Introduction
CAQH is a nonprofit alliance of health plans and trade associations that serves as a catalyst for industry collaboration on initiatives to simplify healthcare administration. CAQH solutions promote quality interactions between plans, providers and other stakeholders; reduce costs and frustrations associated with healthcare administration; facilitate administrative healthcare information exchange and encourage administrative and clinical data integration.

Currently, CAQH is engaged in two major initiatives: the Committee on Operating Rules for Information Exchange (CORE) and the Universal Provider Datasource (UPD).

- CORE is a multi-phase, collaborative healthcare industry initiative developing operating rules to improve provider access to electronic patient administrative and payer information before or at the time of service, using any technology. More than 115 stakeholders, representing all segments of the industry, participate in developing these rules, building on national standards such as HIPAA. Each phase of the rules expand the available data and augment the functional requirements for electronic data exchange.
The UPD is a well-established and trusted on-line registry of comprehensive self-reported provider (clinician) personal, professional and demographic information that is already in wide use to support functions such as credentialing.

Both initiatives provide CAQH deep experience regarding the successful development and implementation of industry utilities; as well as approaches to effectively engage a range of stakeholders over time.

CAQH is pleased to be participating as a member of the Provider Directory Task Force and welcomes the opportunity to provide testimony to help formulate recommendations to the HIT Policy Committee and the National Coordinator on provider directories.

As the Task Force has acknowledged in its recent meetings, provider directories are a common and immediate need to support the directed exchange transactions outlined in Stage 1 Meaningful Use and the program guidance that ONC has provided to recipients of state health information exchange (HIE) cooperative agreements.

CAQH supports the Information Exchange Workgroup recognition of the two broad categories of provider directories – Routing directories and Yellow Pages directories, each defined by the scope of user functions that are to be performed as noted below.

- **Routing directories** describe network architecture components that enable addressing of messages in order to allow a computer network to reliably and accurately route secure messages from one computer to another. These directories would focus primarily on providing universal resolvability of electronic transactions among health care entities.

- **Yellow Pages directories** describe clinician and/or clinical organization profile databases that would contain a broader set of information than is required for electronic message routing. They might, for example, contain clinician demographic information or facility-specific information that would enable a person or a computer to “look up” a doctor or a hospital based on a potentially broad set of criteria. They might also contain a mapping to a Routing directory, enabling a person or computer to “look up” a clinician or health care entity and find out how to deliver an electronic message to such an individual or entity.
In our experience, there is a tendency to group Yellow Pages directories (source of actual provider data) and the Routing directory service (software to enable use of provider data for identification and addressing) into a single “thing” called a provider directory. Recognizing a separation between the Yellow Pages source of provider data and Routing directory service implementations that use provider data offers an opportunity to strike a balance between the drive towards consolidation/centralization of the current sources of provider data to reduce duplication and the need for continued support of distributed systems to ensure existing infrastructure is leveraged.

The experience of developing, implementing and maintaining the UPD over the last eight years offers CAQH a unique perspective on developing a successful Yellow Pages provider directory.

The Universal Provider Datasource

In early 2002 CAQH responded to requests from numerous provider and payer organizations interested in reducing the redundancy, inefficiency and costs associated with the “provider credentialing process” by developing and implementing the UPD. The UPD is a comprehensive, non-proprietary on-line database of provider-reported and provider-managed information that uses a uniform electronic data collection process. Licensed providers are invited to submit detailed individual information and then are asked to routinely maintain that information in a centralized database. This database enables authorized participating organizations such as health plans, hospitals, and other health care organizations to retrieve and use provider information electronically for provider data dependent business functions such as credentialing, directory maintenance, claims administration and quality assurance.

Within the broad categories recognized by the Information Exchange Workgroup, the UPD can support the function of a Yellow Pages directory for provider data. The UPD also supports, through provider-selected communications channels, a mechanism for reminding providers to update and attest to their information three times per year, thereby ensuring that, uniform and accurate data is maintained over time. This communication channel can easily be leveraged to notify providers of HIE participation requirements.

For organizations that use UPD as an authoritative source of provider data, UPD also offers an optional add-on feature for sanctions tracking that continuously monitors more than 480 state
licensing boards, as well as Medicare, Medicaid, the Office of the Inspector General and the Office of Personnel Management.

Today nearly 860,000 providers, including three out of every five physicians, supply and routinely attest to the accuracy of their information in the UPD. Approximately 8,000 new providers join UPD every month. The system currently supports data collection for a wide range of licensed providers, including MD, DO, DC, DPM, DMD, DDS, and some 30 allied/ancillary practitioner types in all 50 states. The value proposition of UPD for providers is clear and best summarized by a 2005 MGMA study that found that physician practices, on average, submit 17.86 credentialing applications per physician each year. MGMA calculated that each application required an average of 69 minutes of support staff time and 11.27 minutes of physician time; resulting in yearly cost for a 10 physician group of $7,618. Using MGMA data, CAQH estimates that the UPD has saved providers time and money by eliminating nearly 2.3 million legacy paper applications, and reducing provider administrative costs by an estimated $90 million, or more than 3 million man hours per year.

In addition to broad participation by providers, more than 550 health plans, hospitals and healthcare organizations have come to depend on the UPD as a trusted source of electronic provider information that is timely and accurate. For these organizations the UPD has eliminated costly, cumbersome and often inaccurate paper application gathering and processing.

Analysis of UPD utilization and data quality reveals high provider compliance with both data completion and on-going maintenance requirements. More than 80% of providers routinely attest to their data every 120 days, and the quality of the data has been independently assessed to be 94% accurate. Planned system enhancements are expected to improve accuracy to greater than 98%.

The UPD enjoys strong support from numerous national provider stakeholder organizations such as AAFP, ACP, AHIMA, AMA and MGMA, as well as the support of many local medical societies and industry stakeholders such as AHIP and the Blue Cross Blue Shield Association. Its widespread use has led to the adoption of the UPD application form as a standard in twelve states and the District of Columbia.
An additional reason that CAQH believes the UPD has been so widely adopted by providers has been its adherence to the foundational principles of access, accountability, trust, and transparency, as well as its not-for-profit status. The UPD business model is straightforward and transparent; providers have free access to the system and visibility and control over who is receiving their data. There are no hidden fees or special system or software investments required. The system is sustained by participating user organizations that pay a nominal annual subscription fee based on the number of providers whose data they require.

1) What are the core technical requirements that are needed to enable the establishment of provider directories?

CAQH believes there are two primary technical requirements for both the Yellow Pages (authoritative sources of data) and Routing (uses of data) components needed in order to enable the establishment of provider directories: (1) a uniform provider addressing scheme, and (2) standard interfaces. At a minimum, routing directories must be able to uniformly identify an electronic address for a provider message. In an ideal case, the electronic address should be uniform and unique so that any provider can send a message to any other provider without requiring an understanding of the underlying network topology.

Interfaces used to access and update both Yellow Pages and Routing directories should be standardized through protocols, such as web services, that define calling mechanisms and payload structures to ensure that implementations are interoperable. Interface standardization is also important for enabling the separation of Yellow Pages directories (repositories of authoritative information about providers) from Routing directories (dynamic, real time services that enable digital systems to exchange information among providers and other stakeholders for uses such sharing lab results), a key distinction that will help avoid duplicative efforts and enable the creation of useful federated architectures akin to DNS.

CAQH’s experience with UPD over the past eight years suggests that building and maintaining an authoritative source of provider data is a complex undertaking, with success dependent on establishing trusted relationships with providers and delivering value that incentivizes providers to supply and maintain accurate data over time.
As referenced earlier, one reason that UPD has been so widely adopted by the provider community has been its adherence to the following five key principles:

- **Access** – Available to providers at no charge.
- **Accountability** – Providers are responsible for entering; managing and updating their data.
- **Trust** – Providers control their data in the UPD and control release to participating organizations.
- **Transparency** – All data users must be identifiable to the provider.
- **Not-for-Profit** – UPD was established to eliminate redundant provider data collection.

Given this experience, CAQH believes that Yellow Pages directories should integrate data from sources that directly engage providers in the data collection and maintenance process. Such sources should have a mechanism for communicating with providers in order to support proactive electronic notifications and frequent reminders to update and attest to the accuracy of the information about each individual provider. The UPD has demonstrated that providers will participate in supplying their information if given compelling business reasons to do so and offered web based tools such as the UPD that offers free, simple and secure access and reminders to manage and update information. In addition, CAQH is committed to the principle that such data sources should function with full transparency and enable providers to control access to their information.

2) **What set of clinicians and entities and data elements are needed to enable the use cases of your stakeholders?**

UPD is a widely adopted and authoritative national source of provider data that is currently used by more than 550 health plans, hospitals and healthcare organizations to collect self-reported provider data necessary for a variety of use cases, such as credentialing providers for network participation. CAQH has been investigating how the UPD could be further optimized to supply the provider information needed in Yellow Pages directories as envisioned by the Information Exchange Workgroup.
Current UPD users have access to an extensive data set, including nearly 700 elements, while the data set for an HIE-specific Yellow Pages directory use case will likely only require a minimum set of data elements with a defined data structure. However, as suggested by the inclusion of this question, there is currently no accepted list of standard, minimum requirements for enabling health information exchange. CAQH believes it is critical for the industry to coalesce around a standardized set of data elements that will be considered the minimum requirements for an HIE Yellow Pages directory. To that end, CAQH has already been working with states, health information organizations (HIOs) and health IT vendors to develop a well-defined set of data elements for inclusion in the UPD. Based on the work thus far, we have proposed a draft set of recommended data elements for HIE provider directories:

- Name (first, middle initial, last)
- Provider Type (MD, DO, etc)
- NPI number - type 1
- License Number(s) and State(s) of Issue
- Provider Specialty (NUCC nomenclature)
- Hospital Affiliations
- Name and Addresses of Practice Locations
- Practice Telephone
- Practice e-mail address(es) or other electronic address(es) for delivery of secure electronic messages and for use as “return address(es)” when sending secure electronic messages

One question raised in CAQH discussions with HIOs and vendors over the course of this year relates to the availability of information about provider-entity affiliations. UPD already contains significant information about practice location and hospital affiliation information (i.e., provider entity data) as a subset of the individual provider data set. The UPD data structure maintains the individual provider (clinician) as the master record with practice and hospital affiliation information as it relates to that individual provider. This structure enables easy tracking of the associations of individual providers that practice at multiple locations and/or that have multiple hospital affiliations - information that is important in mapping Yellow Pages data to Routing directories.
In the interest of promoting broader understanding and agreement, CAQH is preparing to conduct a survey seeking industry feedback on the draft list of data elements outlined above. The survey includes a request for industry comment on additional data elements required to address the requirements for HIE provider directories. CAQH looks forward to sharing the results of the survey broadly.

3) How should “routing” directories for specific HIE activities (e.g., NHIN Direct, regional HIO) interface with or interact with yellow pages directories? What data elements will link the two?

CAQH believes that solidifying the distinction between Routing directories and Yellow Pages directories is one of the keys to leveraging existing infrastructure and promoting complementary investments in both types of directories. In addition, it is in the common interest of all stakeholders to work towards increased clarity and standardization of requirements for establishing and using authoritative directories.

CAQH does not currently have a recommendation for one or more specific data elements to be used to link Routing directories to Yellow Pages directories. However, we acknowledge the need for a common approach to linking such directories and are committed to working with other key stakeholders to drive towards consensus on this topic. Natural candidates would include key demographics (provider name, address, date of birth and zip) and/or existing identifiers, such as the National Provider Identifier (NPI).

4) How can we ensure newly developed directories are not duplicative but complement and enhance the value of existing infrastructure (e.g., operating HIOs, networks, etc) and emerging federal initiatives (e.g., NHIN Direct/Connect/Exchange) to the end users (e.g., providers, hospitals, consumers, etc.)?

Historically, most HIE vendors and HIOs have cobbled together data to populate provider directories from many partial, disparate data sources based on the needs of a project-specific, organization-specific, or community-specific HIE effort. As a consequence, existing provider
directories are by nature likely to be duplicative and often contain data that is out of date or inaccurate.

As stated earlier, CAQH believes that key to addressing this issue is solidifying the distinction between Routing directories and Yellow Pages.

In CAQH’s view, wholesale consolidation or adoption of a combined, national Yellow Pages and Routing directory is not likely in the near-term, although potentially a viable approach over time. For example, In the case of a Yellow Pages directory, today there is no single trusted and authoritative source of such data that encompasses all clinicians and all other health delivery entities. Nevertheless, CAQH also believes that the development and use of provider directories cannot remain uncoordinated and that without a level of standardization such uncoordinated development will continue to foster duplication and inefficiencies and likely compound the current challenges of consistent provider identification and addressing.

In our opinion, establishing standard interfaces and payload structures, as has been the focus in other HHS/ONC efforts, such as NHIN Direct, is currently the most viable approach to knitting together the existing systems with minimum disruption while ensuring that new systems will interoperate cooperatively as they are deployed. Pursuing such a direction will allow a source of provider data, such as UPD, to be leveraged as a Yellow Pages directory by many existing and future implementations of Routing directories while still offering important benefits of centralization, including

- Reducing the chance of errors.
- Streamlining and simplifying provider interactions.
- Reducing provider confusion and concern about varying sources and uses of their data.

5) **What are the different architecture models for directories (federated, repository vs. other approaches)? Which have been proven to work, and for what purposes?**

CAQH believes that there are two important elements to a successful architecture regarding directory services: a standard protocol for interacting with Routing directory services including payload definitions establishing minimum and optional data requirements, and an authoritative
source for that data (Yellow Pages directories) with defined levels of accuracy and a robust set of processes and procedures for long term maintenance and appropriate governance of usage of the Yellow Pages directories data. Given the diversity of existing Routing directories and multiple efforts currently underway, CAQH believes it would be wise to consider a hybrid or federated approach that allows the leveraging existing Routing and Yellow Pages directories through the adoption of standard interfaces over time.

Given the many and varied solutions already in the market and the varying degrees of implementation already underway, attempting to consolidate or transition to a single, national provider directory service as the sole, authoritative source for all HIE requirements is unlikely in the near future. CAQH believes there are significant advantages to leveraging existing Yellow Pages directory data sources, such as UPD, that have a significant head start towards offering a comprehensive, national source for provider data, irrespective of how the Routing directory service approach is architected.

6) What standards do you recommend using for provider directories (data standards, exchange standards)?

CAQH is not aware of any widely accepted standards in use today for either Routing or Yellow Pages directories, and believes that any proposed standards for these directories should support all potential architectures and must therefore be capable of supporting federated implementations. While CAQH does not currently have a recommendation for one or more specific standards, we are committed to working with other key stakeholders to encourage consensus on this topic.

7) What should be the requirements on health information service providers (HISPs) for establishing directories for directed exchange? What are the broad brushes of the requirements?
a. Policies

CAQH believes that HISPs implementing Routing directories should follow policies similar to those outlined earlier as foundational principles (access, accountability, trust, and transparency, as well as its not-for-profit status) since these directories face similar issues of trust and value.

b. Provider ID

CAQH believes that a uniform, unique Provider ID such as the NPI number would be ideal, however we acknowledge that it can be challenging to gain consensus on all aspects of this issue and that implementation would be difficult without significant legal and technical infrastructure. CAQH is committed to working with other stakeholders to more fully address this important issue.

c. Managing certificates

Security is critical for maintaining trust among stakeholders engaged in health information exchange. The use of digital certificates is an important element in creating and maintaining secure electronic communications. In order to ensure the credibility of digital certificates, as well as effective management and legal arrangements, we believe that certificate authorities should be agreed to by all stakeholders, or potentially established by state or federal governments.

d. Routing

As described in earlier responses, establishing standardized interfaces and payload structures is essential for enabling interoperability among Routing directories.

8) What would be the value of an open and standardized approach to directories in this context? Would this enable interoperability across directories? Would accreditation of HISPs be a good way to accomplish this? EHR certification?
An open and standardized approach to Routing directories is essential to enable interoperability and to engender trust in the provider community. While standards alone do not guarantee interoperability, standards and operating rules make it possible to achieve interoperability with appropriate implementation guides.

Given the lack of standards or operating rules in use today for provider directories, CAQH believes there is an opportunity to establish agreement on standard interfaces and operating rules that will increasing the likelihood of interoperability among different Routing directories. HISP accreditation and EHR certification are two examples of potentially useful mechanisms to encourage the market to create products that adhere to standards and operating rules and to enforce compliance over time.

9) How would a provider or HISP register themselves to be included in the provider directory?

While today CAQH only has experience registering large numbers of individual providers, we believe that Yellow Pages directories can and probably should play a role in the broader provider registration process, particularly given a federated or hybrid architecture approach to provider directories that separates the data sources from the uses of data. CAQH is open to working with HISPs and other stakeholders to explore the requirements necessary for adding them as provider types in the UPD.

Today, individual providers using the UPD must select a unique security credential and identify a preferred method of contract – e-mail or fax. Once the registration process is complete providers can input their data directly into the UPD. The system uses an interview style interface that walks providers through a series of logical questions designed to collect demographics, licenses, certificates, other Identifiers (including NPI), education, training, specialties, practice details, billing information, hospital privileges, malpractice liability insurance, work history, references and disclosure questions, along with images of key supporting documents. As indicated earlier, the system supports some 700 data fields for each provider.

Upon completing data entry, passing all system edits and attesting to the accuracy of the information submitted a provider is presented with a list of organizations that have contractually
represented to CAQH that they have a relationship with that specific provider and wish to access their information. If the provider agrees, he or she authorizes the release of their data and participating organizations are notified of data availability.

Conclusion
CAQH again thanks the Information Exchange Workgroup and its Provider Directory Task Force for turning its attention to the important issue of provider directories. We are pleased to be able to share our experience and learnings based on developing, implementing and maintaining a national provider datasource over the last eight years. Furthermore, we offer our commitment to continue working with the Provider Directory Task Force and other stakeholders to advance greater understanding and standardization of requirements for provider directories that will enable the straightforward exchange of health information across the country.