



# Health IT Standards Committee

A Public Advisory Body on Health Information Technology to the National Coordinator for Health IT

June 24, 2011

Farzad Mostashari, MD  
National Coordinator for Health Information Technology  
Department of Health and Human Services  
200 Independence Avenue, S.W.  
Washington, DC 20201

Dear Dr. Mostashari:

In January 2011, Dr. Micky Tripathi, Chair of the Information Exchange Workgroup of the HIT Policy Committee (HITPC), along with Jonah Frohlich and Walter Suarez, Co-Chairs of that Workgroup's Provider Directory Task Force, presented to the HIT Standards Committee (Committee) the policy recommendations the HITPC had endorsed for a nationwide entity-level provider directory (ELPD) system. The HITPC recommendations included specific direction to the Committee.

The Committee assigned to the Privacy and Security Standards Workgroup (Workgroup) responsibility for recommending standards, implementation specifications, and certification criteria to support the HITPC's recommendations around provider directories. The Workgroup has presented two sets of recommendations, which are the basis of the recommendations transmitted herein. This letter provides to the Department of Health and Human Services (HHS) the Committee's recommendations on both requirements for a nationwide ELPD capability, and a potential approach to fulfilling the identified business need.

## **Background and Discussion**

An important strategic goal of the Office of the National Coordinator (ONC) is to foster and enable, through standards, policy, and services, the efficient and trusted exchange of electronic health information. At the Committee's January 12, 2011, meeting, Dr. Tripathi presented the HITPC's recommendations around provider directories, which included a conceptual architecture and business model for a nationwide, enterprise-level provider directory (ELPD) system that would enable providers to search for and "discover" information essential to the exchange of health information between organizations. Information available from the nationwide ELPD would be limited to: 1) basic entity demographic information (i.e., name, address, human point-of-contact); 2) externally accessible information describing the exchange services supported by the entity (i.e., domains, message protocols, transport protocols, 'inbox' locations); and 3) organization-level security credentials.

To support this recommendation, the HITPC gave the following specific direction to the Committee:

- The HITSC should be directed to identify technology, vocabulary, and content standards that will create an ELPD with multiple registrars and a single, nationwide, registry
  - The single, nationwide registry must be accessible by EHR [Electronic Health Record] systems and must accept registrations from accredited state/regional registrars and publish updates that are consumable to those registrars
  - Acquisition of a security credential (certificate) and discoverability of this credential using the ELPD must be included in the technical approach
  - The technical approach must also include a process for certification of ELPD functionality in EHRs and accreditation of registrars
  - Recognizing that some policy questions may still be unanswered, the HITSC should consult the HITPC as necessary during standards development to assure alignment of standards with policy

Following Dr. Tripathi's presentation, the Committee assigned to the Workgroup responsibility for recommending standards, implementation specifications, and certification criteria to support the HITPC's recommendations on provider directories, including both the nationwide ELPD and the individual-level provider directories (ILPD), the requirements for which were still in development. As Workgroup members discussed the requirements for and potential standards to support ELPDs, they noted that directory technology is capable of supporting any level of granularity of entity. Therefore, at the February 16, 2011, Committee meeting, the Workgroup requested and was granted approval to address standards for both the nationwide ELPD and ILPDs simultaneously. However, the ONC requested that the Workgroup focus its immediate attention to EHR query of a nationwide, federated ELPD, to potentially support Stage 2 meaningful use.

The Workgroup conducted a number of public meetings, received testimony from users (i.e., Nationwide Health Information Network Exchange, the Direct Project, Veterans Health, Social Security Administration), health information exchanges (i.e., Department of Vermont Health Access, New England Healthcare Exchange Network), and standards bodies (i.e., IHE, ASC X12, HL7/OMG). At the May 18, 2011, meeting of the Committee, the Workgroup presented the following recommendations for standards, implementation specifications, and certification criteria to support EHR query of a nationwide, federated ELPD as specified by the HITPC.

Requirement	Standard	Implementation Specification	Certification Criteria
Schema	DSML	IHE HPD subset	Capability to securely send to an ELPD service a DSML query for entities, and entities' exchange services, and to receive a response, as specified in the IHE HPD profile.
Vocabulary	LDAP + ISO	IHE HPD subset	
Transport	REST or SOAP <sup>1</sup>	IHE HPD	
Query Language	LDAP	IHE HPD + HPD Federation Profile <sup>2</sup>	<p>Capability to enable a user or software to list and select from ELPD responses.</p> <p>Capability to retrieve the digital certificate for a selected entity.</p>
<p><sup>1</sup> The Standards and Interoperability Framework team should select either REST or SOAP, as most appropriate within the context of the NwHIN standards currently being defined.</p> <p><sup>2</sup> To support LDAP federation, a profile specifying a standardized way to federate LDAP directories is needed.</p>			

After reviewing and discussing these recommendations, within the context of the HITPC policy and architectural direction, the Committee concluded that:

1. The Workgroup's recommendation represented well the current state of standards, implementation specifications, and certification criteria to support EHR query of the nationwide ELPD envisioned by the HITPC, but that a national ELPD capability may not be necessary for exchange.
2. The Direct Project's approach of using an Internet Domain Name Service (DNS) query to retrieve digital certificates may be good enough for the short term, with EHR query of an ELPD as a longer term vision.
3. The requirements specified by the HITPC need to be refined, and the Committee should work with the ONC and the HITPC to refine these requirements.

The Committee expressed no disagreement with the HITPC recommendation that the following functions need to be supported:

- Basic discoverability of an entity
- Basic discoverability of information exchange capabilities
- Basic discoverability of security credentials (digital certificate)

However, Committee members did not support the technical architecture, or the business model and operating approach, the HITPC had recommended. They noted that no other industry has developed an industry-wide directory capability and that the architectural solution recommended by the HITPC may be overly complex and costly to the industry. The general view expressed

was that the requirements for a nationwide provider-directory capability should include only the services, policies, and content needed to enable healthcare providers to search for, discover, and retrieve the information essential for efficient and secure health information exchange with other providers throughout the U.S..

Other desired attributes expressed in the discussion were:

- The technical approach should be simple and implementable.
- The technical approach should be scalable, allowing both small and large providers to play, and an individual provider organization to start small and scale up, exposing more information over time.
- The technical approach should use standards and technology that are widely available and in use.
- The technical approach should be compatible with the Direct Project's use of DNS to retrieve security credentials.
- Exchange services and security credentials should be discoverable using familiar names, without requiring advance knowledge of formal identifiers (e.g., OID, Direct Address).

It is important to note that the Committee did not address the suitability of the recommended standards for use in building state or regional provider directories.

Following the May meeting, the Workgroup received several unsolicited recommendations from both HITPC and Committee members suggesting alternative technical approaches aimed at achieving the information-exchange objectives identified by the HITPC, but using a simpler approach than the national architecture recommended by the HITPC. The suggested approaches were:

1. Broaden adoption of the Direct Project's strategy of using a DNS query to retrieve digital certificates.
2. Create a health top-level-domain (TLD) – something like <hospital>.MED – to facilitate end-user search for information about trusted health exchange points.
3. Use embedded microformats to standardize tagged data fields and vocabulary for providing directory information from a protected web page.

The Workgroup requested and received an assessment from the Program Manager of the Direct Project regarding the success of its use of DNS to retrieve digital certificates, and learned that this approach is working well and has been generally accepted by participants in the Direct Project. He noted that some browsers and email clients do not currently support query of DNS for the retrieval of digital certificates, though the DNS specification does include this capability. The Workgroup concluded that DNS could be adopted more broadly as a means of retrieving digital certificates, but noted that it has no capability to support retrieval of more general directory information, such as the transport standards an enterprise supports, or rich content, such as the medical specialties of provider organizations.

In considering the possibility of creating a "health" TLD, the Workgroup noted the potential benefit in building trust within the healthcare community by making it easier for healthcare entities to recognize legitimate participants in healthcare information exchange. However, entity

authentication using digital certificates is a more reliable and trustworthy security mechanism for establishing legitimacy. The Workgroup concluded that the business case for creating a health TLD is not strong enough to justify the effort and expense required.

The use of web pages to publish structured and encoded directory content, combined with DNS retrieval of digital certificates, offers a simple approach for achieving the objectives identified by the HITPC without requiring a complex national directory infrastructure. An organization would simply create a public web page containing the directory information they chose to expose for search. The directory information would be structured and tagged using a standard data model and metadata schema, along with standard vocabulary. Structuring and encoding the directory information would improve search-engine indexing and also enable automated, computer extraction of data without human intervention. To provide assurance of the authenticity of the web page, the organization could obtain an Extended Validation certificate, similar to those used in the financial industry.

At the June 22, 2011, meeting of the Committee, the Workgroup recommended that the ONC task the S&I Framework Provider Directory team to review, consider, and make recommendations back to the Committee on the use of DNS for retrieving digital certificates, along with web pages containing directory content structured and encoded using a standard schema and vocabulary, as an approach for meeting the need for nationwide access to directory information without requiring a nationwide ELPD. Several technical approaches support this capability, including microformats (<http://microformats.org/>), and the World Wide Web Consortium's (W3C) RDFa and HTML microdata standards. The Committee endorsed this recommendation. The Committee also recommended that, given the recent decision of the Internet Corporation of Assigned Names and Numbers (ICANN) to make TLDs more easily available, the idea of creating a health TLD should be reconsidered at a later date.

### **Recommendations**

The Committee submits the following recommendations to the Department of Health and Human Services.

**1. Recommendation: Working with the HITPC and the Committee, refine and develop consensus on requirements for a nationwide provider-directory capability that is simple, broadly implementable, scalable, and usable by all participants in the Nationwide Health Information Network (NwHIN).**

**2. Recommendation: Task the Standards and Interoperability (S&I) Framework Provider Directory team to review, consider, and make recommendations back to the Committee on the use of the domain name service (DNS) for retrieving digital certificates, combined with web pages for publishing directory content structured and encoded using a standard schema and vocabulary, as an approach for meeting the need for nationwide access to directory information without requiring a nationwide enterprise-level provider directory (ELPD).**

**3. Recommendation: At a later date, reconsider the possibility of creating an Internet Top Level Domain (TLD) for controlled and assigned use by healthcare entities that exchange health information electronically.**

We appreciate the opportunity to provide these recommendations on a nationwide provider-directory capability, and we look forward to discussing next steps.

Sincerely yours,

/s/  
Jonathan Perlin  
Chair, HIT Standards Committee

/s/  
John Halamka  
Vice Chair, HIT Standards Committee