Provider Directory Environmental Scan

Summary Observations

- Virtually all existing directories used in healthcare today contain both entity and individual information. Only DNS is limited to entity level information.

- There is broad agreement that directory maintenance and accuracy is a challenging issue. However, these directories are in widespread production use today and organizations are coping with the associated difficulties.

- Most organizations are willing to share/federate data contained in their directories given proper contracting/security arrangements and in some cases compensation. Many would be happy to have a third party entity takeover provision of their directory services with appropriate service level agreements.

- There appears to be broad overlap in core data elements, suggesting a minimal data set could be compiled that could serve as the basis for most uses. Broadly, this data set consists of core provider demographics including name(s), location(s), NPI, relationships to other providers.

- Virtually every existing directory creates its own master ID to uniquely identify entries. Thus there is an enormous proliferation of proprietary IDs. NPI is not sufficient to serve as a uniform ID since large organizations are often identified by a single NPI with no distinct identification for any department or individual providers beneath that level.

- Several entities including CMS, AMA and CAQH have very large provider directories covering a substantial proportion of US providers. However, there does not appear to be a single authoritative source anywhere and it is not clear that even a combination of sources would provide a true authoritative directory today.

- Provider directories are now embedded in mission-critical organizational functions and therefore cannot be disrupted. Any approach toward a more unified system will have to address migration issues. Most organizations indicated they would be willing to move towards standardized interfaces and data formats to construct a more unified and interoperable system.

Maintenance and Accuracy

Perhaps the most significant issue surfaced through this effort is accuracy. Current uses of provider directories can be broadly divided into two categories based on whether or not they are used for payment. Provider directories used for payment must be very accurate, and discussions with CMS, health plans and suppliers to plans such as CAQH indicate that these organizations place much greater effort into maintenance and accuracy of their directories. Even so, there is general agreement that they would like to improve accuracy further, both in terms of data content and the frequency of updates.

There is not a general source of information on the quality of data in provider directories today. However, discussions and experience indicate that there are significant issues with content accuracy and timeliness of updates via maintenance. While it may seem intuitive that provider information should be relatively stable, the experience of practitioners is that the rate of change is significant, perhaps between 25-50% annually. This is due to a number of issues: providers change locations more than expected, names of providers change, provider affiliations change, etc. Current mechanisms such as Medical Societies and state Licensure generally require annual updates and therefore can contain significant inaccuracies at any given time.

Creating and maintaining accurate information is challenging because of the number of providers and therefore the associated effort involved. Providers have little incentive to do more than mandated unless there is some incentive. This partially explains why directories associated with payment are often maintained by providers and are generally accurate. Also, "accuracy" can mean different things: the information required for payment (bank account, tax id, etc.) must be exact but other information on license, specialty, etc. can still contain errors. For electronic routing, the machine information needed for routing must be exact but that's all. Even the name of the provider can be inaccurate, or at least ambiguous (Dr. Bob Jimenez vs. Dr. Robert Jimenez vs. Dr. Robert J. Jimenez, MD).

In summary, maintenance and accuracy of provider directories is a significant issue in the market today. Provider information changes more rapidly than is generally expected and it is difficult and expensive to maintain timely, accurate data.

Environmental Scan

The landscape of Provider Directories is very broad and diverse. Mostly, Provider Directories are embedded functions used in a variety of applications. This makes it difficult to assess or compare various approaches. However, an attempt has been made based on experience in the field, interviews, testimony at a hearing held on September 30, 2010 and presentations made to the Provider Directory Task Group.

This assessment is not complete, nor has any particularly rigorous analysis been applied to generate the samples. It is intended as a rapid, brief overview to inform the Task Group of the current state of the market. Hopefully, it is reasonably accurate and reflective of the Q3-Q4 2010 marketplace.

Clearinghouses

Examples: Navinet, Availity, Gateway EDI, Emdeon

Primary uses

Clearinghouses generally work with payers and providers to ease administrative transaction workflow and connectivity. The primary function involved is routing transactions such as benefits and eligibility checking, claims submission and status and financial reporting. More recently, clinical exchange is being added making these entities resemble traditional HIE's.

Information sources

Primarily proprietary information gathering from providers and health plan directories.

Data content overview

Proprietary master ID, provider demographics, links to plan directories to support federated architecture, provider/plan information to enable calculations for financial payments.

Surescripts

Surescripts occupies such an unusual and important place the overall healthcare ecosystem that it warrants a separate section. Surescripts is the dominant eRx network in the United States, connecting prescribers to pharmacies and facilitating various transactions involved in drug therapy.

Primary uses

Surescripts works with vendors of clinical systems and pharmacies to create a standardized network with well defined eRx transactions. These include creating, renewing and checking the status of prescriptions as well as providing histories of retail dispensation of prescribed drugs. Surescripts maintains both provider directories and pharmacy directories to support these activities.

Information sources

PBM directories, proprietary data gathering from providers. Sources are generally validated using a variety of mechanisms including NPPES, DEA, NCPDP, USPS.

Data content overview

Surescripts master ID, provider demographics, NPI, provider locations, provider organizations, relationships to provider organizations.

HIE Vendors

Examples: Axolotl, GE, NEHEN, Medicity

Primary uses

HIE vendors sell and support platforms that are generally used to implement community HIE's. Typical functions related to provider directories include authentication, authorization, search, routing, administration, eRx and viewing information through a portal. Routing generally involves clinical exchange between unaffiliated institutions and is now expanding to include public institutions such as state public health departments. Sophisticated rules about routing such as preferences/capabilities are often available.

Information sources

Primarily proprietary information gathering from providers and

provider organizations.

Data content overview

Proprietary master ID, NPI, provider demographics, provider organizations, provider locations, links between providers and provider organizations. Often additional information such as specialty is included.

EHR Vendors

Examples: eClinicalWorks, Medent, Epic, Cerner, Allscripts, Nextgen

Primary uses

EHR vendors are worth discussing briefly though they are generally not thought of as either a source for or user of provider directories. However, the market is changing rapidly and most EHR vendors have begun to implement hubs connecting their practices. In this context they look identical to HIE vendors with a narrower set of connections, often limited to their own implementations. Primary uses include clinical exchange among users of their EHR product, eRx, laboratory or other results routing and authentication.

Information sources

Primarily proprietary information gathering from providers and provider organizations.

Data content overview

All the information from the EHR repository with additions to support connection to the EHR hub and exchange of information through that hub, primarily routing information.

Health plans

Examples: Wellpoint, Aetna, Cigna, Humana, Anthem

Primary uses

Health plans contract with vendors, typically through networks and sell plan variations to members. Provider directories are a critical support

element used for credentialing, claims processing, enabling member search and contracting.

Information sources

Primarily proprietary information gathering from providers and provider organizations, CAQH and other third-party sources.

Data content overview

Proprietary master ID, NPI, detailed provider demographics including specialty, provider billing information, provider credentials, provider network/plan participation, provider organizations, provider locations, links between providers and provider organizations.

State governments and emerging statewide HIO's

Examples: Missouri, Missouri HIO, Massachusetts, Massachusetts eHealth Institute, Vermont, VITL, Tennessee, HIP-TN

Primary uses

State governments use provider directories to support a wide variety of functions including enrollment, licensure, workforce reporting, sanctions, public health reporting and emerging support for secure messaging for meaningful use as well as integration with the National Level Repository program of CMS. Statewide HIO's are generally planning to support HIE functions. See HIE Vendor description for details.

Information sources

Proprietary information gathering from providers and provider organizations, Medicaid and health plan provider directories, CMS NPI, CAQH and other third-party sources.

Data content overview

Content varies by department use but generally includes: Proprietary master ID, NPI, detailed provider demographics including specialty, provider organizations, provider locations, links between providers and provider organizations. Medicaid adds provider billing information,

provider credentials, provider network/plan participation. As noted above statewide HIO's resemble HIE vendors. See HIE Vendor section for details.

Federal Government

Examples: CMS, CDC

Primary uses

Federal government activities enabled by provider directories span Medicare and Medicaid payment structures and public health functions including NPI assignment, claims administration, meaningful use administration, public health reporting and alerting. CMS operates a centralized directory while CDC currently operates a highly federated directory with states holding most of the information.

Information sources

Proprietary information gathering from providers and provider organizations, states and FSMB.

Data content overview

Proprietary master ID, NPI, detailed provider demographics including specialty, provider organizations, provider locations, links between providers and provider organizations. CMS adds provider billing information, provider credentials, provider network/plan participation.

Associations

Examples: Medical Societies, AAFP, AMA (Physician Masterfile)

Primary uses

Member services, provider search, third-party supplier to state efforts (Medical Societies) or others.

Information sources

Proprietary information gathering from providers and provider organizations, often validated through proprietary mechanisms or using third-party systems such as NPPES.

Data content overview

Highly detailed information records typically containing hundreds of data elements including detailed demographics, license and specialty information, education and more.

Hospitals, Hospital Systems, IDN's

Examples: Boston Children's Hospital, Intermountain Healthcare, Beth Israel Deaconess Medical Center, Cedars-Sinai

Primary uses

These organizations use provider directories to enable a wide variety of clinical applications such as credentialing, routing of laboratory results, eRx, billing and clinical exchange.

Information sources

Proprietary information gathering from providers and provider organizations, CAQH, payers and internal human resource systems often validated through proprietary mechanisms or using third-party systems such as NPPES, DEA and SSI.

Data content overview

Proprietary master ID, NPI, detailed provider demographics including specialty, provider organizations (for multi-provider systems), provider locations, links between providers and provider organizations, provider billing information, provider credentials, provider privileges.

Third-party Data Suppliers

Examples: CAQH, Enclarity, AMA Physician Masterfile, Folio, Various Associations, Surescripts (pharmacy directories for eRx)

Primary uses

Third parties create and maintain data sources that are then supplied to others. Usage to date has primarily supported administrative transactions and therefore primary users have been plans, Medicaid and increasingly hospitals and hospital systems.

Information sources

Proprietary information gathering from providers and provider organizations and public and private information sources.

Data content overview

Content varies widely by supplier but generally includes highly detailed information with upwards of several hundred data elements in the most detailed repositories, including highly detailed demographic data, educational background and license information, practice location and specialty, health plan membership and practicing privileges.

Standards

IHE Healthcare Provider Directory (HPD)

HPD is a recent standard that provides a comprehensive definition of the contents and transactions required to create, maintain and facilitate use of a provider directory. It is not in widespread use at this point, though it is ultimately derived from LDAP, a very widely used and deployed standard within institutions today.

Directory Services Markup Language (DSML)

DSML version 2 is a markup language that maps LDAP grammars into an XML schema, enabling requests and responses through SOAP bindings. This standard is used by CDC as part of the PHINDIR project, but is not in widespread use. However, it is entirely based on LDAP, perhaps the most widely used directory standard today.

Lightweight Directory Access Protocol (LDAP)

LDAP is a broadly deployed standard specifying directory structures. It is primarily used today within single institutions to store information on users, primarily enabling authentication and remote login and secondarily access to files and other resources within an institutional network. It has defined standards to support federated directory protocols, however these are not in widespread use. It is extensible and therefore can store a large number of attributes for each entry.

Domain Name System (DNS)

DNS is an extremely widely deployed Internet standard that is used primarily to map "domains" to IP addresses that are required to send packets across the Internet using the ubiquitous Internet Protocol (IP). Domains are organized in a strict hierarchy that can have arbitrary depth and are familiar to most people as the letters they type into browsers such as www.hhs.gov. DNS also supports other kinds of records including those for mail servers and digital certificates. Unlike the other standards, DNS is not used for individual entries about users with large numbers of attributes. DNS is also unusual in that it is a highly federated directory structure, with massive redundancy.