Minimum Thresholds for Credible Results

For a condition to be included, the following criteria must be met:

- A minimum number of episodes treated for the condition by a physician
- A minimum number of episodes across all physicians treating the condition in the same peer group

Only episodes that meet cost thresholds and are marked as complete are included in measurement.

Credibility thresholds will be continually evaluated and are subject to change.

III. APPROPRIATENESS MEASUREMENT DETAILS

Appropriateness of care is another important dimension of physician performance. Our appropriateness metrics evaluate the extent to which physicians make decisions about patient care that are consistent with current evidence-based guidelines. We have partnered with Motive Medical Intelligence to deliver these measures using the Practicing Wisely Solutions appropriateness of care measurement methodology.

See Appendix A for a list of appropriateness of care measures for each specialty.

Measure Details

Appropriateness of care measures physician practice patterns that have potential for patient harm and wasteful spending, and/or for which significant variations in care exist among different physicians. The purpose of evaluating appropriateness is to help physicians practice within current evidence-based guidelines. Appropriateness of care measures are determined through a systematic examination of data, evidence, and clinical opinion. Data are abstracted from BCBSMT claims data as shared by the plan. Evidence is culled by Motive Medical Intelligence from peer-reviewed literature, which is analyzed with quantitative bibliometrics. Opinion is derived from subject matter experts who are in active clinical practice in the areas being measured, and who are identified by quantitative indices of expertise.

The resultant measure topics are developed with regard for the realities of clinical practice, leveraging a range of better practice (ROBP) to allow for clinical variables that cannot be gleaned from claims data.

Measure Construction

Appropriateness measure rates are formulated as numerator–denominator statements, utilizing a standardized denominator, exclusion, attribution, and numerator (DEAN) methodology. Each component of the DEAN methodology is subject to the data, evidence, and opinion process outlined above.

Cases meeting inclusion criteria and exclusion criteria are identified within claims datasets. Numerator–denominator measures are analyzed to identify potentially inappropriate episodes of care.

Cases that warrant intensive treatment are excluded, and attention instead is focused on areas of known inappropriate care based on current evidence and guided by Motive Medical Intelligence’s clinical experts. These practices avoid misrepresentation of physician performance and ensure accurate measurement of performance among peers.

Measures are attributed to the physician responsible for the care decision. Cases that cannot be definitively attributed to a physician are excluded. Several considerations are involved in proper attribution, depending on the measure:

Consideration	Example
Specialty procedures are attributed only to physicians within the specialty of interest.	Inappropriate cardiac catheterization is attributed to the cardiologist rather than the primary care provider.
The timing of interventions relative to physician visits may be a factor in determining attribution.	In the case of a patient who undergoes magnetic resonance imaging (MRI) of the spine during the same month in which he or she has evaluation and management (E&M) visits with both a PCP and a spine surgeon, the MRI is generally attributed to the physician who was seen most recently. This means the MRI may be attributed to the PCP if it occurs after the PCP visit but before the subsequent spine surgeon visit; conversely, it may be attributed to the spine surgeon if it takes place after the spine surgeon visit but before the follow-up PCP visit.
For episodes of care in which the physician rendering the service is responsible for the decision to deliver that service (e.g., cardiac catheterization), the event of interest is attributed to the physician identified on the claim as the rendering National Provider Identifier (NPI).	In measuring physician performance on percutaneous coronary intervention (PCI) without prior measurement of fractional flow reserve (FFR), the decision to perform PCI is attributed to the physician on the PCI procedure claim.

Consideration	Example
<p>For E&M measures, the event of interest is attributed to the presumptive ordering physician at a prior E&M visit instead of the rendering NPI. This approach is used because the physician rendering the service may be different from the physician responsible for the decision to deliver that service.</p>	<p>In a measure of MRI for neck pain, the MRI will be presumed to have been ordered by the physician at the prior E&M visit, rather than the radiologist performing the procedure. Correct attribution in E&M measures requires additional nuance. For example, a PCP who saw a patient twice before ordering an MRI of the neck on the third visit will get credit for conservative care on the two visits that did not lead to imaging.</p>

A ROBP is established to account for variation in practice patterns based on clinical evidence and expert oversight. The ROBP also acknowledges the variation in medical coding practices, gaps in claims data, and the realities of clinical medicine, such as regional resource limitations,

reliance on tertiary referral, and individual patient factors. A minimum threshold number of cases is established to generate statistically significant analyses, while ensuring that physicians are evaluated based on the care decisions they make regularly.



IV. QUALITY MEASUREMENT DETAILS

Physician Quality Framework

There are three components to the physician quality framework.

Component	Details	Scoring Methodology
Health Care Quality Measures*	National Quality Forum (NQF) and/or National Committee for Quality Assurance (NCQA) endorsed measures	Assumes a minimum denominator for each measure to be considered a part of the calculation. Calculations are measured within peer groups and geographies, adjusted, and then normalized.
CMS MIPS / MIPS APM Quality Score**	Physician self-reported six measures of quality performance to fit their own practice	MIPS / MIPS APM quality scores for physicians are extracted from the CMS website then normalized based on peer groups within geography.
Annual Participation in National Designation	Consideration may be given for quality recognition programs with sufficient data.	Additional considerations by specialty***

* Health Care Quality Measures are based on a prior calendar year performance.

** For our quality scoring, we will utilize the most current, publicly available MIPS / MIPS APM measures available at the time of measurement. Current data can be found at <https://data.medicare.gov/data/physician-compare>

*** Participation counts for national designation programs will be aggregated and normalized based on physician geographic distribution and specialty. We will use the most recently published quality recognition program data available at the time of measurement.

Methodology

Physicians and physician groups are measured against peers who practice in the same specialty.

The physician's final score is a composite of all components of the physician quality framework. An integrated view of the Health Care Quality Measures and MIPS / MIPS APM Quality Score is generated by calculating a weighted average of these components. In the event of missing values for either Health Care Quality Measures or MIPS / MIPS APM Quality Score, weights will be distributed proportionately. This methodology will be applied to all physicians. Physicians with Annual Participation in a National Designation program will be awarded bonus points that will be integrated into their final composite score.

Health Care Quality Measures

For each measure, patient compliance rates are aggregated for each physician and physician group. These aggregated rates are compared within peer groups and geographies, adjusted, and normalized.

Measure specifications are taken from the NQF and/or NCQA specifications, including recommended look-back periods.

See Appendix A for a list of measures for each specialty.

Each year, we evaluate the measures available for every specialty. Notifications of new or changed measures or methodology will be communicated to physicians.

CMS MIPS / MIPS APM Quality Score

MIPS / MIPS APM is a component of the composite Quality Measurement framework. This publicly available data is part of a consolidated incentive framework that represents the quality of care provided to a patient. This aggregated metric is weighted in the final analysis.

Quality Recognition Program

Participation in national designation programs signal a physician's strong commitment to providing high quality health care. Participation positively impacts the physician's composite quality score.

Attribution/Assignment

A patient's primary care attribution is derived from their historic claims data. For a physician or specialist to be scored, they must meet a minimum patient volume threshold. Patients are attributed to specialists based on claims data.



V. PHYSICIAN REVIEW & INQUIRY PROCESS

Physicians will receive information about their PEAQ designations via Availity® Essentials. BCBSMT will send notice when results are available.

Physicians may request additional details about their PEAQ designation. Requests and questions about reports should be submitted to PEAQ_inquiries@bcbsmt.com.

VI. COMMENTS & FEEDBACK

Comments and feedback are welcome and can be submitted to your local BCBSMT Network Representative or emailed to PEAQ_inquiries@bcbsmt.com.

VII. APPENDIX A

Measures

Listed below are two sets of measures. The first are quality measures included in the BCBSMT model. The second are appropriateness measures included in the BCBSMT model. Both measures are sorted alphabetically. MIPS measures are not listed as they are publicly available and self-reported by the physicians. Unless otherwise noted, a higher rate indicates better performance within a measure.

Set 1: Quality Measures

Measure	Description	Applicable Specialties
Adult Access to Preventive/ Ambulatory Health Services	The percentage of patients ages 20 and older who had an ambulatory or preventive care visit.	Family Medicine, Internal Medicine
Appropriate Testing for Pharyngitis	The percentage of episodes for patients ages 3 and older where the patient was diagnosed with pharyngitis, dispensed an antibiotic and received a group A streptococcus (strep) test for the episode.	Family Medicine, Pediatrics
Appropriate Treatment for Upper Respiratory Infection	The percentage of episodes for patients 3 months and older with a diagnosis of upper respiratory infection (URI) that did not result in an antibiotic dispensing event.	Family Medicine, Pediatrics
Asthma: Pharmacologic Therapy for Persistent Asthma	The percentage of patients ages 5 and older with a diagnosis of persistent asthma who were prescribed long-term control medication.	Pulmonary Medicine
Avoidance of Antibiotic Treatment for Acute Bronchitis	The percentage of episodes for patients 3 months and older with a diagnosis of acute bronchitis/ bronchiolitis that did not result in an antibiotic dispensing event.	Internal Medicine, Pediatrics
Breast Cancer Screening	Patients ages 52 to 74 who had a screening mammogram in last 27 reported months.	Family Medicine, Internal Medicine, Obstetrics and Gynecology

Measure	Description	Applicable Specialties
Cataracts: Complications Within 30 Days Following Cataract Surgery Requiring Additional Surgical Procedures	The percentage of patients ages 18 and older with a diagnosis of uncomplicated cataract who had cataract surgery and had any of a specified list of surgical procedures in the 30 days following cataract surgery which would indicate the occurrence of any of the following major complications: retained nuclear fragments, endophthalmitis, dislocated or wrong power IOL, retinal detachment, or wound dehiscence.	Ophthalmology
Cervical Cancer Screening	The percentage of women ages 21 to 64 who were screened for cervical cancer using either of the following criteria: <ul style="list-style-type: none"> • Women ages 21 to 64 who had cervical cytology performed every 3 years. • Women ages 30 to 64 who had cervical cytology/human papillomavirus (HPV) co-testing performed every 5 years. 	Family Medicine, Internal Medicine, Obstetrics and Gynecology
Child and Adolescent Well-Care Visits	Patients ages 3 to 21 who had one comprehensive well-care visit with a PCP or an OB/GYN in the last 12 reported months.	Family Medicine, Pediatrics
Childhood Immunization Status	The percentage of children age 2 who had four diphtheria, tetanus and acellular pertussis (DTaP); three polio (IPV); one measles, mumps and rubella (MMR); three haemophilus influenza type B (HiB); three hepatitis B (HepB), one chicken pox (VZV); four pneumococcal conjugate (PCV); one hepatitis A (HepA); two or three rotavirus (RV); and two influenza (flu) vaccines by their second birthday. The measure calculates a rate for each vaccine and nine separate combination rates.	Family Medicine, Pediatrics
Chlamydia Screening in Women	The percentage of women ages 16 to 24 who were identified as sexually active and who had at least one test for chlamydia during the measurement period.	Obstetrics and Gynecology
Colorectal Cancer Screening	Patients ages 45 to 75 who had appropriate screening for colorectal cancer.	Family Medicine, Internal Medicine, Obstetrics and Gynecology
Comprehensive Diabetes Care: Hemoglobin A1c Testing	The percentage of patients ages 18 to 75 with diabetes (type 1 and type 2) who had Hemoglobin A1c (HbA1c) testing.	Endocrinology, Family Medicine, Internal Medicine
Excess Days in Acute Care (EDAC) After Hospitalization for Acute Myocardial Infarction (AMI)	This measure assesses days spent in acute care within 30 days of discharge from an inpatient hospitalization for AMI to provide a patient-centered assessment of the post-discharge period. This measure is intended to capture the quality of care transitions provided to discharged patients hospitalized with AMI by collectively measuring a set of adverse acute care outcomes that can occur post-discharge.	Cardiology
Excess Days in Acute Care (EDAC) After Hospitalization for Heart Failure (HF)	This measure assesses days spent in acute care within 30 days of discharge from an inpatient hospitalization for HF to provide a patient-centered assessment of the post-discharge period. This measure is intended to capture the quality of care transitions provided to discharged patients hospitalized with HF by collectively measuring a set of adverse acute care outcomes that can occur post-discharge.	Cardiology

Measure	Description	Applicable Specialties
Excess Days in Acute Care (EDAC) After Hospitalization for Pneumonia	This measure assesses days spent in acute care within 30 days of discharge from an inpatient hospitalization for pneumonia, including aspiration pneumonia or for sepsis (not severe sepsis) with a secondary diagnosis of pneumonia coded in the claim as present on admission. This measure is intended to capture the quality of care transitions provided to discharge patients hospitalized with pneumonia by collectively measuring a set of adverse acute care outcomes that can occur post-discharge.	Pulmonary Medicine
Follow-Up After Emergency Department Visit for Substance Use	The percentage of emergency department (ED) visits for patients ages 13 and older with a principal diagnosis of substance abuse disorder or any diagnosis of drug overdose, who had a follow-up visit within 30 days of the ED visit.	Family Medicine, Internal Medicine
Follow-Up After Emergency Department Visit for Mental Illness Within 30 Days	The percentage of emergency department (ED) visits for patients ages 6 and older with a principal diagnosis of mental illness or intentional self-harm, who had a follow-up visit for mental illness for which the patient received follow-up within 30 days of the ED visit (31 total days).	Family Medicine, Internal Medicine
Follow-Up After Emergency Department Visit for People with Multiple High-Risk Chronic Conditions	The percentage of emergency department (ED) visits for patients 18 years and older who have multiple high-risk chronic conditions who had a follow-up service within 7 days of the ED visit.	Nephrology, Pulmonary Medicine
Follow-Up Care for Children Prescribed ADHD Medication	The percentage of children newly prescribed attention-deficit/hyperactivity disorder (ADHD) medication who had at least three follow-up care visits within a 10-month period, one of which was within 30 days of when the first ADHD medication was dispensed.	Pediatrics
Immunizations for Adolescents	The percentage of adolescents age 13 who had one dose of meningococcal vaccine, one tetanus, diphtheria toxoids and acellular pertussis (Tdap) vaccine, and had completed the human papillomavirus (HPV) vaccine series by their 13th birthday.	Pediatrics
Initiation and Engagement of Substance Use Disorder (SUD) Treatment (Engagement of AOD Treatment Rate)	The percentage of new SUD episodes that have evidence of treatment engagement within 34 days of initiation.	Internal Medicine
Initiation and Engagement of Substance Use Disorder (SUD) Treatment (Initiation of AOD Treatment Rate)	The percentage of new SUD episodes that result in treatment initiation through an inpatient SUD admission, outpatient visit, intensive outpatient encounter, partial hospitalization, telehealth visit or medication treatment within 14 days.	Internal Medicine
Kidney Health Evaluation for Patients with Diabetes	The percentage of patients ages 18 to 85 with diabetes (type 1 and type 2) who received a kidney health evaluation, defined by an estimated glomerular filtration rate (eGFR) and a urine albumin-creatinine ratio (uACR), during the measurement year.	Endocrinology, Family Medicine, Internal Medicine, Nephrology
Lead Screening in Children	The percentage of children age 2 who had one or more capillary or venous lead blood tests for lead poisoning on or by their second birthday.	Pediatrics

Measure	Description	Applicable Specialties
Non-Recommended Cervical Cancer Screening in Adolescent Females	The percentage of adolescent women ages 16 to 20 who were screened unnecessarily for cervical cancer. Note: A lower rate indicates better performance.	Pediatrics
Persistence of Beta-Blocker Treatment After a Heart Attack	Patients hospitalized with an AMI persistently taking a betablocker for six months after discharge.	Cardiology, Family Medicine, Internal Medicine
Plan All-Cause Readmissions	Unplanned hospital readmission within 30 days of principal procedure.	Orthopedic Surgery, Vascular Surgery
Potentially Harmful Drug-Disease Interactions in the Elderly	The percentage of Medicare patients ages 65 and older who have evidence of an underlying disease, condition or health concern and who were dispensed an ambulatory prescription for a potentially harmful medication, concurrent with or after the diagnosis. Note: A lower rate indicates better performance for all rates.	Family Medicine
Primary Open-Angle Glaucoma (POAG) – Optic Nerve Evaluation	The percentage of patients ages 18 and older with a diagnosis of POAG who have an optic nerve head evaluation during one or more office visits within 12 months.	Ophthalmology
Statin Therapy for Patients with Cardiovascular Disease – Adherence	Patients with cardiovascular disease taking statin medications who adhered to the prescribed statin medication regimen (proportion of days covered) at least 80 percent during the treatment period.	Internal Medicine
Statin Therapy for Patients with Cardiovascular Disease – Treatment	Patients with cardiovascular disease who received a high or moderate-intensity statin medication.	Family Medicine, Internal Medicine
Use of Imaging Studies for Low Back Pain — Imaging	The percentage of patients with a primary diagnosis of low back pain who did not have an imaging study (plain X-ray, MRI, CT scan) within 28 days of the diagnosis.	Internal Medicine
Use of Opioids from Multiple Providers	The percentage of patients ages 18 and older who receive prescription opioids from multiple providers for more than 15 days. Note: A lower rate indicates better performance.	Family Medicine
Use of Spirometry Testing in the Assessment and Diagnosis of Chronic Obstructive Pulmonary Disease (COPD)	The percentage of patients ages 40 and older with a new diagnosis of COPD or newly active COPD, who received appropriate spirometry testing to confirm the diagnosis.	Internal Medicine, Pulmonary Medicine
Well-Child Visits in the First 30 Months of Life	The percentage of patients who had the following number of well-child visits during the last 15 months: <ul style="list-style-type: none"> • Children who turned 15 months old during the measurement year: Six or more well-child visits. • Children who turned 30 months old during the measurement year: Two or more well-child visits. 	Pediatrics

Set 2: Appropriateness Measures

Measure	Description	Applicable Specialties
25-Hydroxyvitamin D Screening Overuse in Healthy Populations	The rates of screening for vitamin D deficiency are increasing amid misperceptions regarding the risks and benefits of such screening. This measure identifies the proportion of a provider's patients undergoing inappropriate screening for vitamin D deficiency. Note: A lower rate indicates better performance.	Endocrinology
5-ASA Overuse in Crohn Disease	5-aminosalicylates (5-ASAs) are widely used in the treatment of Crohn disease despite the lack of consistent evidence supporting their efficacy. This measure identifies the proportion of a provider's patients with Crohn disease who received 5-ASAs. Note: A lower rate indicates better performance.	Gastroenterology
Abdominal Approach Overuse in Hysterectomy	Vaginal, laparoscopic, or laparoscopically assisted hysterectomy is recommended over abdominal hysterectomy for benign disease. This measure identifies the proportion of a provider's patients undergoing hysterectomy in which the hysterectomy was performed via the abdominal route rather than a less invasive route. Note: A lower rate indicates better performance.	Obstetrics and Gynecology
ACE or ARB Underuse in Heart Failure	Angiotensin-converting enzyme ACE inhibitors and angiotensin receptor blockers (ARBs) decrease hospitalizations, morbidity, and mortality in patients with heart failure. This measure identifies the proportion of a provider's patients with heart failure who were not treated with an ACE inhibitor or an ARB. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Adjunctive Technique Overuse in Carpal Tunnel Release	Evidence does not support inclusion of epineurotomy, flexor tenosynovectomy, flexor retinaculum lengthening, or reconstruction or neurolysis in carpal tunnel release surgery. This measure identifies the proportion of a provider's patients undergoing carpal tunnel release surgery who received concurrent neurolysis, flexor tenosynovectomy, flexor tenolysis, or extensor tenolysis. Note: A lower rate indicates better performance.	Orthopedic Surgery
Advanced Diagnostic Testing Overuse after Coronary Artery Bypass Graft (CABG)	Advanced diagnostic testing is overused after CABG. This measure identifies the proportion of a provider's CABG patients who received advanced diagnostic testing within 6 months of the procedure. Note: A lower rate indicates better performance.	Cardiology
Advanced Diagnostic Testing Overuse after Initial Visit	Advanced diagnostic testing is overused in low-risk patients. This measure identifies the proportion of a provider's patients who underwent advanced diagnostic testing following their initial visit. Note: A lower rate indicates better performance.	Cardiology

Measure	Description	Applicable Specialties
Advanced Diagnostic Testing Overuse after PCI	Advanced diagnostic testing following PCI is overused. This measure identifies the proportion of a provider's patients undergoing PCI who underwent advanced diagnostic testing within 12 months. Note: A lower rate indicates better performance.	Cardiology
Advanced Diagnostic Testing Overuse after Revascularization	Advanced diagnostic testing after revascularization (PCI or CABG) is overused. This measure identifies the proportion of a provider's patients undergoing revascularization who underwent advanced diagnostic testing within 12 months. Note: A lower rate indicates better performance.	Cardiology
Advanced Diagnostic Testing Overuse before Elective Surgery	The performance of advanced diagnostic testing prior to low-risk elective surgery is not recommended for low-risk patients. This measure identifies the proportion of a provider's patients undergoing low-risk, noncardiac surgery who underwent advanced diagnostic testing within the prior 60 days. Note: A lower rate indicates better performance.	Cardiology
Advanced Imaging Overuse in Headache	Advanced imaging such as computed tomography (CT) and MRI is overused in the evaluation of uncomplicated headache. This measure identifies the proportion of a provider's patients with uncomplicated, primary headache who underwent advanced brain imaging. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine, Pediatrics
Albuminuria Monitoring Underuse in Chronic Kidney Disease	Alterations in urinary albumin excretion are associated with adverse changes in renal function and in the risk of stroke, myocardial infarction, and all-cause mortality. This measure identifies the proportion of a provider's patients with chronic kidney disease who did not receive at least annual urinary albumin testing. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine, Nephrology
Anemia Monitoring Underuse in Chronic Kidney Disease	Anemia is among the most common complications of chronic kidney disease (CKD) and is associated with poor outcomes. This measure identifies the proportion of a provider's patients with stage 3 or higher chronic kidney disease who did not receive at least annual hemoglobin testing. Note: A lower rate indicates better performance.	Nephrology
Antibiotic Overuse in Adults with Bronchitis	Antibiotics are overused in the treatment of lower respiratory tract infections. This measure identifies the proportion of a provider's patients with bronchitis who received an antibiotic. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Antibiotic Overuse in Conjunctivitis	Antibiotics are overused in the treatment of conjunctivitis. This measure identifies the proportion of a provider's patients with acute uncomplicated conjunctivitis who received an antibiotic. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine, Ophthalmology, Pediatrics

Measure	Description	Applicable Specialties
Antibiotic Overuse in Lower Respiratory Tract Infection	Antibiotics are overused in the treatment of lower respiratory tract infections. This measure identifies the proportion of a provider's patients with bronchitis or bronchiolitis who received an antibiotic. Note: A lower rate indicates better performance.	Pediatrics
Antibiotic Overuse in Otitis Externa	The use of systemic antibiotics in most cases of acute otitis externa (AOE) is not supported by evidence, may contribute to bacterial resistance, and can cause undesirable side effects. This measure identifies the proportion of a provider's patients with AOE who received an oral antibiotic. Note: A lower rate indicates better performance.	Pediatrics
Antibiotic Overuse in Sinusitis	Antibiotics are ineffective in the treatment of acute uncomplicated sinusitis in children even when radiographic evidence of acute sinusitis is present. This measure identifies the proportion of a provider's patients with acute sinusitis who received antibiotics. Note: A lower rate indicates better performance.	Pediatrics
Antihypertensive Underuse in Peripheral Artery Disease (PAD) with Hypertension	Antihypertensive therapy can reduce the risk of myocardial infarction, heart failure, stroke, and cardiovascular death in patients with hypertension and peripheral artery disease, yet it is often underused. This measure identifies the proportion of a provider's PAD patients with hypertension who did not receive antihypertensive therapy. Note: A lower rate indicates better performance.	Vascular Surgery
Antimuscarinic Overuse in CNS Disorders	Oral antimuscarinic agents typically used in the treatment of overactive bladder (OAB) may have central nervous system effects such as dizziness, somnolence, hallucinations, and confusion, which are of particular concern in individuals with dementia, delirium, or cognitive impairment. This measure identifies the proportion of a provider's patients with dementia, delirium, or cognitive impairment who are receiving an oral antimuscarinic for OAB. Note: A lower rate indicates better performance.	Obstetrics and Gynecology, Urology
Antiplatelet Therapy Underuse in Ischemic Heart Disease	Antiplatelet therapy has been proven to be cost effective in decreasing the long-term risk of myocardial infarction, stroke, and death in patients with ischemic heart disease. This measure identifies the proportion of a provider's patients with a history of acute coronary syndrome (ACS) in the prior 11 months who did not receive antiplatelet therapy. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Asthma Controller Underuse with Asthma Reliever	Controller medications are recommended for all patients with asthma. This measure identifies the proportion of a provider's patients with asthma who received an asthma reliever without also receiving an asthma controller medication. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine, Pediatrics

Measure	Description	Applicable Specialties
Beta-Blocker Underuse in Heart Failure	Treatment with betablockers decreases morbidity and mortality in patients with heart failure. This measure identifies the proportion of a provider's patients with heart failure and left ventricular systolic dysfunction (LSDV) who did not receive beta-blocker therapy. Note: A lower rate indicates better performance.	Cardiology, Family Medicine, Internal Medicine
Beta-Blocker Therapy Underuse in Ischemic Heart Disease	Beta-blocker therapy has been associated with increased survival following AMI. This measure identifies the proportion of a provider's patients with ischemic heart disease (IHD) who did not receive beta-blocker therapy. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Beta-Blocker Underuse after CABG	Beta-blockers reduce postoperative atrial fibrillation, reduce perioperative mortality, and improve survival in patients undergoing coronary artery bypass grafting (CABG). This measure identifies the proportion of a provider's patients undergoing CABG who did not receive beta-blocker therapy. Note: A lower rate indicates better performance.	Cardiothoracic Surgery
Bevacizumab Underuse in Anti-VEGF Injections for Wet AMD	Bevacizumab has similar efficacy to other anti-VEGF agents in improving eyesight in wet age-related macular degeneration (AMD) at a significantly lower cost. This measure identifies the proportion of a provider's patients with wet AMD receiving anti-VEGF intravitreal injections where the agent used was not bevacizumab or one of its biosimilars. Note: A lower rate indicates better performance.	Ophthalmology
Biophysical Profile Overuse in Normal Pregnancy	Routine antepartum surveillance with biophysical profiles (BPPs) is not indicated. This measure identifies the proportion of a provider's patients with uncomplicated, non-high-risk pregnancies who underwent BPP testing. Note: A lower rate indicates better performance.	Obstetrics and Gynecology
Biopsy Overuse in Lower Endoscopy	Endoscopic biopsies are often not clinically indicated and should be performed only when necessary. This measure identifies the proportion of a provider's patients undergoing lower endoscopy who underwent a biopsy during the procedure. Note: A lower rate indicates better performance.	Gastroenterology
Biosimilar Underuse in Inflammatory Arthritis	Despite the potential for considerable cost savings, the uptake of biosimilars has been slow. This measure identifies the proportion of a provider's patients initiated on infliximab or one of its biosimilars for inflammatory arthritis who were initiated on the reference agent infliximab. Note: A lower rate indicates better performance.	Rheumatology

Measure	Description	Applicable Specialties
Bronchodilator Overuse in Bronchiolitis	<p>Although bronchodilators may offer transient symptom reduction in a small number of patients with bronchiolitis, they do not alter its clinical course or improve long-term outcomes and may be associated with adverse effects. This measure identifies the proportion of a provider's patients with bronchiolitis who received a bronchodilator.</p> <p>Note: A lower rate indicates better performance.</p>	Pediatrics
Cardiac Rehabilitation Underuse after Cardiac Surgery	<p>Despite known benefits, participation in cardiac rehabilitation is low among patients undergoing cardiac surgery. This measure identifies the proportion of a provider's patients undergoing CABG, heart transplant, or cardiac valve surgery who did not receive cardiac rehabilitation.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiothoracic Surgery
Carotid Artery Imaging Underuse for Simple Syncope	<p>Carotid artery imaging (carotid artery duplex ultrasound) for simple syncope is overused. This measure identifies the proportion of a provider's patients with simple syncope who underwent carotid artery imaging.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Cervical Cancer Annual Screening Overuse	<p>Cervical cancer screening in the form of cervical cytology is recommended every 3 years or, in women ages 30 and older, every 5 years. in the form of primary high-risk HPV testing or combined cervical cytology and high-risk HPV testing. This measure identifies the proportion of a provider's patients who received cervical cancer screening in an interval of 1 year or less.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology
Cervical Cancer Screening Overuse in Older Women	<p>In the absence of a history of premalignancy or malignancy, the performance of cervical cancer screening is not recommended for older women who have had adequate prior screening. This measure identifies the proportion of a provider's patients ages 66 and older who underwent cervical cytology or HPV screening.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology
CKD-MBD Monitoring Underuse in Chronic Kidney Disease	<p>Advanced stages of chronic kidney disease are associated with an increased risk of chronic kidney disease–mineral and bone disorder (CKD-MBD), which increases fracture risk. This measure identifies the proportion of a provider's patients with stage 3 or higher chronic kidney disease who do not receive at least annual testing for CKD-MBD consisting of calcium, phosphate, and parathyroid hormone levels.</p> <p>Note: A lower rate indicates better performance.</p>	Nephrology
Codeine and Hydrocodone Overuse in Respiratory Tract Infections	<p>Codeine and hydrocodone are associated with a risk of respiratory depression and death in children. This measure identifies the proportion of a provider's pediatric patients with respiratory tract infections or cough who were dispensed either codeine or hydrocodone.</p> <p>Note: A lower rate indicates better performance.</p>	Pediatrics

Measure	Description	Applicable Specialties
Cognitive Assessment Underuse in Dementia	<p>Due to the progressive course of dementia, regular assessments including assessments of cognition, behavior, relationships, functional status, and living conditions are important. This measure identifies the proportion of a provider's patients with dementia who did not receive annual cognitive testing.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine
Computer-Assisted Surgical Navigation Overuse in TKA	<p>Computer-assisted surgical navigation has not been shown to improve knee arthroplasty outcomes or reduce complications. This measure identifies the proportion of a provider's patients undergoing knee arthroplasty in which computer-assisted surgical navigation was used.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Conservative Therapy Underuse before Lower Back Imaging	<p>Acute lower back pain often resolves with conservative therapy without the need for diagnostic MRI. This measure identifies the proportion of a provider's patients with uncomplicated low back pain who underwent MRI without having undergone a prior trial of conservative therapy.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine
Coronary Angiography Overuse	<p>Coronary angiography should be reserved for patients in whom PCI is indicated. This measure identifies the proportion of a provider's patients undergoing angiography who did not receive subsequent PCI.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Coronary Angiography Overuse in Stable Ischemic Heart Disease	<p>Nonindicated angiographies are prevalent. This measure identifies the proportion of a provider's patients undergoing coronary angiography for stable ischemic heart disease (IHD) who had undergone a prior coronary angiography within 18 months.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Cystoscopy Overuse for Stress Urinary Incontinence	<p>Cystoscopy is unnecessary in the evaluation of patients with uncomplicated stress urinary incontinence. This measure identifies the proportion of a provider's patients with uncomplicated stress urinary incontinence who underwent cystoscopy.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology, Urology
Cystoscopy Underuse with Pelvic Prolapse Surgery	<p>The use of cystoscopy or cystourethroscopy to rule out lower urinary tract injury during combined hysterectomy and pelvic organ prolapse (POP) surgery is recommended. This measure identifies the proportion of a provider's patients undergoing combined hysterectomy and POP surgery who did not undergo cystoscopy or cystourethroscopy during the surgery.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology

Measure	Description	Applicable Specialties
Diabetes Screening Underuse in Prediabetes	<p>Prediabetes is associated with an increased risk of cardiovascular disease and medical costs; lifestyle intervention and medications can help prevent the development of type 2 diabetes. This measure identifies the proportion of a provider's patients with a diagnosis of prediabetes who did not undergo annual diabetes screening.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine
Diabetes Screening Underuse with Newer Antipsychotics	<p>Second-generation antipsychotics have been associated with adverse metabolic effects including the development of diabetes. This measure identifies the proportion of a provider's patients with bipolar disorder or schizophrenia and receiving a second-generation antipsychotic who were not screened for diabetes at least annually.</p> <p>Note: A lower rate indicates better performance.</p>	Pediatrics
Duplex Ultrasound Underuse after CEA or CAS	<p>A carotid duplex ultrasound (DUS) is recommended within three months of carotid endarterectomy (CEA) or carotid artery stenting (CAS) to establish a baseline against which to compare subsequent follow-up ultrasounds. This measure identifies the proportion of a provider's patients undergoing CEA or CAS who did not have a carotid DUS performed within three months after the procedure.</p> <p>Note: A lower rate indicates better performance.</p>	Vascular Surgery
Duplex Ultrasound Underuse after Infrainguinal Bypass Graft	<p>To evaluate for graft failure, DUS is recommended in the early postoperative period, at 3, 6, and 12 months, and then annually following infrainguinal vein bypass grafts. This measure identifies the proportion of a provider's patients undergoing infrainguinal vein graft procedures who did not have a follow-up DUS performed within three months after the procedure.</p> <p>Note: A lower rate indicates better performance.</p>	Vascular Surgery
DXA Screening Overuse	<p>Frequent dual energy X-ray absorptiometry (DXA) scanning is unneeded in most patients, as bone density changes over short intervals are often smaller than the measurement error of most scanners. This measure identifies the proportion of a provider's patients who received annual or more-frequent DXA scans.</p> <p>Note: A lower rate indicates better performance.</p>	Rheumatology
Echocardiography Overuse in Stress Testing	<p>The use of stress transthoracic echocardiograms (TTEs) in patients at low risk of coronary artery disease (CAD) and with no recurring symptoms is not supported. This measure identifies the proportion of a provider's patients who had stress tests performed within 30 days of a cardiology E&M visit in which the stress tests were performed via TTE.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
EGD Overuse in GERD	<p>Patients with gastroesophageal reflux disease (GERD) or dyspepsia should not undergo esophagogastroduodenoscopy (EGD) without other evidence of complications or alarm symptoms. This measure identifies the proportion of a provider's patients with a diagnosis of GERD who underwent EGD.</p> <p>Note: A lower rate indicates better performance.</p>	Gastroenterology

Measure	Description	Applicable Specialties
eGFR Underuse in Chronic Kidney Disease	Undetected kidney disease progression is asymptomatic and is associated with substantial morbidity and mortality. This measure identifies the proportion of a provider's patients with chronic kidney disease who did not receive at least annual eGFR determinations. Note: A lower rate indicates better performance.	Nephrology
Electrocardiogram Overuse before ADHD Medication Initiation	The use of medications to treat ADHD has not been associated with a higher risk of sudden cardiac death. This measure identifies the proportion of a provider's patients initiated on medications for ADHD who received an electrocardiogram (ECG). Note: A lower rate indicates better performance.	Pediatrics
Electrocardiogram Overuse before Cataract Surgery	Preoperative testing for low-risk procedures, including cataract surgeries, is overutilized. This measure identifies the proportion of a provider's cataract surgery patients in whom an ECG was performed for routine preoperative screening. Note: A lower rate indicates better performance.	Ophthalmology
Endometrial Sampling Underuse before Endometrial Ablation	Endometrial sampling to rule out malignancy is recommended prior to the performance of endometrial ablative procedures. This measure identifies the proportion of a provider's patients undergoing endometrial ablation who did not undergo a prior endometrial sampling or biopsy. Note: A lower rate indicates better performance.	Obstetrics and Gynecology
ESA Overuse in Kidney Disease with Malignancy or Stroke	The use of erythropoiesis-stimulating agents (ESAs) has been associated with an increased risk of stroke and cancer-related death. This measure identifies the proportion of a provider's patients with chronic kidney disease or receiving end-stage renal disease services with a history of cancer or stroke who received an ESA. Note: A lower rate indicates better performance.	Nephrology
FFR or iFR Underuse in PCI	Although FFR or instantaneous wave-free ratio (iFR) should be used to guide revascularization decisions, FFR and iFR remain underused. This measure identifies the proportion of a provider's patients undergoing PCI who did not undergo measurement of FFR or iFR. Note: A lower rate indicates better performance.	Cardiology
First-Line Biologic or Targeted Synthetic DMARD Overuse in RA	Conventional synthetic medications such as methotrexate have been proven to be effective in many patients with rheumatoid arthritis and are considerably less expensive than biologic or targeted synthetic agents. This measure identifies the proportion of a provider's patients initiated on a disease-modifying antirheumatic drug (DMARD) for rheumatoid arthritis in which the DMARD was a biologic agent or a targeted synthetic DMARD. Note: A lower rate indicates better performance.	Rheumatology

Measure	Description	Applicable Specialties
Fluoroquinolone Overuse in Uncomplicated Cystitis	Fluoroquinolones have been associated with serious disabling and permanent side effects. This measure identifies the proportion of a provider's patients with uncomplicated cystitis who received a fluoroquinolone. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine, Obstetrics and Gynecology, Urology
Gabapentin Overuse in Carpal Tunnel Syndrome	Gabapentin has not been shown to have benefits over placebo in the management of carpal tunnel syndrome symptoms. This measure identifies the proportion of a provider's patients with carpal tunnel syndrome who received gabapentin. Note: A lower rate indicates better performance.	Orthopedic Surgery
Glomerular Filtration Rate Test Underuse in Diabetes	Regular assessments of estimated glomerular filtration rate (eGFR) are recommended to evaluate for and estimate the degree of diabetic nephropathy. This measure identifies the proportion of a provider's diabetic patients not receiving at least annual eGFR determinations. Note: A lower rate indicates better performance.	Endocrinology
Group B Strep Testing Underuse in Pregnancy	Group B Streptococcus (GBS) can cause significant illness in the newborn. This measure identifies the proportion of a provider's global maternity care patients who did not receive GBS testing prior to delivery. Note: A lower rate indicates better performance.	Obstetrics and Gynecology
HCC Screening Underuse in Chronic Hepatitis B	Individuals with chronic hepatitis B and cirrhosis are at increased risk of developing HCC and should receive regular screening. This measure identifies the proportion of a provider's patients with chronic hepatitis B and cirrhosis who did not receive HCC screening with either abdominal ultrasound or alpha-fetoprotein every 6 months. Note: A lower rate indicates better performance.	Gastroenterology
Helicobacter Serology Testing Overuse	The positive predictive value of serologic tests for Helicobacter pylori is low and the tests cannot be used to evaluate eradication. This measure identifies the proportion of a provider's patients receiving noninvasive tests for H. pylori (stool antigen test, urea breath test, or serology) who received serologic testing. Note: A lower rate indicates better performance.	Family Medicine, Gastroenterology, Internal Medicine
Hemoglobin A1c Test Underuse in CKD with Diabetes	Evaluation of hemoglobin A1c (HbA1c), a measure of recent glycemic control, is recommended at least twice yearly for diabetic patients meeting treatment goals and more frequently for those who are not. This measure identifies the proportion of a provider's diabetic patients with chronic kidney disease who are not receiving at least annual HbA1c testing. Note: A lower rate indicates better performance.	Nephrology

Measure	Description	Applicable Specialties
Hemoglobin Monitoring Underuse with ESAs in CKD	<p>Although ESAs reduce the incidence of anemia-related symptoms and the need for blood transfusions, their use to achieve hemoglobin levels in the normal range has been associated with increased mortality. This measure identifies the proportion of a provider's chronic kidney disease patients who do not receive hemoglobin testing prior to receipt of an ESA.</p> <p>Note: A lower rate indicates better performance.</p>	Nephrology
Hepatitis B Antibody Screening Underuse in Dialysis Patients	<p>Dialysis patients are at increased risk for hepatitis B infection but also may experience waning immunity and may require booster doses following vaccination. This measure identifies the proportion of a provider's patients receiving end-stage renal disease services and on dialysis who are not receiving at least annual hepatitis B surface antibody titer testing.</p> <p>Note: A lower rate indicates better performance.</p>	Nephrology
Hepatitis C Screening Underuse in Dialysis	<p>Dialysis patients are at increased risk for hepatitis C infection. This measure identifies the proportion of a provider's patients receiving end-stage renal disease services and on dialysis who are not receiving hepatitis C testing at least every 6 months.</p> <p>Note: A lower rate indicates better performance.</p>	Nephrology
Imaging Overuse in Stress Testing	<p>Stress tests with imaging are overused in patients at low risk of CAD. This measure identifies the proportion of a provider's patients who received imaging stress tests among all stress tests performed.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
In-Laboratory Polysomnography Overuse	<p>Home respiratory polygraphy has a similar efficacy in diagnosing obstructive sleep apnea as in-laboratory polysomnography but has a significantly lower cost. This measure identifies the proportion of a provider's patients undergoing sleep studies where the initial sleep study was in-laboratory polysomnography.</p> <p>Note: A lower rate indicates better performance.</p>	Pulmonary Medicine
Intraarticular Hyaluronic Acid Overuse in Knee Osteoarthritis	<p>Viscosupplementation has not been shown to be associated with a clinically relevant benefit in knee osteoarthritis and may be associated with complications. This measure identifies the proportion of a provider's patients with knee osteoarthritis who underwent intraarticular hyaluronic acid injection.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Intraarticular Hyaluronic Acid Overuse in Shoulder Arthritis	<p>Intraarticular hyaluronic acid injections have not been shown to have any benefit over placebo for glenohumeral osteoarthritis. This measure identifies the proportion of a provider's patients with shoulder osteoarthritis who underwent intraarticular hyaluronic acid injection.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery

Measure	Description	Applicable Specialties
Iron Monitoring Underuse with Erythropoiesis-Stimulating Agents	<p>Anemia associated with advanced kidney disease may be due to a combination of erythropoietin deficiency and iron deficiency. This measure identifies the proportion of a provider's chronic kidney disease patients on erythropoiesis-stimulating agent therapy not receiving iron status testing at least every 3 months.</p> <p>Note: A lower rate indicates better performance.</p>	Nephrology
Laboratory Monitoring Underuse with DMARDs	<p>The DMARDs leflunomide, methotrexate, and sulfasalazine can all suppress the bone marrow and may have liver and/or kidney toxicities. This measure identifies the proportion of a provider's patients receiving leflunomide, methotrexate, or sulfasalazine for rheumatoid arthritis who did not have a complete blood count, liver transaminases, and serum creatinine performed at least every 90 days.</p> <p>Note: A lower rate indicates better performance.</p>	Rheumatology
Laboratory Monitoring Underuse with NOACs	<p>Due to the need for renal function-adjusted dosing, renal function testing should be performed at least annually for individuals on non-vitamin K oral anticoagulants (NOACs). This measure identifies the proportion of a provider's atrial fibrillation patients on NOACs who are not receiving at least annual creatinine testing.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine
Left Ventriculography Overuse after Advanced Diagnostic Imaging	<p>Left ventriculography should be avoided following advanced diagnostic imaging unless there is a suspicion of mechanical disruption or left ventricular wall motion or function is in question. This measure identifies the proportion of a provider's patients undergoing advanced diagnostic imaging who had left ventriculography during coronary angiography within the following 30 days.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Lipid Evaluation Underuse with Statins	<p>Adherence and response to statins should be assessed at initiation, dosage changes, and at least annually while on stable therapy. This measure identifies the proportion of a provider's patients treated with a statin who did not undergo annual cholesterol testing.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine
Low-Dose CT Lung Cancer Screening Underuse	<p>Low-dose computed tomography (LDCT) lung cancer screening in high-risk patients can significantly reduce lung cancer and mortality. This measure identifies the proportion of a provider's patients ages 55 and older, identified as smokers, with COPD, chronic bronchitis, or emphysema, indicating a significant smoking history, who did not receive annual LDCT lung cancer screening.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine, Pulmonary Medicine
Lumbar Fusion Overuse in Spinal Stenosis	<p>Lumbar fusion has not been shown to improve patient outcomes in cases of spinal stenosis without instability or deformity. This measure identifies the proportion of a provider's patients undergoing lumbosacral spine surgeries for spinal stenosis in which lumbar fusion was performed.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery

Measure	Description	Applicable Specialties
Mammography Overuse in Women Over 75	Evidence supporting ongoing breast cancer screening in women older than 75 is lacking. This measure identifies the proportion of a provider's patients ages 76 and older who underwent routine screening mammography. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine, Obstetrics and Gynecology
Medication Management Visit Underuse after ADHD Drug Initiation	Patients treated with medications for ADHD should be monitored for medication efficacy and side effects. This measure identifies the proportion of a provider's patients initiated on medications for ADHD who did not have a follow-up visit. Note: A lower rate indicates better performance.	Pediatrics
Meniscectomy Overuse in Degenerative Meniscal Tears	Meniscectomy provides no meaningful improvement in degenerative meniscal tears. This measure identifies the proportion of a provider's patients ages 55 and older with degenerative meniscal tears who underwent meniscectomy. Note: A lower rate indicates better performance.	Orthopedic Surgery
Mineral and Bone Disorder Monitoring Underuse in CKD	Advanced stages of chronic kidney disease are associated with an increased risk of chronic kidney disease–mineral and bone disorder (CKD-MBD), which increases fracture risk. This measure identifies the proportion of a provider's patients with stage 3 or higher chronic kidney disease who did not receive at least annual testing for CKD-MBD consisting of calcium, phosphate, and parathyroid hormone levels. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Moderate- or High-Intensity Statin Underuse in Diabetes	Due to the increased risk of cardiovascular disease associated with diabetes, moderate-intensity statins are recommended for diabetic patients who do not have preexisting atherosclerotic cardiovascular disease (ASCVD). This measure identifies the proportion of a provider's diabetic patients without known ASCVD who are not receiving at least moderate-intensity statin therapy. Note: A lower rate indicates better performance.	Endocrinology, Family Medicine, Internal Medicine
MRI Overuse before Physical Therapy or Chiropractic Care for Lower Back Pain	MRI is overused in low back pain without red flags. This measure identifies the proportion of a provider's low back pain patients undergoing physical therapy (PT) or chiropractic care who had an MRI performed between the first low back pain visit and initiation of PT or chiropractic care. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
MRI Overuse in Carpal Tunnel Syndrome	Evidence supporting the use of MRI in the diagnosis of carpal tunnel syndrome is lacking. This measure identifies the proportion of a provider's patients with carpal tunnel syndrome who underwent MRI. Note: A lower rate indicates better performance.	Orthopedic Surgery
MRI Overuse in Uncomplicated Back Pain	MRI is overused in low back pain without red flags. This measure identifies the proportion of a provider's patients with uncomplicated back pain who received an MRI. Note: A lower rate indicates better performance.	Orthopedic Surgery

Measure	Description	Applicable Specialties
Nonoperative Care Underuse before Knee Arthroplasty	A trial of nonoperative care is recommended prior to surgery for patients with symptomatic knee osteoarthritis. This measure identifies the proportion of a provider's patients undergoing knee arthroplasty who did not undergo prior nonoperative care. Note: A lower rate indicates better performance.	Orthopedic Surgery
Nonoperative Care Underuse before Knee MRI	MRI is rarely helpful in managing common causes of knee pain; treatment of knee pain without discrete trauma should not be dependent on early MRI results. This measure identifies the proportion of a provider's patients undergoing MRI for knee pain who did not undergo a prior trial of nonoperative care. Note: A lower rate indicates better performance.	Orthopedic Surgery
Nonoperative Care Underuse before Meniscectomy	Meniscectomy provides no meaningful improvement in degenerative meniscal tears compared with nonoperative care. This measure identifies the proportion of a provider's patients ages 55 and older undergoing meniscectomy for degenerative meniscal tears who did not receive a prior trial of nonoperative care. Note: A lower rate indicates better performance.	Orthopedic Surgery
Nonoperative Care Underuse before Neck MRI	MRI is rarely helpful in managing common causes of neck pain, such as cervical radiculopathy, as most cases of acute cervical neck pain resolve spontaneously or with nonoperative care. This measure identifies the proportion of a provider's patients undergoing MRI for neck pain who did not receive a prior trial of nonoperative care. Note: A lower rate indicates better performance.	Orthopedic Surgery
Nonoperative Care Underuse before Neurostimulator Implantation	Neurostimulators should be used only as a technique of last resort for pain relief, as they have not been shown to provide clear clinical benefit. This measure identifies the proportion of a provider's patients undergoing neurostimulator implantation who did not receive a prior trial of nonoperative care or spine surgery. Note: A lower rate indicates better performance.	Orthopedic Surgery
Nonoperative Care Underuse before SAD Surgery	Subacromial decompression (SAD) should not be performed on patients with atraumatic shoulder pain, as there is no benefit over nonoperative care alone. This measure identifies the proportion of a provider's patients undergoing SAD surgery for shoulder pain who did not receive a prior trial of nonoperative care. Note: A lower rate indicates better performance.	Orthopedic Surgery
Nonoperative Care Underuse before Shoulder MRI	MRI should not be used in the initial evaluation of atraumatic shoulder pain; nonsurgical treatment will relieve shoulder pain and improve function in most patients. This measure identifies the proportion of a provider's patients undergoing MRI for shoulder pain who did not receive a prior trial of nonoperative care. Note: A lower rate indicates better performance.	Orthopedic Surgery

Measure	Description	Applicable Specialties
NSAID Overuse in Heart Failure, Hypertension, or Chronic Kidney Disease	<p>Nonsteroidal anti-inflammatory drugs (NSAIDs) are overused in the presence of heart failure, hypertension, and chronic kidney disease. This measure identifies the proportion of a provider's patients with heart failure, hypertension, or chronic kidney disease who received NSAIDs.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine
Nuclear Imaging Overuse in Stress Testing	<p>Stress tests with imaging are overused in patients at low risk of CAD. This measure identifies the proportion of a provider's patients who underwent stress testing following E&M visits where the stress test was via nuclear imaging.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Partial Shoulder Arthroplasty Overuse in Shoulder Osteoarthritis	<p>Evidence supports more favorable patient outcomes from total shoulder arthroplasty than partial shoulder arthroplasty. This measure identifies the proportion of a provider's patients undergoing shoulder arthroplasty in which the procedure was a partial shoulder arthroplasty.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Physical Therapy Underuse before Cervical Spine Surgery	<p>PT can lead to outcomes similar to those of cervical spine surgery; therefore, structured physiotherapy should be tried before surgery. This measure identifies the proportion of a provider's patients undergoing cervical spine surgery who did not receive a prior trial of PT.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Physical Therapy Underuse before Hip Arthroscopy	<p>PT should be used prior to arthroscopy to reduce pain and inflammation associated with hip osteoarthritis. This measure identifies the proportion of a provider's patients undergoing hip arthroscopy who did not undergo a prior trial of PT.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Physical Therapy Underuse before Lumbar Surgery	<p>Nonoperative care, such as PT, should be attempted prior to surgery for lower back pain. This measure identifies the proportion of a provider's patients undergoing lumbar surgery who did not undergo a prior trial of PT.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Physical Therapy Underuse before Rotator Cuff Repair	<p>Rotator cuff surgery is recommended for patients with persistent pain or weakness that does not improve with nonsurgical treatment. This measure identifies the proportion of a provider's patients undergoing rotator cuff repair who did not receive a prior trial of PT.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Physical Therapy Underuse before SLAP Repair	<p>Nonoperative care, such as physical therapy, improves pain and function in superior labral anterior posterior (SLAP) lesions. This measure identifies the proportion of a provider's patients undergoing SLAP repair who did not undergo a prior trial of PT.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery

Measure	Description	Applicable Specialties
Posterolateral Lumbar Fusion Overuse with Interbody Fusion	<p>Evidence suggests that adding posterolateral lumbar fusion to lumbar interbody fusion is not associated with improved outcomes and is associated with an increase in complications. This measure identifies the proportion of a provider's patients undergoing interbody fusion in which posterolateral lumbar fusion was also performed.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Postpartum Diabetes Screening Underuse	<p>Gestational diabetes is associated with an increased risk of overt diabetes mellitus. This measure identifies the proportion of a provider's postpartum patients who had gestational diabetes and did not receive postpartum diabetes screening.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology
Pregnancy Testing Underuse with Hysteroscopy	<p>Women undergoing hysteroscopy should be evaluated for pregnancy prior to the procedure. This measure identifies the proportion of a provider's patients undergoing hysteroscopy who did not receive a pregnancy test.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology
Preoperative ECG Overuse in Low-risk Patients	<p>The use of preoperative ECGs in low-risk patients is not supported, yet preoperative ECGs are widely performed. This measure identifies the proportion of a provider's patients undergoing low-risk noncardiac surgery who received resting ECGs within the prior 60 days.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Preoperative TTE Overuse in Low-risk Patients	<p>The use of preoperative transthoracic echocardiography (TTE) for low-risk patients is not supported, yet this practice is common. This measure identifies the proportion of a provider's patients undergoing low-risk noncardiac surgery who received a resting TTE during the prior 60 days.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Primary Cesarean Section Overuse for Low-risk Pregnancy	<p>Significant practice variation in providers' primary cesarean section rates for uncomplicated low-risk pregnancies exists. This measure identifies the proportion of a provider's patients with term, singleton, vertex-presentation, low-risk pregnancies who underwent primary cesarean section.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology
Prophylactic Antibiotic Overuse with Intravitreal Injections	<p>Antibiotics are overused for intravitreal injections. This measure identifies the proportion of a provider's patients receiving intravitreal injections who also received topical antibiotics for endophthalmitis prophylaxis.</p> <p>Note: A lower rate indicates better performance.</p>	Ophthalmology
PSA Testing Overuse in Older Men	<p>Evidence supporting prostate-specific antigen (PSA) screening in men ages 70 and older is lacking. This measure identifies the proportion of a provider's male patients ages 70 and older who received PSA testing.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine, Urology

Measure	Description	Applicable Specialties
Pulmonary Function Test Overuse before Low-Risk Surgery	Pulmonary function testing does not have a proven predictive value for evaluating risk prior to extrathoracic surgery in individuals without respiratory disease. This measure identifies the proportion of a provider's patients undergoing extrathoracic surgery who had preoperative pulmonary function testing performed and did not have a diagnosis of COPD or asthma. Note: A lower rate indicates better performance.	Pulmonary Medicine
Pulmonary Function Testing Overuse before Cardiac Surgery	In cardiac surgery patients without symptoms or pulmonary disease, preoperative pulmonary function tests are unlikely to impact management or help risk assessment. This measure identifies the proportion of a provider's patients undergoing cardiac surgery who received preoperative pulmonary function testing. Note: A Lower rate indicates better performance.	Cardiothoracic Surgery
Pulmonary Rehabilitation Underuse after COPD Exacerbation	Pulmonary rehabilitation following a COPD exacerbation reduces rehospitalization and mortality. This measure identifies the proportion of a provider's patients with a recent inpatient stay for COPD who did not receive pulmonary rehabilitation. Note: A lower rate indicates better performance.	Pulmonary Medicine
RAS Inhibitor Underuse after CABG	Renin-angiotensin system (RAS) inhibition with ACE inhibitors or ARBs provides significant benefits to patients with heart failure and various other comorbidities. This measure identifies the proportion of a provider's CABG patients with left-sided systolic heart failure, hypertension, diabetes, or CKD who did not receive an ACE inhibitor or an ARB. Note: A lower rate indicates better performance.	Cardiothoracic Surgery
RAS Inhibitor Underuse in Chronic Kidney Disease with Diabetes	RAS inhibition with ACE inhibitors or ARBs can help reduce the risk of progression to end-stage renal disease in diabetic patients with hypertension and chronic kidney disease. This measure identifies the proportion of a provider's diabetic patients with hypertension and albuminuria who are not receiving an ACE inhibitor or an ARB. Note: A lower rate indicates better performance.	Nephrology
RAS Inhibitor Underuse in Diabetes with Cardiovascular Disease	RAS inhibition with ACE inhibitors or ARBs can help reduce the risk of cardiovascular events in diabetic patients with ASCVD. This measure identifies the proportion of a provider's diabetic patients with known ASCVD who are not receiving an ACE inhibitor or an ARB. Note: A lower rate indicates better performance.	Endocrinology
RAS Inhibitor Underuse in Diabetes with Hypertension	RAS inhibition with ACE inhibitors or ARBs can help reduce the risk of progression to end-stage renal disease in diabetic patients with hypertension and chronic kidney disease. This measure identifies the proportion of a provider's diabetic patients with hypertension and albuminuria who are not receiving an ACE inhibitor or an ARB. Note: A lower rate indicates better performance.	Endocrinology

Measure	Description	Applicable Specialties
RAS Inhibitor Underuse in Heart Failure	RAS inhibitors decrease hospitalizations, morbidity, and mortality in patients with heart failure. This measure identifies the proportion of a provider's patients with heart failure who were not treated with a RAS inhibitor. Note: A lower rate indicates better performance.	Cardiology
RAS Inhibitor Underuse in Ischemic Heart Disease	RAS inhibitors have cardioprotective effects and are beneficial for individuals with stable ischemic heart disease and left ventricular dysfunction, hypertension, diabetes, or chronic kidney disease. This measure identifies the proportion of a provider's patients with ischemic heart disease plus left ventricular dysfunction, hypertension, diabetes, or chronic kidney disease who were not treated with a RAS inhibitor. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Repeat Colonoscopy Overuse	Follow-up colonoscopies for patients without a cancer diagnosis or family history of cancer are often performed too early and provide little benefit to the patient. This measure identifies the proportion of a provider's patients undergoing colonoscopy who had undergone a prior colonoscopy within 13 months. Note: A lower rate indicates better performance.	Gastroenterology
Repeat Colonoscopy Overuse after Polypectomy	Although most polypectomies do not require a repeat colonoscopy within 1 year, studies have shown overuse of postpolypectomy surveillance. This measure identifies the proportion of a provider's patients undergoing colonoscopy who had undergone a colonoscopy with polypectomy during the prior 13 months. Note: A lower rate indicates better performance.	Gastroenterology
Repeat EGD Overuse in Barrett Esophagus	Patients with nondysplastic Barrett esophagus (BE) should receive an EGD only every 3 to 5 years. This measure identifies the proportion of a provider's patients with nondysplastic BE undergoing EGD who had undergone a prior EGD within 13 months. Note: A lower rate indicates better performance.	Gastroenterology
Repeat Lumbosacral Spine Surgery Overuse	The results of repeat lumbosacral spinal surgery are inferior to those of primary surgery, and repeat surgeries are associated with higher costs. This measure identifies the proportion of a provider's patients undergoing lumbosacral surgery who had undergone lumbosacral spinal surgery in the prior 12 months. Note: A lower rate indicates better performance.	Orthopedic Surgery
Repeat Transthoracic Echocardiography Overuse	Routine echocardiography surveillance is not supported, yet the use of nonindicated TTE is widespread. This measure identifies the proportion of a provider's patients undergoing TTE who had undergone a prior TTE within 13 months. Note: A lower rate indicates better performance.	Cardiology
Repeat Upper Endoscopy Overuse	Although repeating EGD within 1 year is rarely indicated, studies show overuse of repeat EGD. This measure identifies the proportion of a provider's patients undergoing EGD who had undergone a prior EGD within 13 months. Note: A lower rate indicates better performance.	Gastroenterology

Measure	Description	Applicable Specialties
Retinal Examination Underuse in Diabetic Retinopathy	Diabetic retinopathy is a leading cause of blindness. This measure identifies the proportion of a provider's patients with diabetic retinopathy who do not receive annual retinal exams. Note: A lower rate indicates better performance.	Ophthalmology
Revascularization Overuse in Peripheral Artery Stenosis	Invasive strategies such as percutaneous or surgical revascularization are not recommended for patients with PAD without symptoms. This measure identifies the proportion of a provider's patients undergoing lower extremity revascularization who did not have PAD with claudication or critical limb ischemia. Note: A lower rate indicates better performance.	Vascular Surgery
Revision Rotator Cuff Repair Overuse	The results of revision rotator cuff repair are inferior to those of primary repair, not only due to increased rate of infection and other complications, but also due to an increased retear rate. This measure identifies the proportion of a provider's patients undergoing rotator cuff repair who had undergone rotator cuff repair during the prior 12 months. Note: A lower rate indicates better performance.	Orthopedic Surgery
Revision SLAP Repair Overuse	SLAP tears are overdiagnosed and overtreated. This measure identifies the proportion of a provider's patients undergoing SLAP repair who underwent SLAP repair during the prior 12 months. Note: A lower rate indicates better performance.	Orthopedic Surgery
Routine Electrocardiogram Overuse	ECGs in asymptomatic low-risk patients are unwarranted and can lead to both direct costs and indirect costs related to cascading tests, consultations, and procedures. This measure identifies the proportion of a provider's low-risk patients who underwent wellness exams resulting in ECGs. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Routine Peripheral Joint MRI Overuse in Rheumatoid Arthritis	The routine use of MRI is not cost effective for the diagnosis and prognostication of rheumatoid arthritis. This measure identifies the proportion of a provider's patients with rheumatoid arthritis who received MRI scans. Note: A lower rate indicates better performance.	Rheumatology
Routine Urinalysis Overuse	Routine screening urinalysis is unwarranted and can lead to cascade-attributable events and costs. This measure identifies the proportion of a provider's patients seen in wellness visits who received routine urinalysis. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine, Obstetrics and Gynecology
SAD-Only Shoulder Surgery Overuse	While SAD may be a necessary component of other surgeries (e.g., rotator cuff repair), it should not be performed alone. This measure identifies the proportion of a provider's patients undergoing SAD surgery who did not undergo other concurrent shoulder procedures. Note: A lower rate indicates better performance.	Orthopedic Surgery

Measure	Description	Applicable Specialties
Scatter Laser Overuse in Nonproliferative Diabetic Retinopathy	Although effective at reducing vision loss due to severe diabetic retinopathy, panretinal photocoagulation (scatter) laser is not recommended for treatment of mild or moderate nonproliferative diabetic retinopathy (NPDR). This measure identifies the proportion of a provider's patients undergoing scatter laser who had mild or moderate NPDR. Note: A lower rate indicates better performance.	Ophthalmology
Short-Acting Bronchodilator Overuse in COPD	Bronchodilators are the mainstay of therapy for COPD with long-acting bronchodilators being recommended over short-acting bronchodilators due to their superior efficacy in reducing exacerbations. This measure identifies the proportion of a provider's patients with COPD receiving short-acting bronchodilators who did not receive a concurrent long-acting bronchodilator. Note: A lower rate indicates better performance.	Pulmonary Medicine
Smoking Cessation Intervention Underuse after CABG	CABG is associated with a greater need for revascularization and a higher risk of death. This measure identifies the proportion of a provider's CABG patients identified as smokers who did not receive smoking cessation counselling or treatment. Note: A lower rate indicates better performance.	Cardiothoracic Surgery
Smoking Cessation Intervention Underuse in COPD	Smoking is the primary modifiable risk factor for the development and progression of COPD. This measure identifies the proportion of a provider's COPD patients identified as smokers who did not receive smoking cessation counselling or therapy. Note: A lower rate indicates better performance.	Pulmonary Medicine
Smoking Cessation Intervention Underuse in Lung Cancer	Smoking is the primary causative factor in developing lung cancer and continued smoking in lung cancer patients increases the risk of second primary cancers, postoperative complications, and mortality. This measure identifies the proportion of a provider's lung cancer patients identified as smokers who did not receive smoking cessation counselling or therapy. Note: A lower rate indicates better performance.	Pulmonary Medicine
Smoking Cessation Intervention Underuse in PAD	Smoking is associated with many harmful effects on health and is a modifiable risk factor for PAD. This measure identifies the proportion of a provider's PAD patients identified as smokers who did not receive smoking cessation counselling or therapy. Note: A lower rate indicates better performance.	Vascular Surgery
Smoking Cessation Therapy Underuse in Cataract	Cigarette smoking is one of the exposures linked to cataract development and to the need for cataract surgery. This measure identifies the proportion of a provider's cataract patients identified as smokers who did not receive a smoking cessation intervention. Note: A lower rate indicates better performance.	Ophthalmology

Measure	Description	Applicable Specialties
Smoking Cessation Therapy Underuse in CKD with Diabetes	Smoking is associated with many harmful effects on health including an accelerated rate of development of microvascular and macrovascular complications in diabetes. This measure identifies the proportion of a provider's diabetic CKD patients identified as smokers who did not receive a smoking cessation intervention. Note: A lower rate indicates better performance.	Nephrology
Staged Angiography and PCI Overuse	Angiography should be performed in the same session as PCI. This measure identifies the proportion of a provider's patients undergoing diagnostic angiography who underwent delayed/ later-date PCI. Note: A lower rate indicates better performance.	Cardiology
Staged Percutaneous Intervention Overuse	Variation in the use of nonacute PCI exists. This measure identifies the proportion of a provider's patients undergoing PCI who had undergone a prior PCI within 45 days. Note: A lower rate indicates better performance.	Cardiology
Staged Upper and Lower Endoscopy Overuse	Patients face increased costs and an increased risk of complications associated with sedation from different-day endoscopies. This measure identifies the proportion of a provider's patients undergoing both upper and lower endoscopies with the procedures being on different days within a 45-day period. Note: A lower rate indicates better performance.	Gastroenterology
Statin Underuse after CABG	Statins decrease the risk of myocardial infarction, revascularization, and stroke. This measure identifies the proportion of a provider's patients undergoing CABG who did not receive statin therapy. Note: A lower rate indicates better performance.	Cardiothoracic Surgery
Statin Underuse after Stroke	Despite the known benefits of statin therapy following ischemic stroke, its use is low. This measure identifies the proportion of a provider's patients with a history of stroke or transient ischemic attack who did not receive statin therapy. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Statin Underuse in Chronic Kidney Disease with Diabetes	Statins help lower the risk of cardiovascular events in individuals with CKD and diabetes. This measure identifies the proportion of a provider's patients with both CKD and diabetes who are not receiving statin therapy. Note: A lower rate indicates better performance.	Nephrology
Statin Underuse in Diabetes with Cardiovascular Disease	High-intensity statins are recommended to reduce the risk of cardiovascular events in patients with both diabetes and ASCVD. This measure identifies the proportion of a provider's diabetic patients with known ASCVD who are not receiving high-intensity statin therapy. Note: A lower rate indicates better performance.	Endocrinology

Measure	Description	Applicable Specialties
Statin Underuse in PAD	<p>Because they can improve both limb and cardiovascular outcomes, statins are recommended for patients with PAD. This measure identifies the proportion of a provider's patients with PAD who did not receive statin therapy.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine, Vascular Surgery
Streptococcal Test Underuse in Antibiotic-Treated Pharyngitis	<p>Inappropriate prescribing of antibiotics for viral illnesses is associated with higher costs, increased adverse effects, and antibiotic resistance. This measure identifies the proportion of a provider's patients receiving antibiotics for pharyngitis who did not have a group A streptococcal test performed.</p> <p>Note: A lower rate indicates better performance.</p>	Pediatrics
Stress/Functional Testing Underuse before Coronary Angiography	<p>Coronary angiography should be used only after prior noninvasive stress or functional testing. This measure identifies the proportion of a provider's patients undergoing angiography who had not received prior noninvasive stress or functional testing.</p> <p>Note: A lower rate indicates better performance.</p>	Cardiology
Sulfonylurea and Glinide Overuse in Older Patients with Diabetes	<p>Insulin secretagogues, notably sulfonylureas and glinides, have been associated with hypoglycemia leading to falls, fractures, dementia, and other serious adverse events in older adults. This measure identifies the proportion of a provider's diabetic patients, ages 65 and older, with a history of hypoglycemia, who were dispensed a sulfonylurea or glinide.</p> <p>Note: A lower rate indicates better performance.</p>	Endocrinology, Family Medicine, Internal Medicine
Surgical Treatment Overuse in Proximal Humeral Fractures	<p>Evidence does not demonstrate differences in functional outcomes between surgically treated and conservatively managed closed proximal humeral fractures. This measure identifies the proportion of a provider's patients with closed proximal humeral fractures who underwent an open reduction.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
Systemic Steroid Overuse in Ankylosing Spondylitis	<p>Little evidence supports the use of steroids in ankylosing spondylitis. This measure identifies the proportion of a provider's patients with ankylosing spondylitis who received oral corticosteroids.</p> <p>Note: A lower rate indicates better performance.</p>	Rheumatology
Systemic Steroid Overuse in Low Back Pain	<p>The use of systemic steroids has not been shown to be effective in managing low back pain. This measure identifies the proportion of a provider's patients with low back pain who received oral corticosteroids.</p> <p>Note: A lower rate indicates better performance.</p>	Orthopedic Surgery
TDAP Vaccine Underuse in Pregnancy	<p>Newborn pertussis is a potentially deadly illness that can be prevented through routine maternal tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccination during pregnancy. This measure identifies the proportion of a provider's global maternity care patients who did not receive the Tdap vaccine during pregnancy.</p> <p>Note: A lower rate indicates better performance.</p>	Obstetrics and Gynecology

Measure	Description	Applicable Specialties
Testosterone Overuse	Testosterone therapy is overused in older men without documented evidence of hypogonadism. This measure identifies the proportion of a provider's male patients who were initiated on testosterone therapy without having had a serum testosterone test performed. Note: A lower rate indicates better performance.	Urology
Thyroid Function Testing Overuse in Childhood Obesity	In the absence of short stature or other clinical abnormality, pediatric obesity is rarely caused by an endocrine disorder. This measure identifies the proportion of a provider's patients with obesity who had a serum thyroid stimulating hormone test performed. Note: A lower rate indicates better performance.	Pediatrics
Trabeculectomy Underuse in Glaucoma	Trabeculectomy has high efficacy and is cost effective compared with topical medications in patients with glaucoma. This measure identifies the proportion of a provider's patients with glaucoma who received topical medications rather than trabeculectomy. Note: A lower rate indicates better performance.	Ophthalmology
Treatment Underuse in Fragility Fractures	Osteoporosis is underdiagnosed and, despite the existence of several effective medications, undertreated. This measure identifies the proportion of a provider's patients who sustained a fragility fracture but did not receive osteoporosis treatment. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Triiodothyronine Testing Overuse in Hypothyroidism	Evidence does not support the use of triiodothyronine for diagnosing or monitoring hypothyroidism. This measure identifies the proportion of a provider's hypothyroid patients who received triiodothyronine testing. Note: A lower rate indicates better performance.	Endocrinology
Tuberculosis Screening Underuse with Biologic or Targeted Synthetic DMARDs	Reactivation of latent tuberculosis is a concern with the use of biologic DMARDs. This measure identifies the proportion of a provider's patients initiated on biologic or targeted synthetic DMARDs who did not receive latent tuberculosis screening. Note: A lower rate indicates better performance.	Rheumatology
Tumor Marker Testing Overuse in Breast Cancer Surveillance	Although routine laboratory testing is not recommended as part of breast cancer surveillance in the absence of signs or symptoms of recurrence, breast cancer survivors often receive tumor marker testing. This measure identifies the proportion of a provider's patients with a history of breast cancer who had tumor marker testing performed. Note: A lower rate indicates better performance.	Family Medicine, Internal Medicine
Upper Endoscopy Overuse with Lower Endoscopy	Upper endoscopy is overused. This measure identifies the proportion of a provider's patients undergoing lower endoscopy who underwent an unindicated upper endoscopy on the same day. Note: A lower rate indicates better performance.	Gastroenterology

Measure	Description	Applicable Specialties
Urinalysis Overuse in Wellness Visits	Routine screening urinalysis is associated with a high incidence of misinterpretation, leading to anxiety, multiple tests, and increased cost. This measure identifies the proportion of a provider's patients seen in wellness visits who receive routine urinalysis. Note: A lower rate indicates better performance.	Pediatrics
Urine Marker Overuse for Microhematuria	The most common causes of asymptomatic microhematuria are benign, and urinary markers have wide ranges of sensitivities and specificities; therefore, routine testing of urinary markers is not recommended. This measure identifies the proportion of a provider's patients with newly diagnosed microhematuria who received urinary marker testing. Note: A lower rate indicates better performance.	Urology
Urodynamics Overuse for Overactive Bladder	Urodynamics are unnecessary in the initial workup of uncomplicated overactive bladder. This measure identifies the proportion of a provider's patients with uncomplicated overactive bladder who received urodynamic studies without a trial of PT, biofeedback, or medication therapy. Note: A lower rate indicates better performance.	Urology
Vertebroplasty Overuse in Osteoporotic Compression Fractures	Vertebroplasty has not been shown to have clinical benefit in osteoporotic compression fractures and may be associated with complications. This measure identifies the proportion of a provider's patients with osteoporotic vertebral compression fractures who underwent vertebroplasty. Note: A lower rate indicates better performance.	Orthopedic Surgery
Vitamin D Analogue Overuse in Chronic Kidney Disease	Calcitriol and vitamin D analogues increase the risk of developing hypercalcemia and are not recommended for use in adults without hyperparathyroidism. This measure identifies the proportion of a provider's patients with chronic kidney disease without hyperparathyroidism who received calcitriol or vitamin D analogues. Note: A lower rate indicates better performance.	Nephrology
X-ray Underuse before Knee MRI	MRI should not be performed for chronic knee pain without a prior X-ray. This measure identifies the proportion of a provider's patients receiving knee MRI for knee pain who did not receive an X-ray in the prior 6 months. Note: A lower rate indicates better performance.	Orthopedic Surgery
X-ray Underuse before Shoulder MRI	MRI should not be performed for atraumatic shoulder pain without a prior X-ray. This measure identifies the proportion of a provider's patients receiving shoulder MRI for shoulder pain who did not receive an X-ray in the prior 6 months. Note: A lower rate indicates better performance.	Orthopedic Surgery

Measure	Description	Applicable Specialties
X-ray Underuse in Pneumonia	<p>A chest X-ray is recommended to distinguish pneumonia from other potential causes of cough and fever given the inaccuracy of signs and symptoms in establishing the diagnosis. This measure identifies the proportion of a provider's patients diagnosed with pneumonia who did not have a chest X-ray performed.</p> <p>Note: A lower rate indicates better performance.</p>	Family Medicine, Internal Medicine, Pulmonary Medicine



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