

Request for Comments

Input on Requirements for North Carolina's
Statewide Health Information Exchange Services

Date Released: March 9, 2011

Request for Comments on North Carolina’s Statewide HIE Requirements
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1. INTRODUCTION

1.1. Overview

The North Carolina Health Information Exchange (NC HIE) invites entities and organizations to review and respond to this Request for Comments (RFC).

This RFC is designed to obtain feedback and input on the requirements for a secure, sustainable infrastructure that supports the exchange of electronic health information to improve the health and health care safety, quality, access, and efficiency for all North Carolinians.

Respondents are asked to provide feedback in the format described below. NC HIE will publicly post responses to the RFC on the following website:

<http://www.ncdhhs.gov/healthit/exchange/index.htm>

In addition, NC HIE may request additional information from respondents.

1.2. Dates and Times

Please note the due date and times for responses listed below.

Event	Date, Time
RFC posted and distributed	March 9, 2011
Responses due	March 25, 2011, 5:00 PM EDT

1.3. Submission Instructions

Respondents are asked to submit an electronic version to Anita Massey at anita.massey@nc.gov prior to March 25, 2011 at 5:00 PM EDT.

Please include "RFC # 201101-01" in the subject heading.

To facilitate the timely and efficient review of respondents' feedback, NC HIE asks that responses be limited to three pages and include the following information at the outset:

- Name of respondent
- Organization represented
- Email address

2. BACKGROUND

The North Carolina Health Information Exchange (NC HIE) is a non-profit entity designated by the State of North Carolina to develop policies and services in support of statewide HIE infrastructure. NC HIE's primary objective is to ensure that eligible hospitals, providers and other healthcare entities have transparent and seamless access to information exchange services that improve the quality, safety, and efficiency of care. In order to best serve the needs of those constituents, NC HIE uses a collaborative decision making process, taking into account the needs of all its constituents.

North Carolina's Statewide HIE Operational Plan was completed and submitted to the Office of the National Coordinator for Health IT (ONC) in August 2010 and is available online at http://www.ncdhhs.gov/healthit/NCHIE_Operational_Plan_Update_20101025.pdf.

The architecture described in the Operational Plan provides a high-level set of technical criteria to enable statewide exchange of electronic health information across organizational boundaries in a secure and reliable manner that is compliant with State and federal policies.

NC HIE will develop and deploy a range of core and value-added services that cost effectively leverage existing capabilities among entities (known as "Qualified Organizations") that agree to meet the standards to participate in the statewide HIE.

- **Core HIE Services:** Core services represent the suite of registries, record locator service and security functions that will create a cost-effective pathway for Qualified Organizations to locate and route health data. NC HIE's core HIE services will facilitate providers' ability to exchange information, including structured lab results and summary care records, two of the three Meaningful Use HIE transactions identified by ONC as high priorities for 2011.
- **Value-added HIE Services:** NC HIE's core services will also serve as a gateway to value-added services offered by state agencies, Qualified Organizations, vendors, or other organizations. Value-added HIE services will be deployed incrementally in phases based on the expected benefits derived from their use; state and federal priorities; availability in the marketplace; viability of alternative technical and non-technical approaches; and the anticipated cost of implementation and ongoing operations.

By consolidating access to value-added HIE services, North Carolina will be able to share and minimize operational costs, increase user acceptance and participation, and maximize benefits to all stakeholders. NC HIE continues to assess the most effective mechanisms and timing for provision of value-added services, taking into account costs, contractual obligations, and sustainability considerations. Additional details on NC HIE's proposed core and value-added HIE services are provided in Attachment 1.

3. GUIDANCE ON PREPARATION OF COMMENTS

3.1. General Comments

NC HIE is seeking comments on how best to develop statewide HIE services that can be deployed to the maximum benefit of all stakeholders. NC HIE is interested in your point of view on the services and functionality which should be included in the statewide HIE, as well as any thoughts regarding the content of the RFP that will be developed to choose a vendor to build these services and functionality.

In order to provide context for your response, NC HIE also encourages respondents to include brief descriptions of any current HIE capabilities, including:

- HIE platform currently in use or development
- Types and number of entities with whom the respondent organization currently exchanges data
- Current types of data exchanged

3.2. Suggestions for Additional Comments on Statewide HIE Capabilities

In order to develop a RFP for statewide HIE services, NC HIE has begun the process of identifying the essential requirements for statewide HIE services. The NC HIE Clinical and Technical Work Group is iteratively refining a requirements matrix. The NC HIE Clinical and Technical Operations Work Group's current matrix of statewide HIE requirements (*NCHIE RFP Requirements_2011-02-28.xls*) is available online at http://www.ncdhhs.gov/healthit/exchange/clinical/NCHIE-Clin-TechOpsWG-RFP-RequirementsRevised_2011_02_28.xls.

For those interested in providing more detailed comments on specific attributes of or expected requirements for HIE services, please consider the following questions:

- What types of clinical functions would helpful for the statewide HIE to support?¹
- What Core and Value-added HIE services are of the most value to your organization and why?
- If you anticipate exchanging data with NC HIE's statewide services, how would you expect to request information? Additionally, how would you present information you received from statewide HIE services to your users?²
- Among the Statewide HIE requirements currently being considered by the NC HIE Clinical and Technical Operations Work Group, are there any modifications, additions you would suggest?

¹ In considering HIE services, the Operational Plan identified the following clinical functions: (1) Incorporate essential data from external systems, (2) Facilitate effective coordination of care; (3) Submit information for public health and quality improvement; (4) Aggregate data for research purposes; and (5) Provide tools to enhance delivery of care.

² Presentation layer approaches could include: (1) directly via the EHR or existing application; (2) Internet-based portal; or (3) third party applications.

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Following are the attachments that provide more comprehensive information on various aspects of the NC HIE.

Thank you for your assistance.

ATTACHMENTS

Core HIE Services

Core HIE services create a foundation for organizations and participants to exchange health information across their organizational boundaries, such that two entities can:

- Identify and locate each other in a manner they both trust;
- Reconcile the identity of the individual patient to whom the information pertains;
- Exchange information in a secure manner that supports both authorization decisions and the appropriate logging of transactions; and
- Measure and monitor the system for reliability, performance and service levels.

Core HIE services consist of the components illustrated below and described in additional detail on the following page.

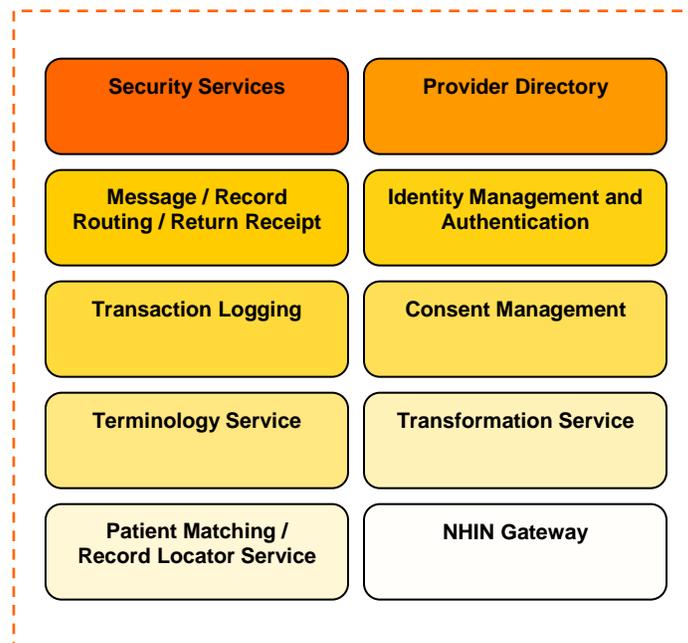


Figure 1: Core HIE Services

The Core HIE Service components will assure authentication of the clinician before enabling a request for information and authorization of the clinician to view the requested information. The core services will support both push and pull transactions. Push transactions will make use of the Master Clinician Index to enable sending information to a provider, once the sender has received authorization. For a pull transaction, the core services will identify the patient and locations of information across multiple venues and report the authorized patient information that is available back to the clinician. After reviewing the information, the clinician will be able to request that all or some of the information be retrieved and can then use the information for point-of-care discussion and decision making with the patient.

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Attachment 1: Core and Value-added HIE Services

Components of core HIE services include:

- *Security Services:* Security services consist of multiple functional layers that ensure only authorized users are able to access system or service resources. They also contain the functions that allow for system administrators to review and ensure that only those with the appropriate credentials and permissions have accessed the system. This is frequently described as the “4As” security framework: Authorization, Authentication, Access Control and Auditing. Identity management is used to generate a list of users and their associated roles. Access control represents the intersection between authentication and authorization between users and the system. In a Service Oriented Architecture, it is also necessary to detect and authenticate the systems that are connecting. This is frequently handled through digital certificates that prove to the HIE that participating systems are trusted sources.
- *Provider Directory:* NC HIE envisions a Provider Directory that includes clinician and facilities indices. The clinician index component will contain all relevant information on all registered clinicians within North Carolina. It processes additions, deletions, and updates to relevant clinician information, and will process requests for relevant clinician information. “Clinician” is broadly defined to include all certified and licensed clinicians (e.g., physicians, nurse practitioners, nurses, certified nursing assistants, medical assistants). The Master Clinician Index Service will be an open and authoritative state level provider directory accessible to all Qualified Organizations in the state. The facilities index will include information regarding the clinician (or other user) registered in North Carolina has an affiliation/relationship. It processes additions, deletions, and updates to the facility index and processes requests for information from facilities index.
- *Message/Record Routing/ Return Receipt:* The NC HIE network will enable participating providers to securely exchange key clinical information between their EHR systems (e.g., accept and route continuity of care documents (CCDs) and/or continuity of care payloads between connected providers).
- *Identity Management and Authentication:* The NC HIE network will facilitate adherence to statewide privacy and security standards and validate provider identity and treatment relationship with patients before providers are able to access patients’ information. NC HIE will establish authorization policies for verifying the identity of all individuals accessing patient health information through the network. The ability of authorized users to access patient health information through the network should be based on a minimum set of role-based access standards that apply to all participants.
- *Transaction Logging:* A consistent audit trail needs to be established across components in order to detect event anomalies from authorized users. Core HIE services will include an index of participating entities (or Qualified Organizations) which will include organizational details. It will store participating entity rules (based on data sharing agreements) to enable the sharing of clinical records. Information involved in the security transactions includes but will not be limited to roles, patient consent, participating entity provisioning, entity de-provisioning, auditing transactions, reporting transactions, compliance with policies and procedures, authentication of participating entities and certificate authority.

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Attachment 1: Core and Value-added HIE Services

- *Consent Management:* NC HIE will provide a technical solution to facilitate consent policies and patient preferences. Decisions are still pending regarding the NC HIE consent policy. Decisions are also pending regarding harmonization of consent management between the NC HIE and any Qualified Organizations.
- *Terminology Service:* A service that ties together technology, nomenclature, data-element, or code-transactions standards across disparate systems, normalizing (among others) HIPAA-standard transaction sets including HL7 and ANSI, LOINC, SNOMED CT, RxNorm, ICD, NCPDP, HCPCS, CPT, and document terminology.
- *Transformation Services:* NC HIE may offer orchestration/integration to enable simpler, integrated responses to complex requests from service consumers. Message transformation in and out of various formats will also be provided, for example from X12 EDI formats to Web services/SOAP formats. As other communication or object access models arise (such as REST-ful web services), NC HIE will consider implementing these to connect and utilize any emerging HIE standards or protocols.
- *Patient Matching/Record Locator Service:* As approved in the Operational Plan, the proposed design calls for a patient matching service that may include a registry or a service that links together federated registries from the various Qualified Organizations on the NC HIE network and also providing the capacity to serve as a patient registry for providers unaffiliated with a Qualified Organization. Functionally, this is often referred to as a master patient index (MPI)/record locator service (RLS), enabling matching and location of patient information anywhere in the network. It will enable providers to locate patient information based on various sets of patient data. This registry must work with the Consent Registry to appropriately filter the sharing of healthcare data.
- *NHIN Gateway:* The NHIN Gateway provides for a single statewide implementation of the NHIN Connect gateway available as a web service for authorized users and entities. This service is the required standard for interoperability with federal agencies, and the proposed standard for the exchange of clinical information across the NHIN.

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Value-added HIE Services

Value-added HIE Services will support the clinical priorities and use cases to help providers, patients, and care givers improve the safety, quality, and cost effectiveness of health care. Accessible via Core Services, Value-added Services can be offered at the state, regional, or enterprise level.

In July and August 2010, the NC HIE Clinical and Technical Operations Work Group identified a list of candidate services to be offered as hosted shared services. The following were identified as candidates.

Clinical Function	HIE Service	Description
1. Incorporate essential data from external systems	1.1 Lab ordering	1. Provider creates a lab order transaction set: <ol style="list-style-type: none"> 1. Lab Order 2. Test Information 3. Diagnosis 4. Patient Information 5. Insurance Information 6. Patient History (for pathology labs) 7. "Copy To" information 2. Provider sends order to HIE. 3. Specimens are received at the Lab. 4. The lab requests any orders from the HIE.
	1.2 Lab result delivery	1. Lab creates a results transaction set: <ol style="list-style-type: none"> 1. Test Results 2. Comments 3. Normal Range (optional) 4. Pathology Data (optional) 5. Other Segments (optional) 6. Performing Lab Information 7. "Copy To" information 2. Lab sends results transaction set to HIE.
	1.3 Lab normalization	A service to transform laboratory order and result messages to conform to the format, coding, and transport requirements of the receiving EHR or public health agency. Vocabulary services, including access to/mapping of LOINC, SNOMED, etc. could be a combination of local and central services. The role of the state HIE could be to negotiate preferred rates with companies that offer vocabulary services.
	1.4 Radiology results delivery	A service that facilitates the transmission of radiology results to the appropriate location.
	1.5 Radiology or other diagnostic image delivery	A service that facilitates the transmission of radiology images or other diagnostic images to the appropriate location.

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Attachment 1: Core and Value-added HIE Services

Clinical Function	HIE Service	Description
	1.6 Access to immunization data	<p>A provider requests immunization data from the state registry.</p> <ol style="list-style-type: none"> 1. Provider requests immunization data from the HIE. 2. The HIE submits request to the State Registry and receives the data. 3. The HIE forwards the data to the requesting provider.
	1.7 Med Hx	<p>Retrieves and aggregates a medication history including retrieval and aggregation of prescription (new, refills, etc.) information from identified sources (e.g., Surescripts, others) to medical providers, including pharmacists.</p> <ol style="list-style-type: none"> 1. Patient presents for care. 2. As part of the intake process (regardless of setting), provider queries for "medication history." 3. Provider reviews the information and identifies medications prescribed but not filled, potential interactions, medications to continue/discontinue, refills, etc. 4. Provider diagnoses and treats patient in appropriate manner.
	1.8 Procedural results delivery	<p>Delivery of additional value-added procedural tests (e.g., EKG, ECG).</p>
2. Facilitate effective coordination of care	2.1 Clinical messaging	<p>A provider creates a message and sends it to another provider.</p>
	2.2 Eligibility check	<p>A central access point for EHRs and practice management systems to retrieve insurance eligibility information via EDI transactions across various payers. This service would facilitate electronic eligibility checking and the fulfillment of the corresponding meaningful use criteria for the users and vendors of EHR systems, suggesting a revenue model for sustainability. In concert, the same access point may be used to enable web-based access to eligibility information for those eligible providers as yet unable to take advantage of EDI transactions (primarily small physician practices).</p> <p>Currently EHR creates an eligibility check request (X.12) and sends it to HIE, which will check against connected payers and get information back.</p> <p>Typically a clearinghouse supports this or payers come together and agree to support through a clearinghouse.</p>

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Attachment 1: Core and Value-added HIE Services

Clinical Function	HIE Service	Description
	2.3 Prior authorization	<ol style="list-style-type: none"> 1. Payers and PBMs publish specific authorization requirements using a specification. 2. Provider systems use prior authorization flags to alert authorization requirements. 3. Providers send needed information in the format of an electronic prior authorization request. 4. HIE submits electronic prior authorization requests to Payer/PBMs using the X12 278 transaction, including appropriate patient information (diagnosis/conditions). 5. Payer/PBMs respond using the 278 response, and potentially note the authorization result in the claim adjudication system.
	2.4 Summary Record--CCD/CCR Exchange	<p>This service is a specific implementation utilizing core services that enables organizations to exchange clinical summary documents in either Continuity of Care Document (CCD) or Continuity of Care Record (CCR). Organizations are responsible for being able to generate and receive the clinical content. The service may consider enabling several models of exchange. These include event-driven messaging patterns where a change in patient state such as a patient being admitted to a hospital results in an event handler then delivering the message to recipients who have message queues established to handle the notification. Alternatively, the exchange service may support a more traditional query/response interaction where authorized applications may query it for the patient document.</p>
	2.5 Summary Record--CCD Translation	<p>This service will offer a centralized clearinghouse for transforming clinical summary documents among providers and patient-designated entities. This service would be analogous to the laboratory-routing clearinghouse, and would enable organizations that may lack standards-compliant EHR systems to also exchange clinical summary data. This service will allow for the clinical summary exchange for care coordination, capability and capacity for the translation of legacy messaging to standardized CCD and/or CCR.</p>
	2.6 Consumer Empowerment	<p>These use cases may be enabled or facilitated via health information exchange core services, in that core services are designed to be building blocks for new functions and applications.</p> <ol style="list-style-type: none"> 1. Provider sends a clinical summary of an office visit to the patient/caregiver (via PHR). 2. Provider sends reminder for preventive or follow-up care to the patient/caregiver (via PHR). 3. Provide Advance Directives to requesting providers (via PHR).

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Clinical Function	HIE Service	Description
3. Submit information for public health and quality improvement	3.1 Immunization reporting	<p>Provider EHRs would send immunization records to the HIE for transmittal to the appropriate registry:</p> <ol style="list-style-type: none"> 1. Provider registers a patient's immunization information for sharing (make it or its source known). 2. Provider uses the HIE Service to locate a patient's immunization information. 3. Provider retrieves a patient's immunization information. 4. Provider recommends next immunizations. 5. Provider submits a patient's immunization information to the exchange through the EHR.
	3.2 Routing of lab results for required reporting	<p>This service will provide a centralized clearinghouse that will route laboratory reports to public health and other agencies as mandated by federal and state laws and in accordance with national standards and specifications. The centralized routing service is intended to replace the numerous, point-to-point connections among laboratories, EHRs and public health databases with a single routing hub connected to participating entities.</p> <ol style="list-style-type: none"> 1. Lab creates the Public Health Lab Results Transaction Set in their LIS/HIS, which includes: <ol style="list-style-type: none"> 1. Test Results 2. Patient Demographic Data 3. Comments 4. Normal Range (optional) 5. Pathology Data (optional) 6. Other Segments (optional) 7. Performing Lab Information 2. Lab sends Public Health Lab Results transaction set to HIE. 3. Public Health receives results and incorporates them into their records.
	3.3 Quality reporting	<p>Provider or hospital reports quality measures to CMS or State.</p> <ol style="list-style-type: none"> 1. Provider creates quality report from EHR system. 2. Provider's EHR sends quality report to the HIE. 3. HIE forwards Quality Report to appropriate receiving system at State or CMS. 4. State or CMS receiving system process the report and provide feedback directly to the provider. <p>Note: Quality reports include PQRI, CQM, and others.</p>

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Clinical Function	HIE Service	Description
	3.4 Disease surveillance reporting to local public health and state agencies	<p>A provider or hospital sends (i.e., reports) anonymized chief complaint data, including a problem list, to state or local public health as part of a syndromic surveillance program.</p> <ol style="list-style-type: none"> Hospital EHR systems collect data on patient chief complaints as part of regular provision of care. The provider or hospital has made the determination that it is clinically and legally appropriate to send the chief complaint data to Public Health. Patient chief complaint data is communicated to Public Health agency on a pre-determined schedule (with capability for ad-hoc transmissions also).
	3.5 Disease surveillance reporting to CDC	<p>State public health agency reports public health data to Centers for Disease Control (CDC).</p> <ol style="list-style-type: none"> State determines data set for identified conditions based on Nationally Notifiable Disease Condition reports to be reported to CDC. Authorized personnel use HIE functionality to send information to CDC.
4. Aggregate data for research purposes	4.1 Access to aggregated data for authorized queries	<p>Access to individual patient care data and/or anonymized data for quality improvement, clinical research, recruitment for clinical trials, comparative effectiveness efforts, etc.</p>
5. Provide tools to enhance delivery of care	5.1 Clinical Decision Support	<p>Provide decision making around diagnosis (clinical prediction rules), prevention, and disease management (routine care reminders to doctors or patients) based on a comprehensive patient record from multiple sources.</p>
	5.2 Electronic Prescribing	<ol style="list-style-type: none"> Provider completes encounter in EHR. Provider accesses e-prescribe service and sends prescription. The e-prescribe service processes the prescription and sends it to the pharmacist (note: may be faxed or electronic). The e-prescribe service sends the data to the HIE.

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Attachment 1: Core and Value-added HIE Services

North Carolina's Operational Plan proposed that value-added HIE services be incrementally deployed based on feasibility, cost, and magnitude of benefits as depicted in the figure below.

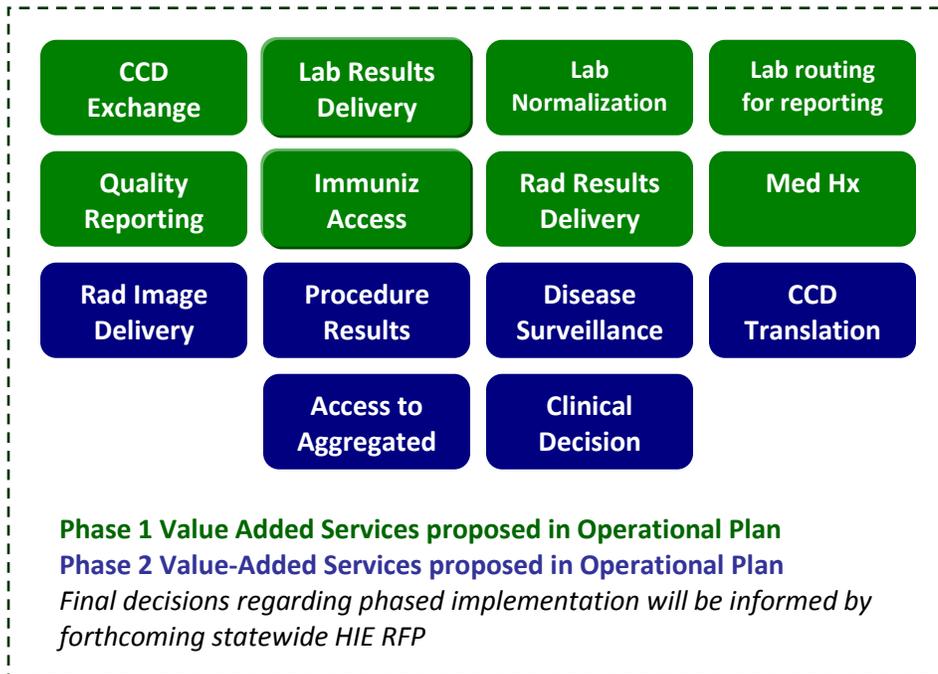


Figure 2: Value-Added HIE Services

Value-added HIE services will be available to network participants and can be hosted by different entities. For example:

1. NC HIE could host a CCD Exchange service
2. The Department of Health could host an Immunization Access service
3. A Qualified Organization could host a CCD Translation service

An illustration of the relationship between Qualified Organizations, Core HIE services and Value-added HIE services is provided on the following page.

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 Attachment 1: Core and Value-added HIE Services

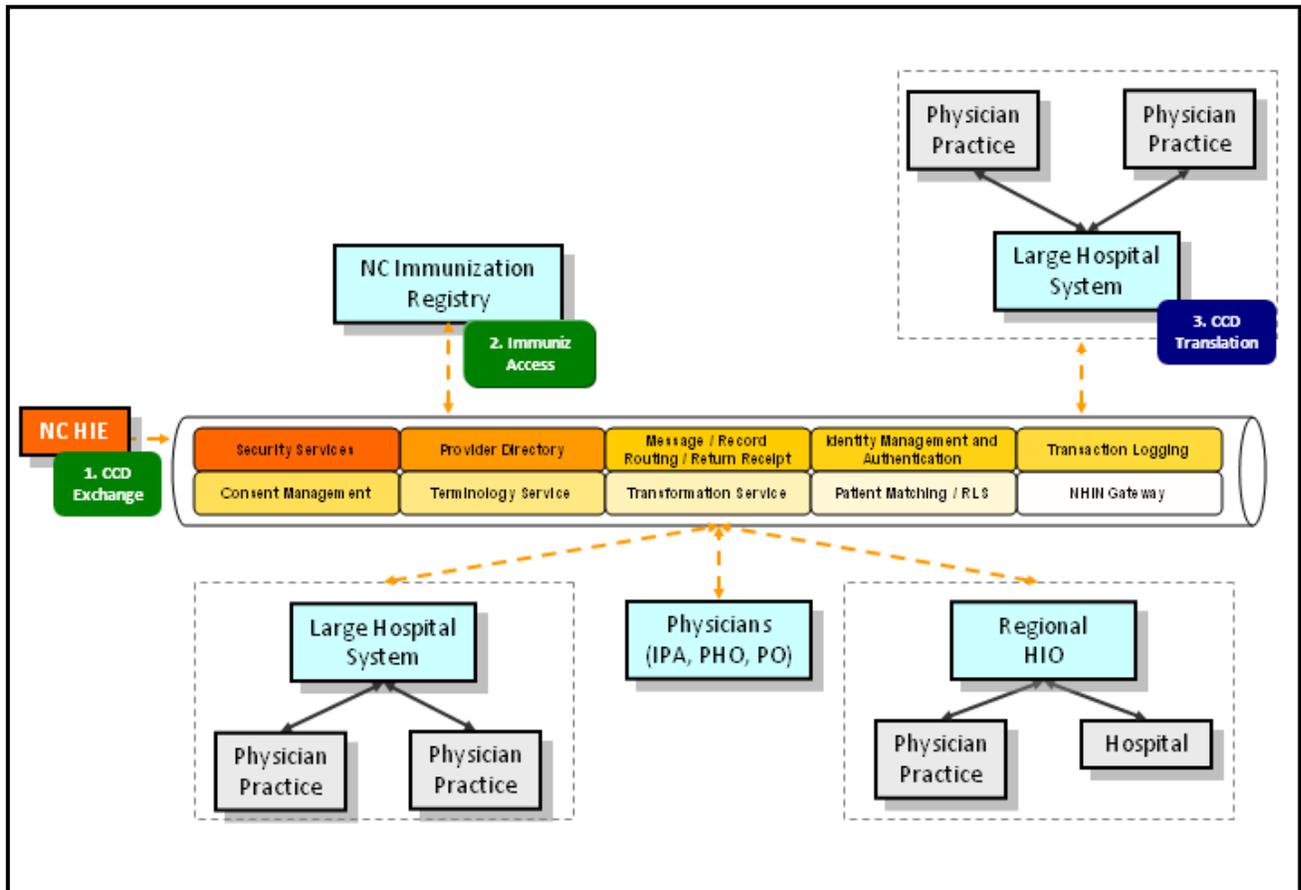


Figure 3: Relationships between Qualified Organizations, Core and Value-added HIE Services