DENNISTON DATA
The Healthcare Transparency Company

www.DennistonData.com

Healthcare Pricing Guide™ (HPG) Methodology

Introduction

Healthcare Pricing Guide™ (HPG) is the flagship price transparency product developed in 2022 by Denniston Data Inc. (DDI) and launched in January 2023. HPG provides comprehensive healthcare pricing benchmarks for payer-negotiated rates, enabling stakeholders to access previously confidential, highly variable in-network reimbursement rates both nationally and locally. The DDI platform leverages machine-readable files (MRFs) posted by payers monthly as mandated by the Transparency in Coverage (TiC) rule under the Consolidated Appropriations Act of 2021, which requires group health plans and issuers to publicly disclose negotiated rates for covered items and services.

HPG aggregates and analyzes hundreds of billions of U.S. negotiated prices from over 50,000 non-duplicate MRFs, covering a wide range of reimbursement codes including CPT, (Professional and Institutional), HCPCS, DRG, ICD, APC, NDC and Revenue Codes (RC). The HPG methodology emphasizes accuracy (by validating against billing data), usability, and real-world applicability by focusing on clean data to support fair price negotiations and benchmarking. Key features include benchmark ranges (5^{th}, 25^{th}, 50^{th}, 75^{th}, and 95^{th} percentile), plus averages with filtering by geography, taxonomy, and provider type.

Line level data by NPI and payer/plan is exportable in API, CSV, or dashboard views.

Codes covered

Over 270,000 unique procedure codes are included (including modifiers). Unique rates for billing codes, billing code modifiers and billing class are preserved.

Group Health Negotiated Prices (from TiC)	
HCPCS Professional, with mods	204,204
HCPCS Institutional	9,563
DRG Institutional	906
ICD Institutional	19,263
RC Institutional	740
HIPPS Institutional	28,981
APC Institutional	314
Medicare Approved Amounts (from PRS)	
HCPCS Professional	3,709
List Prices/Billed Amounts (from PRS)	
HCPCS Professional	3,709

Data Sources

HPG primarily relies on official, government-mandated data sources to ensure transparency and avoid reliance on estimates or modeling from claims data:

Transparency in Coverage (TiC) Machine-Readable Files (MRFs):

These are the core input for commercial healthcare reimbursement data, containing payer-negotiated in-network rates for medical services by procedure code and provider (identified by NPI or EIN). DDI processes MRFs from large (national), medium (regional) and small (local) health plans, including both fully insured and self-insured (TPA) plans, excluding duplicates and files out of compliance or with significant data integrity issues, with about 50,000 active files in use and accessible by HPG products at any given time.

Medicare Approved Amounts and List Prices:

Sourced from the *Provider Ranking System™* (PRS), another DDI platform, providing benchmarks for HCPCS (including CPT) Professional codes (3,709 entries each for approved amounts and billed amounts, including hospital Chargemasters).

Utilization, Claims, and Billing Data:

Also sourced from its PRS platform to enhance validation and address the ‘ghost rates’ phenomenon, DDI incorporates de-identified claims data, including Medicare Fee for Service, Medicare Advantage, commercial, and workers' compensation claims data. These sources provide real-world utilization metrics, such as procedure volumes and actual billing frequencies at the code level, which are essential for identifying and removing inaccuracies in MRF data. Approximately 90% of prices in payer MRFs are assigned to NPIs who do not bill for the service, and these ‘ghost’ rates tend to be lower than market prices.

They may be ‘contracted’ as part of a payer’s base fee schedule, but they were not negotiated by the providers because they are for services they do not perform. It’s essential to filter ghost rates from MRFs to deliver an accurate picture of US healthcare costs.

DDI does not use guesstimates, black boxes, or unverified third-party pricing data, ensuring all benchmarks are traceable to publicly mandated disclosures.

Data Ingestion & Processing

Ingestion Pipeline

File Acquisition: MRFs are downloaded from health plan websites as JSON or CSV files, compliant with CMS guidelines. DDI automates ingestion using scalable cloud infrastructure to handle the massive volume (terabytes of data monthly).

Database Management: Data is stored in a PostgreSQL database optimized for handling hundreds of billions of price records. Each record includes fields such as procedure code, provider identifier (NPI/EIN), payer, negotiated rate, and geographic modifiers.

HPG Benchmarks (by procedure and Zip code) are calculated and aggregated annually for real-time responses, while line level (payer, procedure code, and NPI level) data is partitioned by both procedure code and geography to retrieve quickly.

Initial Filtering: Duplicate files are excluded based on content hashing, file scanner, and metadata comparison. Files with structural issues (e.g., malformed JSON) or incomplete data (e.g., missing Allowed-Amounts) are flagged and omitted to maintain dataset integrity.

Pre-Processing

Normalization: Rates are standardized to a common format, accounting for modifiers (e.g., anesthesia units, site-of-service adjustments) and negotiation type or fee arrangements.

For HPG Benchmarks, rates associated with bundled, lump sum payments for a single occurrence of the code are included (negotatied_type = ‘negotiated’, ‘derived’, or ‘fee schedule’), while rates associated with billed values (‘percentage’) or daily rates (‘per diem’) are excluded (on request by clients, these rates can be normalized with bundled payments by incorporating billed charge x percentage, or average length of stay x per diem).

Aggregation: Prices are aggregated by procedure code and GeoZip code for HPG benchmarks, ensuring a minimum of 15 validated prices per code combination for statistical reliability. For GeoZip, the first 2 or 3 digits of Zip code are based on NPI’s "practice physical location within the US" (states and territories) per the NPPES directory.

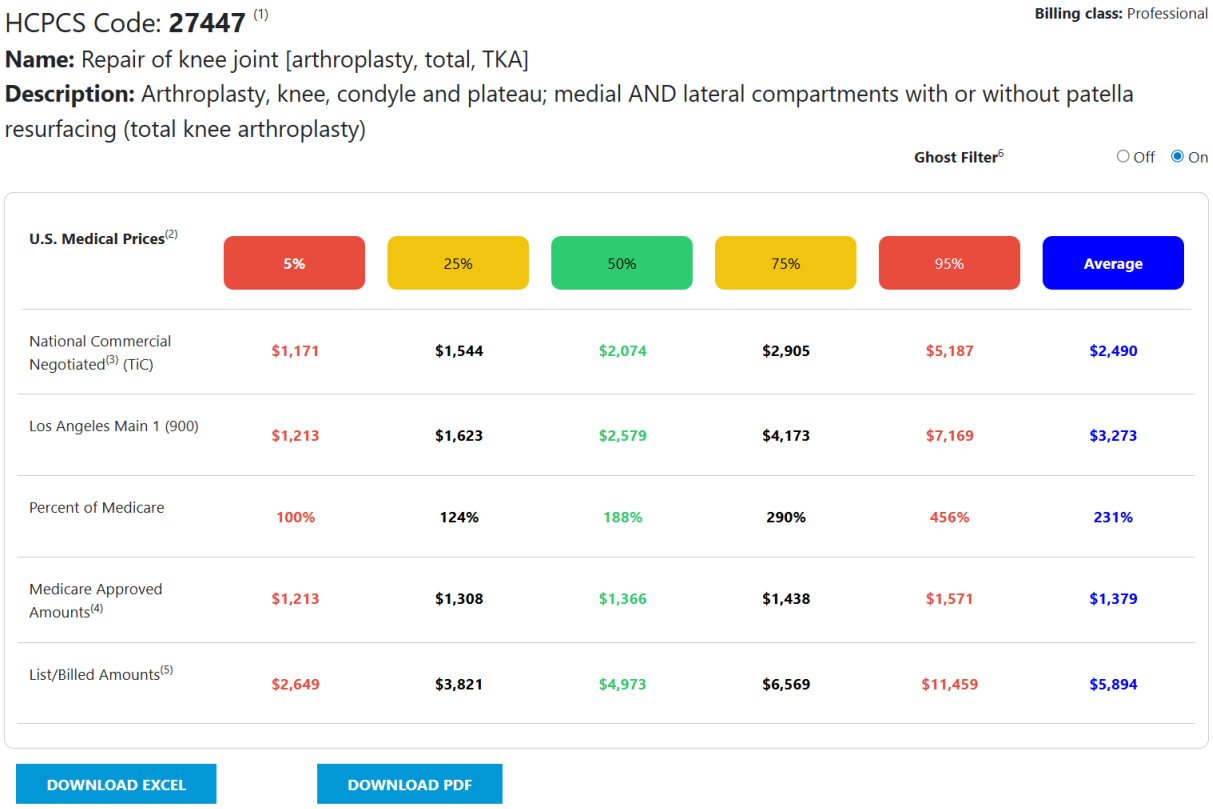
Validation & Cleaning: To ensure HPG delivers accurate, actionable benchmarks, DDI employs rigorous validation steps against muti-line, multi-payer claims data to confirm NPI's listed for each procedure code can be validated against provider billing history.

- MRF prices are verified to confirm noted procedure codes are found in providers' bills as rendering NPI. For example, providers who never bill for a procedure (e.g., a gastroenterologist for discectomy) are excluded, preventing distorted benchmarks.
- While taxonomy codes (e.g., Orthopaedic Surgery) are used by some vendors, DDI enhances this with billing data to include/exclude providers based on actual procedure volumes. This addresses "ghost providers" even in the same specialty, where orthopods may focus on necks, knees, or shoulders, but seldom all three.
    - This step has been shown to adjust median rates significantly (e.g., from $1,500 to $8,250 for lumbar discectomy in NYC after ghost removal).

Quality Control: Automated scripts perform integrity checks, followed by manual reviews for high-impact codes. Correlation analysis between price and quality (using PRS metrics) is conducted, revealing opportunities to guide users toward value-based decisions.

HPG Benchmarks

Percentile Calculations: For each procedure and Zip code, cleaned rates are sorted to compute percentiles (5th, 25th, 50th/median, 75th, 95th), plus average-



HCPCS Code: **27447** (1)

Billing class: Professional

Name: Repair of knee joint [arthroplasty, total, TKA]

Description: Arthroplasty, knee, condyle and plateau; medial AND lateral compartments with or without patella resurfacing (total knee arthroplasty)

Ghost Filter[6] ○ Off ◉ On

U.S. Medical Prices(2)	5%	25%	50%	75%	95%	Average
National Commercial Negotiated(3) (TiC)	$1,171	$1,544	$2,074	$2,905	$5,187	$2,490
Los Angeles Main 1 (900)	$1,213	$1,623	$2,579	$4,173	$7,169	$3,273
Percent of Medicare	100%	124%	188%	290%	456%	231%
Medicare Approved Amounts(4)	$1,213	$1,308	$1,366	$1,438	$1,571	$1,379
List/Billed Amounts(5)	$2,649	$3,821	$4,973	$6,569	$11,459	$5,894

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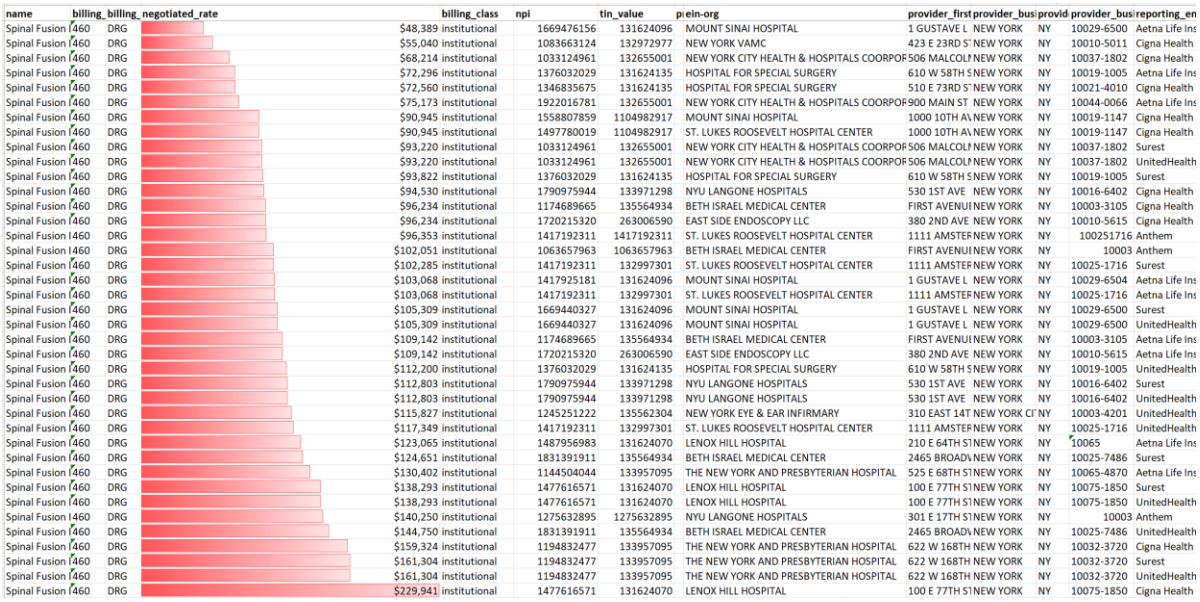
The HPG 50th percentile serves as a fair price for a Qualifying Payment Amount (QPA) for out-of-network reimbursement or for Referenced Based Pricing (RBP) Plans.

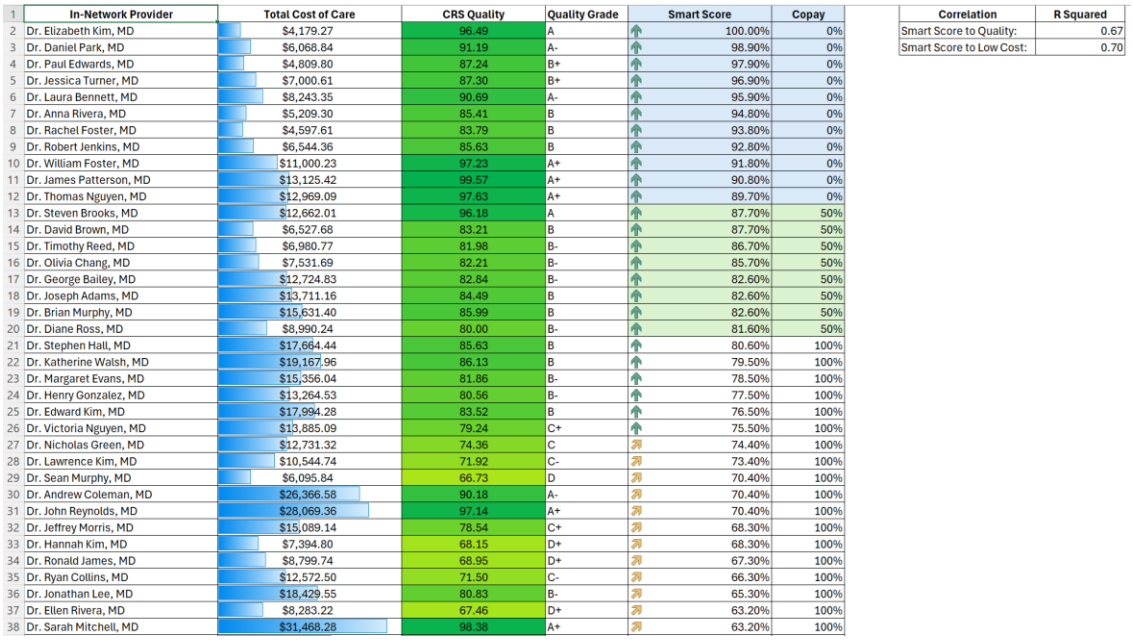
Line Level Pricing

Line level (NPI-procedure code) data can be exported by plan via API, CSV, or dashboard, where 5x-10x variability is typical in nearly all markets and all networks (same procedure, same payer, same plan, same city, with little to no correlation to quality!). This can be used for negotiations, bill review, network development, steerage, or dispute resolution-



name	billing_	billing_	negotiated_rate	billing_class	npi	tin_value	p	ein-org	provider_first	provider_bus	provid	provider_bus	reporting_en
Spinal Fusion	460	DRG	$48,389	institutional	1669476156	131624096		MOUNT SINAI HOSPITAL	1 GUSTAVE L	NEW YORK	NY	10029-6500	Aetna Life Ins
Spinal Fusion	460	DRG	$55,040	institutional	1083663124	132972977		NEW YORK VAMC	423 E 23RD S	NEW YORK	NY	10010-5011	Cigna Health
Spinal Fusion	460	DRG	$68,214	institutional	1033124961	132655001		NEW YORK CITY HEALTH & HOSPITALS COORPOF	506 MALCOLI	NEW YORK	NY	10037-1802	Cigna Health
Spinal Fusion	460	DRG	$72,296	institutional	1376032029	131624135		HOSPITAL FOR SPECIAL SURGERY	610 W 58TH S	NEW YORK	NY	10019-1005	Aetna Life Ins
Spinal Fusion	460	DRG	$72,560	institutional	1346835675	131624135		HOSPITAL FOR SPECIAL SURGERY	510 E 73RD S	NEW YORK	NY	10021-4010	Cigna Health
Spinal Fusion	460	DRG	$75,173	institutional	1922016781	132655001		NEW YORK CITY HEALTH & HOSPITALS COORPOF	900 MAIN ST	NEW YORK	NY	10044-0066	Aetna Life Ins
Spinal Fusion	460	DRG	$90,945	institutional	1558807859	1104982917		MOUNT SINAI HOSPITAL	1000 10TH A\	NEW YORK	NY	10019-1147	Cigna Health
Spinal Fusion	460	DRG	$90,945	institutional	1497780019	1104982917		ST. LUKES ROOSEVELT HOSPITAL CENTER	1000 10TH A\	NEW YORK	NY	10019-1147	Cigna Health
Spinal Fusion	460	DRG	$93,220	institutional	1033124961	132655001		NEW YORK CITY HEALTH & HOSPITALS COORPOF	506 MALCOLI	NEW YORK	NY	10037-1802	Surest
Spinal Fusion	460	DRG	$93,220	institutional	1033124961	132655001		NEW YORK CITY HEALTH & HOSPITALS COORPOF	506 MALCOLI	NEW YORK	NY	10037-1802	UnitedHealth
Spinal Fusion	460	DRG	$93,822	institutional	1376032029	131624135		HOSPITAL FOR SPECIAL SURGERY	610 W 58TH S	NEW YORK	NY	10019-1005	Surest
Spinal Fusion	460	DRG	$94,530	institutional	1790975944	133971298		NYU LANGONE HOSPITALS	530 1ST AVE	NEW YORK	NY	10016-6402	Cigna Health
Spinal Fusion	460	DRG	$96,234	institutional	1174689665	135564934		BETH ISRAEL MEDICAL CENTER	FIRST AVENUI	NEW YORK	NY	10003-3105	Cigna Health
Spinal Fusion	460	DRG	$96,234	institutional	1720215320	263006590		EAST SIDE ENDOSCOPY LLC	380 2ND AVE	NEW YORK	NY	10010-5615	Cigna Health
Spinal Fusion	460	DRG	$96,353	institutional	1417192311	1417192311		ST. LUKES ROOSEVELT HOSPITAL CENTER	1111 AMSTER	NEW YORK	NY	100251716	Anthem
Spinal Fusion	460	DRG	$102,051	institutional	1063657963	1063657963		BETH ISRAEL MEDICAL CENTER	FIRST AVENUI	NEW YORK	NY	10003	Anthem
Spinal Fusion	460	DRG	$102,285	institutional	1417192311	132997301		ST. LUKES ROOSEVELT HOSPITAL CENTER	1111 AMSTER	NEW YORK	NY	10025-1716	Surest
Spinal Fusion	460	DRG	$103,068	institutional	1417925181	131624096		MOUNT SINAI HOSPITAL	1 GUSTAVE L	NEW YORK	NY	10029-6504	Aetna Life Ins
Spinal Fusion	460	DRG	$103,068	institutional	1417192311	132997301		ST. LUKES ROOSEVELT HOSPITAL CENTER	1111 AMSTER	NEW YORK	NY	10025-1716	Aetna Life Ins
Spinal Fusion	460	DRG	$105,309	institutional	1669440327	131624096		MOUNT SINAI HOSPITAL	1 GUSTAVE L	NEW YORK	NY	10029-6500	Surest
Spinal Fusion	460	DRG	$105,309	institutional	1669440327	131624096		MOUNT SINAI HOSPITAL	1 GUSTAVE L	NEW YORK	NY	10029-6500	UnitedHealth
Spinal Fusion	460	DRG	$109,142	institutional	1174689665	135564934		BETH ISRAEL MEDICAL CENTER	FIRST AVENUI	NEW YORK	NY	10003-3105	Aetna Life Ins
Spinal Fusion	460	DRG	$109,142	institutional	1720215320	263006590		EAST SIDE ENDOSCOPY LLC	380 2ND AVE	NEW YORK	NY	10010-5615	Aetna Life Ins
Spinal Fusion	460	DRG	$112,200	institutional	1376032029	131624135		HOSPITAL FOR SPECIAL SURGERY	610 W 58TH S	NEW YORK	NY	10019-1005	UnitedHealth
Spinal Fusion	460	DRG	$112,803	institutional	1790975944	133971298		NYU LANGONE HOSPITALS	530 1ST AVE	NEW YORK	NY	10016-6402	Surest
Spinal Fusion	460	DRG	$112,803	institutional	1790975944	133971298		NYU LANGONE HOSPITALS	530 1ST AVE	NEW YORK	NY	10016-6402	UnitedHealth
Spinal Fusion	460	DRG	$115,827	institutional	1245251222	135562304		NEW YORK EYE & EAR INFIRMARY	310 EAST 14T	NEW YORK CI	NY	10003-4201	UnitedHealth
Spinal Fusion	460	DRG	$117,349	institutional	1417192311	132997301		ST. LUKES ROOSEVELT HOSPITAL CENTER	1111 AMSTER	NEW YORK	NY	10025-1716	UnitedHealth
Spinal Fusion	460	DRG	$123,065	institutional	1487956983	131624070		LENOX HILL HOSPITAL	210 E 64TH S	NEW YORK	NY	10065	Aetna Life Ins
Spinal Fusion	460	DRG	$124,651	institutional	1831391911	135564934		BETH ISRAEL MEDICAL CENTER	2465 BROAD\	NEW YORK	NY	10025-7486	Surest
Spinal Fusion	460	DRG	$130,402	institutional	1144504044	133957095		THE NEW YORK AND PRESBYTERIAN HOSPITAL	525 E 68TH S	NEW YORK	NY	10065-4870	Aetna Life Ins
Spinal Fusion	460	DRG	$138,293	institutional	1477616571	131624070		LENOX HILL HOSPITAL	100 E 77TH S	NEW YORK	NY	10075-1850	Surest
Spinal Fusion	460	DRG	$138,293	institutional	1477616571	131624070		LENOX HILL HOSPITAL	100 E 77TH S	NEW YORK	NY	10075-1850	UnitedHealth
Spinal Fusion	460	DRG	$140,250	institutional	1275632895	1275632895		NYU LANGONE HOSPITALS	301 E 17TH S	NEW YORK	NY	10003	Anthem
Spinal Fusion	460	DRG	$144,750	institutional	1831391911	135564934		BETH ISRAEL MEDICAL CENTER	2465 BROAD\	NEW YORK	NY	10025-7486	UnitedHealth
Spinal Fusion	460	DRG	$159,324	institutional	1194832477	133957095		THE NEW YORK AND PRESBYTERIAN HOSPITAL	622 W 168TH	NEW YORK	NY	10032-3720	Cigna Health
Spinal Fusion	460	DRG	$161,304	institutional	1194832477	133957095		THE NEW YORK AND PRESBYTERIAN HOSPITAL	622 W 168TH	NEW YORK	NY	10032-3720	Surest
Spinal Fusion	460	DRG	$161,304	institutional	1194832477	133957095		THE NEW YORK AND PRESBYTERIAN HOSPITAL	622 W 168TH	NEW YORK	NY	10032-3720	UnitedHealth
Spinal Fusion	460	DRG	$229,941	institutional	1477616571	131624070		LENOX HILL HOSPITAL	100 E 77TH S	NEW YORK	NY	10075-1850	Cigna Health

It also presents the opportunity for Smart Scoring, member navigation around both quality and price, surfacing and rewarding providers who deliver the best outcomes at low costs-



	In-Network Provider	Total Cost of Care	CRS Quality	Quality Grade	Smart Score	Copay
2	Dr. Elizabeth Kim, MD	$4,179.27	96.49	A	100.00%	0%
3	Dr. Daniel Park, MD	$6,068.84	91.19	A-	98.90%	0%
4	Dr. Paul Edwards, MD	$4,809.80	87.24	B+	97.90%	0%
5	Dr. Jessica Turner, MD	$7,000.61	87.30	B+	96.90%	0%
6	Dr. Laura Bennett, MD	$8,243.35	90.69	A-	95.90%	0%
7	Dr. Anna Rivera, MD	$5,209.30	85.41	B	94.80%	0%
8	Dr. Rachel Foster, MD	$4,597.61	83.79	B	93.80%	0%
9	Dr. Robert Jenkins, MD	$6,544.36	85.63	B	92.80%	0%
10	Dr. William Foster, MD	$11,000.23	97.23	A+	91.80%	0%
11	Dr. James Patterson, MD	$13,125.42	99.57	A+	90.80%	0%
12	Dr. Thomas Nguyen, MD	$12,969.09	97.63	A+	89.70%	0%
13	Dr. Steven Brooks, MD	$12,662.01	96.18	A	87.70%	50%
14	Dr. David Brown, MD	$6,527.68	83.21	B	87.70%	50%
15	Dr. Timothy Reed, MD	$6,980.77	81.98	B-	86.70%	50%
16	Dr. Olivia Chang, MD	$7,531.69	82.21	B-	85.70%	50%
17	Dr. George Bailey, MD	$12,724.83	82.84	B-	82.60%	50%
18	Dr. Joseph Adams, MD	$13,711.16	84.49	B	82.60%	50%
19	Dr. Brian Murphy, MD	$15,631.40	85.99	B	82.60%	50%
20	Dr. Diane Ross, MD	$8,990.24	80.00	B-	81.60%	50%
21	Dr. Stephen Hall, MD	$17,664.44	85.63	B	80.60%	100%
22	Dr. Katherine Walsh, MD	$19,167.96	86.13	B	79.50%	100%
23	Dr. Margaret Evans, MD	$15,356.04	81.86	B-	78.50%	100%
24	Dr. Henry Gonzalez, MD	$13,264.53	80.56	B-	77.50%	100%
25	Dr. Edward Kim, MD	$17,994.28	83.52	B	76.50%	100%
26	Dr. Victoria Nguyen, MD	$13,885.09	79.24	C+	75.50%	100%
27	Dr. Nicholas Green, MD	$12,731.32	74.36	C	74.40%	100%
28	Dr. Lawrence Kim, MD	$10,544.74	71.92	C-	73.40%	100%
29	Dr. Sean Murphy, MD	$6,095.84	66.73	D	70.40%	100%
30	Dr. Andrew Coleman, MD	$26,366.58	90.18	A-	70.40%	100%
31	Dr. John Reynolds, MD	$28,069.36	97.14	A+	70.40%	100%
32	Dr. Jeffrey Morris, MD	$15,089.14	78.54	C+	68.30%	100%
33	Dr. Hannah Kim, MD	$7,394.80	68.15	D+	68.30%	100%
34	Dr. Ronald James, MD	$8,799.74	68.95	D+	67.30%	100%
35	Dr. Ryan Collins, MD	$12,572.50	71.50	C-	66.30%	100%
36	Dr. Jonathan Lee, MD	$18,429.55	80.83	B-	65.30%	100%
37	Dr. Ellen Rivera, MD	$8,283.22	67.46	D+	63.20%	100%
38	Dr. Sarah Mitchell, MD	$31,468.28	98.38	A+	63.20%	100%

Correlation	R Squared
Smart Score to Quality:	0.67
Smart Score to Low Cost:	0.70

Output Formats: HPG delivers benchmarks and line level pricing via User Interface, APIs, or CSV exports, with options to customize export tools with Smart Scoring by plan.

Quality Assurance & Continuous Improvement

DDI maintains HPG through monthly MRF updates, ongoing validation against new claims data, and user feedback, with an aggressive product roadmap driven by customer needs. Security measures include HIPAA-compliant de-identification and encryption.

Applications and Impact

HPG is a versatile platform designed for diverse stakeholders:

- **TPAs, Plans & Employers**: Identify high-performing, low-cost providers to optimize outcomes, network design and reduce costs through steerage or direct contracting.
- **Hospitals & Health Systems:** Optimize managed care contracts and drive more commercial volume to high performing systems.
- **Case Managers, Concierge and Referring Physicians**: Access objective data to make informed referral decisions, enhancing patient care.
- **Brokers & Benefits Advisors**: Optimize networks and plan design with steerage and/or dynamic copays to reward to the best providers at the best prices.
- **Reference-Based Pricing Plans:** Use local, commercial rates (i.e., Median in network) rather than multiples of Medicare to increase access while reducing friction, disputes, and balanced billing, and keeping costs in check.

By enabling data-driven decisions using HPG, US companies can save 15-30% in healthcare costs by improving negotiations, building networks and/or steering patients to high-performing, low-cost providers, reducing waste, and minimizing friction.

Contact: For inquiries, demos, or enterprise pricing, please email Help@DennistonData.com or visit https://dennistondata.com/contact.

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The Healthcare Transparency Company