

Comments on Provider Directories
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CDC and state and local health departments have over the past seven years pursued an initiative called the Public Health Information Network (PHIN): a set of functional and technical specifications that facilitate the interoperability of public health information systems by means of electronic data exchange. One area within PHIN has focused on a distributed directory service called “Public Health Directory (PHINDIR)”, which includes a capability for electronic directory data exchange.

A related initiative has been the establishment of a national registry of practicing physicians. This initiative depends heavily on the work of the Federation of State Medical Boards (FSMB) and is intended to enable public health agencies to directly communicate with physicians within their jurisdiction during a severe health event in order to coordinate response.

Healthcare reform introduces the possibility of a significantly wider set of public health use cases for provider directories than was envisioned at the time the above initiatives were conceived. These use cases are not fully explicated yet. Among the possibilities are:

- integration of state-level HIE directories for use in public health alerting to clinicians;
- transmission of a query from public health to a clinician after receiving a disease report;
- messaging between laboratories, clinicians, and public health;
- delivery of public health materials like MMWR and continuing medical education to clinicians;
- clinician access to sensitive, restricted, or embargoed information held by public health;
- interaction between clinicians and immunization registries.

It is reasonable to conjecture that all such use cases, from the point of view of public health, boil down to four core functions:

1. Launch a query to obtain a list of physicians based on their attributes;
2. Look up information about a physician;
3. Route a query to a physician (or to their EHR system);
4. Route information to a physician (or to their EHR system).

Some of the work accomplished within these initiatives is probably of value in the development of a wider framework for provider directories.

With respect to the objective of establishing a complete and authoritative directory of practicing physicians, it is important to look carefully at the approach taken in the Physician Registry project and to consider the long term practicality and sustainability of this approach. It involves relatively low startup cost, requires extremely low ongoing cost, leverages existing and well-

established business processes, does not require the creation of new data collection processes, and has a high probability of being able to deliver high quality and up-to-date data in perpetuity.

Overview of Physician Registry Project

The Physician Registry project is a collaborative effort undertaken by CDC and the Federation of State Medical Boards from 2004 through 2007. Its objective has been to establish a uniform federated directory of information about practicing physicians in the U.S., and to allow public health agencies to use this information to communicate directly with physicians during public health emergencies. It was undertaken in response to the Public Health and Social Services Emergency Fund, FY 2004, House Labor-HHS Appropriations Report regarding physician data systems, wherein Congress encouraged CDC to work with FSMB to develop this capability.

This project reached something of a hiatus when CDC's prioritization of funding for this project was reduced in 2008. However, significant progress was made during the project's 3 year duration, CDC's PHIN Communication and Alerting program has since sought to restore full funding, and FSMB has continued work on its own initiative.

FSMB was asked to establish collection of uniform data at all state medical boards as part of their routine issuance and renewal of medical licenses, and to ensure that this data includes physician attributes needed to support the emergency communication needs of public health. This has required FSMB to establish national data standards applicable to all state medical boards and provide support and consultation to the boards.

FSMB collects provider data from various sources, including State Medical Boards (SMBs), Academic Institutions and the physicians themselves. FSMB has implemented an internal identifier that uniquely and accurately identifies each physician and allows data collected from these disparate sources to be linked. This identification system was designed and built based upon the Institute of Medicine's Committee on Regional Health Data Networks' six qualities of an ideal identifier:

- it must be able to transition easily from the present record-keeping environment;
- it must have error-control features;
- it should have separate identification elements (to indicate who the individual is) and authentication elements (to allow validation of identity with high confidence levels using parameters other than the identification elements);
- it must work in any circumstance in which health care services are provided;
- it must work anywhere and in any provider's facilities;
- it must help minimize the opportunities for crime and abuse.

FSMB to date has amassed information on nearly 800,000 practicing physicians. Of these records:

- 90% contain an address
- 60% contain a phone number
- 40% contain an email address.
- 95% contain an address, phone number, or email address
- 21% contain all three data elements - address, phone, and email address

CDC and FSMB have worked together to establish a data use and a data privacy agreement that have proven instrumental in obtaining the endorsement of physicians groups and professional organizations, and thereby obtain the medical boards' permission to allow this information to be used by public health agencies for emergency communications. In some cases it has been necessary for state legislatures to modify their state's medical board charter. The data use agreement specifies that communication from public health to physicians may occur only in the narrow circumstance when it likely to reduce morbidity and mortality during a public health emergency. It further stipulates that physician contact information remains the property of the medical boards, may be used for no other purpose, and must be secured against disclosure to any party except on a need-to-know basis.

CDC meanwhile has worked to align this effort with the Health Alert Network, a network of alerting systems operated by CDC and state health departments, and with the Public Health Information Network (PHIN), which sets technical standards for data interchange among public health systems. One element of PHIN is a standard for a distributed electronic directory service and exchange of directory information among health departments. The intention has been to use this directory interchange standard to exchange the physician information between medical boards and public health agencies.

The deliverables expected upon final completion of the project are:

1. a permanent data collection process at all state medical boards nationally
2. a federated, uniform registry of practicing physicians with better than 95% completeness of data and that includes the data elements required by public health for purposes of emergency communications
3. operational data interchanges capable of delivering physician contact data from medical boards and/or FSMB to CDC or health departments as needed
4. operational directory data interchange among CDC and state health departments
5. formal data use agreement in place between CDC and FSMB, and a framework for state-level data use agreements between the health department and medical board.

The approach taken here has several advantages over others that were considered. First, the data is collected during a process that already exists, that will always exist, that involves data collection, and that is already designed to achieve a high degree of completeness, accuracy, and currency. This means that there can be a high level of confidence that good quality data will be obtained with relatively small investment and without need to create any new data collection process. Second, this approach adds no or negligible complexity and cost to the existing medical licensure process, once the initial investment has been made to modify the process. This means that the approach is eminently sustainable, with little or no ongoing cost to the government.

Overview of Public Health Directory Initiative

The Public Health Directory (PHINDIR) is a functional and technical specification for a distributed directory service for public health in the U.S. that will form the basis of a network of interoperable directory systems. The intent is that these directory systems will provide a variety of functions to support data interchange between public health partners' systems, addressing and routing of messages, emergency communications, and routine communications. It is a solution that will provide more accurate, more complete, and more current directory data than has been possible previously.

Directories of people, resources, and organizations are key components of any organizations information infrastructure and serve multiple purposes. The purpose of the Public Health Directory is to establish a common framework for the maintenance of directory information across all interoperable public health systems. .

In this framework, every partner organization implements and operates its own instance of a Public Health Directory. Each partner may use their directory for multiple purposes, including:

- Manual lookup of information on people and organizations to support routine communication
- Support for systems that automatically look up people and organizations
- Support routing of electronic messages between partners' systems
- Support health alerts, emergency alerts, and similar communications
- Support user authentication
- Support the control of people's access to information and systems

In the past every system and program has typically operated its own database of people and/or organizations. Each of these databases must be individually maintained. This inevitably leads to discrepancies from one system to another, with some databases being more accurate and up-to-date than others

In the PHINDIR framework, every partner organization establishes a centralized directory repository to serve their critical programs and application systems. A centralized repository eliminates the need for the same directory information to be updated separately in multiple systems. This reduces the total amount of time and effort organizations must devote to directory management, and helps ensure that information used by all systems is up-to-date.

The PHINDIR framework establishes a specification for electronic directory data exchange. All Public Health Directories must use a common message structure and vocabulary and common communication mechanism for exchanging directory information between partners. Each partner is responsible for maintaining information about their own people and the organizations within their jurisdiction that they interact with, and shares appropriate portions of this information with other partners where necessary. This distributes responsibility for directory management in a way that ensures that information is as current and authoritative as possible. However, the directive for data exchange is coupled with a data privacy and data use agreement that protects potentially sensitive directory information about individuals and prevents potential misuse of private information. Only certain data pertaining to certain types of individuals may be exchanged across organizations.

The PHINDIR specification does not dictate how a public health agency implements a directory. Rather, the specification dictates the features and functionality that every directory must support, the types of applications the directory should support, and the manner in which the directory support these applications. The requirements dictate what information the directory must contain, but only at a semantic level and not at an implementation level. The specification does dictate a precise data format and protocol for exchanging directory information between organizations, with the understanding that all organizations must comply with this protocol and are responsible for translating between the protocol and their individual directory implementation.

Currently, CDC and most state health departments have established electronic directories that are integrated with their emergency communications systems and that provide manual lookup capability. Many partners have integrated their directory with user authentication and authorization functions. The routing information service used by PHIN Messaging Service (an ebXML-based mechanism for secure delivery of public health electronic messages) is built upon CDC's PHIN Directory.

CDC has developed middleware to assist partners in implementing directory data exchange no matter what type of directory system they have implemented, and has established a secure web service to provide transmission of directory data between partners.