2022

Genetic Test Price Transparency Report

Reimbursement trends for frequently ordered genetic tests

September 2022

CONCERT GENETICS

INTRODUCTION

Background

For more than a decade Concert has provided information and insight on the landscape of genetic testing, highlighting the patterns of genetic test usage and reimbursement. In this latest iteration, the Genetic Test Price Transparency Report, Concert is once again breaking new ground in transparency.

Concert's data and systems make this unique report possible. Organizing more than 175,000 testing products by practice area, domain and clinical category, Concert has the largest and most comprehensive registry of genetic tests in the world. Using patented machine learning, Concert applies this taxonomy to enrich a claims dataset of more than 45 million commercial lives. The resulting report shows, for the first time publicly, the prices, price variability and historic trends by test category for a large commercially insured population.

Implications

The decline in the cost of sequencing is one of the most often cited statistics in modern medicine.[1] However, this report suggests that the expected price declines are in many cases not reaching commercially insured health consumers. Where prices are declining (Non-Invasive Prenatal Screening, BRCA1/2), it is in test categories in which the health consumer is more likely to pay out of pocket.

Much has been written about the lack of transparency in prices and the implications on price variability.[2] Namely, high price variability in any category of goods means that consumers who compare options (i.e., shop around) pay far less for the same service than those who do not. Genetic testing is an extreme case of highly variable prices. For patients on a high deductible plan, and for groups who bear the economic risk of a patient population (i.e., employer), there is significant savings potential.

Finally, coding remains a significant challenge. In ten of the twenty test categories in this report, more than two CPT codes are billed on average for a single test. The impact of this is threefold. First, coding variability makes it far more difficult for a health consumer, provider, or insurer to anticipate the cost of the test and choose a lower cost provider. Second, complicating the unit of reimbursement (multiple codes for a single test) increases the effort required to determine the

[1] Hayden, Ericka Check. "Technology: The $1,000 genome." Nature, 19 March 2014, https://www.nature.com/articles/507294a .
[2] R. Lawrence Van Horn, Arthur Laffer, Robert L. Metcalf. 2019. The Transformative Potential for Price Transparency in Healthcare: Benefits for Consumers and Providers. Health Management Policy and Innovation, Volume 4, Issue 3.

likelihood of insurance reimbursement, translating into increased administrative costs (borne eventually by the taxpayer or wage earner in the form of higher premiums). Finally, coding variation blunts the impact of government-sponsored price initiatives (e.g., PAMA[3]) and the negotiation efforts of private insurers.

What's next?

Innovative and powerful precision technologies can improve quality of life and reduce the economic burden of medical care. For this vision to be realized, the virtuous cycle of technology investment, improved productivity, and reduced cost must continue and accelerate. Scientific advances that fail to reach patients, or that reach patients but leave them impoverished, are neither satisfactory nor sustainable.

In the very near term, Concert anticipates that this report will open the door for additional complementary analyses. For example, an increasing number of genetic tests can be purchased directly by consumers. A comparison of cash prices (a more accurate signal of the true value of the service) with reimbursed rates would quantify the full consumer benefit of transparency, as well as highlight the magnitude of the administrative cost burden of the reimbursement model. Similarly, a close review of the CMS Clinical Lab Fee Schedule, the current baseline for government reimbursement (and many commercial contracts), might identify additional savings for employees and taxpayers.

In the longer term, greater transparency can create market opportunities for existing players and for new entrants, spurring competition that lowers costs, increases patient (or consumer) value, and ultimately improves health outcomes.

[3] The Center for Medicare and Medicaid Services (CMS) resource for understanding the "Protecting Medicare and American Farmers from Sequester Cuts Act" (PAMA) regulations can be accessed here: https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ClinicalLabFeeSched/PAMA-Regulations

PRICES OF HIGHEST-SPEND TEST CATEGORIES

The highest spend Concert Genetics test categories are summarized below, along with metrics about coding, price variability and price trending. More details for select categories (in **bold**) can be found on the following pages. Report methods, data and definitions can be found at the end of the report.

2021 Spend Rank	2020 Spend Rank	Concert Genetics Test Category	2021 Average Codes	2021 Price Variability	2021 Median Price	2017-2021 Price Change
1	1	FIT-DNA Colorectal Cancer Screening Tests*	1.00	3%	-	0.31%
2	2	**Non-invasive Prenatal Testing (NIPT) for Chromosome 13, 18, 21, X, and Y Aneuploidies**	1.01	39%	$645	-14.0%
3	4	**Expanded Carrier Panel Tests**	9.42	250%	$1,518	-22.7%
4	3	**BRCA1/2 Sequencing Tests**	1.00	126%	$1,825	-27.7%
5	5	Breast Cancer Treatment and Prognostic Algorithmic Tests	1.00	10%	$4,067	5.3%
6	6	**Thyroid Cancer Diagnostic Algorithmic Tests**	1.19	37%	$3,600	11.7%
7	7	**Tumor-Type Agnostic Molecular Solid Tumor Profiling Panel Tests (51 or more genes)**	2.45	65%	$2,950	-9.5%
8	11	**Pharmacogenetic Neuropsychiatric Panel Tests**	8.15	99%	$1,200	176.6%
9	9	Non-invasive Prenatal Testing (NIPT) Expanded Panel Tests	2.02	93%	$1,123	16.3%
10	8	Basic Carrier (CFTR, FMR1, SMN1/2, HBB) Panel Tests	2.47	94%	$660	-7.2%
11	12	Exome Sequencing Tests	2.65	257%	$8,810	19.7%
12	10	**Pan-Cancer Hereditary Cancer Panel Tests**	3.46	125%	$1,483	-56.7%
13	14	Cell-Free DNA Cancer Profiling Panel Tests (51 or more genes)*	8.22	15%	-	9.7%
14	15	Prostate Cancer Treatment and Prognostic Algorithmic Tests	1.01	42%	$3,485	38.4% (2018-21)
15	13	CFTR Mutation Panel (Carrier Screening) Tests	1.03	39%	$530	-12.2%
16	20	Cutaneous Melanoma Risk Assessment Algorithmic Tests	1.31	100%	$788	182.0%
17	17	Lynch Syndrome / Hereditary Nonpolyposis Colorectal Cancer (HNPCC) Panel Tests	5.68	81%	$1,782	-26.9%
18	16	Hormone Receptor Agnostic Breast Cancer Prognostic Algorithmic Tests	1.58	46%	$3,840	10.3%
19	18	Chromosomal Microarray (SNP and CGH) Tests	1.12	83%	$696	-61.0%
20	19	Pharmacogenetic Panel Tests	9.22	654%	$739	43.3%

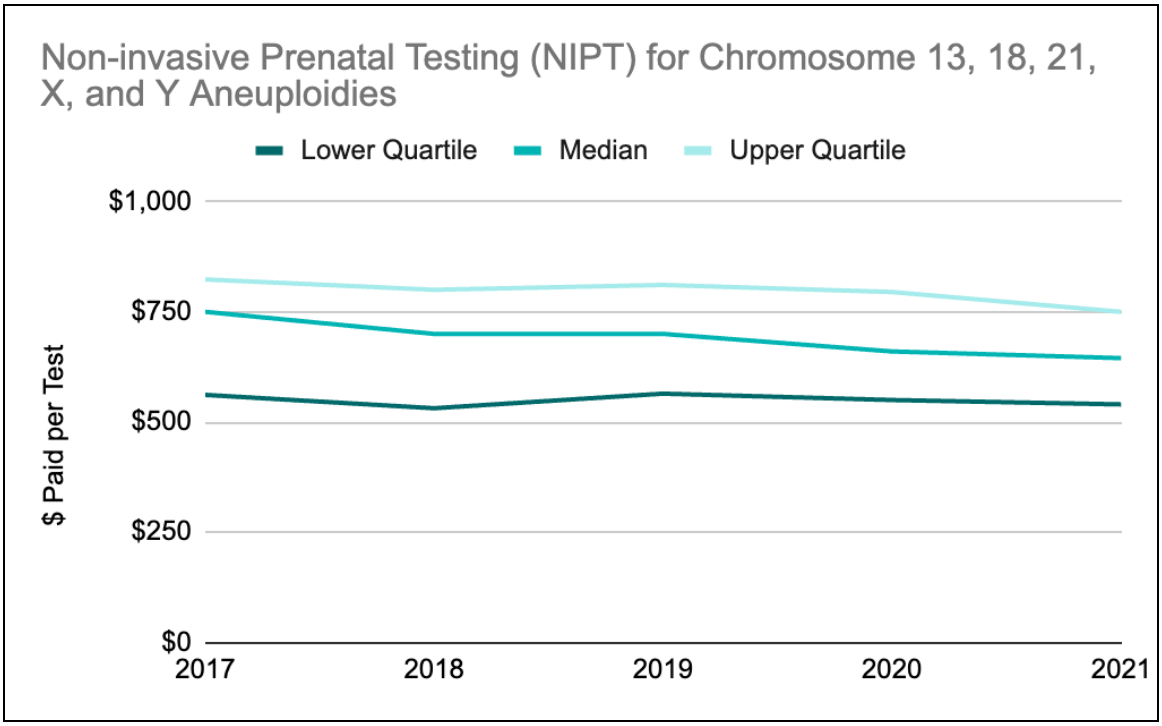
* Category has only one lab reimbursed for the associated test(s). Prices have been masked.

DETAILS FOR SELECT TEST CATEGORIES

Below are additional price and coding details for select test categories.

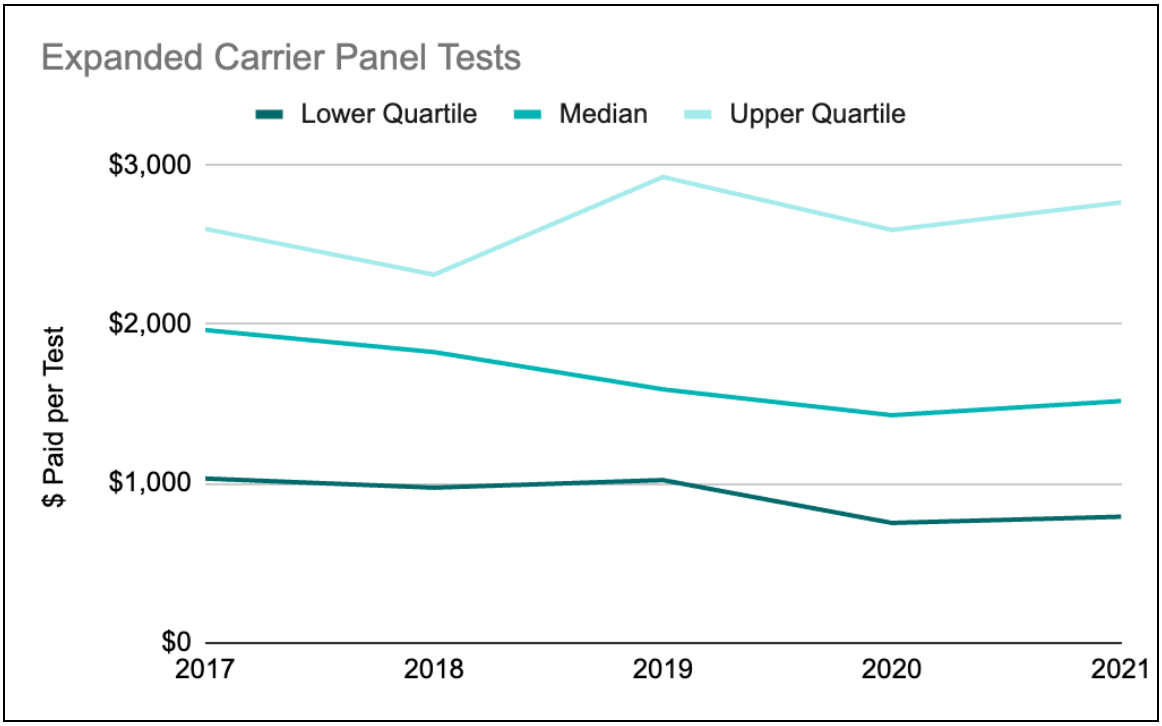
Non-invasive Prenatal Testing (NIPT) for Chromosome 13, 18, 21, X, and Y Aneuploidies

	2017	2018	2019	2020	2021	2017-2021 Average Annual Price Change	2017-2021 Price Change
Price per Test							
Lower Quartile	$562	$531	$564	$550	$540	-0.78%	-3.84%
Median	$750	$700	$700	$660	$645	-2.97%	-14.00%
Upper Quartile	$824	$800	$811	$795	$750	-1.85%	-8.93%
Price Variability	47%	51%	44%	45%	39%		
Average Codes per Claim	1.41	1.15	1.03	1.03	1.01		



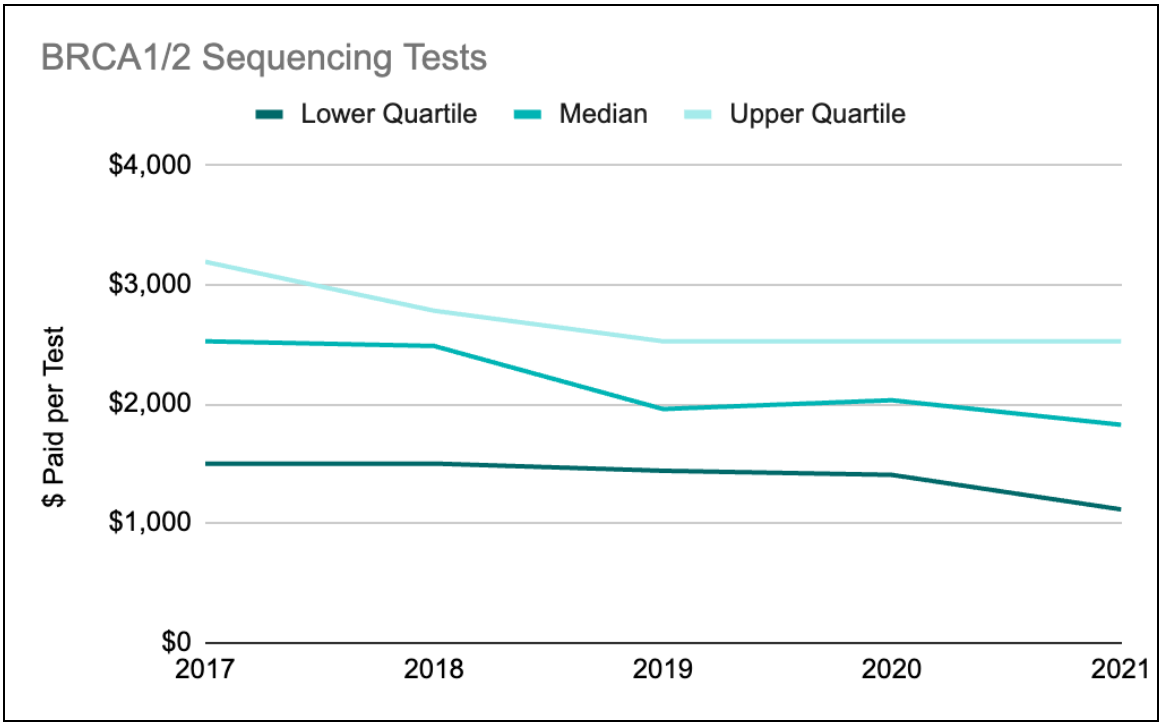
Expanded Carrier Panel Tests

	2017	2018	2019	2020	2021	2017-2021 Average Annual Price Change	2017-2021 Price Change
Prices							
Lower Quartile	$1,031	$973	$1,021	$752	$791	-5.16%	-23.27%
Median	$1,965	$1,826	$1,592	$1,429	$1,518	-5.03%	-22.73%
Upper Quartile	$2,601	$2,313	$2,927	$2,594	$2,767	1.25%	6.39%
Price Variability	152%	138%	187%	245%	250%		
Average Codes per Claim	13.96	13.96	11.08	10.77	9.42		



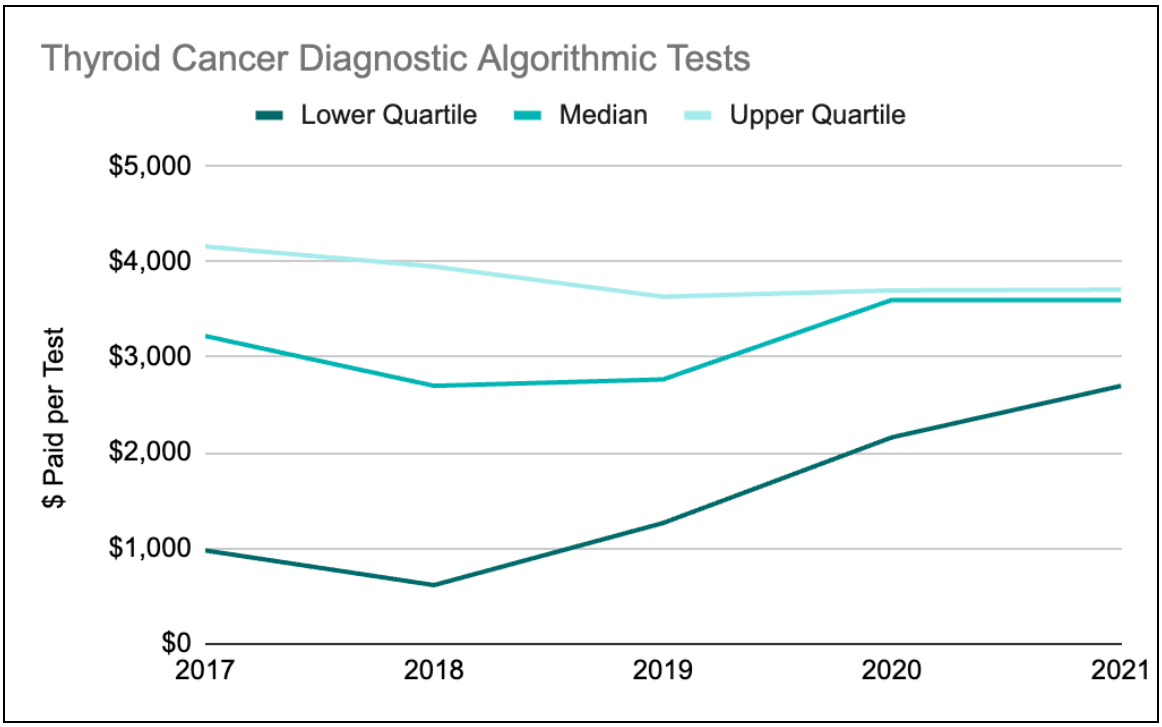
BRCA1/2 Sequencing Tests

	2017	2018	2019	2020	2021	2017-2021 Average Annual Price Change	2017-2021 Price Change
Prices							
Lower Quartile	$1,500	$1,500	$1,440	$1,405	$1,115	-5.76%	-25.65%
Median	$2,525	$2,486	$1,957	$2,031	$1,825	-6.29%	-27.73%
Upper Quartile	$3,192	$2,781	$2,525	$2,525	$2,525	-4.58%	-20.89%
Price Variability	113%	85%	75%	80%	126%		
Average Codes per Claim	1.62	1.58	1.00	1.00	1.00		



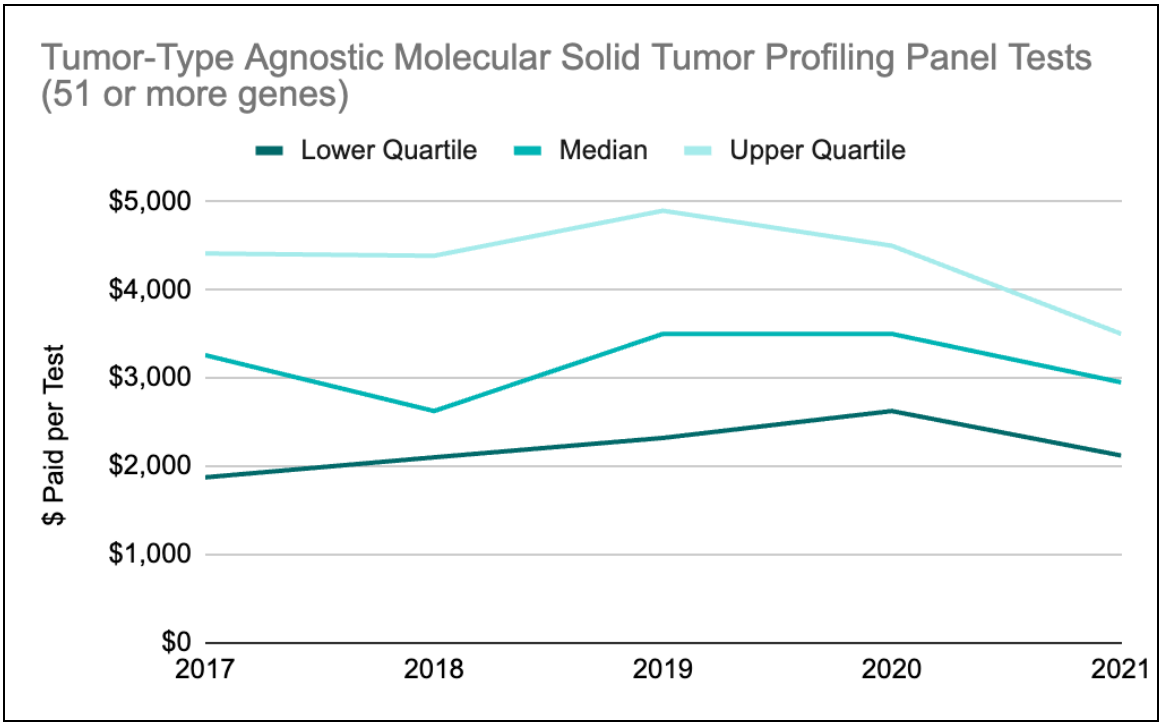
Thyroid Cancer Diagnostic Algorithmic Tests

	2017	2018	2019	2020	2021	2017-2021 Average Annual Price Change	2017-2021 Price Change
Prices							
Lower Quartile	$975	$612	$1,262	$2,160	$2,700	22.59%	176.92%
Median	$3,222	$2,700	$2,767	$3,600	$3,600	2.24%	11.72%
Upper Quartile	$4,160	$3,950	$3,634	$3,700	$3,708	-2.27%	-10.87%
Price Variability	327%	546%	188%	71%	37%		
Average Codes per Claim	1.11	1.28	1.34	1.34	1.19		



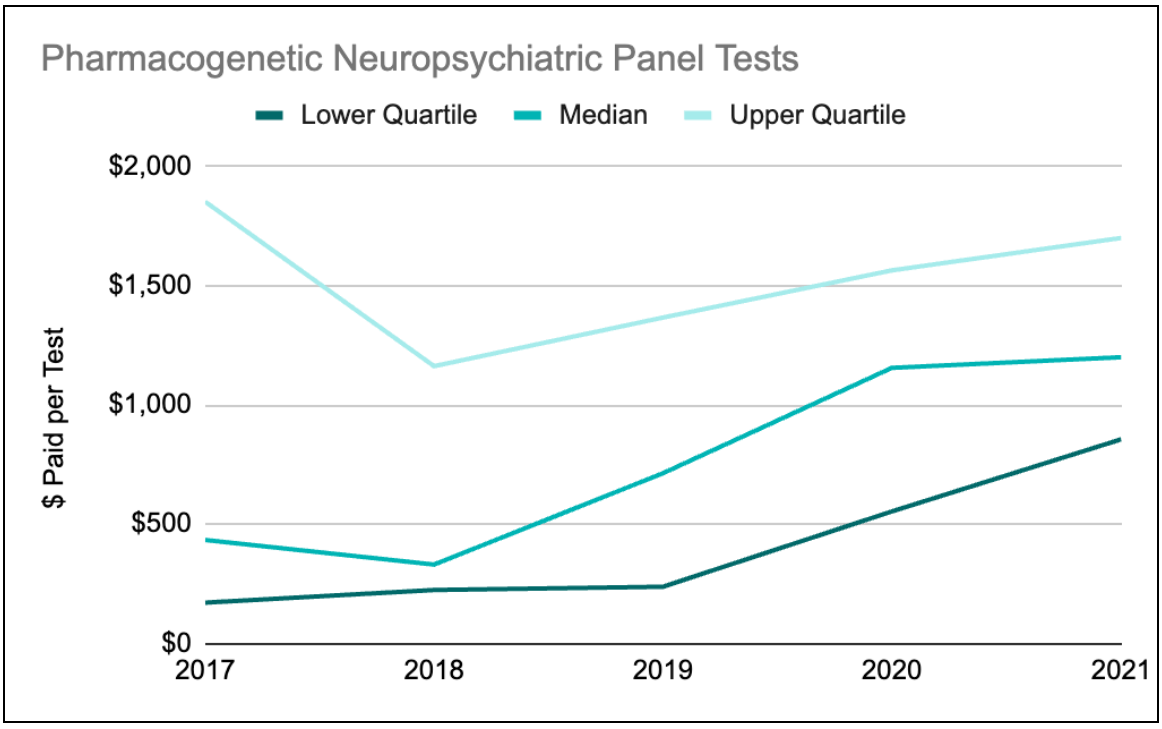
Tumor-Type Agnostic Molecular Solid Tumor Profiling Panel Tests (51 or more genes)

	2017	2018	2019	2020	2021	2017-2021 Average Annual Price Change	2017-2021 Price Change
Prices							
Lower Quartile	$1,873	$2,100	$2,320	$2,625	$2,120	2.51%	13.20%
Median	$3,259	$2,625	$3,500	$3,500	$2,950	-1.97	-9.48%
Upper Quartile	$4,412	$4,386	$4,897	$4,500	$3,500	-4.53%	-20.67%
Price Variability	136%	109%	111%	71%	65%		
Average Codes per Claim	11.41	6.29	4.20	4.27	2.45		



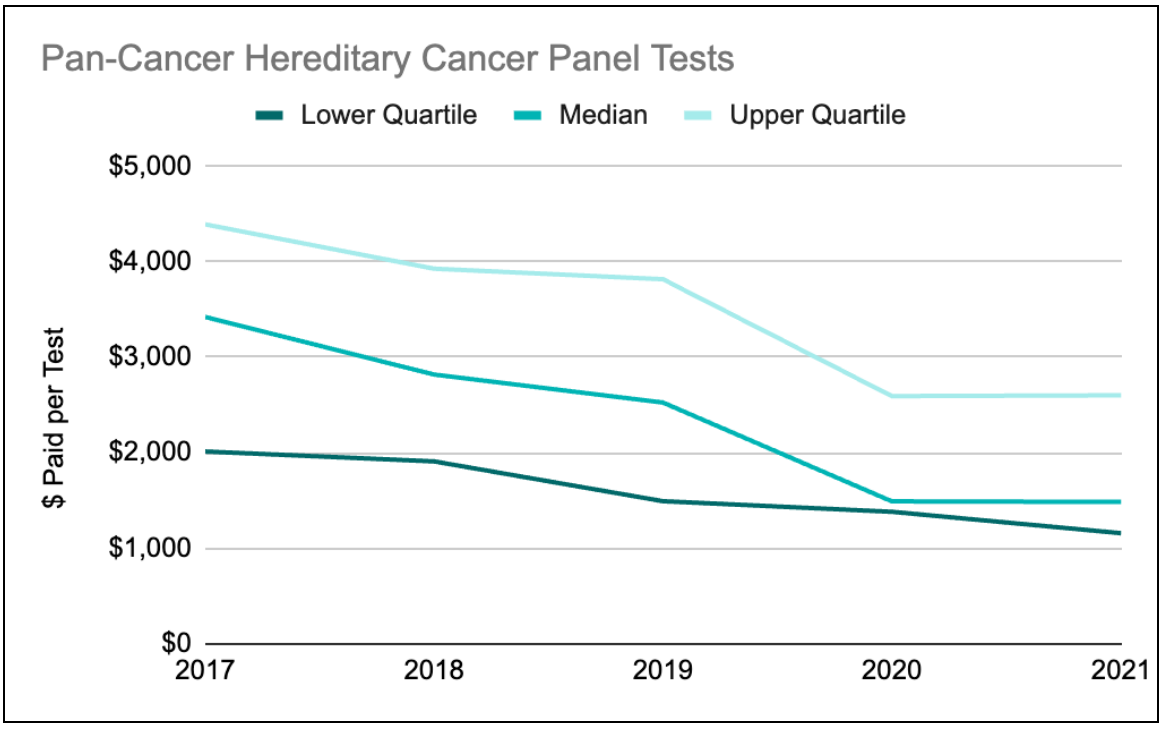
Pharmacogenetic Neuropsychiatric Tests

	2017	2018	2019	2020	2021	2017-2021 Average Annual Price Change	2017-2021 Price Change
Prices							
Lower Quartile	$171	$224	$238	$554	$856	37.97%	399.89%
Median	$434	$331	$714	$1,155	$1,200	22.56%	176.55%
Upper Quartile	$1,852	$1,162	$1,366	$1,564	$1,700	-1.70%	-8.20%
Price Variability	981%	418%	474%	183%	99%		
Average Codes per Claim	6.24	5.69	6.41	7.46	8.15		



Pan-Cancer Hereditary Cancer Panel Tests

	2017	2018	2019	2020	2021	2017-2021 Average Annual Price Change	2017-2021 Price Change
Prices							
Lower Quartile	$2,012	$1,908	$1,491	$1,380	$1,156	-10.50%	-42.57%
Median	$3,422	$2,818	$2,525	$1,490	$1,483	-15.40%	-56.65%
Upper Quartile	$4,392	$3,928	$3,817	$2,593	$2,601	-9.95%	-40.79%
Price Variability	118%	106%	156%	88%	125%		
Average Codes per Claim	4.78	5.52	5.36	4.54	3.46		



Report Data

The Concert Genetics claims dataset includes genetic testing claims processed by health plans covering an average annual membership of 44.3 million commercially insured individuals nationwide over the analysis period of 2017-2021. The database includes over 13 million genetic test claims, of which 11.2 million were fully paid (no service lines denied). This report excludes claims that had any genetic test service line denied. The dataset does not contain claims for Medicare Advantage or Medicaid members, and it excludes tests that were not billed to insurance.

Using an algorithm for claims classification[4], claims were mapped to the relevant category within the Concert Taxonomy. The Concert Taxonomy is a market taxonomy describing over 175,000 testing products marketed by U.S. Laboratories and maintained as a registry in the Concert Test Catalog database. The test catalog database contains information from public websites and direct integrations, curated and standardized by Concert Genetics. The test catalog data does not include information on in-house tests that are not marketed externally. Tests are categorized by clinical domain and type (scope of analytes assayed by the test). All tests are tracked using a standard identification code, known as the Genetic Testing Unit or GTU, developed and owned by the company.

Analysis & Definitions

Concert Genetics analyzed claims data for the period January 2017-December 2021 to examine commercial payers' spending on genetic tests. Concert identified genetic testing claims using the relevant Healthcare Common Procedure Coding System (HCPCS) codes. Concert defined price as the allowed amount on the claim, which includes both the amount the health plan paid and the amount paid by the patient as copayment or coinsurance. Calendar year is based on the claim service date. Concert Genetics' patented machine learning matched claims data to the appropriate categories in its catalog. Concert analyzed the price and coding distributions for claims/tests for each category to determine lower/median/upper quartile price points and the average number of HCPCS codes. Specific terms and calculations can be found below.

Price

In this report, price is the amount health plans paid for each test, as determined by the allowed amount on paid claims. The allowed amount includes both the amount the health plan paid and the amount paid by the patient as copayment or coinsurance. To avoid disclosure of a particular lab's contracted prices, no prices have been published for test categories with only one laboratory provider.

[4] Schneider et al. 2019. Systems and methods for tracking, monitoring, and standardizing molecular and diagnostic testing products and services. US Patent 10,223,501, filed November 3, 2017.

Spend Rank

Concert Genetics test categories were ranked by how many total dollars were allowed ("total spend") by health plans for tests in that category.

Average Codes / Average Codes per Claim

The average number of HCPCS codes that were billed for tests in the category.

Price Variability

To provide an indicator of price variability for a test category, Concert Genetics used the Quartile-based Coefficient of Variation. The Quartile-based Coefficient of Variation is calculated by subtracting the Lower Quartile (Q1) price from the Upper Quartile (Q3) price, then dividing the difference by the Lower Quartile (Q1) price ($\frac{Q3-Q1}{Q1}$). Higher percentages indicate greater price variability.

Lower Quartile/Median/Upper Quartile Prices

Organizing all paid tests/claims in a test category from the lowest paid price to the highest paid price, the:

- Lower quartile price is the price paid for the test 25% of the way through the data series.
- Median price is the price paid for the test in the middle of the data series.
- Upper quartile price is the price paid for the test 75% of the way through the data series.

2017-2021 Average Annual Price Change

The compound annual growth rate (CAGR) from 2017 to 2021 of the median prices.

2017-2021 Price Change

The percentage that the median price increased or decreased between 2017 and 2021.

For additional detail, as well as pricing data and services, email connect@concertgenetics.com.