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To: Judith Sparrow, Office of the National Coordinator

Provider Directory Task Force of the HIT Policy Committee Information Exchange Workgroup

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Re: Written Testimony for the Provider Directory Task Force Meeting
Holiday Inn Capitol – 550 C Street, NW, Washington, DC

Thank you for the opportunity to present oral and written testimony related to the establishment of provider directories at the state and regional level. It is our understanding that the HIT Policy Committee is seeking guidance on how to support the development of provider directories that enable electronic health information exchange at multiple levels and for a diversity of purposes. As a representative of the work that is being done in California to enable the meaningful use of electronic health information among providers who seek to participate in the Electronic Health Record (EHR) Incentive program supported by the Centers for Medicare and Medicaid Services (CMS) in collaboration with the Office of the National Coordinator (ONC), I appreciate the opportunity to share our perspective, the status of development, and recommendations for moving forward.

The attached document includes our responses to the questions posed by the Provider Directory Task Force, preceded by a brief overview of Cal eConnect, Inc., the not-for profit entity designated by the State of California to serve as the enabler of electronic health information exchange (HIE), in accordance with the cooperative agreement between California's Department of Health and Human Services (CHHS) and ONC within the U.S. Department of Health and Human Services (USDHHS).

I look forward to participating in the Task Force meeting and sharing additional information during the discussion and beyond. Cal eConnect is very interested in leveraging the collective resources of our federal, state, and peer institutions to establish standards, regulations, and other necessary policies that will further advance the use of provider registry services.



Provider Directory Task Force Meeting Written Testimony

by

**Carladenise A. Edwards, MS. Ed., Ph.D.
President & CEO, Cal eConnect, Inc.**

Our Organization

Cal eConnect, Inc. is a non-profit public benefit corporation designated by the State of California to enable the meaningful use of electronic health information exchange (HIE) in California. Formed in 2009 and awarded its first contract in 2010, it is a very young organization that is working hard to establish a solid organizational structure that will support the efficient and successful deployment of services that will enable the sharing of electronic health information among disparate providers across the large, diverse, and complex state of California.

Our staff and our twenty-two (22) member Board of Directors, consisting of such national health care leaders as David Lansky and Jonah Frohlich, are working with key health care stakeholders across the state to establish policies, procedures, and technical services that support the appropriate, private, and secure exchange of electronic health information between clinicians, hospitals, health plans, patients, and government agencies such as public health and Medi-Cal for the purposes of improving health care safety, quality, access, and efficiency.

With the ARRA funding from the four (4) year cooperative agreement between Cal eConnect, Inc., the California Health and Human Services Agency (CHHS), and the federal Office of the National Coordinator (ONC), we seek to enable electronic HIE across the state of California. Our first technology initiative is the establishment of a provider registry service that will serve as the foundation for health information exchange between existing HIEs, health care systems, public/government health entities, and health care providers-broadly defined (*hospitals, physicians, laboratories, pharmacies, radiology, clinics, and others that fall within the HIPAA definition of provider*).

Our Vision and Guiding Principles

Our vision is a safe, efficient, and quality health care system built on a solid foundation of health information exchange that provides patients and providers secure access to personal and population health information that supports the health and well-being of all Californians. Cal eConnect has adopted the following guiding principles to ensure the activities we embark upon and the initiatives we support are consistent with our vision, mission, and goals:

- Create achievable, actionable, and practical initiatives.
- Leverage existing policies, partnerships, and capabilities.
- Ensure sustainability of health information exchange services.
- Facilitate appropriate use of data exchanged through Cal eConnect funded services and programs.
- Enable patients to have secure access to their personal health information.



- Enable the meaningful use of electronic health information exchanged in a technical environment that promotes patient privacy and security.
- Improve the health status of Californians through the use of health information exchange services that meet the diverse needs of the population.
- Design and use health information exchange and technology to improve health care quality, safety, and efficiency.

Our Present Focus and Goal

After months of deliberation, the multitude of stakeholders who actively participated in the development of California's Strategic and Operational Plan, decided that the first or the core functionality that the State HIE initiative should adopt is a Provider Directory that will enable the trusted and secure exchange of electronic health information between health information exchanges, health systems, and providers. The lack of a reliable, trusted, and comprehensive source of information that can be used to identify, verify/authenticate, and communicate with providers who are using a certified EHR or some other means of gathering patient information is a major barrier to electronic health information exchange; therefore the establishment of a provider directory that can serve as that source of information has become Cal eConnect's foundational initiative.

Our goal is to deploy a provider registry service that will be used by existing health information exchanges, as well as providers and health care systems seeking a standard format for sending and receiving electronic information in a manner that supports their participation in the EHR incentive program which requires the "meaningful use" of electronic health information. We still have some unanswered questions related to the particular "hows" of deploying a sustainable initiative, which is why the discussion embarked upon by the Provider Registry Task Force is so important for us.

Thank you for inviting us to participate in the Task Force meeting to answer questions related to State/Regional framing of provider registries. In addition, we look forward to participating in a meaningful dialogue about how to enable health information exchange through the development of such foundational elements.

Cal eConnect Answers to the State/Regional Framing Proposed Panel Questions:

1. What use cases do you or your stakeholders have for provider directories? Who would use them and for what?

The provider directory will be a service made available to providers seeking to participate in the EHR Incentive Program. The directories would be used by health information exchanges, health care systems, and health care providers broadly defined.

The directory will serve as a tool that allows providers to locate providers who they intend to exchange health information with in a secure, structured format. The directory will facilitate the exchange of patient information, prescriptions, lab orders and lab results by enabling access to a messaging and authorization framework, as well as entity and service level registries, defined as:

1. **Messaging Framework.** The basic messaging protocol for communicating health information. Includes message envelope and transport specifications, including “handshake” protocols for prototypical communication patterns (both “push” and “pull”).
2. **Authorization Framework.** The agreed-upon processes and artifacts for establishing trust between communicating parties. Includes specifications for confirming the identity of counterparties and establishing their authority to send and receive patient-specific information. The authorization artifacts consist of digital “assertions” about a user’s identity, means of authentication, and reasons for initiating an exchange of health information. The model for the Messaging Framework and Authorization Framework is based on those of NHIN Exchange and is compliant with ONC requirements for standards and certification identified in the Interim Final Rule (IFR) for EHR Certification.
3. **Entity Registry.** A repository of digital certificates for legal entities and network nodes that have been authorized by a trusted third party (“certificate authority”) to exchange health information. Each certificate in the repository confirms certain attributes of the authorized legal entity or network node. Certificates for legal entities also provide the address at which the legal entity’s service registry may be accessed. The Entity Registry may be searched and digital certificates retrieved via a Web-services API. The service also publishes, at regular and predictable intervals, a list of digital certificates that have been revoked.

An Entity is a legal business that assumes responsibility for safeguarding the patient health information under its control and for managing in a secure manner the exchange of protected health information (PHI). Entities may be physician practices, hospitals, clinics, pharmacies, health plans, state or federal agencies, IDNs, health systems, HIOs, or other organizations. The responsibilities of Entities include ensuring that their users are reliably authenticated when they request access to PHI that is controlled by other entities, and reliably authorizing access to the PHI they control when requested by other Entities.

4. **Service Registry.** A repository of electronic addressing information for exchange partners that are associated with the legal entities represented in the Entity Registry. The addressing information includes sufficient descriptors to identify individual exchange partners, such as providers or their specific EHRs. It also specifies the set of transactions that an exchange partner supports, the Internet address to which each type of transaction should be directed, and the content-specific protocol via which each exchange of information should be conducted. The Service Registry may be searched and entries retrieved via a web-services API.

The Service Registry could conform to the Uniform Universal Description, Discovery and Integration (UDDI) XML-based registry standard for Internet service directories. A UDDI entry includes “White Pages” that include address, contact, and known identifiers, “Yellow Pages” for industrial categorizations based on standard taxonomies, and “Green Pages” with technical information about services exposed by the Entity.

2. **What set of clinicians and entities need to be included to enable your use cases?**
Would it need to include individual clinicians, or is the entity sufficient?

Both are necessary. Clinicians, who are shielded from view by entity, should be separately registered to ensure visibility and care access; however matching protocols need to be sophisticated enough to eliminate and avoid duplication, in order not to jeopardize the integrity of the directory. Duplicate, incomplete, and inaccurate information about providers creates significant risks and reliability issues.

Does it need to be authoritative and complete, for instance containing all licensed physicians in a state?

Yes. We believe that all providers who have been authenticated should participate in the provider directory. The more robust the directory, the more useful it is to the end-user.

3. **How will provider directories support providers in meeting MU requirements?**

The following tables were produced by me to serve as a guide to how the provider directory services, the availability of health information exchange, and the use of electronic health records facilitate the achievement of the core and menu items in the meaningful use criteria. All of the Stage 1 meaningful use criteria can be fully achieved through the utilization of a certified electronic medical record system. There are several criteria that require the exchange of health information between providers and patients and the aggregation of health information. A fully enabled electronic health record system that is connected to a health information exchange and provider registry service will ensure that all of the core requirements are met and several of the menu items.

The provider registry offers providers the capacity to achieve meaningful use by consolidating the information necessary to locate, identify, and authenticate the providers who need to share health information about patients in a coordinated manner.

Table 1: Capacity for Provider Registry to Enable Provider Achievement of Stage 1 Meaningful Use Core Requirements (Source: Edwards, Cal eConnect, Inc. Testimony, September 30, 2010)

Core Meaningful Use Requirements	Provider Directory Enables	HIE Enables	EMR Enables
1) Use CPOE for medication orders		X	X
2) Implement drug-drug and drug-allergy interaction checks		X	X
3) Use ePrescribing	X	X	X
4) Record Demographics			X
5) Maintain Up to Date Problem List		X	X
6) Maintain Active Medication List		X	X
7) Maintain Active Medication Allergy List		X	X
8) Record and Chart Vital Signs			X
9) Record Smoking Status for Patients over 13 years			X
10) Implement 1 clinical decision support rule with compliance monitoring			X
11) Calculate and transmit CMS Quality Measures		X	X
12) Provide patients with electronic copy of their health information		X	X
13) Provide patients with electronic copy of discharge instructions		X	X
14) Provide clinical summaries at each office visit			X
15) Capability to exchange key clinical info (problem list, diagnostic test results, medication list, etc)	X	X	X
16) Protect electronic health information using certified technology	X	X	X

Table 2: Capacity for Provider Registry to Enable Provider Achievement of Stage 1 Meaningful Use Menu Items
(Source: Edwards, Cal eConnect, Inc. Testimony, September 30, 2010)

Meaningful Use Menu Items	Provider Directory Enables	HIE Enables	EMR Enables
1) Implement Drug-Formulary Checks			X
2) Record Advance Directives for patients over 65			X
3) Incorporate clinical lab-test results into certified EHR as structured data	X	X	X
4) Generate lists of patients by specific conditions for QI and research		X	X
5) Send patient reminders for preventive visits		X	X
6) Provide patient with electronic access to health info within 4 days of EP having it available		X	X
7) Use certified EHR to provide patient education			X
8) Medication reconciliation	X	X	X
9) Provide summaries of care at transitions from one setting to another	X	X	X
10) Capability to submit immunizations information to immunizations registries	X	X	X
11) Submit reportable lab results to Public Health Agencies	X	X	X
12) Submit electronic syndromic surveillance data to Public Health Agencies	X	X	X

4. Which type of provider directory are you focusing on and why?

Cal eConnect is focusing on developing both the “yellow pages” and the “routing directory” as described by the task group for the purposes of these deliberations. The Technical Implementation Plan developed by Cal eConnect includes the development of what are currently referred to as the “Entity registry” and the “Service registry”. Based on the needs of the community of providers in California who have a desire to exchange health information, both registries are needed to enable the efficient exchange of health information across organizational boundaries with the level of confidence needed in (1) the quality of the data, (2) the legitimacy of the sender, and (3) the arrival of the right information to the authorized recipient.

5. What information about clinicians and entities needs to go into the provider directory in order to make it useful for you? For example, provider type, specialties, credentials, demographics and service locations.

There has to be enough information in the system to run matching algorithms that will identify duplicates and errors and consolidate or eliminate information that is redundant. There also has to be enough information in the system that the correct linkages can be made between providers intending to share information in a secure, reliable environment. A viable provider directory needs to include a minimum of the following, in order for it to be useful at the state or regional level:

- Provider Features, including type of entity/provider, unique identifier (i.e. EIN, NPI, other), demographic information, unique physical address, contact information (phone, email, fax)
- Provider Service Locations, affiliations or group information, physical and virtual addresses, legal/business name
- Data exchange preferences and protocols
- Credentials and authorizations for receipt of specific health information
- Existence and location of executed data use and reciprocal support agreements
- Participation in the Medi-Cal and Medicare program, licensure status

6. What level of data accuracy is needed for your purposes?

100% accuracy. The accurate and unique identification of providers through a centralized Provider Directory system is one of the fundamental building blocks of a trusted environment for HIE. Anything less begins to diminish both the real and perceived value of this trusted environment.

7. Given your use cases how would you recommend a directory be structured? At what level should the directory be established (e.g. state, regional or national)? What concerns do you have?

Most provider directories start at the entity level. Entities or organizations, which are comprised of multiple providers with whom they need to communicate, establish directories and directory related services to support their information exchange needs. This occurs whether the exchange of information is occurring the “old-fashioned way” or through an electronic health information exchange. The old-fashioned way of doing business or how we presently do it, is based on the presumed sufficiency of point-to-point communication, where the providers know who they are sending information to and how to send the information based on experience and pre-established relationships.

As we all know, the challenge associated with data exchange is not simply getting information from Point A to Point B, but it is getting the right information to the right place at the right time in the right format.

With that said, we recommend that entities continue to establish directories that suit their respective business needs and that conform to agreed upon “standards” that will enable the sharing of information among providers within the established directories and enable access to directory information across organizations and entities that desire to exchange information with their related providers. We believe that this approach will reduce the establishment of duplicative directories or a centralized database that is cumbersome, inefficient, costly, and unnecessary.

The Task Group has used the concept of the “yellow pages” to describe the directory service, but if you think about the “yellow pages”, the yellow pages are local phone books that consist of businesses and services that are available within a geographic region. The entries in the yellow pages actually vary based on the entities ability and willingness to pay for a specialized advertisement. We need to keep this in mind as we seek to establish large elusive phone books that can be overwhelming, difficult to manage or maintain, and inconsequential if the data is out of date and unreliable.

Starting the development at the lowest level will allow the growth and development of the directories to continue while the complex processes associated with the full adoption of electronic health record systems are still evolving at the state and national level. The adoption of minimum standards and requirements for the adoption of flexible and scalable health information exchange technology, as well as certified electronic health record systems will enable the development of provider directories that are useful and accessible to unaffiliated providers.

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

DATA – Data stored in a relational database with schema needed to support a master index. A standardized data set promotes the use of a common vocabulary that will increase comparability, reduce redundant data collection, and promote communications across jurisdictions and inter-state. Since the objective of defining a data set is to consistently share information, standards for collecting and exchanging data (message standards) have to be suggested and standards for classification (taxonomies) have to be established. IHE Patient Identifier Cross-Reference (PIX), Patient Demographic Query (PDQ)/XDS.

EXCHANGE – NHIN Exchange and NHIN Direct, HTTP/SOAP (Simple Object Access Protocol)-based Web Services, HL7 2.x & 3.x, RESTful (Representational State Transfer)-based Web Services. For example, provider’s data is exchanged with the index via SOAP web services.

9. What is your approach to building or enabling provider directories?

The following table outlines the approach we will take to establishing a sustainable provider directory service that will be made available to providers participating in the EHR incentive program. The goal is to establish a directory service that will enable a variety of health information exchange services. We are starting with a focus on providers who are highly motivated by the EHR incentives made available through the meaningful use of electronic health information. The provider registry will enable Cal eConnect to serve as a trusted source of the information required for providers to communicate with one another in accordance with HIPAA's privacy and security standards, the meaningful use criteria, and in adherence to established data use and business associate agreements.

Table 3: Cal eConnect Approach to Building a Sustainable Provider Directory
 (Source: Edwards, Cal eConnect, Inc. Testimony, September 30, 2010)

PLAN →	IMPLEMENT →	MAINTAIN →	SUSTAIN
↓	↓	↓	↓
Engage End Users /Set Expectations	Educate Users	Perform Periodic Updates	Meet Expectations
Design System	Train Users	Monitor Data Requests and Exports	Solicit Investments in System
Develop System	Test Comprehension	Analyze Information	Evaluate System Productivity
Implement Technology	Monitor Utilization	Share Meaningful Reports	Adapt System to Meet Needs
Populate Directory	Adapt System as Needed	Coordinate with Other Registry and Exchange Services	Sustain Effort
PLAN ↗	IMPLEMENT ↗	MAINTAIN ↗	SUSTAIN

What data sources are you considering to populate a provider directory?

- National Provider Identifier (NPI) registry
- Medi-Cal Provider listings
- Existing Provider Registries from partnering HIEs, Health Care Systems, Hospitals, and Associations
- Provider registrations through Cal eConnect Portal

What are the key challenges you are facing?

At this point in our development, the major challenge is ensuring we build to an acceptable standard that will enable cross-system, cross-state and national sharing of provider information.

We do not want to build something that is inconsistent with the standard that is ultimately adopted by the federal government or that could potentially increase costs, work load efforts, and risk to the providers who we are seeking to serve.

10. How can ONC and states work to ensure interoperability and access across provider directories being created under the State HIE Cooperative Agreement Program? *What steps could be taken to encourage regional collaboration in establishing provider directories?*

- Select a registry framework then apply its use across all states.
- Mandate standards such as those listed in #8.

11. Would you consider working with other States and federal partners to establish a consistent set of business and technical requirements? *If so, would you consider a joint procurement process and/or establishing a service that others (States, public or private organizations, etc.) could use? If so, what can ONC, CMS and states do to support this process?*

Yes. Cal eConnect would welcome the opportunity to collaborate. ONC can support this by working with the State HIEs to quickly convene those that are engaged in the development process or who have established systems, so that we can share project status and identify opportunities to support our respective efforts.

12. What are the opportunities and challenges to creating provider directories that are openly available and usable by multiple information exchange entities and participants? *Who should be permitted to participate in such a model? How would this work at a technical level?*

The traction gained by incorporating data from existing provider registries and enabling access through an exchange framework is an opportunity that needs to be further explored. The challenge lies in establishing the standards and protocols that will dictate what fields are included, how the systems will be certified as trusted or authoritative, and

the regulations or policies that will ensure participation by providers, including the periodic updating of information.

13. What policy levers can state governments or the federal government use to assist in the establishment of provider directories and maintaining data accuracy and quality?

The following are a few policy ideas for discussion that may be useful as we look for ways to address the challenges related to fully enabling the utilization of provider directories, as part of the trust framework required for the private and secure exchange of electronic health information:

- Required Participation in a certified or approved Provider Directory by providers participating in the EHR Incentive program
- Establishment of a certification process that ensures the provider directories established through the State HIE efforts are designated as the Trusted Source for providers in the state
- Adoption of rules and regulations at the state level that authorize the certified directories to access provider information from federal and state data sources that will allow synchronicity across provider data sources, such as licensure, Medicaid, Medicare, etc.
- Incorporating participation and compliance with maintenance requirements in provider rankings related to quality and evaluation of achievement of meaningful use criteria.

14. What trust framework is required for establishing, accessing and information sharing among provider directories? *Are there specific issues (reliability, trust, privacy, uses of data, others) you would like to make sure are addressed with respect to provider directories.*

- State sponsored DURSA (Data Use and Reciprocal Support Agreement)
- Certificate Authority framework similar to ONC's NHIN or other commercial entities, i.e. VeriSign, OpenSSL, GoDaddy, etc.
- Digital identities (Certificates, Public/Private Keys)

15. What are the resource requirements to create and maintain directories and what are the funding options (up-front and ongoing)?

Cal eConnect recently posted a Request for Information and Public Comment (RFIPC) to solicit feedback and information on the proposed provider directory service. Cal eConnect intends to stand up a provider Directory as our initial Health Information Exchange offering. We are seeking information from established HIEs and health care



systems that have a provider directory and from technology and consulting vendors that have developed and maintained provider registries. The data we gather from the RFIPC will help us establish a premise for the up-front and ongoing costs of the system. It is clear that in addition to the technical resources required to build the system, resources will be needed to maintain the system, promote the system, and to educate and train providers on the use of the system.

For us, the initial funding will come from the State HIE Cooperative Agreement. We are working on communicating the value proposition that will help us establish sustainable sources of funding for the Provider Directory, as well as the other HIE services that will be offered by Cal eConnect, Inc.

Carladenise A. Edwards, MS.Ed, Ph.D. Background

Carladenise Armbrister Edwards, Ph.D., is President and Chief Executive Officer for Cal eConnect, Inc. a non-profit public benefit corporation contracted by the state of California to enable electronic health information exchange. Dr. Edwards has an extensive HIE background. Prior to joining Cal eConnect on July 1, 2010, she served as Georgia's Health Information Technology Coordinator in her roles as Chief of Staff and Interim Commissioner for the Georgia Department of Community Health. In Florida she was founding Executive Director of the South Florida Health Information Initiative and the first Executive Director of Florida's Governor's Health Information Infrastructure Advisory Board under Gov. Jeb Bush. In the private sector, Edwards founded and led The BAE Company, a professional services consulting firm aimed at helping health and social service entities achieve their strategic and business development goals. Edwards earned a doctorate in medical sociology from the University of Florida. She holds a Bachelor of Arts degree in sociology and Masters of Science degree in education with a concentration in psychological services from the University of Pennsylvania.