



Wisconsin Medical Society
Your Doctor. Your Health.

Using Data to Enhance Health Care Value

April 2011—Data Mart Version 4

The Wisconsin Medical Society (Society) and physicians across the state have made a commitment to transparency by using credible, robust data to improve quality and efficiency and make health care more accessible for Wisconsin citizens. One way the Society is accomplishing this is by analyzing health insurance claims data from the Wisconsin Health Information Organization (WHIO) database to guide its performance measurement, quality improvement and patient-centered care efforts.

As a founding member of WHIO, the Society is studying variation in health care costs and resource utilization in relation to appropriate-use criteria and cost-sensitive best practices. The goal of these efforts is to enhance value and to ensure that as many people as possible have access to high-quality, affordable health care.

Disclaimer

The Wisconsin Medical Society (Society) has created this report to provide health care cost and utilization information for local areas and statewide. The data source for this report is the Wisconsin Health Information Organization (WHIO) Data Mart Version 4 (DMV4) database, which the Society relied upon without audit in the creation of this report. The collection and aggregation of all underlying data was undertaken by WHIO. The Society is not responsible for the accuracy or content of the underlying data contained in this report or for the concepts or methodologies contained in the software used in the analysis. Be advised of the possibility of errors in data collection or aggregation or in software concepts or methodology, which may affect the results found in this report. Use of the data or conclusions contained in this report for anything other than informational purposes is at recipient's own risk. © 2011 Wisconsin Medical Society

Physicians analyzing the data have observed and discussed two findings:

- 1) Doctors using evidence-based guidelines need to discern between those who benefit and those who do not benefit from a considered treatment or intervention.
- 2) Variation exists across Wisconsin in the amount of resources used for specific health conditions (for example, knee replacement and angioplasty).

Whenever resources are used that do not bring value to patients, some patients will go without services and others may experience harm from exposure to drugs and radiation or from health care associated infection. Physicians have an important opportunity to exercise stewardship and enhance the value of health care Wisconsin citizens receive.

This document is the first in a series of quarterly reports that provide summary information from the WHIO database along with updates on how the Society is working with health care professionals, employers and other partners to interpret and utilize the data to improve the quality, efficiency and overall value of health care in Wisconsin.

Why should we care?

Health insurance claims data provides a wealth of information on the costs associated with health care. It describes the services patients receive, including information about the physician or other health care professional providing the service, the procedures performed, the treatments obtained, the diagnoses and the service setting.

The WHIO database of health insurance claims data includes both clinic and individual physician data, which can help form questions about variation in quality, cost and resource utilization.

- Physicians can use this data to improve clinical decision-making, work-flow management and patient care.
- Payers may establish pay-for-performance and network tiering strategies.
- Purchasers can identify areas for more effective care coordination and patient compliance.
- Policymakers can support a credible and more robust approach to health care cost transparency.
- Health care leaders can identify variation in care management for key populations.
- Patients can receive care that is safe, effective, patient-centered, timely, efficient and equitable.

About the Wisconsin Medical Society

With more than 12,000 members dedicated to the best interests of their patients, the Wisconsin Medical Society is the largest association of medical doctors in the state and a trusted source for health policy leadership since 1841. The Society – together with the Wisconsin Medical Society Foundation (a nonprofit organization founded in 1955) and Wisconsin Medical Society Insurance and Financial Services, Inc. – works to improve the health of all Wisconsin residents. To learn more, visit www.wisconsinmedicalsociety.org. The Society is one of the 13 founding members of WHIO, and Society CEO and Executive Vice President Susan Turney, MD, MS, FACP, FACMPE, sits on WHIO's Board of Directors.

About the Wisconsin Health Information Organization (WHIO)

The Wisconsin Health Information Organization (WHIO) is a not-for-profit collaboration of health care providers, insurance companies, employers and public entities created in 2005 to develop a statewide database of health insurance claims. WHIO's goal is to use health care data to improve the quality, affordability, safety and efficiency of health care in the state. Five of the founding WHIO members provide health insurance claims for the database along with seven other organizations that now submit claims. Subscribers, who purchase access to the aggregated data, and members have equal access

to the de-identified data and share a commitment to improving the transparency, quality and efficiency of health care delivery in Wisconsin. More information about WHIO is on page 15 and online at www.wisconsinhealthinfo.org.

The WHIO Data Mart

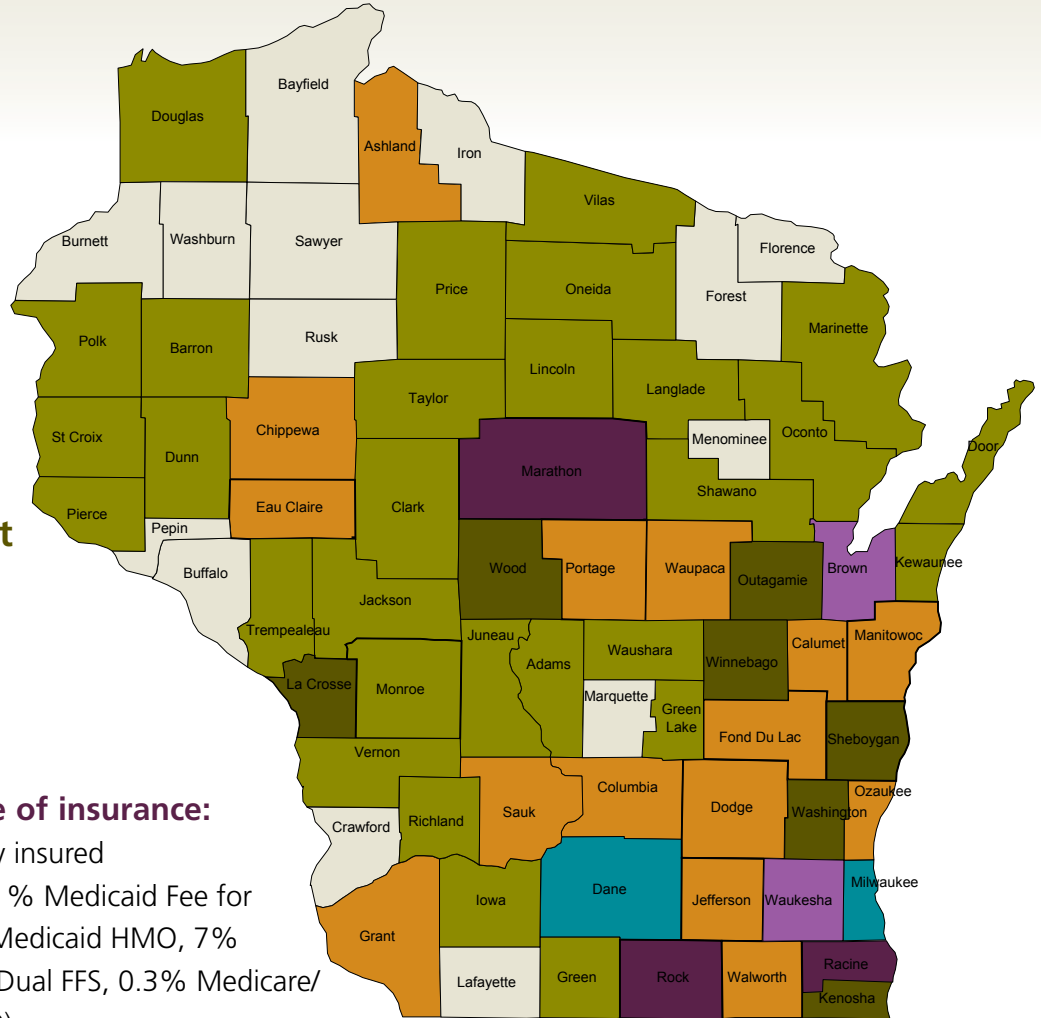
WHIO released its first database of health insurance claims data in 2009. Each database contains 24 months of data separated into two 12-month time periods. The database is continuously populated with up-to-date health insurance claims data, and an updated version is released approximately every six months. This report uses the fourth release of the WHIO data – Data Mart Version 4 (DMV4) – with claims from April 1, 2008 through March 31, 2010. DMV4 includes data from almost all major health care payers in Wisconsin but only a portion of Medicare.

The Wisconsin Medical Society, other WHIO members and subscribers use the data for analyzing and measuring episodes of care and their costs. The Society utilizes the data to create metrics and measurements to improve how we deliver care and enhance the health of our communities.

Ingenix, a Minnesota-based health care information and research company, aggregates the data with its Impact Intelligence tool, which uses many methodologies and data concepts to construct episodes of care, quality, cost and utilization measures. More information about the underlying methodologies is available online at www.ingenix.com/about/ETG.

Number of patients by county

Because claims are unevenly distributed across Wisconsin, the Society cautions against making conclusions based on small numbers at some levels of analysis.



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WHIO Data Mart Version 4

Key Statistics

Total population:

- 3.4 million patients

Population by type of insurance:

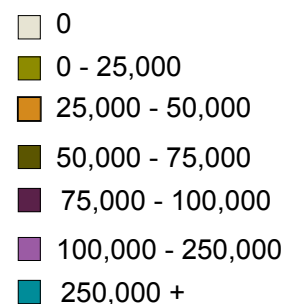
- 51% – commercially insured
- 42% – Medicaid (11% Medicaid Fee for Service [FFS], 24% Medicaid HMO, 7% Medicare/Medicaid Dual FFS, 0.3% Medicare/Medicaid Dual HMO)
- 7% – Medicare (4% Medicare Advantage, 3% Medicare Supplemental)
- 0.1% – federal employee program

Population by state of residence

- 95% – Wisconsin
- 5% – outside of Wisconsin (3% border states: Minnesota, Illinois, Michigan, Iowa)

Population by age:

- 30% – younger than 18
- 58% – 18 to 64
- 12% – 65 and older



Categories of Care

Health insurance claims in the WHIO database are grouped by Episode Treatment Groups (ETGs) as patented by Symmetry Health Data Systems (a subsidiary of Ingenix). ETGs are basic illness classifications that combine all services into mutually exclusive categories that represent a complete episode of care.

Each of the 800-plus ETGs is categorized into one of 22 broad groupings known as Major Practice Categories (MPCs). Table 1 on the following page breaks down the WHIO Data Mart Version 4 into these 22 MPCs and identifies the number of episodes, total standard cost per episode and total billed cost per episode.

Calculating Standard Costs

Ingenix uses a standard pricing algorithm to reduce cost variations driven by differences in contractual arrangements, geographic regions, timeframes of data and the health care setting. This uniform and consistent approach to classifying and pricing services is used to determine standard costs, which allow Society analysts to identify differences due to variation in utilization rather than prices.

Table 1 (page 7) identifies each of the 22 MPCs from the highest to lowest total standard cost. Five categories – orthopedics and rheumatology, cardiology, psychiatry, neurology and gastroenterology – make up 53.7 percent of all costs.

The order shifts significantly when comparing the total standard cost per episode for each MPC. Nephrology, obstetrics, hepatology, neonatology and hematology are the top five MPCs based on cost per episode; while orthopedics and rheumatology (which is first in total standard cost) ranks 13th.

Both total costs and number of episodes per MPC are important in understanding how the health care dollar is spent.

Standard Cost by Type of Service

The type of service is determined by elements in health insurance claims that identify who provided the service, what service was provided and where the service was provided. This standardized method for classifying services distinguishes between facility and professional services when applicable.

For inpatient facilities, the standard cost is based on a per-diem cost for a diagnosis-related group (DRG) multiplied by the length of stay.

For outpatient facilities, the standard cost is based on a percent of the submitted charge.

For evaluation and management (E/M) services, the standard cost is based on a resource-based relative value scale (RBRVS) approach. The major source of relative values for professional services is the Medicare Fee Schedule (MFS). For those services not included on the MFS, the standard cost is based on actual payment amounts from large Ingenix databases adjusted to ensure consistency with the MFS relative values.

Table 1: Standard Cost by Major Practice Category

MPC	Total Standard Cost	Rank Total Standard Cost	Total Standard Cost %	Total Billed	Number of Episodes	Standard Cost per Episode	Rank Standard Cost per Episode	Billed per Episode
Orthopedics and rheumatology	\$3,350,325,028	1	13.70%	\$6,743,318,634	1,998,009	\$1,677	13	\$3,375
Cardiology	\$2,855,348,559	2	11.70%	\$5,340,492,491	1,114,900	\$2,561	10	\$4,790
Psychiatry	\$2,647,257,497	3	10.80%	\$3,594,842,754	920,067	\$2,877	8	\$3,907
Neurology	\$2,516,987,942	4	10.30%	\$3,584,403,821	668,399	\$3,766	7	\$5,363
Gastroenterology	\$1,760,989,865	5	7.20%	\$3,578,597,187	922,846	\$1,908	11	\$3,878
Pulmonology	\$1,489,208,834	6	6.10%	\$2,513,340,194	843,670	\$1,765	12	\$2,979
Endocrinology	\$1,427,091,357	7	5.80%	\$2,489,459,936	1,166,000	\$1,224	18	\$2,135
Obstetrics	\$957,020,641	8	3.90%	\$1,778,162,660	129,658	\$7,381	3	\$13,714
Gynecology	\$898,340,525	9	3.70%	\$1,966,065,201	557,622	\$1,611	14	\$3,526
Otolaryngology	\$853,639,037	10	3.50%	\$1,702,592,555	2,345,085	\$364	21	\$726
Dermatology	\$769,853,605	11	3.10%	\$1,417,722,373	1,873,509	\$411	19	\$757
Preventive and administrative	\$766,495,486	12	3.10%	\$1,420,183,800	2,881,989	\$266	23	\$493
Urology	\$671,124,676	13	2.70%	\$1,413,033,425	520,103	\$1,290	16	\$2,717
Nephrology	\$631,165,555	14	2.60%	\$1,351,186,659	70,263	\$8,983	2	\$19,230
Hematology	\$524,665,974	15	2.10%	\$895,585,050	120,383	\$4,358	6	\$7,439
Neonatology	\$503,559,041	16	2.10%	\$846,872,298	100,744	\$4,998	5	\$8,406
Ophthalmology	\$472,213,041	17	1.90%	\$1,006,384,915	1,250,784	\$378	20	\$805
Hepatology	\$402,338,551	18	1.60%	\$852,268,841	72,313	\$5,564	4	\$11,786
Infectious diseases	\$337,323,081	19	1.40%	\$582,942,114	230,340	\$1,464	15	\$2,531
Late effects, environmental trauma and poisonings	\$295,311,183	20	1.20%	\$351,381,982	103,450	\$2,855	9	\$3,397
Chemical dependency	\$278,671,093	21	1.10%	\$424,398,468	220,003	\$1,267	17	\$1,929
Isolated signs and symptoms	\$88,171,805	22	0.40%	\$143,021,202	290,937	\$303	22	\$492
Unknown	\$16,471		0.00%	\$66,200	1	\$16,471	1	\$66,200
Summary	\$24,497,118,848		100.00%	\$43,996,322,760	18,401,074	\$1,331		\$2,391

Year 1 and Year 2, incomplete episodes, partial claims

Determining quality of care

Analysts utilize Ingenix's Symmetry EBM Connect tool with the WHIO database to determine performance measures and assess quality of care. The tool contains a set of evidence-based care guidelines that allow analysts to determine patient compliance, from which they can identify opportunities to improve care quality and reduce health care costs.

Specifications used to determine compliance rates

Eligible patients: This specification identifies the number of patients in the WHIO database who have satisfied certain criteria, such as age, gender or diagnosis.

Compliant patients: This specification identifies the eligible patients for a particular clinical condition who have specified treatments present or absent. If a treatment is not applicable for a patient due to a contraindication or lack of appropriate enrollment or benefits, that patient is excluded from the analysis.

Performance measures for two conditions, hypertension (Table 2, page 9) and hyperlipidemia (Table 3, page 10), are profiled on the following pages as examples of more than 500 condition-specific measures that are available in the Symmetry EBM Connect tool.

Hypertension

Fourteen performance measures are detailed for patients meeting inclusion criteria for hypertension. The number of eligible patients per rule varies due to different criteria for each measure.

The claims-based compliance rate for the hypertension measures ranges from 71 percent to 93 percent. Most of the measures pertain to patient compliance with prescribed medications.

For those measures, patient adherence to a prescription regimen is inferred by evaluating prescription-filling patterns and computing a possession ratio (days supplied to days elapsed) for patients with a pharmacy benefit. Compliance with medication regimes requires a 70 percent adherence.

Table 2: Hypertension Care Guidelines*

	Eligible Patients	Compliance Rate
Patients taking an NSAID medication	269,157	93%
Patients who had an annual physician visit	268,856	77%
Patients who had a serum creatinine in last 12 reporting months	268,684	71%
Patients taking an ACE-inhibitor, angiotensin II receptor antagonist, diuretic or aldosterone receptor blocker that had a serum K+ in last 12 reporting months	128,287	81%
Patients compliant with diuretic-containing prescription**	89,065	90%
Patients compliant with ACE-inhibitor-containing prescription**	77,699	92%
Patients compliant with beta-blocker-containing prescription**	66,275	91%
Patients compliant with CCB-containing prescription**	39,449	93%
Patients compliant with angiotensin II receptor antagonist-containing prescription**	29,567	91%
Patients compliant with alpha-adrenergic blocker-containing prescription**	4,505	92%
Patients compliant with aldosterone receptor blocker prescription**	4,091	89%
Patients compliant with central alpha-adrenergic agonist-containing prescription**	3,589	88%
Patients compliant with direct vasodilator-containing prescription**	1,484	89%
Patients compliant with peripheral adrenergic neuron antagonist-containing prescription**	7	71%

* These evidence-based care guidelines in Ingenix's Symmetry EBM Connect tool are used in a wide range of care and quality measurement initiatives that support reporting by patient detail, physician results and plan summary.

** Compliance with medication regimes requires a 70 percent adherence.

Table 3: Hyperlipidemia Care Guidelines*

	Eligible Patients	Compliance Rate
Patients with an LDL cholesterol test in last 12 reporting months	180,323	73%
Patients with an HDL cholesterol test in last 12 reporting months	180,318	73%
Patients with a triglyceride test in last 12 reporting months	180,317	72%
Patients taking a statin-containing medication, nicotinic acid or fibric acid derivative that had an annual serum ALT or AST test	104,751	83%
Patients compliant with statin-containing prescription**	99,686	88%
Patients compliant with fibric acid prescription**	13,708	87%
Patients compliant with cholesterol absorption inhibitor (ezetimibe) prescription**	9,971	88%
Patients compliant with nicotinic acid prescription**	6,488	85%
Patients compliant with omega-3-acid ethyl ester prescription**	1,735	76%
Patients compliant with bile acid sequestrant prescription**	1,047	68%
* These evidence-based care guidelines in Ingenix's Symmetry EBM Connect tool are used in a wide range of care and quality measurement initiatives that support reporting by patient detail, physician results and plan summary.		
** Compliance with medication regimes requires a 70 percent adherence.		

Hyperlipidemia

Ten performance measures are detailed for patients with hyperlipidemia. Scores for the three cholesterol-modifying strategies range from 68 percent for compliance with prescribed bile acid sequestrant medications to 88 percent for compliance with prescribed cholesterol absorption inhibitor (ezetimibe) medications and 88 percent for compliance with prescribed statin-containing medications.

Table 4: Population – Cost and Use

Type of Service Level 1	Total Standard Cost	Total Standard Cost %
Ancillary	\$3,259,925,209	11%
Facility inpatient	\$9,350,723,135	32%
Facility outpatient	\$4,612,868,999	16%
Pharmacy	\$3,540,402,910	12%
Professional services	\$8,134,894,157	28%
Summary	\$28,898,814,410	100%

Types of Service

Table 4 shows the standard costs by type of service for all MPCs. Of the more than \$28.9 billion in standard costs, 32 percent is for inpatient facility followed by 28 percent for professional services, 16 percent for outpatient facility, 12 percent for pharmacy and 11 percent for ancillary.

Table 5: Episode – Morbidity Adjusted Utilization

Major Practice Category (MPC)	Number of Episodes	Inpatient Admissions per 1000	Inpatient Days per 1000	Average Length of Stay	ER Visits per 1000	MRI Procedures per 1000
Cardiology	390,953	62.64	193.38	3.09	53.17	2.71
Chemical dependency	11,894	161.76	756.93	4.68	100.50	3.40
Dermatology	372,316	5.46	26.81	4.91	24.24	1.84
Endocrinology	500,916	10.40	39.79	3.83	23.06	2.57
Gastroenterology	164,991	65.41	267.14	4.08	68.48	3.12
Gynecology	146,955	32.70	67.83	2.07	29.29	12.82
Hematology	12,148	206.04	991.03	4.81	58.88	27.21
Hepatology	14,423	194.07	691.75	3.56	150.10	29.22
Infectious diseases	31,934	12.18	36.73	3.02	51.68	3.33
Late effects, environmental trauma and poisonings	3,545	89.14	263.75	2.96	180.72	3.62
Neonatology	12,003	876.11	1,659.84	1.89	3.25	-
Nephrology	10,359	129.45	492.82	3.81	43.84	1.34
Neurology	69,255	48.56	217.49	4.48	68.44	122.96
Obstetrics	25,756	908.14	2,192.19	2.41	186.79	1.29
Ophthalmology	55,108	1.31	2.63	2.01	22.31	4.19
Orthopedics and rheumatology	513,992	42.78	183.26	4.28	51.00	100.45
Otolaryngology	758,900	2.46	6.38	2.59	43.90	3.77
Preventive and administrative	91,594	2.05	3.21	1.56	11.44	0.04
Psychiatry	326,178	37.63	203.28	5.4	51.94	4.02
Pulmonology	251,452	39.16	136.84	3.49	90.43	2.64
Urology	143,489	40.26	91.12	2.26	58.79	3.14
Summary	3,908,159	37.33	128.58	3.44	46.90	18.44

Provider Network Assessment (PNA) data: Year 2, complete episodes.

Next Steps

The Wisconsin Medical Society offers physicians, other health care professionals and health care organizations several opportunities to learn how they can use the WHIO database to improve the quality and efficiency of care they provide. These opportunities include the following:

Specialty workgroups

The Society's Center for Medical Practice Research and Education is bringing together physicians, business leaders and community members from throughout the state to address variation in orthopedics, cardiology and behavioral health care costs and resource use. Participants use the WHIO database to lead discussions about what care is appropriate and how it can be most efficiently and effectively delivered. To learn more, call 866.442.3800 or visit www.wisconsinmedicalsociety.org/initiatives/center.

Quarterly WHIO Orientation Sessions

These free webinars (May 3, September 27 and December 13) provide an overview of WHIO and insight into how the data is used by various stakeholders in their health care efforts. The webinars are part of the Society's Transformational Leadership Series, for which continuing medical education (CME) credits are available. To learn more and register, call 866.442.3820 or visit www.wisconsinmedicalsociety.org/education.

Customized on-site consulting services

Society staff members work with physicians and health care leaders to address their specific areas of interest/concern. Using the Impact Intelligence tool and the raw WHIO data, a team of data analysts, performance improvement experts and well-respected educators is ready to help identify opportunities for improvement, meet your goals and enhance patients' health. To learn more, call 866.442.3820 or visit www.wisconsinmedicalsociety.org/education.

Utilization

Table 5 shows how utilization varies across Major Practice Categories (MPCs). Information on per-capita inpatient admissions, inpatient days, emergency room (ER) visits, magnetic resonance imaging (MRI) procedures and average length of stay (ALOS) is displayed.

Glossary

Billed cost: The requested amount or charges a service provider submits to a health plan for payment.

Care guidelines: These evidence-based care guidelines in Ingenix's Symmetry EBM Connect tool are used in a wide range of care and quality measurement initiatives that support reporting by patient detail, physician results and plan summary. Physicians and health care organizations use medical claims, pharmacy claims and laboratory result records to identify patients with selected clinical conditions and apply a series of rules-based criteria to identify gaps in patient care, patient adherence to clinical therapies, patient safety issues, unnecessary services and care patterns.

Episode of care: A unique occurrence of a medical condition or disease and the health care services involved in diagnosing and managing its treatment.

Episode Treatment Groups (ETGs): Patented by Symmetry Health Data Systems, these basic illness classifications combine medical and pharmacy services into mutually exclusive categories that represent a complete episode of care.

ICD-9: The International Classification of Diseases is designed to promote international comparability in the collection, processing, classification and presentation of the causes of disease, injury and death. The ICD-9 system groups related conditions and diseases and translates them into numeric codes that

physicians and other health care professionals use to identify medical diagnoses and procedures. These codes are updated annually to incorporate changes, and a major transition to the 10th version is under way.

Major Practice Categories (MPC): Each of the 800-plus Episode Treatment Groups is categorized into one of 22 broad groupings known as Major Practice Categories.

Provider Network Assessment (PNA): The measurement of the quality and cost of care of the services delivered by primary care and specialist physicians. Outputs include overall quality and cost-of-care performance for individual providers along with information that may be used to identify the key drivers of differences in performance and opportunities for improvement.

Standard costs: Standard costs are used to price services the same across the entire state. By removing cost variations driven by differences in contractual arrangements, geographic regions, timeframes of data and the health care setting, analysts can identify differences due to variation in utilization rather than prices.

Standard pricing: This process creates a uniform and consistent approach to classifying and pricing all services. It is designed to remove variations that may be driven by differences in contractual arrangements, geographic regions, timeframes of data and the health care setting or organization from which services are provided. A standard-pricing algorithm removes expected variations in pricing to utilization comparisons.

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