



**Testimony to the National Health Information Network (NHIN) Workgroup /  
HIT Policy Committee / Office of the National Coordinator  
December 16, 2009 / 10:00 am – 1:00 pm ET  
OMNI Shoreham Hotel, 2500 Calvert Street, NW, Washington, DC**

**Damien Creavin  
Executive Vice President of Technology and Chief Information Officer  
Emdeon Presentation: 11:20 am ET**

### **Emdeon Opening Statement**

Good morning. My name is Damien Creavin, and I serve as Executive Vice President of Technology and Chief Information Officer for Emdeon, Inc. We appreciate the opportunity to participate in this important forum as you work to accelerate the development and expansion of the National Health Information Network (NHIN). Emdeon understands the importance of establishing a strong, secure and standards-based infrastructure, and we look forward to discussing ways that Emdeon and other stakeholders in the private sector might be able to support you in these efforts.

Given today's focus on directory services, in my opening comments, I would like to provide some perspective on why this issue has become such a significant challenge and offer a high-level assessment of the various models being considered to address it. I would also like to introduce the concept of the **Emdeon Extranet** - the culmination of over 5 years of work to transform Emdeon's healthcare IT platform – which I have led since joining Emdeon in 2004. We believe this model can provide you with some important insights on how to accelerate innovation and information exchange.

First, I would like to tell you a little bit about Emdeon and our role in connecting every facet of the U.S. healthcare system today. Emdeon is a health information intermediary that connects consumers, providers (including pharmacies) and payers to facilitate financial, administrative and clinical health information exchange. We are the **largest financial and administrative healthcare information exchange in the nation**, and our clinical exchange volumes are growing dramatically with an annual run rate of 75 million e-prescriptions and 30 million orders and results. Due to our recent acquisition of eRx Network, we will process over 1.9 billion transactions this year for more than 90 percent of the retail pharmacy sector. In total, we facilitate **over 5 billion healthcare information exchanges each year**.

Due to our footprint and 360-degree view of the industry, we understand the challenge the NHIN Workgroup faces today as you assess **how best to onboard a massive and extremely diverse group of providers on a national scale**. The stated goal of the NHIN is to enable secure exchange of health information over the internet. So the **real question today is how to you bring all of these providers onboard and manage their identities in what is still a "free-for-all" internet?**

It is clear from both the participants in today's meeting and from the direction of your questions, that you are interested in learning how the private sector might be able to support your efforts and address this important challenge. We do believe that **companies like Emdeon, SureScripts and others can, collectively, help you to accelerate the onboarding of providers in a secure, standards-based**



**environment.** Entities like ours can **provide and/or support national directory services based on a variety of models** as outlined in the questions posed for this meeting.

For our part, we believe that the **Emdeon Extranet** could serve as **one node into the NHIN** that would provide **robust connectivity** and facilitate **rapid deployment** of the NHIN and, where appropriate, the **CONNECT gateway, into the marketplace.** Thus, we would like to make it available to the NHIN to help accelerate these efforts.

The Emdeon Extranet focuses the infrastructure provided by the Internet—that is, **standards and their specifications on top of network functions**—and enhances it with **contractual agreements** to facilitate information exchange amongst all of the entities within our extensive footprint. Specifically, the Emdeon Extranet connects **155 million consumers, 500,000 physicians, 81,000 dentists, 55,000 pharmacies, 5,000 hospitals and 1,200 payers.** We also have over **600 channel partner relationships** which include practice management system vendors, hospital information system vendors, pharmacy system vendors and others. This **secure, interoperable and standards-based network** is vital to the daily function of the U.S. healthcare system. (An illustration of the Emdeon Extranet is provided in our supplemental written materials.)

We believe that the Emdeon Extranet can serve as a **trusted broker** for the NHIN and help to maximize the **number of stakeholders that get connected, minimize the time it takes to get them connected,** and manage **the risk for the Federal government.** We also believe that **leveraging the Emdeon Extranet as a node** – along with other private sector entities – could **greatly reduce the cost of delivery to the marketplace** – and provide the **critical mass necessary to power and sustain the NHIN for the long-term.**

As we look at methods of **deployment into the marketplace,** another area that we believe the Emdeon Extranet could support is **distribution of the CONNECT gateway to a significant portion of the total market.** Emdeon can both use **CONNECT** and distribute it. Stakeholders could **connect as they always do** using the tools they have in place - with the **CONNECT gateway enabled to all points within the Emdeon Extranet.**

In fact, Emdeon has done extensive analysis of the **CONNECT technology stack.** The **CONNECT stack** is a **direct fit with Emdeon's strategic technology platform.** We use a **Service Oriented Architecture (SOA)** to build and deploy services on top of a robust network backbone. We use the **Sun JCAPS technology stack** to supply a range of capabilities. The **CONNECT stack uses the open source Sun equivalents to Emdeon's enterprise licensed components.** This compatibility and Emdeon's depth of experience will make it significantly easier for Emdeon to support rapid deployment and adoption of **CONNECT** where needed. Detailed **technical specifications** and an **architectural schematic** have been provided in our **supplemental written materials** for your review.

Now that you have an overview of the Emdeon Extranet, I want to provide some more specific information on how we handle **provider authentication and authorization.** These processes and our overall approach to onboarding stakeholders in the Emdeon Extranet will set the stage for our discussion of our **directory services.**



Through the Emdeon Extranet, **Emdeon certifies that providers can conduct electronic commerce in a secure, reliable and consistent manner.** **Authentication** functions are those in which Emdeon ensures that systematic communications are secure from point-to-point, occurring with an entity known to Emdeon, and that the entity has provided the proper authentication details in the form of user names, passwords and digital certificates to verify they are who they claim to be. **Authorization** functions are those that ensure the entity has contracted with Emdeon to provide the service being requested and that, if the exchange requires communication with another Emdeon trading partner entity, that an agreement exists to share data with that entity.

All payer and provider entity information is stored in a **federation of relational datastores** that are accessed via internal application servers implementing data access layers. While Emdeon's Extranet directory services are not currently sold for providing authentication and authorization services outside of Emdeon, they are designed with **flexible and scalable data models that allow n-level business associations** to be prescribed that would support higher-order business relationships, such as would be required to control specific point-to-point authorizations between payers, providers, vendors and consumers. Emdeon also acts as a **trusted third party**, providing **brokered exchange services** between **two or more entities** in which the requester is authenticated, authorization is verified, and additionally, authorization is verified that the requester is allowed to exchange data electronically with another entity also connected to Emdeon. This infrastructure gives us the **flexibility to support a number of different directory models.** A detailed discussion of the various models is included in our written materials.

In either a **centralized or decentralized model**, directory services should **satisfy a specific set of requirements**, including standards-based access, service level agreements (SLAs), authorization policies and others. It would be both possible and feasible to expose enough payer, provider or consumer information to a **centralized directory that could be specified by NHIN** to serve as a **"pointer"** to the **Emdeon Extranet** as the service provider associated with a given payer, provider or consumer. The function of this directory would be to **identify which nodes**, such as the Emdeon Extranet, currently have relationships with a specific payer, provider or consumer. Again, the Emdeon Extranet would become one of several nodes connecting stakeholders to the NHIN.

Tying in to a **centralized public directory** that supplies both authentication and authorization services is technically feasible but could require significant modification to not only the Emdeon services portfolio but to every trading partner and provider that exchanges data with Emdeon.

Finally, our understanding of at least one significant objective of this collaborative exchange of ideas is to identify ways to speed the adoption of the NHIN, especially in light of current and upcoming industry initiatives and regulations. Thus, before I close, I would like to discuss the concept of **convergence**. Next year we will see several major HIT initiatives and regulations converge – creating a **perfect storm** of sorts that will **challenge payers and providers alike in managing capital investments in HIT infrastructure and revenue drivers** (both positive and negative). Healthcare reform, meaningful use, 5010 and ICD-10 will all lead to major changes in the marketplace. For some organizations, legacy systems may have to be consolidated and environments may have to be reengineered. Thus, we would recommend that this **convergence concept become a part of the dialogue** as you continue your evaluation of the opportunities and challenges for accelerating the NHIN.



We encourage you to take a look at the illustration we provided that overlays the timelines and draw a box around the next 1-2 years. The ability of industry stakeholders to adapt to yet another process or infrastructure during this period will be very limited, suggesting the need to **find the least disruptive approach to market deployment** of the NHIN. We believe **connecting to the Emdeon Extranet** offers an **approach for the NHIN** that is **indeed least disruptive** to the industry – in the context of this **major convergence of HIT changes**.

In closing, I want to reiterate Emdeon's willingness and **commitment to making the Emdeon Extranet available to the NHIN** to help you in driving innovation and adoption. We do believe strongly that **Emdeon**, along with **others in the private sector**, can help you to **overcome some significant obstacles** and indeed provide you with an **approach for rapid deployment** - that is both **cost-effective** and is the **least disruptive**. Furthermore, leveraging a **robust, secure and standards-based network** like the Emdeon Extranet – that is **proven and sustainable** – will help the Federal government to establish the **trust fabric** that is such an important component of the development and success of the NHIN.

Once again, we greatly appreciate the opportunity to participate in this important forum and look forward to a productive discussion. I would now be happy to answer any of your questions.



## **Emdeon Supplemental Information and Technical Specifications**

### **Emdeon Overview**

Emdeon is a health information intermediary that connects consumers, providers (including pharmacies) and payers to facilitate financial, administrative and clinical health information exchange. We are the largest financial and administrative healthcare information exchange in the nation, and our clinical exchange volumes are growing dramatically with an annual run rate of 75 million e-prescriptions and 30 million orders and results. Due to our recent acquisition of eRx Network, we will process over 1.9 billion transactions this year for more than 90 percent of the retail pharmacy sector. In total, we facilitate over 5 billion healthcare information exchanges each year. The Emdeon network connects 155 million consumers, 500,000 physicians, 81,000 dentists, 55,000 pharmacies, 5,000 hospitals and 1,200 payers. We also have over 600 channel partner relationships which include physician and dental practice management system vendors, hospital information system vendors, pharmacy system vendors and other vendors that provide software and services to providers. This secure, standards-based and interoperable network is vital to the daily function of the U.S. healthcare system.

### **Harmonization with the CONNECT technology stack**

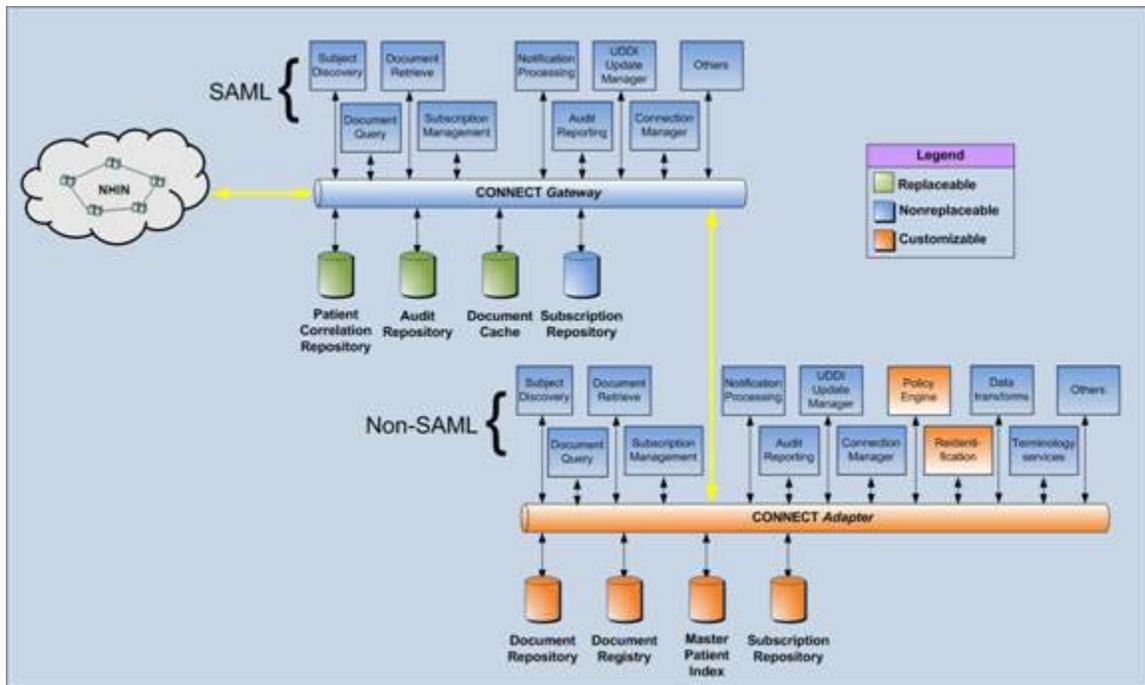
The CONNECT technology stack is a direct fit with Emdeon's strategic technology platform. We use a Service Oriented Architecture (SOA) to build and deploy services on top of a robust network backbone. We use the Sun JCAPS technology stack to supply the following capabilities; the CONNECT stack uses the open source Sun equivalents to Emdeon's enterprise licensed components.

- Enterprise service bus (ESB)
- JMS messaging
- J2EE application server
- Web Service development tools
- Deployment and server management tools

The Sun ESB is the standard integration layer through which all service components of the architecture interoperate. Plugging individual service solutions into the ESB in this manner automatically enables many features and economies of the existing switching architecture including instant support staff notification negative alerts, escalation mechanisms, monitoring, metrics and more.

In addition to the Sun stack, Emdeon has integrated a number of IBM technologies that supply additional functionality to the platform, namely the iLog business rule management system (BRMS), WebSphere Application Server, WebSphere TX, WebSphere MQ and WebSphere Message Broker. Emdeon also employs a number of off the shelf technologies to service a robust BAM monitoring environment.

Following is a high level architectural depiction of Emdeon’s plan for implementing the NHIN specifications:



### The Emdeon Extranet

The Emdeon Extranet focuses the infrastructure provided by the Internet—that is, standards and their specifications on top of network functions—and enhances it with payer and provider contract agreements to facilitate information exchange amongst those entities. This makes Emdeon a trusted third party to the healthcare industry. The figure below illustrates the scale of the Emdeon Extranet.





## Authentication and Authorization

Through the Emdeon Extranet, Emdeon certifies that providers can conduct electronic commerce in a secure, reliable and consistent manner.

*Authentication* functions are those in which Emdeon ensures that systematic communications are secure from point-to-point, occurring with an entity known to Emdeon, and that the entity has provided the proper authentication details in the form of user names, passwords and digital certificates to verify they are who they claim to be. *Authorization* functions are those that ensure the entity has contracted with Emdeon to provide the service being requested and that, if the exchange requires communication with another Emdeon trading partner entity, that an agreement exists to share data with that entity.

Emdeon provides services in which an entity makes a systematic request to Emdeon, such as by way of a Web Service or other protocol, and Emdeon performs the service internally and generates a response back to the requester. In this case Emdeon authenticates the requester and verifies that the request is authorized for the service. An example of this service is Emdeon's Patient Responsibility Estimator, which providers use to understand their liability for patients with high deductible health coverage. The provider sends the request to Emdeon, performs the calculation based on historical data, and returns the estimate of patient responsibility back to the provider.

## Directory Services

All payer and provider entity information is stored in a federation of relational datastores that are accessed via internal application servers implementing data access layers. These relational stores are tied to LDAP, Microsoft's® Active Directory® and other directory implementations, which contain at a minimum user name, password and digital certificate credentials. They are federated in that they are interoperable and Emdeon's business units share IT architecture principles and standards.

Emdeon's Extranet directory services currently are not sold for providing authentication and authorization services outside of Emdeon. They are designed, however, with flexible and scalable data models that allow *n*-level business associations to be prescribed that would support higher-order business relationships, such as would be required to control specific point-to-point authorizations between payers, providers, vendors and consumers.

Emdeon also acts as a *trusted third party*, providing *brokered exchange* services between two or more entities in which the requester is authenticated, authorization is verified, and additionally, authorization is verified that the requester is allowed to exchange data electronically with another entity also connected to Emdeon. The most easily understood example of this service is healthcare claim exchanges between providers and payers.

There are notable differences in the requirements of payers as to the authorization model used on their behalf. In general, it roughly breaks along the line of public and private payers. In general, public payers require *positive enrollment*, which is an explicit written and signed agreement between providers requesting reimbursement and the payer. In this case, the Emdeon Extranet provider and payer directory services are used to authorize the provider not only with Emdeon but with the payer as well. The private sector has, in general, different requirements bypassing positive enrollment and allowing Emdeon to forward all requests for reimbursement to the payer.

## Provider Authentication and Authorization Enrollment Process Flow

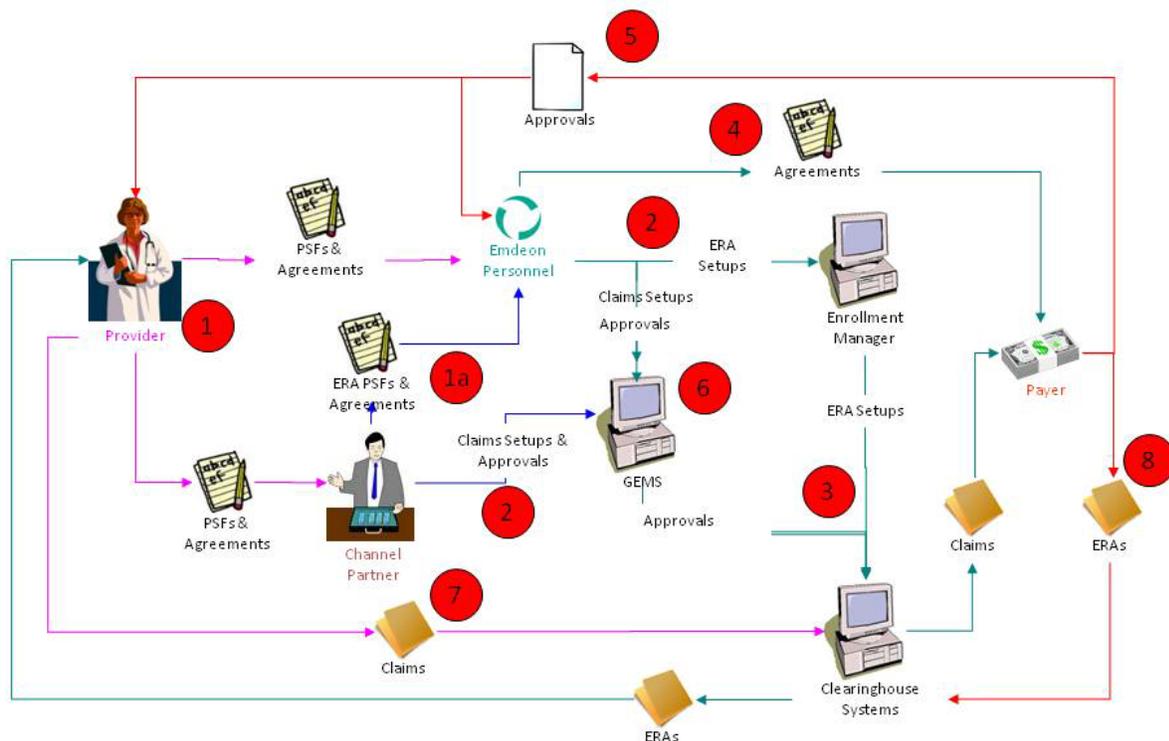
Below are a summary and illustration of the process used by Emdeon to enroll and certify that providers can conduct standards-based electronic transactions:

### Enrollment Tools:

- GEMS – Claims & Claim Reporting set-up tool
- Enrollment Manager – ERA Distribution set-up tool
- ET – Forms Tracking Tool – Internal tool to track paperwork

### Process Overview:

- Setup – Enrollment into EBS systems
  - Required for both commercial and government payers
  - Initiated by submission of provider setup form (PSF)
- Registration – Enrollment into Payers processing systems
  - Required for government payers. ERA required for some commercial payers
  - Initiated by submission of a payer agreement
  - Some payers respond to an agreement with an approval that authorizes activity (claim submission or ERA receipt)
  - Some payers respond with a mnemonic or payer-specific ID that must be inserted by Emdeon for all claims bound for the payer



## Internal vs. Public Directories / Universal vs. Fragmented Model

In either a centralized or decentralized model, directory services should satisfy a specific set of requirements. The schematics below illustrate the basic connectivity for centralized (Figures A and B) and decentralized (Figure C) models.

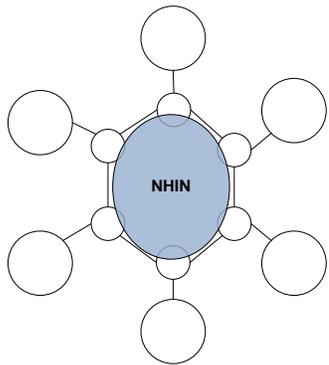


Figure A

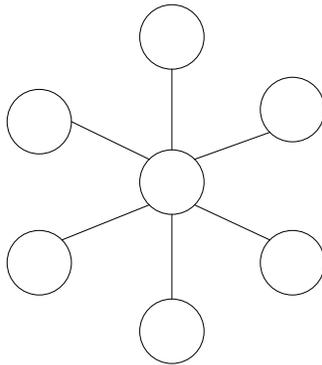


Figure B

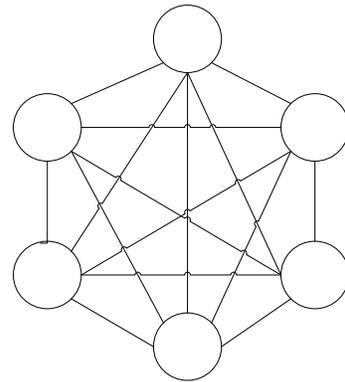


Figure C

These requirements could include:

- **Standards based access.** The transport and security protocols must be standards based to control costs and ensure interoperability. To further lock down costs, specific transport and security protocols could be prescribed through a set of operating rules defined by an industry collaborative organization such as CAQH CORE. Examples of viable component or aggregated transport and security standards are Web Services Security (WS-S), HTTP, SSL, SOAP, WSDL, SAML, AS2 and X.509.
- **Behave according to Service Level Agreements (SLAs).** SLAs should be prescribed by or on behalf of the directory members to ensure that business or personal needs are met. Examples
- **Release directory data or facilitate data exchange based on authorization policy prescribed by the directory members.** Data should only be released from one entity to another based on a strict authorization policy. The granularity of specification should allow for the lowest common denominator, which is authorization of a specific entity to specific entity pairing; for example, provider A<->payer B, or provider A<->consumer C, or consumer C<->payer B.
- **Governed by a steering committee.** The committee should consist of directory services consortium members as well as representative directory members. The committee defines and enforces operating policies. This includes policies for handling unauthorized releases of information as well as breaches of defenses, such as those prescribed via federal statutes.

It would be both possible and feasible to expose enough payer, provider or consumer information to a centralized directory that could be specified by the NHIN (Figure A) to serve as a “pointer” to the Emdeon Extranet as the service provider associated with a given payer, provider or consumer. The function of this directory would be to identify which nodes, such as the Emdeon Extranet, currently have relationships with a specific payer, provider or consumer. Again, the Emdeon Extranet would become one of several nodes connecting stakeholders to the NHIN. Tying in to a centralized *public* directory (Figure B) that supplies both authentication and authorization services is technically feasible but could require significant modification to not only the Emdeon services portfolio but to every trading partner and provider that exchanges data with Emdeon. Note that the decentralized model illustrated in Figure C represents the current state.



## Compliance and Standards

Emdeon currently processes over 5 billion healthcare information exchanges annually. Because the majority of these transactions contain personal health information, we are diligent in adhering to applicable HIPAA regulations. We have a department responsible for HIPAA compliance oversight, a senior employee dedicated to implementing and managing company security measures and an enterprise-wide compliance committee. We also hold all Emdeon employees accountable for security and compliance measures. Emdeon has been a frontrunner in developing HIPAA-compliant solutions, and we work with industry leaders to establish standards and best practices with respect to HIPAA. We have also dedicated significant investments in technology upgrades and implementation resources to meet HIPAA requirements; we have established connectivity using HIPAA-standard formats with more providers, vendors, and health plans than any other company; and, we currently process the most HIPAA-compliant transactions in the industry.

Emdeon supports technology and industry standards by investing in their development and industry rollout and by implementing them in operational processes and systems. The list of standards that Emdeon uses is long and consists of those created by the healthcare industry and by larger technology oversight forums. Examples are X12, X9, HL7, NCPDP, CAQH CORE operating rules, EHNAC, ITIL, W3C WS-\*, HTTP, SSL, SOAP, WSDL, SAML, X.509, J2EE, XML, JMS and numerous ISOs.

Emdeon invests in standards development through Emdeon employee participation in the following forums:

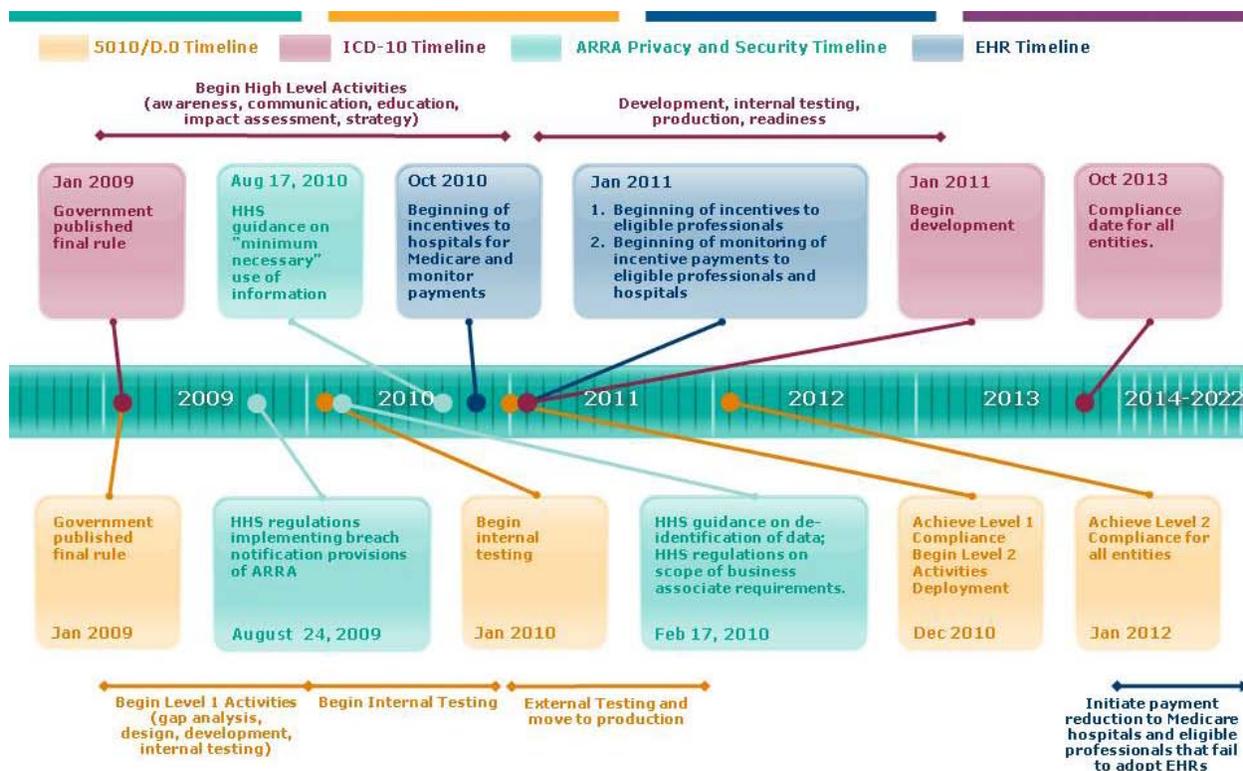
- **National Council for Prescription Drug Programs (NCPDP) Script standards.** We are actively involved in this organization in setting standards and giving guidance to support ePrescribing for pharmacy and physicians. Our implementation guide and certification process ensures that all transactions sent from Emdeon's eRx Network support the versions of NCPDP Script that the industry needs.
- **ANSI's Accredited Standards Committee X12.** We have a number of employees who have previously or currently perform leadership roles at X12, including chairmanships of both the X12N and X12C and participation in X12 Management and Steering Committees.
- Emdeon has played a key role in both defining HIPAA transactions and supporting industry conversions to mandated X12 and NCPDP Script versions.
- **Health Level 7 (HL7).** Emdeon representatives participate in the worldwide HL7 standards development meetings.
- Emdeon has representatives that serve in leadership and participant roles in the following other industry guidance and standards development groups:
  - WEDI - Workgroup for Electronic Data Interchange
  - EHNAC - Electronic Healthcare Network Accreditation Commission
  - CAQH CORE - Council for Affordable Quality Healthcare
  - HFMA - Healthcare Financial Management Association
  - HIMSS - Healthcare Information and Management Systems Society
  - NUBC - National Uniform Billing Committee
  - NUCC - National Uniform Claim Committee
  - IAABC - International Association of Industrial Accident Boards and Commissions



## Convergence: HIT Over the Next Five Years

Our understanding of at least one significant objective of this collaborative exchange of ideas is to identify ways to speed the adoption of the NHIN, especially in light of current and upcoming industry initiatives and regulations convergence. Emdeon believes that of these initiatives (illustrated in the figure below) will be an important theme and driver for Emdeon and the industry in the coming years. Next year we will see several major HIT initiatives and regulations converge, creating a perfect storm that will challenge payers and providers alike in managing capital investments in HIT infrastructure and revenue drivers (both positive and negative). Healthcare reform, meaningful use, 5010 and ICD-10 will all lead to major changes in the marketplace. For some organizations, legacy systems may have to be consolidated and environments may have to be reengineered. This work is time and resource intensive and could have a direct impact on healthcare costs if not undertaken thoughtfully and carefully.

Thus, we would recommend that this convergence concept become a part of the dialogue as you continue your evaluation of the opportunities and challenges for accelerating the NHIN. The ability of industry stakeholders to adapt to yet another process or infrastructure could be limited, suggesting the need to find the least disruptive approach to market deployment of the NHIN. We believe connecting to the Emdeon Extranet offers an approach for the NHIN that is indeed least disruptive to the industry – in the context of this major convergence of HIT changes.





**Contact:**

Damien Creavin

Executive Vice President of Technology and Chief Information Officer

Emdeon, Inc.

3055 Lebanon Pike, Suite 1000

Nashville, TN 37214

615.932.3333

[dcreavin@emdeon.com](mailto:dcreavin@emdeon.com)