

Quality unlocks greater value

Our market-leading, validated approach to matching to high-quality providers

Introduction

Included Health was founded on the belief that the best health outcomes should be accessible to everyone. To that end, we have created industry-leading products and services that make it easy for members to find and benefit from top-quality care. Employers partner with us because of our cutting edge approach to data science, clinical expertise, complete care for all, and continuous innovation. These ingredients serve as the key to a new kind of personalized healthcare experience. We now cover over 6 million members across 130+ employers, driving better outcomes, less waste, happier members and more equitable care.

This ebook will describe how we measure provider quality and the results we've demonstrated across our employer customers, through our validated approach. Read on to learn more about the following¹:

1 Independent, third-party validation

Our quality matching engine consistently identifies physicians who are safer, more effective, and more efficient than their peers. An independent, third-party study conducted by researchers at Harvard Medical School and Veracity Analytics found that **Included Health's top-ranked primary care physicians provided "significantly higher quality care for all of the metrics evaluated."**

2 Included Health-endorsed physicians

More specifically, the study found that Included Health-endorsed physicians are:

- **30–40% more likely to conduct appropriate cancer screenings** for breast, cervical and colorectal cancers
- **30–70% less likely to prescribe high-risk medications**, such as high-dose opioids, benzodiazepines and barbiturates
- **>90% less likely to be sanctioned or disciplined** in the future by their state medical board

3 Savings driven from provider referrals

Higher quality care results in lower costs for members and employers. Across our entire customer base, we've delivered **historical cost savings of \$2,287 per provider referral over a 2-year period.**

4 High-cost conditions addressed

Savings are highest across key high-cost condition areas for employers. We've saved on average:

- **\$3,558 per musculoskeletal referral**
- **\$8,967 per cancer referral**
- **\$2,968 per endocrine referral**

5 Reduced spend from better care

Savings are driven by more effective and efficient care. On average, per referral in the first year alone, we've delivered:

- **\$439 lower outpatient hospital spend**
- **\$366 lower inpatient hospital spend**
- **\$170 lower emergency room spend**

¹ The study compared primary care physicians (PCPs) in the top decile of quality, to PCPs in the bottom decile of quality, as ranked by Grand Rounds Health.

Progress, but not enough

There is growing interest in, and investment behind, measuring and comparing doctor quality among healthcare solutions. While there is emerging consensus that high-quality care costs less and keeps people happier, healthier and more productive, there is wide variability with how far along different organizations are in addressing the biggest challenges associated with assessing provider quality. Areas for improvement in the field of healthcare quality research are:

Lack of focus on primary care and non-surgical quality

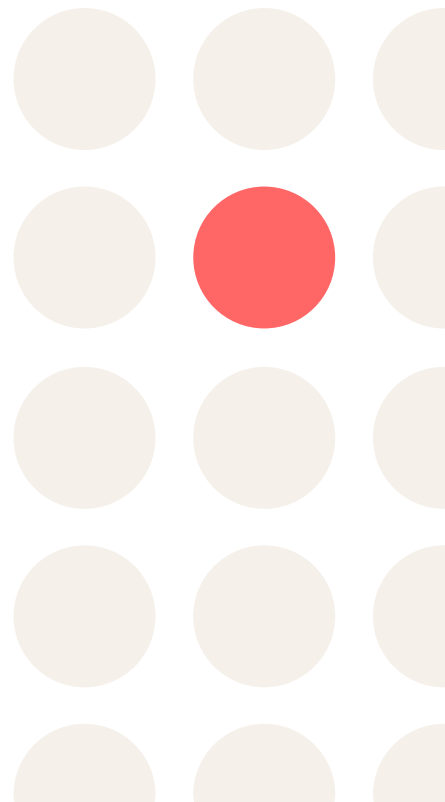
Why this matters: Many quality measurement efforts have focused mostly on assessing surgical outcomes despite the fact that surgical encounters account for only a tiny fraction of patients' health needs and are often clinically unnecessary. We estimate that for every one patient who needs a surgical procedure, there are 50 more patients whose health can most effectively be managed by a high-quality PCP or through non-surgical specialist treatment.

Limited application of the latest advances in machine learning

Why this matters: Machine learning is critical to scaling the analytical horsepower of the algorithms themselves, allowing the intake of much more data and optimization across many more metrics. Without machine learning, it is not computationally possible to (i) develop comprehensive algorithms in a reasonable amount of time and (ii) operate in a feedback loop of continuous improvement. Current quality measurement architecture relies heavily on manual processes, necessitating significant upfront investment and tooling for each new quality measure created and preventing robust analytical depth in the majority of medical specialties.

One-size-fits-all approach to results

Why this matters: (i) Patients have unique circumstances and needs and (ii) physicians have unique sub-specializations and expertise. Static doctor scores, such as those in a traditional provider directory, are not sensitive to either of those elements and result in generic doctor recommendations that fail to account for whether a given provider is actually high-quality for an individual patient's specific clinical needs.



A model designed to create value

Over the past 6 years, we have invested \$75M+ in creating a best-in-class quality measurement approach. We've staffed our teams with ~250 data and clinical experts to build and refine a provider match engine powered by quality models unlike any others in the space. By co-staffing our quality modeling projects with clinicians and data scientists, we can develop our novel quality metrics with speed and clinical precision. This enables us to go deeper than traditional metrics allow. With 10B+ clinical data points, dynamic scoring that takes into account individual member needs, and the predictive power of machine learning, we've created an engine that is substantive enough to be validated by a team of Harvard physicians and researchers. Most importantly, we've created an engine that provides equitable access to the top medical providers across the U.S., improves healthcare outcomes for members, and drives down costs of care. **Here's what we do differently:**

Our novel quality measures capture key overlooked aspects of provider quality

Our in-house team of data experts and clinicians develops novel quality measures, including measures that quantify subspecialist expertise, prescribing safety, specialist referral quality, and medication adherence. These novel metrics add more breadth and depth to our provider quality measurement approach and go beyond the industry's standard endorsed metrics, offering new levels of precision across clinical specialties.

10B+

Clinical data points

~250

Data & clinical experts

We have invested

\$75M

in talent and data to enable world-class physician quality measurement



Our provider quality measurement methodology evaluates providers across four dimensions of performance that we consider critical to selecting a top-quality doctor.

1 Safety

Does the provider practice medicine that is likely to harm the member?

3 Effectiveness

Do the provider's methods resolve the member's clinical need?

2 Efficiency

Does the provider avoid wasteful and unnecessary treatments?

4 Efficiency

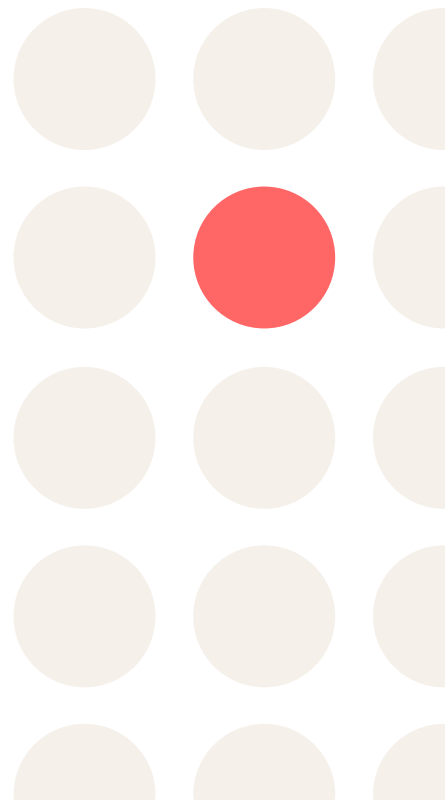
Does the provider charge a fair and reasonable fee?

Our methodology ensures that any provider we recommend to a patient is an outstanding clinician who will deliver cost-effective care. We never sacrifice quality for cost effectiveness. Rather, our approach is to sequence the measurement so that we first screen for high quality doctors, and then we screen again for the high quality doctors who are most cost effective. **The end result is a list of high-quality, high-value providers.**

Dynamic quality scoring to match provider skill with member need

Our first-of-its-kind provider-patient Match Engine evaluates the clinical quality of providers, how suited they are to an individual member, and their efficiency and effectiveness. To evaluate a particular provider, the engine begins by calculating clinical quality scores across safety and effectiveness. The scores on each individual clinical metric (e.g. high dose opioid prescribing rate) are then "weighted." The weighting is determined by how relevant that metric actually is to the member's clinical condition. After clinical quality has been established, the provider is evaluated for the efficiency and price metrics. Finally, the provider is assessed based on patient preferences such as willingness to travel.

The result of this process is an optimized set of provider referrals results tailored to the member. If, for example, a member's claims history suggests that they have diabetes, then the metrics relevant to diabetes treatment are upweighted so that they are worth much more to the score. This will ensure that doctors who are really high quality at treating diabetes will be more highly recommended to a diabetes member. This is a tremendous leap forward from the traditional provider directories.



Machine learning is used to more accurately predict providers' performance

Our first-of-its-kind provider-patient Match Engine evaluates the clinical quality of providers, how suited they are to an individual member, and their efficiency and effectiveness. To evaluate a particular provider, the engine begins by calculating clinical quality scores across safety and effectiveness. The scores on each individual clinical metric (e.g. high dose opioid prescribing rate) are then “weighted.” The weighting is determined by how relevant that metric actually is to the member’s clinical condition. After clinical quality has been established, the provider is evaluated for the efficiency and price metrics. Finally, the provider is assessed based on patient preferences such as willingness to travel.

The result of this process is an optimized set of provider referrals results tailored to the member. If, for example, a member’s claims history suggests that they have diabetes, then the metrics relevant to diabetes treatment are upweighted so that they are worth much more to the score. This will ensure that doctors who are really high quality at treating diabetes will be more highly recommended to a diabetes member. This is a tremendous leap forward from the traditional provider directories.

Dr. A

Primary Care Physician
Acme Medical Associates
North Wilkesboro, N.C.

Provider Quality Score
19

Safety

| | |
|--|----|
| High Dose Opioid Prescribing | 8 |
| High Dose Benzo Prescribing | 7 |
| High-Risk Barbiturate Prescribing for Headache | 1 |
| Risk of Future Sanctions | 60 |

Effectiveness

| | |
|--|----|
| Colorectal Cancer Screening | 91 |
| Cervical Cancer Screening | 89 |
| Adherence to Statin Therapy | 74 |
| Potentially Avoidable Diabetes Complications | 85 |

Price & Efficiency

| | |
|--|----|
| Average Total Cost of Care | 24 |
| Average Unit Pricing for Common Services | 32 |
| Unnecessary EKG Testing | 85 |
| Unnecessary Cardiac Stress Testing | 80 |

Local PCPs

- Dr. E
Family Medicine, Primary Care
- Dr. F
Family Medicine, Primary Care
- Dr. G
Family Medicine, Primary Care
- ⋮
- Dr. A
Family Medicine, Primary Care

Dr. A’s overall **provider quality score determines his ranking** among his local peers.

In this case, Dr. A ranks poorly in quality compared to his local peers and will appear near the bottom of any search results.

The importance of external validation

While physician quality measures are widely used to determine reimbursement and accreditation, it is important to validate and verify the measurement approach. A review done by the New England Journal of Medicine found that, of the 86 quality measures used by Medicare as part of the MIPS program, only 37% were valid². Quality measurement is a fundamental element of healthcare navigation, but it only drives impact with a solid underlying methodology.

Our models are built to unlock true clinical value by identifying individual physicians who are:

1. Safer

Members visiting physicians in the top decile of quality are...

30%

less likely to receive high-dose opioids*

66%

less likely to receive high-dose benzodiazepines*

57%

less likely to receive high-risk barbiturates*

...compared to those visiting providers in the bottom decile of quality.

2. More effective

Members visiting physicians in the top decile of quality experience...

18%

higher adherence to statin medications

44%

higher rates of breast cancer screening*

31%

higher rates of appropriate cervical cancer screening*

39%

higher rates of colorectal cancer screening*

33%

lower rates of repeat spine surgeries

38%

lower rates of repeat knee replacements

...compared to those visiting providers in the bottom decile of quality.

3. More efficient

Members visiting physicians in the top decile of quality are...

44%

less likely to receive unnecessary cervical cancer screenings

19%

less likely to be prescribed antibiotics inappropriately

12%

less likely to receive inappropriate spine imaging

...compared to those visiting providers in the bottom decile of quality.

* Externally validated by Veracity Healthcare Analytics

² MacLean, C., M.D., Ph. D., Kerr, E. A., M.D., M.P.H., & Qaseem, A., M.D., Ph. D., M.H.A. (2018, May 10). Time out—carting a path for improving performance measurement: Nejm. Retrieved February 10, 2021, from <https://www.nejm.org/doi/full/10.1056/NEJMp1802595>

External validation by Veracity Healthcare Analytics

Veracity is a specialized healthcare analytics consultancy run by Niteesh Choudhry, a Harvard Medical School professor and a leading researcher on health care quality.

We engaged Veracity to conduct a comprehensive review of our approach to assessing physician quality. The team conducted a two-phase study over several months: first, they graded the validity of all of the quality metrics we've modeled; second, they assessed the metrics' effectiveness by measuring the relationship between our PCP quality scores and the care that the physician delivers.

Key results

Results from the two-phase study revealed that our approach to physician quality is grounded in clinical best practices, and that physicians defined as high-quality have delivered demonstrably better outcomes for patients.

In the Phase I study, Veracity found that "virtually all of the metrics used by Included Health to evaluate physician quality have clinical face validity and empirical evidence supporting their relationship with health care quality." More specifically:

- **100%** of our quality measurement metrics have clinical face validity.
- **92%** of our metrics are supported by published studies.
- **95%** of our measure specifications were deemed appropriate.

In the Phase II study, primary care physicians ranked in the top 10% by Included Health provided higher quality care than other physicians for all of the metrics evaluated. The magnitude of these differences was clinically meaningful and statistically significant in all cases. Compared to patients seeing PCPs in the bottom 10%, patients seeing PCPs in the top 10% were:

- **30-40% more likely** to receive appropriate cancer screenings for colorectal, cervical, and breast cancers.
- **30-70% less likely** to be prescribed high-risk medications including high-dose opioids, high-dose benzodiazepines, concurrent opioids and benzodiazepines, butalbital for headache, and carisoprodol for back pain.

Furthermore, compared to PCPs in the bottom 10%, PCPs in the top 10% were:

- **>90%** less likely to be sanctioned in the future by their state medical board.

About the Veracity Review

The experts



Niteesh K. Choudhry, M.D., Ph.D.

is on the faculty at Harvard Medical School and practices as a hospitalist at Brigham and Women's hospital.



Joshua J Gagne, PharmD, ScD

is on the faculty at Harvard Medical School and practices as a hospitalist at Brigham and Women's hospital.

A two-phase approach

Phase 1: Metrics Validation

Grade the validity of the quality metrics we use in our models.

Phase 2: Empirical Validation

Validate the relationship between Included Health quality rankings and patient outcomes.



The impact of our approach to quality

With 25% of healthcare spending wasted on unnecessary and inappropriate care, connecting people to high-quality doctors who treat appropriately is critical to delivering real-world outcomes that reduce waste. Traditional provider search tools aim to unlock this value, but without a deep focus on—and investment in—defining and measuring quality, they fall short of achieving these outcomes.

At Included Health, our provider quality engine is the foundation of the savings we deliver for members and employers.

Across our navigation customers, we've completed more than 1.1 million high-quality referrals to date with an average improvement in provider quality of 45%, among providers seen by members. 48% of our referrals were completed by members in rural areas with more limited access to care.

Our provider referrals have also resulted in significantly lower costs for both payers and members. Members who followed Included Health' provider recommendations experienced approximately 15% lower annual healthcare spend, amounting to \$2,287 lower healthcare spend than the control group in the two-year period following their referral.³

Included Health has completed

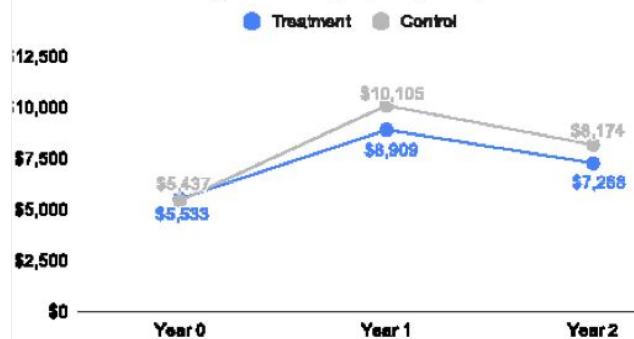
>1.1M high-quality referrals to date, with an average improvement in provider quality of **45%**

Members who followed Included Health' provider recommendations experienced

15% lower annual healthcare spend.

Average Total Healthcare Spend

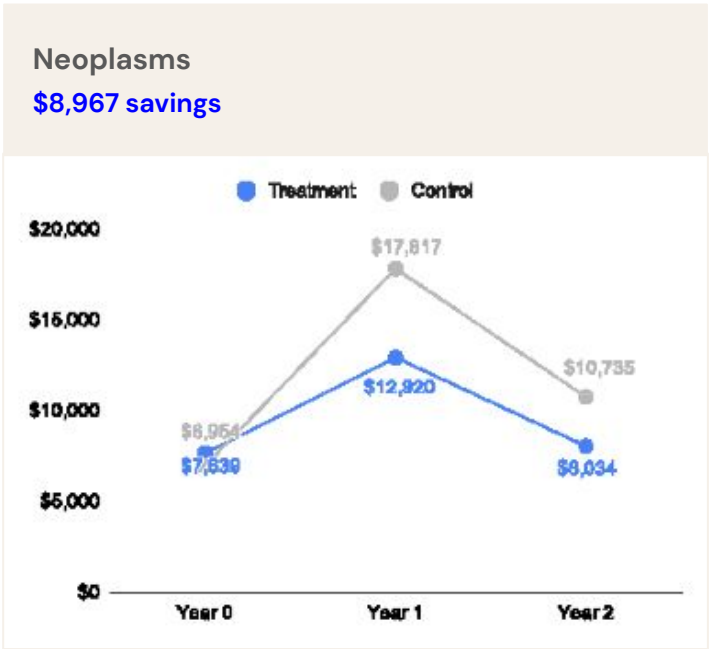
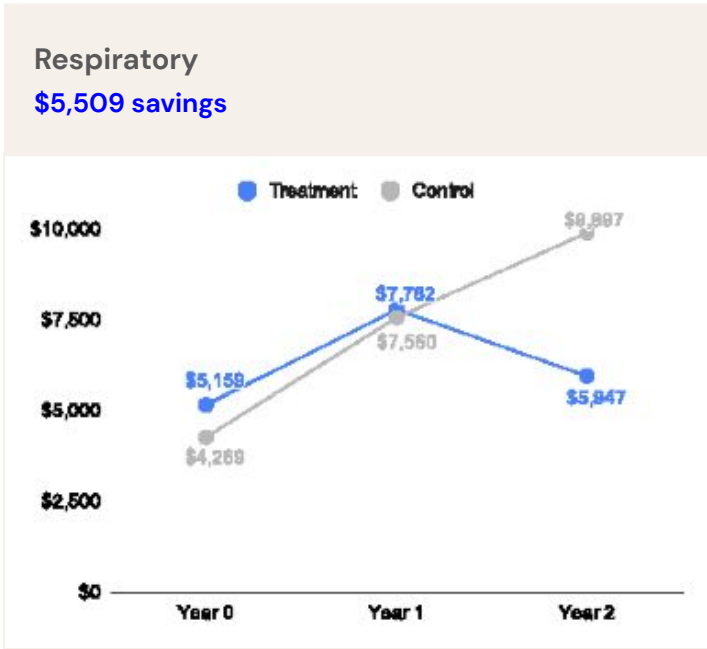
per member per year (PMPY)



³ Results from a risk-adjusted cohort study on the commercially-insured populations across Included Health customers. The study included >18,000 individuals who received a Included Health provider referral. Healthcare costs were compared across two cohorts: (1) members who visited the Included Health-recommended provider, and (2) members who visited a non-recommended provider.

Members visiting recommended, high-quality providers had lower costs for key condition areas including musculoskeletal, endocrine & metabolic, respiratory, and neoplasms:

Total risk-adjusted healthcare spend for members seeing Included Health-recommended providers



Sources of savings

We observed that members who visited Included Health–recommended physicians had fewer downstream costs billed from inpatient and outpatient hospitals, emergency rooms, and offices:

| Difference in Change | Difference in Change (pre-GR vs. post-GR year 1, Treatment vs. Control) | |
|----------------------------|--|-------------------------------|
| | Cost (\$ PMPY) | Utilization (% of members) |
| Outpatient Hospital | -\$439 | -3.9% |
| Inpatient Hospital | -\$366 | -3.2% |
| Emergency Room | -\$170 | -2.6% |
| Office | -\$104 | -2.1% |
| Ambulatory Surgical Center | \$1 | -1.3% |
| Independent Laboratory | \$7 | -4.3% |

Members visiting Included Health–recommended providers had **lower costs and utilization across places of service**—particularly hospitals and emergency rooms.

We also observed differences in the changes in pharmaceutical costs across the treatment and control groups:

| Drug Type | Difference in Change (pre-GR vs. post-GR year 1, Treatment vs. Control) | |
|---|--|-------------------------------|
| | Cost (\$ PMPY) | Utilization (% of members) |
| Branded (incl. Single-Source Brand, Multi-Source Brand, Branded Generics) | -\$66 | -4.7% |
| Generic (incl. Generics and Original with Generics) | -\$43 | 1.8% |
| Not Specified (incl. OTC Drugs and Not Specified) | -\$52 | 0.1% |

Members visiting Included Health–recommended providers had **lower costs across all drug types**, including both branded and generic drugs. They also had **higher utilization rates of generic drugs**, despite lower overall generic drug costs.

The case for quality

We deliver the highest-quality care to members across our 130+ customers. From increasing the number of high-quality matches to reducing unnecessary care, Included Health drives the best clinical outcomes. Check out the results for two of our customers with installed Navigation solutions.

Customer A:

~135,000 employees

5,000+

new provider relationships established with Included Health recommended providers during a 12-month period

24%

improvement in average provider quality among those seeing recommended providers during a 12-month period

In **11%**

of cases where member was planning to seek care, Included Health recommended a less costly site of care (e.g., from ER to PCP visit)

54%

repeat rate among users

Customer B:

~35,500 employees

21,000+

new provider relationships established with Included Health recommended providers over a 9-month period

43%

increase in connections with top-quality providers over a 9-month period

17.9%

year over year reduction in ER visits

\$1,134

reduction in healthcare spend per employee per year

Our provider quality measurement approach is at the forefront of innovation in the industry, and we welcome the opportunity to further discuss how optimizing for provider quality can raise the standard of care for everyone, everywhere.



This data or content is represented from the coming together of Doctor on Demand and Grand Rounds Health.

For more information, please visit
[Includedhealth.com](https://www.includedhealth.com)