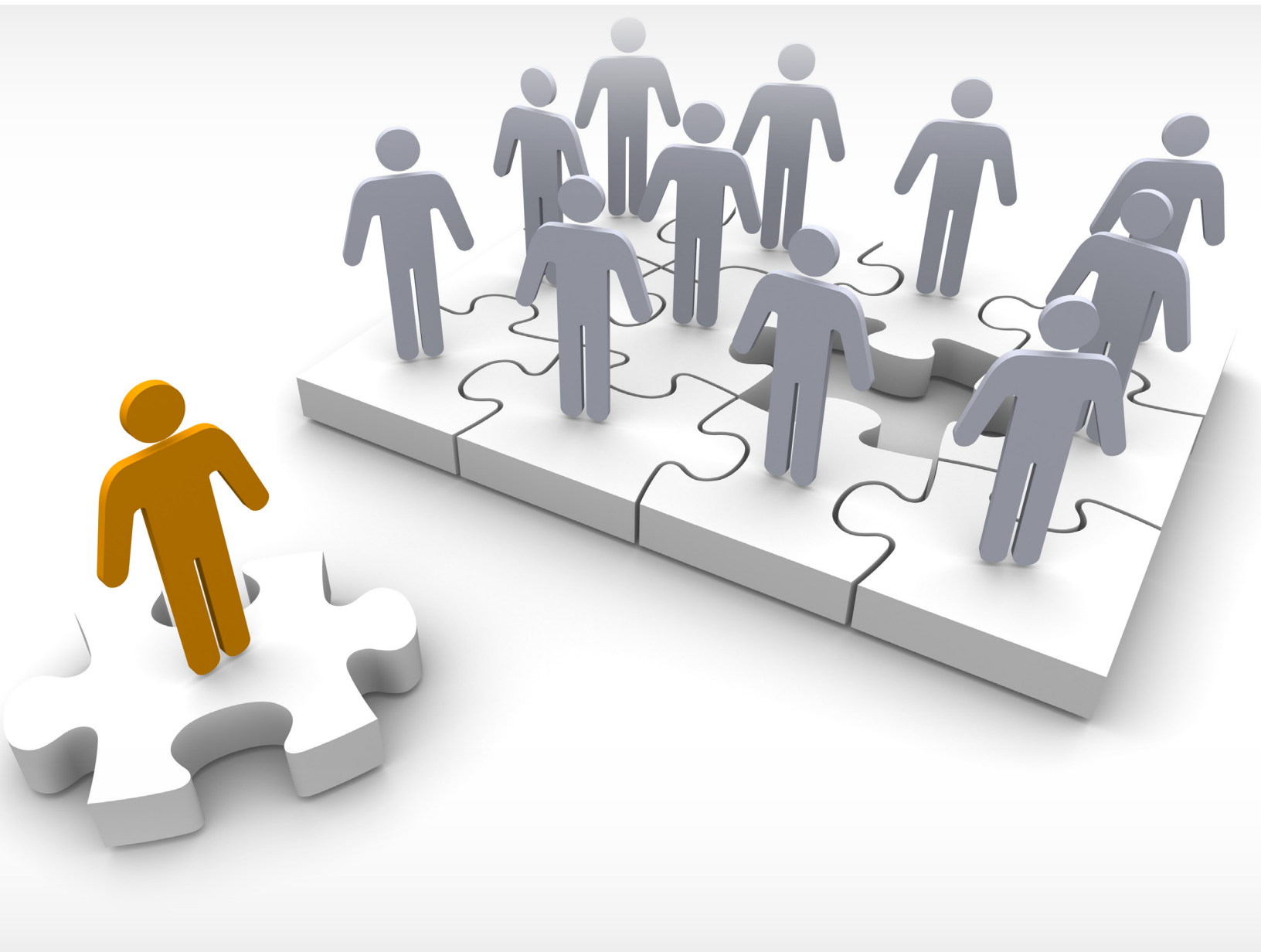


activematch 

Provider Matching and Individualization



Solving the Challenges of Managing Disparate Provider Data

Collecting provider data from multiple sources can be a complex process, requiring multiple steps for data acquisition. Once the collection process is complete, working with disparate provider data requires performing complex processing on diverse datasets to achieve accurate, network-focused, actionable results.

Data Quality

Data quality is a pervasive issue in healthcare. Some sources are diligent about maintaining data; others are not. This is often the direct result of where data is stored and maintained. Many plans use their claims system as the source of their provider data. This has some obvious advantages in ensuring information is current; the downside is that the data is notoriously, and systematically, error-prone.

Physicians may bill individually or as part of a group; bills may be sent via a PO box or through a clearinghouse; and typically, no process is in place to purge old office locations. Information is often missing and duplicates are prevalent in provider records leading to poor quality data. Ultimately, provider data supports many critical operations of a health plan, including credentialing, claims, contracting, provider directories, and network analysis. Each function has its own unique business needs complicating the process of collecting, managing, and maintaining provider information; but when this data is inaccurate and incomplete, it creates significant issues for those consuming the information.

Organizational provider data can be **inaccurate** and **incomplete**, creating **significant issues** for those consuming the information.

Heterogeneous Data

Every health plan manages provider data in a different way. What is captured in one system may not be captured in others (e.g., SSNs, TaxIDs). Everyone uses their own specialty coding schema resulting in inconsistent records for an individual provider across sources. Even seemingly minor variations in how provider names or addresses are stored, creates significant problems for organizations with no experience matching multi-source provider data.

The Matching Challenge

Raw data in the organization can be inaccurate and incomplete, creating significant issues managing information within a system and even more significant across systems. So when comparisons across systems have to be made, the quality of the final dataset is determined by the comparison criteria used to identify unique providers across sources.

Under-Matching occurs when the comparison criteria is too restrictive or based on data elements that are incomplete. A restrictive match, might require an exact match on all name and address components. Matches will be missed under common situations:

- Hyphenated last names
- Nicknames
- Addresses presented with and without suite numbers

Over-Matching occurs when comparison criteria is too loose. Over-matching raises questions about the validity of the data and analysis as a whole. An over-match may only require a match on a last name and zip code, causing significant problems for common names.

Manual Matching or review is a laborious process, quickly eroding any added value due to the frequency of provider changes in networks. This method may be utilized to avoid under-matching and over-matching.

Individualization

Perhaps the greatest challenge in matching providers across multiple sources involves 'individualization' – or uniquely identifying providers. The absence of provider search features on multi-payor exchanges speaks to the challenges of delivering the data required to support meaningful network comparison tools – even when all data elements are required and supplied. These challenges arise as a result of variations in data elements across sources: providers are often listed under different names; – like, William, Will, or Bill – and they may practice at multiple locations, but how do you determine that Dr. William Smith practicing at 1000 Main St in Portland, OR is Bill Smith, MD practicing at 2000 Broadway in Portland, Oregon?

The Power of Comprehensive and Reliable Provider Data

As a software and data analytics company, Strenuus enables clients to provide not just *adequate* solutions and products, but *competitive* products. Strenuus is an innovator in provider network data with over ten years of provider data management. Our focus is supporting data-driven decisions for our customers. With Strenuus' experienced team, including many individuals who have more than 20 years of experience in the health industry and expertise in managing the complexities of provider-based data sets, you can count on us as the go-to source for all your provider network data needs.

Data Collection

Direct Data

A history of working with health plans means Strenuus has established data collection relationships built on trust. We work with clients to establish a delivery schedule and data specifications that fit their needs.

Public Directory Data

Our extensive experience dissecting site navigation and page layout combined with our proprietary technology to quickly gather complete datasets from public directory sources and merge them with other data feeds, means you get a reliable dataset.

Quality Data

Strenuus maintains the only comprehensive national database of network-tagged providers, with data from over 400 payors and thousands of networks in all 50 states. This database is used as a baseline for comparing and validating direct supplied data, ensuring you receive a reliable dataset.

Multi-Step Data Processing

Strenuus ensures data consistency through a multi-step process that includes parsing and standardizing provider data elements.

Individual Name Standardization

Each data source is flagged with a name pattern 'hint' that allows us to accurately parse names into their component parts, enabling us to reconstruct the name and compare it to the raw data.

Facility Name Standardization

Identifiable abbreviations, punctuation, and case disparities are removed, ensuring that subtle differences between facility names (ie, 'Saint Francis Med Ctr' and 'St. Francis Medical Center') can be accurately identified.

Address Standardization

Addresses are converted to US Postal Service standards, verified, and geocodes are assigned from the most up-to-date GIS databases.

Specialties

Raw data is translated and standardized to a master specialty list to eliminate inconsistencies in how a specialty may be represented. This helps to eliminate differences such as 'ENT' and 'Otorhinolaryngology'. Additionally, we map the standard specialties to specialty groups, because payors may store information about a provider differently.

Data Matching using ActiveMatch

The ability to effectively manage the challenges of identifying unique providers across data sources is key to delivering a reliable, comprehensive provider dataset.

ActiveMatch, developed and perfected in the integrative processes supporting thousands of data feeds since 2001, provides the accuracy of a manual match with the speed of an automated match, ensuring high-confidence matches. Strenuus developed this proprietary process for provider matching between disparate data sources to require minimal human intervention prior to the quality assurance review. Our automated matching process involves several steps designed to maximize the probability of a high-confidence match.

The **ActiveMatch** approach includes:

- Comparing available provider information
- Utilizing a proprietary scoring algorithm that allows 'soft' or 'fuzzy' comparisons of address and name components
- Utilizing tie-breaker criteria (such as phone numbers, specialties, etc.) to confirm or negate low-confidence matches.

ActiveMatch utilizes an **intelligent scoring algorithm** that considers all available data in an iterative matching process, delivering data with **industry-leading accuracy.**

The Strenuus Approach

Our sophisticated scoring algorithm utilizes all available provider information in an iterative matching process to identify individual providers. This rigorous process for matching providers between disparate data sources includes preparing data for matching; addressing variations in the way data is presented across sources; and identifying patterns based on data elements like name, specialty, and proximity, to deliver comprehensive, reliable data with industry-leading accuracy.

Matching Data Across Sources

Multiple Data Sources

Regardless of the source of data, we apply several transformations to the data to prepare it for matching and publication. These processes are designed to eliminate subtle or even systematic differences between data.

ActiveMatch Processing

The process involves addressing variations in the way information is presented; this includes 'soft' or 'fuzzy' comparisons of data elements:

- variations or misspellings
- nicknames, abbreviations, suffixes
- multiple practice locations

ActiveMatch Output

ActiveMatch delivers reliable and comprehensive provider data that allows analysis at any level: provider location or unique providers.

Source A

Dr. William A. Smith
Internal Medicine
1234 Main Street. City, USA 65321

Source A

William/Will/Bill A Smith
Internal Medicine - Primary Care
1234 Main Street. City, USA 65321

Source B

Dr. Will Albert Smith
Primary Care
1234 Main St. City, USA 65321

Source B

William/Will/Bill A/Albert Smith
Primary Care
1234 Main St. City, USA 65321

Source C

Dr. William Smith
Dermatology
1234 Main St. City, USA 65321

Source C

William/Will/Bill Smith
Dermatology - Specialist
4321 Main St. Town, USA 65123

Match

Single Provider Record

Name Elements

- William/Will/Bill
- Smith

Provider Type

- Internal Medicine
- Primary Care

Address Elements

- 1234 Main Street/St
- City, USA 65321

No Match

Single Provider Record

William/Will/Bill Smith
Dermatology - Specialist
4321 Main St. Town, USA 65123

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About Strenuus

As the industry leader in provider network comparison and analysis, Strenuus® is one of the largest collectors of managed care data in the US. With a singular focus on the managed care industry, we provide services to 9 out of 10 Fortune 500 payors and support our clients' network development and analysis needs in medical, dental, Medicare, Medicaid and specialty networks. Our client list includes leading managed care companies, consultants and healthcare IT companies, including portals, public, and private exchanges. Data-driven reports generated using our powerful suite of products help executives, sales organizations and network development teams gain insights that are turned into competitive advantages in the marketplace. Our proprietary data processing platform, enhanced by ActiveMatch® technology, is used by prominent benefits enrollment companies to power their consumer-facing healthcare provider searches and decision support tools.