

Northwell Health Conflict of Interest Analysis Report

Generated: September 10, 2025 Analysis Period: 2020-2024

Executive Summary

Executive Summary: Healthcare Financial Relationships Analysis

Analysis of healthcare financial relationships from 2020-2024 reveals a substantial payment network encompassing \$114.7 million distributed across 11,178 unique providers through 585,855 individual transactions. This comprehensive dataset demonstrates the extensive scope of pharmaceutical industry engagement with healthcare professionals, with 73% of providers receiving some form of industry payment during the study period.

Notable Statistical Correlations

The data reveals significant variations in prescribing patterns between providers with and without payment relationships. For OZEMPIC, providers receiving payments prescribed an average of 2,363,454 units compared to 32,949 units among providers without payment relationships—a 71.7-fold difference. Similar patterns emerge across multiple medications: TRULICITY shows a 97.6-fold variation, ELIQUIS demonstrates a 96.5-fold difference, and FARXIGA exhibits the highest correlation at 111.6-fold.

Provider Type Variations

Analysis across provider categories reveals distinct patterns. Physicians demonstrate the highest influence factor at 189.1x, indicating substantial differences in prescribing costs between those receiving payments (\$12,531,704 average) versus those without payments (\$66,261 average). Physician Assistants show a 48.6x factor, while Nurse Practitioners exhibit a 36.6x variation, suggesting different response patterns across provider types.

Sustained Engagement Patterns

Multi-year payment relationships show progressive increases in associated prescription values. Providers receiving payments for five consecutive years average \$147 million in prescription costs, compared to \$564,037 for single-year recipients. This temporal pattern indicates strengthening correlations between payment duration and prescribing volume.

Important Disclaimer: These correlations do not establish causation. Multiple factors including clinical appropriateness, patient populations, and formulary restrictions may contribute to observed prescribing patterns.

1. The Landscape of Industry Financial Relationships

The Landscape of Industry Financial Relationships

The healthcare industry’s financial relationships with medical professionals represent a substantial economic ecosystem, with pharmaceutical and medical device companies distributing \$114.7 million across 11,178 unique providers between 2020 and 2024. This comprehensive payment network encompasses 585,855 individual transactions, creating an average relationship value of \$10,264 per provider over the five-year period.

Temporal Evolution of Payment Patterns

The data demonstrates consistent growth in both participation and financial volume through 2023, followed by a notable adjustment in 2024:

Year	Providers	Total Payments	Average Payment	Transaction Count
2020	4,703	\$17,835,248	\$3,792	74,806
2021	6,445	\$19,217,487	\$2,982	113,637
2022	7,060	\$25,575,768	\$3,623	128,776
2023	7,431	\$28,098,128	\$3,781	133,382
2024	7,539	\$24,009,159	\$3,185	135,254

The expansion from 4,703 providers in 2020 to 7,539 in 2024 represents a 60% increase in network participation. Peak payment activity occurred in 2023 with \$28.1 million distributed, while 2024 showed a 14.5% decrease in total payments despite maintaining the highest provider count.

Payment Category Distribution

The payment structure reveals distinct patterns across different relationship types:

Payment Category	Total Amount	Transaction Count	Average Amount
Speaker/Faculty Services	\$33,299,959	14,967	\$46,704
Royalty or License	\$25,269,489	734	\$561,544
Consulting Fee	\$22,622,976	8,334	\$23,739
Food and Beverage	\$16,610,375	533,086	\$1,534

Speaker and faculty compensation represents the largest category at 29% of total payments, reaching 713 unique providers. The royalty and license category, while involving only 45 providers, accounts for 22% of all payments with an average transaction value of \$561,544. Food and beverage payments demonstrate the broadest reach, involving 10,827 providers across 533,086 transactions, though with the lowest per-transaction value.

Manufacturer Engagement Patterns

The payment landscape is dominated by medical device and pharmaceutical companies with varying engagement strategies:

Manufacturer	Total Payments	Providers Reached	Avg per Provider	Market Share
Zimmer Biomet Holdings	\$10,932,486	303	\$36,081	9.5%
Arthrex, Inc.	\$6,153,610	127	\$48,454	5.4%
Medtronic, Inc.	\$3,853,254	1,752	\$2,199	3.4%
ABBVIE INC.	\$3,284,973	2,405	\$1,366	2.9%
Allergan, Inc.	\$3,004,958	1,084	\$2,772	2.6%

Zimmer Biomet leads with \$10.9 million in payments, while Arthrex demonstrates the highest per-provider investment at \$48,454 average. Medtronic and ABBVIE show broader engagement patterns, reaching 1,752 and 2,405 providers respectively, though with lower per-provider averages. This distribution suggests different approaches to provider relationships, from concentrated high-value partnerships to extensive network engagement strategies.

2. Prescription Patterns

Prescription Patterns Reveal Healthcare System Dynamics

Analysis of prescription data from 2020-2024 reveals distinct patterns in medication prescribing across provider types and specialties, highlighting the concentration of high-cost medications and varying practice approaches throughout the healthcare system.

High-Value Medication Concentration

The prescription landscape shows significant concentration in expensive specialty medications. The top 10 drugs by total cost demonstrate this pattern:

Drug Name	Total Cost (M)	Unique Pre- Claims AvgCost(\$)	Unique Pre- Claims Clibers()
OZEMPIC	456.5	526,215	867.51
ELIQUIS	436.3	672,764	648.57
JARDIANCE	344.8	450,935	764.60
TRULICITY	324.9	319,687	1,016.22
JANUVIA	251.1	339,352	740.04
HUMIRA(CF) PEN	221.5	45,826	4,833.90
BIKTARVY	215.3	75,960	2,834.04
MOUNJARO	204.6	243,814	839.21
FARXIGA	189.9	257,546	737.26
XARELTO	189.1	303,131	623.95

These medications represent 21.6% of total prescription costs, with diabetes and cardiovascular drugs dominating the list. HUMIRA shows the highest per-prescription cost at \$4,833.90, while ELIQUIS demonstrates the broadest prescriber adoption with 6,327 unique providers.

Provider Type Prescribing Patterns

Distinct differences emerge across provider categories:

Provider Type	Total Prescriptions	Total Cost (M) AvgCostperRx()	
Physician	89,415,903	9,934.7	111.14
Nurse Practitioner	3,908,905	707.9	181.11
Physician Assistant	4,349,810	449.4	103.31
Other	3,581,178	401.3	112.08

Physicians generate 87.7% of total prescriptions but at a lower average cost per prescription compared to nurse practitioners, suggesting different patient populations or prescribing approaches.

Specialty-Driven Cost Patterns

Endocrinology demonstrates the highest average prescription cost at \$311.77, reflecting the specialty’s focus on diabetes medications like Ozempic and Trulicity. Oncology-Hematology shows an average cost of \$889.37 per prescription, consistent with expensive cancer treatments. Internal Medicine, while having the largest provider count (1,141), maintains a relatively low average prescription cost of \$79.12, indicating broader primary care prescribing patterns.

These patterns suggest that prescription costs correlate strongly with specialty focus areas and the availability of high-cost therapeutic options within specific disease categories.

3. The Quantification of Influence

The Quantification of Influence: Notable Associations in Clinical Decision-Making

The analysis reveals statistical associations between pharmaceutical payments and prescribing patterns that warrant further investigation. These correlations, while not establishing causation, demonstrate measurable differences in prescribing behavior between providers who receive payments and those who do not.

Observed Prescribing Associations

The data shows notable variations in prescription volumes associated with payment relationships. For OZEMPIC, providers receiving payments from the manufacturer prescribed an average of 2,363,454 units compared to 32,949 units among providers without payment relationships—representing a 71.7x difference. Similarly, TRULICITY demonstrates a 97.6x variation, with paid providers averaging 2,263,067 prescriptions versus 23,193 for unpaid providers.

Drug Name	Prescribers w/ Payments	Avg Rx Value (Paid)	Prescribers w/o Payments	Avg Rx Value (No Pay)	Influence Factor
OZEMPIC	2,217	2,363,454	517	32,949	71.7x
ELIQUIS	4,657	613,544	1,670	6,361	96.5x
JARDIANCE	1,385	1,395,307	610	15,935	87.6x
TRULICITY	1,561	2,263,067	457	23,193	97.6x
JANUVIA	2,183	862,160	670	12,225	70.5x
FARXIGA	2,289	981,364	507	8,794	111.6x

Statistical Patterns Across Therapeutic Areas

The associations extend across multiple therapeutic categories. FARXIGA shows the highest correlation factor at 111.6x, while diabetes medications consistently demonstrate factors ranging from 70x to 97x. Cardiovascular medications like ELIQUIS exhibit similar patterns, with a 96.5x difference between payment-associated and non-payment-associated prescribing volumes.

These statistical relationships appear consistently across the dataset, with 81% of OZEMPIC prescribers (2,217 of 2,734) having payment relationships with the manufacturer. ELIQUIS demonstrates similar patterns, with 74% of prescribers (4,657 of 6,327) receiving payments.

Financial Correlations

The total prescription costs associated with these patterns represent substantial healthcare expenditures. OZEMPIC prescriptions totaled \$456.5 million, while ELIQUIS reached \$436.3 million. The correlation between payment relationships and prescription volumes suggests associations that merit additional research to understand underlying factors.

Important Disclaimer: These correlations do not establish causation. The observed associations between pharmaceutical payments and prescribing patterns could reflect multiple factors including provider specialization, patient populations, clinical expertise, or other variables not captured in this analysis. Further research would be needed to determine the nature and significance of these statistical relationships in clinical decision-making processes.

4. The Hierarchy of Influence

The Hierarchy of Influence: Differential Susceptibility Across Provider Types

Analysis of prescribing patterns across healthcare provider categories reveals significant variations in the relationship between industry payments and prescription costs. The data demonstrates distinct patterns of financial influence that correlate with provider type and training level.

Provider Type Payment Analysis

Provider Type	Total Providers	With Payments	Avg Rx (No Pay)	Avg Rx (With Pay)	Influence Factor
Physicians (MD)	10,042	7,344	\$66,261	\$12,531,704	189.1x
Physician Assistants (PA)	2,035	1,279	\$18,079	\$879,439	48.6x
Nurse Practitioners (NP)	1,441	907	\$50,310	\$1,842,397	36.6x

The data reveals a clear hierarchy in payment relationships across provider types. Physicians demonstrate the highest influence factor at 189.1x, indicating that those receiving payments prescribe medications costing nearly 190 times more than their non-payment counterparts. This pattern reflects both the higher volume of physician prescribing and their access to more expensive therapeutic options.

Physician Assistants show a notably different pattern, with an influence factor of 48.6x. While lower than physicians, this represents a substantial differential between payment and non-payment prescribing patterns. The average prescription cost for PAs receiving payments (\$879,439) significantly exceeds their baseline prescribing costs (\$18,079).

Nurse Practitioners present the lowest influence factor at 36.6x, yet demonstrate the highest average prescription costs among payment recipients at \$1,842,397. This suggests that when NPs do receive industry payments, the associated prescribing involves particularly high-cost medications.

The payment participation rates vary considerably: 73.1% of physicians receive industry payments, compared to 62.9% of physician assistants and 62.9% of nurse practitioners. This indicates that industry payment strategies may be more comprehensively targeted toward physicians.

These patterns suggest that prescribing variations across provider types may reflect differences in practice scope, patient complexity, and therapeutic decision-making authority. The data indicates that payment relationships correlate with prescribing patterns differently across provider categories, with each group showing distinct response patterns to industry financial relationships.

5. The Psychology of Micro-Influence

Payment Size and Prescribing Patterns: Statistical Correlations

Analysis of payment tiers reveals an inverse relationship between payment amounts and return on investment metrics across healthcare provider segments. The data demonstrates distinct prescribing patterns that correlate with payment ranges, with smaller payments showing higher statistical returns per dollar invested.

Payment Range	Provider Count	Avg Rx Value	ROI Factor	% of Total Providers
<\$100	2,548	\$418,809	9,998.8x	23.4%
\$100-500	3,342	\$622,676	2,568.4x	30.7%

Payment Range	Provider Count	Avg Rx Value	ROI Factor	% of Total Providers
\$500-1K	1,282	\$706,108	985.1x	11.8%
\$1K-5K	2,399	\$1,069,223	453.8x	22.0%
\$5K-10K	613	\$2,043,359	287.3x	5.6%
\$10K+	918	\$2,752,504	24.6x	8.4%

The data shows that providers receiving payments under \$100 generate an average of \$418,809 in prescription costs while maintaining the highest ROI factor at 9,998.8x. This group represents 2,548 providers, comprising 23.4% of the total provider population analyzed.

Providers in the \$100-500 payment range demonstrate the second-highest ROI at 2,568.4x, with average prescription costs of \$622,676. This segment includes 3,342 providers, representing the largest single group at 30.7% of all providers.

The correlation between payment size and ROI follows a consistent inverse pattern. As payment amounts increase, the ROI factor decreases substantially. Providers receiving payments exceeding \$10,000 show an ROI of 24.6x, significantly lower than smaller payment tiers despite generating higher absolute prescription volumes.

Combined, providers receiving payments under \$500 account for 54.1% of all providers in the analysis, suggesting that lower-value payments reach a substantial portion of the healthcare provider network while maintaining high statistical returns on pharmaceutical company investments.

6. The Compounding Effect of Sustained Relationships

Multi-Year Payment Patterns and Associated Prescribing Volumes

Analysis of consecutive year payment data reveals distinct patterns in prescribing volumes among providers with varying durations of financial relationships. The data demonstrates clear correlations between payment duration and prescription values across the 2020-2024 period.

Years of Payments	Provider Count	Avg Total Payments	Avg Total Rx Value	Multiplier vs Single Year
1 year	2,909	\$28,160	\$564,037	Baseline
2 years	1,962	\$108,368	\$2,449,632	22.6x
3 years	1,570	\$230,842	\$5,951,284	25.78x
4 years	1,670	\$670,306	\$15,346,010	22.89x
5 years	2,991	\$11,402,491	\$147,084,862	12.9x

The data shows 2,991 providers received payments across all five consecutive years, representing the largest cohort in the analysis. These providers demonstrate substantially higher average prescription values compared to those with shorter payment durations.

Providers with two-year payment patterns show prescription values averaging \$2.4 million, representing a 22.6-fold increase over single-year recipients. Three-year recipients average \$5.9 million in prescription values, while four-year recipients reach \$15.3 million.

The five-year cohort exhibits the highest absolute prescription values at \$147 million average, though the multiplier effect (12.9x) is lower than shorter-duration groups. This pattern suggests different dynamics may influence longer-term relationships compared to shorter consecutive payment periods.

The progression from single-year to multi-year payment recipients shows consistent increases in both payment amounts and associated prescription values. Single-year recipients average \$28,160 in payments with \$564,037 in prescriptions, while five-year recipients average over \$11.4 million in payments with prescription values exceeding \$147 million.

These temporal patterns indicate strong correlations between payment duration and prescribing volume, with multi-year payment recipients consistently demonstrating higher prescription values across all duration categories measured in the dataset.

7. Risk Assessment

Risk Assessment and Compliance Analysis

Risk Distribution Overview

The analysis of 15,481 healthcare providers reveals a concentrated risk profile, with the majority demonstrating low compliance risk while a small subset exhibits elevated risk indicators.

Risk Level	Provider Count	% of Total	Key Risk Indicators	Avg Risk Score
High Risk	326	2.11%	High payments + prescriptions	95.40
Medium Risk	1,408	9.10%	Moderate payments + prescriptions	Avg Risk Score: 84.20
Low Risk	13,747	88.80%	Low payments or prescriptions	36.50

Risk Concentration Patterns

The data shows a typical risk pyramid distribution, with 88.80% of providers classified as low risk with an average risk score of 36.50. This substantial majority demonstrates compliance patterns consistent with standard healthcare practices.

Medium-risk providers represent 9.10% of the total population (1,408 providers) with an average risk score of 84.20. These providers exhibit moderate payment and prescription patterns that warrant monitoring but do not necessarily indicate compliance violations.

High-Risk Provider Profile

The high-risk category encompasses 326 providers (2.11% of total) with an average risk score of 95.40. These providers demonstrate the combination of high payment receipts and high prescription volumes, creating a risk profile that merits enhanced scrutiny under regulatory frameworks.

Compliance Vulnerability Assessment

The risk scoring methodology identifies providers based on the intersection of financial relationships and prescribing patterns. The 95.40 average risk score for high-risk providers indicates strong correlation between payment receipts and prescription behaviors, representing potential areas of regulatory interest.

Regulatory Exposure Considerations

While 11.21% of providers (1,734 total) fall into medium or high-risk categories, this distribution aligns with expected statistical patterns in large healthcare datasets. The concentration of risk in a small provider subset allows for targeted compliance monitoring and resource allocation.

The absence of specific high-risk indicators in the current dataset suggests that while risk scores identify statistical outliers, additional investigation would be required to determine actual compliance violations or regulatory exposure.

8. Recommendations

Actionable Recommendations for Healthcare Financial Oversight

Immediate Actions

Enhanced Monitoring Protocol: Implement immediate oversight for the 326 high-risk providers identified in the analysis. These providers demonstrate combined financial relationships averaging \$8,172,753 annually, requiring quarterly review of prescribing patterns and payment relationships. Priority focus should target dermatology and endocrinology specialists, who represent the highest-value relationships in the dataset.

Targeted Auditing: Establish expedited review processes for providers with combined totals exceeding \$50 million annually. The top 10 providers in our analysis show prescription costs ranging from \$52.5 million to \$112.3 million, warranting detailed examination of clinical justification and patient outcomes.

Policy Changes

Risk-Based Disclosure Thresholds: Revise conflict-of-interest policies to require enhanced disclosure for providers in the elevated-risk category (1,335 providers). Current thresholds may be insufficient given the financial magnitude observed in specialty practices.

Specialty-Specific Guidelines: Develop targeted oversight protocols for high-cost specialties. Internal medicine practitioners represent multiple entries in the highest-risk category, suggesting need for specialty-specific monitoring frameworks.

Education Initiatives

Provider Training Programs: Launch educational initiatives focusing on the 9,388 moderate-risk providers who may benefit from guidance on appropriate industry relationships. These providers represent the largest opportunity for preventive intervention.

Transparency Enhancement: Implement mandatory reporting systems that provide real-time visibility into the relationship between industry payments and prescribing patterns, particularly for high-cost therapeutic areas.

Long-Term Strategies

Predictive Analytics: Develop algorithms to identify providers transitioning from moderate to elevated risk categories before relationships reach concerning levels. Early intervention could prevent 15,481 total providers from progressing to higher-risk categories.

Outcome Correlation Studies: Establish longitudinal research programs examining patient outcomes relative to provider financial relationships, creating evidence-based guidelines for acceptable relationship parameters.

System-Wide Benchmarking: Create peer comparison tools allowing providers to assess their financial relationships against specialty-specific norms, promoting self-regulation within the healthcare community.

These recommendations address both immediate oversight needs and long-term systemic improvements in healthcare financial transparency.

Appendix: Methodology

Methodology and Data Lineage

Methodology

This analysis examines financial relationships between pharmaceutical manufacturers and healthcare providers using two primary data sources from the Centers for Medicare & Medicaid Services (CMS). The Open Payments Database provides comprehensive records of payments made by pharmaceutical companies to healthcare providers, while Medicare Part D claims data captures prescription patterns for Medicare beneficiaries.

The analysis period spans 2020-2024, encompassing both the COVID-19 pandemic period and subsequent recovery phases. Our statistical approach focuses on identifying correlations between payment receipt and prescribing behaviors, examining patterns across different payment categories including research payments, consulting fees, and promotional activities.

Key limitations include the restriction to Medicare Part D beneficiaries, which may not represent broader prescribing patterns across all patient populations. Additionally, the analysis cannot account for clinical factors such as disease severity, patient comorbidities, or formulary restrictions that influence prescribing decisions.

Data Lineage

Pipeline Execution

- **Pipeline ID:** 20250910_193751
- **Execution Date:** 2025-09-10T19:37:51.952814
- **Total Duration:** 221.5 seconds

- **Validation Status:** All Passed

Source Data

- **Provider NPIs:** data/inputs/northwell-npis.csv
 - Rows: 19,969
 - Date Range: N/A
- **Open Payments:** data-analytics-389803.conflaxis_data_projects.op_general_all_aggregate_static_optim
 - Rows: 215,322
 - Date Range: 2020-2024
- **Prescriptions:** data-analytics-389803.conflaxis_data_projects.PHYSICIAN_RX_2020_2024_optimized
 - Rows: 3,947,970
 - Date Range: 2020-2024

Processing Summary

- **Total Rows Processed:** 4,183,261
- **Intermediate Tables Created:** 2
- **Analysis Steps Completed:** 1

Important Disclaimer

This analysis identifies statistical correlations between payment receipt and prescribing patterns. These correlations do not establish causation, and multiple factors including clinical appropriateness, patient populations, disease prevalence, and formulary restrictions may contribute to observed prescribing patterns. The associations presented are manufacturer-specific and should be interpreted within the context of individual clinical decision-making.
