Methodology Deep Dive
# Background and Context
Understanding the importance and relevance of Risk-Readiness®

# Methodology Deep Dive: Clinical & Quality
Understanding the clinical components in RoadMap's methodology and how RowdMap takes into account and thinks about quality when scoring providers

# Methodology Deep Dive: Indexing Scores
Understanding how scores are built and the methodology we use to ensure providers are scored appropriately and with validity

# Data Sources
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Why Risk-Readiness®?

After decades of fee-for-service reimbursement in the United States, health plans, government payers, hospitals systems, and physician groups have begun adopting new models of health care financing.

The Centers for Medicare and Medicaid Services (CMS) have accelerated this shift by releasing data and incentivizing both payers and practitioners to deliver health care in a way that emphasizes value over volume.
**Background and Context**

**Why Risk-Readiness®?**

Health plans have increasingly fewer options to manage risk given guaranteed issue and standardized benefit designs.

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**Demand-Driven**

**Member-Driven Risk Management v1**
Profitability driven by choosing which members could buy which products.

*Individual underwriting decreased or eliminated.*

**Benefit-Driven Risk Management v2**
Profitability driven by designing benefits and pricing products to reduce demand.

*Less flexibility in benefit decreased or eliminated.*

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**Supply-Driven Risk Management v3**
Profitability driven by identifying and reducing waste from low-value care.

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**Who will move beyond demand-driven risk management and address the real opportunity: eliminating low-value care?**

Currently, thirty cents of every U.S. healthcare dollar goes to low-value care. Reducing that low-value care reduces the cost of ownership of your network. There is a tangible economic impact that can either be kept, or reinvested in payment to high-value providers or benefit to members.
Economic pressures, political changes, and shifting socio-demographic trends will continue to constrain per-member reimbursement. Managing network expenditures represents the only consistent opportunity across all lines of business and payment/delivery models.

Focus on providers who manage unwarranted variation and reduce the delivery of low-value care. This network foundation can support all innovation opportunities and regulatory changes while withstanding competitive threats.
The economic driver for pay-for-value programs is the ability of a government program or marketplace arrangement to not only achieve Triple Aim goals but to also mitigate Low-Value services, which account for thirty cents of every dollar spent on the delivery of care.

Over $9B in Orange County, CA

$850 Billion Unnecessary Spend in 2014
(Institute of Medicine “Best Care at Lower Cost”)

“It’s generally agreed that about 30 percent of what we spend on healthcare is unnecessary. If we eliminate the unneeded care, there are more than enough resources in our system to cover everybody.”

- Dr. Elliott Fisher, Dartmouth Institute for Health Policy

“Bigger than higher prices, administrative expenses, and fraud, however, was the amount spent on unnecessary healthcare services.” In just a single year, up to 42% of patients receive “Low-Value” Care.

- Dr. Atul Gawande, Harvard University
Background and Context

**Why Risk-Readiness®?**

**Key Concepts Instrumental to Transforming the US Healthcare System**

*The current health care system is unsustainable.*
*To remain solvent, the system must transform delivery and payment of care.*

**Geographic Variation:**

Geographic Variation has been documented and researched since the early 1970’s in the Dartmouth Atlas of Healthcare. Geographic variation describes the variation in delivery of healthcare services across the U.S. More specifically, the delivery of healthcare services varies dramatically across geographies, even after adjusting for demographics, disease prevalence, and socioeconomic risk.

**High and Low Value Care:**

These categories of care were researched and brought to light with the Institute of Medicine’s work in 2012 and then codified and made practical by Choosing Wisely, a coalition of more than 70 specialty societies. High value care is care that creates a positive health outcomes for the health care dollar. Low value care is care that is delivered in place of an alternative treatment, where the alternative actually yields at least similar if not better outcomes at a lower cost.

RowdMap’s goal is to combine these two concepts to identify care delivery patterns that lead to low value care and care delivery patterns that lead to high value care. Mitigating low value care will reduce total health care expenditures in the U.S. Healthcare System.

We use publicly available Medicare FFS data because it is the largest data set ever released and allows us to identify patterns of healthcare markets and individual providers.
RowdMap’s Risk-Readiness® benchmarks help health plans, physician groups, and hospital systems identify, quantify, and reduce delivery of low-value care—a central tenet of successful pay-for-value programs.

RowdMap has low-value care and population health benchmarks for…

- every physician, every hospital, every zip code
- …in the United States.

By working with RowdMap to reduce low-value care, your network will:

- Reduce overall medical expenditures
- Become the primary lever of risk management
- Serve as a core chassis to be used across lines of business
- Deliver competitive differentiation for bid, product, marketing & sales
A high performer exhibits patterns that align with pay for value models. They create value for whoever owns the risk.

A lower performing outlier has optimized practice patterns around a specific economic model, FFS. This does not mean this provider is a poor clinician. In pay for value, these outliers may add additional risk.

This is how CMS views providers, but occasionally there are outliers with legitimate aberrational patterns. RowdMap will help you drill into this to explain why.
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Methodology Deep Dive: Indexing Scores
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Data Sources
RowdMap’s approach is aimed at identifying whole-system care patterns that are aligned with high value care delivery. Identifying high value providers and pathways are essential for population health risk management. This provides a clinically sound approach to measuring medical economics. Specifically:

1. **Scores show providers how they compare to other similar providers in the same healthcare environment**

2. **Scores are rooted in medical economics research and mapped to the way providers make clinical decisions**

3. **Scores take into account all of the provider’s activity throughout the course of a year. Scores combine traditional quality indicators with medical economics to measure value creation at a population level**

4. **Scores utilize specialty-specific metric sets**
Peer groups are comprised of providers within the same specialty or subspecialty and in the same geography. Each metric is scaled relative to the given cohort of peers. This process ensures that each physician can be fairly compared against her counterparts.

**Geography**
*Your Geography is Your Destiny*
There are marked differences in the supply of health and care between different geographies. This leads to patterns of care that are specific to each area. Within each area, and within that ecosystem, there is considerable variation in how providers construct care. Because local providers work within the same supply-system, our comparisons are made within geographies to better understand how individual provider behavior impacts on the value choices they make.

**Specialty Type**
*You are What You Do*
We have found that even within same specialty, some physicians perform more complex procedures or focus on a few conditions or procedures more than others. For these specialties, we create peer groups at a sub-specialty level.
RowdMap uses Hospital Referral Regions (HRR) to define peer group geographies. The HRR is a geographic unit, used by the Dartmouth Atlas for Health Care, to define the hospital service area containing the referral hospital or hospitals most often used by residents of the region. CMS, RowdMap and many other organizations use this geographical framework to make comparisons.

HRRs are classified into 9 ecosystems based on their population health and health care supply. HRR ecosystems serve as a peer geography in cases where there are fewer than 10 peers in an HRR.

**Creating Relevant Peer Groups**

Ecosystems are defined based on similarities in patient health and provider supply characteristics:
Clinical and Quality
Creating Relevant Peer Groups

To level the playing field for fair comparisons, RowdMap develops algorithms to assign physicians to peer groups with similar geography and specialty. Heterogenous specialties (such as orthopedics, internal medicine, and cardiology) are further split into subspecialties based on how they spend their time as reflected in the CMS data.

For example, orthopedic surgeons who primarily perform back surgeries are grouped for comparison with other back surgeons. Internal medicine physicians with activity similar to cardiologists are classified as cardiology and not compared to internal medicine providers who function as primary care.

Orthopedic Sub-Specialty Definition Methodology

Cardiology Sub-Specialty Definition Methodology
Clinical and Quality Mapping to Clinical Decision Making

RowdMap starts with public data from CMS and builds clinical ontologies that classify provider visit, procedure, and pharmacy claims into clinically meaningful categories that serve as the foundation for our unwarranted variation analytic benchmarks and scores.

It all starts with a visit where a plan of care is devised

- How often are visits?
- What’s done in a visit?
- What happens after a visit?

A visit leads to diagnostic tests and procedures

- How many tests/procedures?
- What kinds of tests/procedures?
- What’s the cost of the test/procedures vs. alternatives?

Tests and procedures lead to Rx use and referrals to specialists, like surgeons

- How many scripts or referrals?
- What kinds of scripts? Generic vs. Brand?
- What kind of referrals? What kinds of surgeries?
Clinical and Quality Mapping to Clinical Decision Making

RowdMap’s measures are mapped to metric trees that roll up to scores across domains aligned to mimic clinical reasoning and decision-making.

1. **Clinical Quality Outcomes**
   (i.e. what is the best outcome)

2. **Medical Economic Outcomes**
   what is the best outcome for the $.

3. **Map to the way providers make clinical decisions**

- **Visit Score**
  measures how quickly a visit escalates into additional services like procedures, images, tests and eventually surgery.

- **Procedure Score**
  measures how intense a doctor practices medicine, compared to peers. Does she jump immediately to high intensity treatments or start with conservative treatments?

- **Pharmacy Score**
  measures, compared to peers, how a doctor prescribes medications. How often, how much and what kind of prescriptions are common with this provider?

- **Referral Score**
  measures both the number, performance and appropriateness of the providers in this physician’s value chain.
Clinical and Quality
Combining Economics and Quality

Multiple metric types are combined to measure value. Metrics are designed to measure clinical quality and medical economics with the highest-level score encompassing both as a reflection of a provider’s overall value compared to peers.

1. **Clinical Quality Outcomes**
   (i.e. what is the best outcome)

2. **Medical Economic Outcomes**
   what is the best outcome for the $.

3. **Map to the way providers make clinical decisions**

   - **Visits**
   - **Procedures**
     (Diagnostic & Therapeutic)
   - **Pharmacy**
   - **Referrals**

   - **Umbrella metrics**
     aggregate measure of quality

   - **Process metrics**
     stepping stones to quality

   - **Absolute metrics**
     indicators of inherit value

   - **Marker metrics**
     indicators of comparative value

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Clinical and Quality
Combining Economics and Quality

**Medical Economic Outcomes**
what is the best outcome for the $.

1. **Absolute Metrics**
   Measure investment value from a population health perspective
   1. Identify services where there is overwhelming evidence to support low-value or high-value categorization
   2. Allow for medical staff buy-in
   3. Offer opportunity to minimize utilization as much as possible through process redesign, med review committees, etc.

2. **Marker Metrics**
   Compare to peers to identify practice deviations
   1. Provide context by comparing providers against to peers in the market by subspecialty
   2. Identify outliers (they are the most important to your Risk-Readiness)
   3. Can be used in clinical process redesign, CQI, etc. to focus on improvement in outlier areas
Clinical and Quality
Combining Economics and Quality

**Clinical Quality Outcomes**
What is the best outcome

1. **Umbrella metrics**
   Measure outcomes and reflect aggregate measures of quality
   1. Measure the impact of procedures on patient health status
   2. Outcomes can be influenced by numerous factors
   3. Examples include:
      - Surgical complication rates
      - Surgical readmission rates

2. **Process metrics**
   Reflect adherence to specific treatment protocols
   1. Typically adhere to generally accepted guidelines for treating patients with certain conditions
   2. Can contribute toward improving health outcomes
   3. Examples include:
      - Patients receiving PT services prior to orthopedic surgery
      - Patients receiving maximum medical therapy prior to cardiac interventions
Clinical and Quality
Combining Economics and Quality

Cardiology Metric Tree Example: Medical Economic Measures
Clinical and Quality
Combining Economics and Quality

Cardiology Metric Tree Example: Clinical Quality Measures
Clinical and Quality
Creating Specialty-Specific Metrics

Metric trees are specialty-specific, with metrics and measures changing for each specialty.

Domains are consistent across all specialties.

Metric categories and nomenclature are consistent across specialties.

Measures are selected at the specialty level. Some measures, such as cost per visit will be consistent across all specialties.

High/Low value definitions are specialty-specific.

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Clinical and Quality
Creating Specialty-Specific Metrics

Metric Trees for Selected Specialties

Gastroenterology

Cardiology

Orthopedics

Primary Care

RowdMap

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RowdMap uses the Dartmouth Atlas, Choosing Wisely, and academic research to define high and low value practice patterns and mines Medicare claims data (parts A, B, and D) to find evidence of these patterns and identify physician who are likely to succeed in risk-based arrangements.

Measures are designed to capture the full spectrum of care delivered across inpatient, outpatient and pharmacy settings as well as referral activities. In addition to comparing providers to peers on cost and utilization, specialty-specific measures uncover areas of overuse and underuse based on Dartmouth Atlas concepts of unwarranted variation.

Multiple metric types are combined to measure value. Absolute metrics reflect investment value from a population health perspective. Marker metrics identify practice patterns that appear outside the norm relative to peers. RowdMap’s measures are mapped to metric trees that roll up to scores across domains aligned to mimic clinical reasoning and decision-making. Branches in the tree are designed to measure clinical Quality (i.e., what is the best outcome) and medical economics (i.e., what is the best outcome for the money), with the highest-level score encompassing both as a reflection of a provider’s overall value compared to peers.
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Data Sources
Risk-Readiness® Scoring

What is Behind the Scores?

Provider profiles can be at physician level or rolled up to the practice level (aggregating all physicians in a practice).

Blue bars indicate Medicare Part B fee-for-service volume.

Overall Value Score combines the first four measures into an overall composite metric.

Visit Score measures how quickly a visit escalates into additional services like procedures, images, tests and eventually surgery.

Procedure Score measures how intense a doctor practices medicine, compared to peers. Does she jump immediately to high intensity treatments or start with conservative treatments?

Pharmacy Score measures, compared to peers, how a doctor prescribes medications. How often, how much and what kind of prescriptions are common with this provider?

Referral Score measures both the number, performance and appropriateness of the providers in this physician’s value chain.

Red dot providers exhibit practice patterns that are clinically appropriate, but optimized around an old economic model.

Green dot providers exhibit practice patterns that align with pay-for-value models and make money for whoever owns the risk.
Indexing and Scores

Overview

Our Approach

These Data and Approach is a Tool for Business Planning

- Underlying methods and metrics are common, but they are put together and built in a specific way
- Mimics decision process of patient - physician interaction
- Sets up cascades of patient care that represent the optimal pattern for the market

Goal

☐ Built with purpose
☐ Interdisciplinary
☐ Transparent and easy to read
Indexing and Scores

Risk Readiness® Score Development

Let’s Show You How we build the Risk Readiness® Scores!

Risk Readiness® scores are built at the individual provider NPI level. Each provider has a metric tree to describe their practice patterns. Depending on their specialty, the factors that contribute to their pattern change. In this example, we show a metric tree for an orthopedic provider.

Specialty-Specific Metric Trees*

Each Metric Tree is Specialty Specific. There is a different Metric Tree for Ortho vs. Cardio. But scores are Built the Same.

*We are using Medicare FFS Parts A, B & D Data
Indexing and Scores

Risk Readiness® Score Development

Orthopedic Metric Tree

1. Value Score
   - Overall Score
   - Pharmacy Score
     - Cost Effectiveness - Pharmacy
     - Polypharmacy
     - Harm Reduction
   - Referral Score
     - Referral Rate
     - Ortho Imaging
     - Physio Therapy
     - Optimal Hospital

2. Domains
   - Visit Score
     - Visit Frequency
     - Visit Intensity
     - Visit Escalation
     - Visit Cost Effectiveness
   - Procedure Score
     - Complexity/Impact
     - Complications
     - Readmissions

3. Metrics
   - Visits per patient
   - Ratio of therapeutic and endoscopic procedures to OP Visits
   - Ratio Surgical Procs to OP Visits
   - Ratio Imaging Procs and Dx Radiology referrals to OP Visits
   - Cost per visit
   - Prices per patient
   - % of procedures that are low value
   - % of procedures that are high value
   - Ratio of care coordination to inpatient admissions

4. Measures
   - Orthopedic inpatient complication rate
   - Orthopedic readmission rate
   - Cost per procedure
   - Procedure cost per patient
   - % of procedure cost that is low value
   - Diagnostic cost per patient
   - Therapeutic procedure cost per patient
   - Rx cost per patient
   - % Brand cost
   - Scripts per patient
   - Opioid: non-opioid
   - Muscle relaxants/patient
   - NSAIDs, FPI
   - Narcotic/orthopedic admits
   - Referrals per patient
   - Referrals to diagnostic radiologists per patient
   - Referrals to PT per patient
   - Referrals to PKR per patient
   - Average orthopedic readmission rate of your referral hospitals
   - Average orthopedic complication rate of your referral hospitals
We start at level 4: Measures

The Measures are Raw Values. Each of the measures (level 4) consists of a numerator and denominator derived from our clinical ontology. For example:

<table>
<thead>
<tr>
<th>Number of Diagnostic Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Total Non-Visit Procedures</td>
</tr>
</tbody>
</table>

Starting at level 4, measures, a set of quintiles is defined for each measure within each peer group.

To create the parent level 3 score, the measures’ (Level 4) quintiles are first averaged to create the baseline parent level 3 score. For each base score type, the base scores are then put into quintiles relative to the provider’s peer group. This results in the final level 3 scores.

The level 2 (domain) scores are created similarly. The level 3 scores associated with each level 2 domain scores are averaged. These averages are then put into peer group based quintiles to create the level 2 domain scores.

The level 1 overall value score is the average of the level 2 domain scores. The resulting distribution is approximately normal.
Indexing and Scores

Risk Readiness® Score Development

Let’s Start Here!
The Score Development Starts at the Measure Level
Indexing and Scores

Risk Readiness® Score Development

4

Scoring starts with the underlying raw clinical Measures

The measures’ values are raw values. To move to metrics, each of these values are organized into quintiles based on the provider’s peer group and geography. We then average the quintiles for each of the measures (Level 4) to create the next level 3 Metrics.

This is the level where we risk adjust. We are adjusting to make three things comparable: Panel Populations -- HCC Risk Scores, RRV Methodology, & Specialty Peer Cohort

More on this on Slide 43.
Indexing and Scores

Risk Readiness® Score Development

The Measure Scores are averaged to create each Metric Score

We average the quintiles of the measures from level 4 to create metrics. The provider’s metrics are then organized into quintiles based on the provider’s peer group and geography. Each of the Metrics are assigned a score of 1-5. (1= higher performing outlier and 5= lower performing outlier).
The scores from the Metrics are averaged to create each **Domain Score**

We average the quintiles of the metric from level 3 to create domains. The provider’s domains are then organized into quintiles based on the provider’s peer group and geography. Each of the domains are assigned a score of 1-5. 1= higher performing outlier and 5= lower performing outlier).
The Domain Scores are averaged to create the **Overall Value Score**

The Domain Scores are averaged to create the overall value score which is assigned a score of 1-5. (1= higher performing outlier and 5= lower performing outlier). Each of the level 2 domain scores are equally weighted to create the Overall Value Score.
Indexing and Scores

Summary

By taking the average across domain scores, the resulting distribution of the overall value score is normal.

We base our scores on averages of quintiles, which are then compared to the middle quintile. This results in a normal distribution with a standard deviation of about 1, around a mean of 3 on our 1-5 scale.

2's and 4's are about 1 standard deviation away from the mean, while 1's and 5's are 2 standard deviations away.
Indexing and Scores

Summary

Our approach takes a multiplicity of measures designed to detect a provider’s Risk Ready practice pattern.

We compare the measures within each physician’s peer cohort, and organize them into 20% bins (or quintiles), going from the top performing 20% to the lowest performing 20%.

We assign each 20% bin a number from 1 to 5, with 5 being the lowest. Using the tree, we average these numbers to get the overall efficiency or value score.

The methodology results in the distribution of providers’ overall score being a bell curve. This means that the vast majority of providers are graded close to the middle. On our 1 to 5 scheme, this means that most are 2-4, with much fewer providers receiving scores of 1’s and 5’s.

What if the measure is just on the edge of a bin, such as at the twenty-one percentile?

In that case, the provider would be scored as a 2 instead of a 1 on that measure. However, this will not affect the higher level scores unless this occurs on many measures (which is highly unlikely).

By taking the average across domain scores, the resulting distribution of the overall value score is normal.
Tests of Resulting Distribution

To verify the normality of our final overall score, we’ve performed two tests of the score distributions, averaging across peer groups.

1. Our scores follow the empirical rule approximately, with about 66% of overall scores within one standard deviation of the mean.

2. Additionally, under the Jarque-Bera normality test, normality is not rejected at the 95% confidence level.
Indexing and Scores

Summary

Our Approach

Advantages

• Our nonparametric approach limits the effect of outliers.

• The model is conservative, assigning 5’s only to consistently low performers and 1’s to consistently high performers.

• Each level rolls up to the next in an intuitive way that is designed to mimic how care is actually delivered in the healthcare system.

• The final outcome is normally distributed.

Trade-Offs

• Our underlying methods and metrics are commonly accepted, but are put together in a way that builds an unique profile. In many other methodologies, importance to population health value is not considered and does not factor into significance. Our metrics, on the other hand, are designed to capture population health value and are actionable and practical. Thus, the scoring is a balanced combination of statistical significance and business significance.
Tying Risk Readiness® to Dollars

Risk Readiness® Scores Translate to Dollars
High Value Providers have Decreased PMPY

PMPY

Data & Calculations:

- **Cost Data Source:** Medicare FFS Total Part B Adjusted Procedural Cost
- **Medicare FFS Patients:** Unique FFS patient count at the individual NPI level
- **PMPY calculation by Risk Readiness® Score and the individual NPI level:**
  \[
  \text{Sum}(\text{Medicare FFS Total Part B Adjusted Procedural Cost})/\text{Sum}(\text{Medicare FFS Patients})
  \]

When looking at PMPY by physician, we see that overall, about 80% of peer group bins that are 2 points away from each other* have a statistically significant difference in cost.

*That is the difference in PMPY between a provider with a score of 1 and 3 for example

PMPY is averaged across providers for groups and practices.
The Significance of Practice Score Differences

Example: How do I determine if the difference between two practice scores is significant?

The bigger the practice, the more significant a small difference in score is when comparing the practice score to another practice or geographical benchmark*. The Difference is Statistically Significant. Take the Example Below

<table>
<thead>
<tr>
<th>Practice Name</th>
<th>Practice Score</th>
<th>Number of Providers</th>
<th>%Difference in Score Between Practice A &amp; B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice A</td>
<td>2.81</td>
<td>1000</td>
<td>1%</td>
</tr>
<tr>
<td>Practice B</td>
<td>2.83</td>
<td>1000</td>
<td></td>
</tr>
</tbody>
</table>

The practice scores are compared using a signed rank test to the geographic benchmark* to test whether the score difference is significantly better or worse than the benchmark.

*Where the geographic benchmark is all providers in the Hospital Referral Region(s) where the practices’ providers are located.
Indexing and Scores

**Risk Readiness® Risk Adjustment**

- We adjust measures that are cost and readmission-related
- We Risk adjust at the Measure Level
- We are not inventing but borrow from well-tested methods.
- We are adjusting to make three things comparable:
  - Panel Populations -- CMS’ HCC score
  - Resource Utilization -- RRV
  - Provider Peer Group

**HCC (Hierarchical Condition Categories)**

The HHS risk adjustment model uses an individual's demographic data and diagnoses to determine a risk score, which is a relative measure of how costly that individual is anticipated to be.

+ Age
+ Sex
+ Race
+ Medicare Status

~200 condition categories

**RowdMap Resource Values (RRVs)**

RRVs adhere to TCRRVs but are customized for the CMS data sets. Total Care Relative Resource Values (TCRRVs) quantify resource use for all procedures and services in a health care system. These values are designed to facilitate easy comparisons across procedures, peer groups, and health care settings (i.e. inpatient, outpatient, professional, and pharmacy).

RRVs are relative within and across care settings. In other words, the values assigned to services may be added and compared, regardless of whether services were performed within the same care setting. This permits users to value a patient's total resource consumption.

**Provider Peer Group**

Peer groups are comprised of providers within the same specialty or subspecialty and in the same HRR. Each metric is scaled relative to the given cohort of peers. This process ensures that each physician can be fairly compared against her counterparts.
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Data Sources
# Data Sources

## Selected Data Sources

<table>
<thead>
<tr>
<th>Name</th>
<th>Years</th>
<th>Purpose/Grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEDPAR Limited Data Set</td>
<td>2014</td>
<td>CMS data set containing information for 100% of Medicare beneficiaries using any hospital inpatient, outpatient, or post acute services Stay level records for every hospital across the country for 500+ DRGs</td>
</tr>
<tr>
<td>Medicare Part B HCPCS file and BETOS Groups</td>
<td>2012-2014</td>
<td>CMS data set containing all HCPCS codes for each NPI submitting claims for Medicare</td>
</tr>
<tr>
<td>Medicare Part D Drug Name file</td>
<td>2012-2013</td>
<td>CMS data set containing information on all drugs prescribed by each NPI submitting claims to Medicare</td>
</tr>
<tr>
<td>Medicare DocGraph Referral file</td>
<td>2009-2014</td>
<td>CMS data set containing information on unique patients seen by two NPI’s in a 30 day window</td>
</tr>
<tr>
<td>National Plan &amp; Provider Enumeration System (NPPES)</td>
<td>2016</td>
<td>Monthly updates of all physicians, specialty and credentials</td>
</tr>
<tr>
<td>Behavioral Risk Factor Surveillance System (BRFSS)</td>
<td>1984-2015</td>
<td>CDC’s county level health survey data. As the largest health related survey in the world, this data set is essential in assessing health risks of a population without claims. Researchers published in BMJ have proven this to be a more accurate method of risk adjustment than traditional claims-based adjustment</td>
</tr>
<tr>
<td>Other CDC Sources and Population Health Sources</td>
<td>Varies</td>
<td>County Health Rankings, Census, Disease Prevalence, RWJ County Health Indicators. These data sets are useful in determining demand for health services by geographic unit.</td>
</tr>
<tr>
<td>TMSIS Medicaid Statistical Information System</td>
<td>Coming Soon - 2016</td>
<td>CMS database of all those eligible and receiving services under Medicaid and CHIP programs for every state and territory. This database includes key eligibility, enrollment, program, utilization and expenditure data.</td>
</tr>
<tr>
<td>Medicare FFS Payment and Utilization Data</td>
<td>2012-2014</td>
<td>CMS data at the physician and facility grain that includes information for the 100 most common inpatient services, 30 common outpatient services, all physician and other supplier procedures and services, and all Part D prescriptions.</td>
</tr>
<tr>
<td>Medicare Geographic Variation File</td>
<td>2012-2014</td>
<td>Data on the utilization and quality of health care services for the Medicare fee-for-service population at the geography grain – state, county and HRR.</td>
</tr>
</tbody>
</table>

RowdMap uses more than 200 data sources, but these four sources combine to generate the claims data analyzed for the purposes of creating overall efficiency scores.

This is the key source for physician demographic data, including practice location.
Data Sources

Data Sources by Risk-Readiness® Domain

- Medicare FFS Part B Physician and other Supplier Cost and Utilization Public Use File
- Medicare FFS Part B Physician and other Supplier Cost and Utilization Public Use File
- Medicare Part A Hospital Inpatient Limited Data Set (for select specialty ontologies)
- Medicare FFS Part D Physician Drug Cost and Utilization
- Medicare FFS DocGraph Referral File
- Medicare Part A Hospital Inpatient Limited Data Set

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What data sources do you use and how often is it updated?

**Public Data Release Timeline**

- **2010**
  - Plan Star Ratings
  - Inpatient File
  - PUF Top DRGs
  - Plan Payment Data
- **2012**
  - NPPES Identifiers*
  - Monthly Enrollment Updates*
  - Physician Compare Identifiers & Affiliations*
  - HCPCS, Provider Taxonomy Codes, BRPHSS, CHR
- **2013**
  - NPPES Identifiers*
  - Updates to Physician Compare*
  - NPPES Identifiers*
  - Monthly Enrollment Updates*
  - Physician and Other Supplier PUF
  - Charges, HCPCS, POS*
  - Nursing Home Compare Deficiencies, ownership, DRG

**Updates**
- Updates to Physician and Other Supplier PUF
- Bene info and provider panel*
- Yearly updates to star ratings, plan payment data
- Provider info, quality, claims, utilization, POS, payment
- Updates to MEDPAR LDS
- Payment arrangements
- CHR, BRPHSS, TXN Codes Yearly Updates

**Data Sources**
- SNF LDS
- Claims, Payment, DRG
- MEDPAR LDS Claims for SNF
- and Inpatient stays, ICDs
- Yearly updates to star ratings,
- plan payment data
- CHC, BRPHSS, TXN Codes
- Yearly Updates
- Inpatient LDS
  - Claims, ICDs, Services, Payment

**Additional Updates**
- Referrals Count of benes, ordering patterns*
- Updates to Inpatient LDS More codes, more
  claims, more payment arrangements!
- Part D PUF Amount, Generic vs brand*
- Hospital Compare Services, complications,
  payment per condition, readmissions, patient experience*

*Used in Risk-Readiness® Benchmarks for Physicians
Public Data Release Timeline

What data sources do you use and how often is it updated?

2014
- Updates to Hospital Compare*
- Updates to Inpatient LDS, MEDPAR LDS, LTCH
- LDS Added ACO, Next Gen, PPS payment arrangement info
- Updates to MEDPAR LDS Payment arrangements, unique indicators added
- Updates to Physician and Other Supplier PUF
- Medicare standardized payments
- Referrals Count of beneficiaries, ordering patterns*
- Updates to Inpatient LDS Claims, payment arrangements
- Monthly Enrollment Updates
- CHR, BRPHSS, HCPCS, TXN Codes Yearly Updates
- Updates to Hospital Compare*
- Updates to LTCH LDS Payment info

2015
- Monthly Enrollment Updates*
- Updates to Physician Compare*
- Yearly updates to star ratings, plan payment data
- Updates to Physician Compare
- Yearly updates to star ratings, plan payment data
- Updates to Inpatient PUF
- Includes ALL MSDRGs and payments
- ASC LDS Utilization, claims, payments, HCPCS
- Updates to Inpatient LDS more payment
- Outpatient LDS Claims, payment
- Updates to Physician Compare

*Used in Risk-Readiness® Benchmarks for Physicians

General
Post-Acute Specific
Physician/ Practice Specific
Plan Specific
Inpatient Specific

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