



State of North Carolina Department of Health and Human Services
Division of Medical Assistance and Office of MMIS Services

**NORTH CAROLINA
MEDICAID HEALTH INFORMATION TECHNOLOGY PROGRAM
IMPLEMENTATION ADVANCE PLANNING DOCUMENT #20120113
UPDATE 01: HIE FUNDING REQUEST**

Submitted to:

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January 13, 2012

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1. Executive Summary

This Implementation Advance Planning Document (I-APD) Update is being submitted by the North Carolina Department of Health and Human Services (the Department), Division of Medical Assistance (DMA) to request Federal Financial Participation (FFP) from the Centers for Medicare and Medicaid Services (CMS) to support the design, development, testing, and implementation of core services that facilitate the exchange of health information among eligible professionals, hospitals and other stakeholders aligned with the North Carolina Medicaid Electronic Health Records (EHR) Incentive Payment Program authorized by the American Recovery and Reinvestment Act of 2009 (ARRA).¹

The original I-APD described and requested funds for the initial phases of the health information technology (HIT) program. That program is underway and has successfully paid incentive payments to both eligible professionals and hospitals. The HIT program and its enabling information system will be the subject of future updates.

Per CMS guidance, this I-APD Update exclusively describes the activities and funding to support the development of a cost-effective health information exchange (HIE) infrastructure to enable eligible professionals' and hospitals' ability to meet existing and future federal requirements for meaningful use. The Update addresses activities over a five-year period, beginning with a funding request for Federal Fiscal Year (FFY) 2012.

The Department has a vested interest in the progress of HIT both at the state and national level and as such, accepts the responsibility to apply for federal funding to enable Medicaid providers to meet meaningful use requirements. Funds will be used for the purposes of paying Medicaid's fair share for HIE activities. The Department will continue to ensure that any new technologies and programs it supports provide measureable value and improve patient care.

Stakeholders across the state, including state government, private insurers, hospitals, providers and consumers strongly support the broad adoption and meaningful use of HIT and the development of a robust infrastructure to support the secure, timely and interoperable exchange of health information. As described in North Carolina's Statewide HIE Strategic and Operational Plans, approved on November 29, 2010, the state is working to facilitate the secure, real-time exchange of health information and in the process, enhance medical decision-making and coordination of care, increase system efficiencies and control costs, and improve quality and outcomes. Funding from NC Medicaid, combined with financial commitments from Blue Cross Blue Shield of North Carolina (the state's largest commercial health insurer) and other participants in the statewide HIE network, will create a sustainable platform that advances quality, safety, care coordination and efficiency goals.

This I-APD Update includes the following elements for implementing statewide HIE:

- Statement of needs and objectives;
- Statement of alternatives considerations;
- Personnel resource statement;
- Proposed activity schedule;
- Proposed budget;
- Cost allocation plan for implementation activities; and

¹Pub. L. 111-5, enacted on February 17, 2009.

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- o Assurances, Security, Interface Requirements and Disaster Recovery Procedures.

This Update builds upon the strategic framework reflected in North Carolina's State Medicaid HIT Plan (SMHP), I-APD (approved on November 24, 2010), and the State HIE Strategic and Operational Plans.

The total Medicaid meaningful use administrative funding request for core HIE services in FFY 2012 is [REDACTED]. To support the development of core HIE services until they become operational in FFY 2016, DMA anticipates that its request to CMS will total [REDACTED]. DMA will submit additional I-APD Updates incrementally as the incentive program and HIT and HIE planning continue to evolve.

2. Results of Activities Included in the Planning Advanced Planning Document (P-APD) and SMHP

This section is not applicable to DMA's I-APD Update for statewide HIE core services.

3. Statement of Needs and Objectives

A critical component of the federal meaningful use strategy is the capacity to bring all relevant data into care decision making processes in a timely, accurate and secure manner. As stated in CMS's January 13, 2010 EHR Incentive Program Notice of Proposed Rule Making:

HIEs promote adoption of certified EHR technology by providing the infrastructure for providers' EHRs to reach outside of their clinical practice sites and connect with other points of care. Providers report that having a more complete picture of their patients' healthcare data from other providers and care settings is one of the primary appeals to using EHRs. Without health information exchange, electronic health records are simply digitized filing cabinets and will not achieve their quality of care or cost containment.²

In order to ensure interoperability is advanced as cost-effectively as possible, the Department shares CMS' view that community-based and statewide HIE efforts "reduce the need for costly point-to-point interfaces between different EHR tools, as used in laboratories and pharmacies, thus providing a more scalable model of interoperable health information exchange."³

Accordingly, the Department will provide proportional funding support for North Carolina's statewide HIE network being developed by the North Carolina Health Information Exchange (NC HIE), a non-profit, multi-stakeholder collaborative that serves as North Carolina's State-designated Entity for HIE.

The NC HIE Board of Directors is composed of 25 CEO-level leaders across the broad spectrum of the state's health care community. The Board is chaired by North Carolina Department of Health and Human Services Secretary Lanier M. Cansler.

² 75 Fed. Reg. 1933.

³ 75 Fed. Reg. 1933.



Designed as a modular, shared utility, NC HIE's statewide HIE network will provide a standards-based gateway to multiple data sources and HIE services that will: (1) enable providers to meet the existing and forthcoming requirements of meaningful use and (2) reduce the long-term connectivity costs for system participants.

3.1 Summary of Current HIE Environment

North Carolina's existing health information infrastructure consists of various organizations operating at the enterprise, local, regional and state levels, and includes:

- Health systems, affiliated providers, and ancillary services;
- Health Information Organizations (HIOs) that serve multi-stakeholder entities and enable the movement of health-related data as hubs of natural information markets;
- Specialized participants that operate for specific purposes including, but not limited to, laboratory services, radiology, public health, research and quality assessment;
- Information and service providers that operate in vertical markets such as e-Prescribing, State registries, Medicaid and Medicare;
- Care coordination organizations;
- Private payers and clearinghouses that transmit administrative data for claims purposes and for pay for performance programs; and
- Credential Service Providers (CSP) and Identity Service Providers (IDP) that provide identity credentials and identity management services to the healthcare industry.

Many of these organizations have their own EHR systems and networks. At any point in time, each network is at a different developmental stage, is built on different technologies and has differing priorities regarding the data they collect and transmit. In this dynamic context, stakeholders within the healthcare community have identified the need for cost-effective HIE services that support providers' and patients' ability to locate, retrieve, share and utilize information in a secure, cost-effective manner.

Coordination of these efforts is accomplished through two organizations: NC HIE, which serves as North Carolina's State-designated Entity for state-level HIE, and the North Carolina Office of Health Information Technology (OHIT), an interagency collaboration. Led by Dr. Steve Cline, OHIT coordinates HIT efforts across state government and other key stakeholders across the state, as well as ensuring consistency with federal policy and initiatives.

3.2 New System Needs, Objectives and Anticipated Benefits

Consistent with CMS guidance offered in its August 17, 2010 SMD letter (SMD# 10-016) and its May 18, 2011 SMD letter (SMD# 11-004), DMA recognizes HIE as a critical element to the meaningful use of certified EHR technology and implementation of delivery system reforms being pursued by CMS.



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Along with other payers and providers, DMA proposes to fund its proportional share of the costs for developing, deploying and operating the core infrastructural technical services of North Carolina's statewide HIE network. This network will serve as the backbone for the state's providers—including those serving Medicaid patients—to provide high-quality, patient-centered care.

Designed through an open, collaborative process that involved multiple stakeholders, including DMA, North Carolina's statewide HIE network will provide cost-effective services to help participants access and use information in a secure, timely and meaningful manner. DMA believes that NC HIE's services are critical infrastructural components that will assist providers to meet the requirements of the EHR Incentive Program.

North Carolina's statewide HIE network will be a hybrid, federated system to seamlessly and securely exchange information based on an agreed upon set of priorities, policies and technical specifications. The statewide HIE network will efficiently provide core and value-added HIE services to participants.

Core HIE services are basic functions needed for information exchange: applications for patient, provider and organizational identification; record locator services; messaging capabilities; and security functions. NC HIE is working with DMA, OHIT, and its stakeholders to identify opportunities to leverage NC HIE's core HIE services to support additional infrastructure needs. For example, NC HIE is conducting needs assessments with North Carolina Medicaid and payers regarding the viability and suitability of leveraging its provider directories for MMIS, meaningful use attestation, provider credentialing, etc.

Accessed via core HIE services, value-added HIE services represent the specific applications that augment providers capabilities and include such services as automated connectivity to North Carolina's Immunization Registry (NCIR), medication management and clinical decision support. Value-added services will be developed and deployed incrementally based on the value they deliver and stakeholders' willingness to support them. Value-added HIE services may also be offered by state agencies, HIOs, vendors or other organizations.

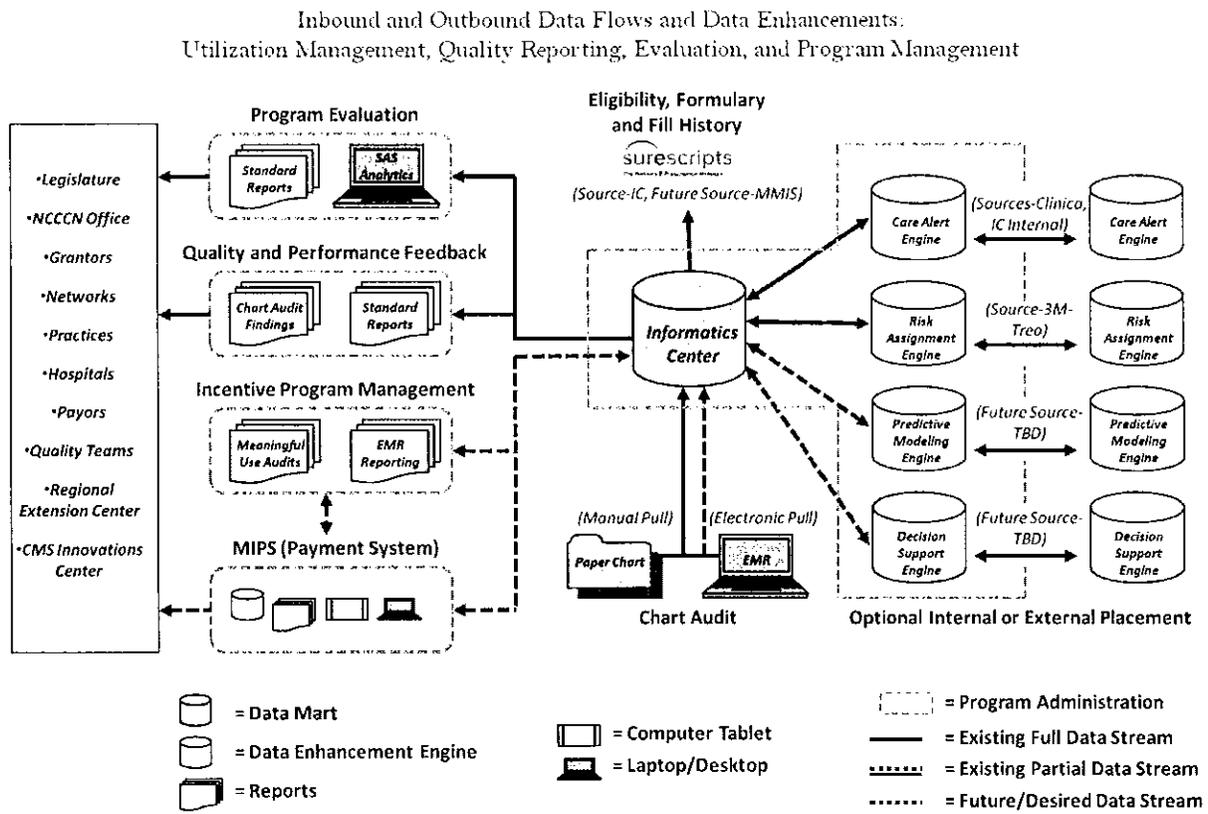
3.2.1 Proposed Approach for Meaningful Use Quality Measurements

As indicated in the Department's approved I-APD, the state is developing plans to expand the North Carolina Community Care Network (N3CN) Informatics Center's collection and analysis of quality measurements to include data reported as a result of meaningful use requirements. The approach will be to create a data aggregator to accept data from providers using the CMS Physician Quality Reporting Initiative (PQRI) 2008 Registry XML standard, as depicted below in **Figure 1** (N3CN Informatics Center - Utilization Management, Quality Reporting, Evaluation & Program Management).



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Figure 1. N3CN Informatics Center - Utilization Management, Quality Reporting, Evaluation & Program Management



Through the adoption of certified EHR technology and the development of statewide HIE, the ability to augment administrative data with timely clinical data will be of enormous value to Community Care of North Carolina (CCNC) and other DHHS agencies. In particular, these data will support activities related to care management, care coordination and quality improvement. In addition to facilitating connectivity and supporting meaningful use objectives, the N3CN Informatics Center will allow for efficient exchange of clinical information as has been done effectively in other CCNC initiatives. For example, connected providers will be able to more efficiently make referrals for CCNC disease management initiatives, conduct formal pregnancy-related risk assessments within their own EHRs, and transmit those results to the N3CN Informatics Center to trigger appropriate case management activities.

DMA, OHIT, N3CN and NC HIE are working together to identify the most cost-effective approach to implement quality reporting.

3.2.2 Proposed Approach for Meaningful Use – Public Health Data

At this time, there is no automated data exchange between the N3CN Informatics Center and the NCIR or the State Vital Statistics database. These data are important to support CHIPRA reporting, Care Coordination for Children (CC4C) and North Carolina’s Pregnancy Home initiative. Data inputs from the NCIR into N3CN, directly or via the Replacement MMIS, will enable the use of the data for quality monitoring, quality reporting and population management. Functionality will include the generation of reports used by CCNC care managers, Healthcheck

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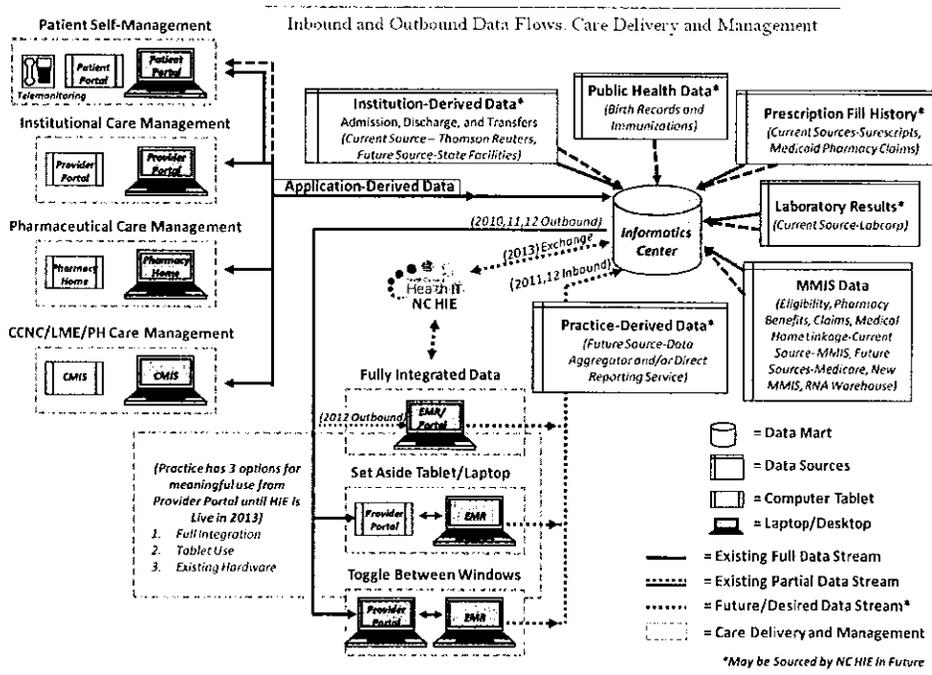
coordinators and medical home providers to identify individuals in default of recommended immunizations, enabling proactive outreach.

Currently, DMA, OHIT, N3CN and NC HIE are working together to identify the most cost-effective approach to expand connectivity to public health information. The first step will be to build an immunization interface from the NCIR to the N3CN Informatics Center and other systems as appropriate, to permit complete population management for the Medicaid population in 14 networks and 1,400 providers' offices throughout North Carolina. Funds will also provide support for interoperability of the NCIR and EHRs with a focus on the exchange of vaccination records and reducing the duplicate data entry burden on Medicaid providers.

NCIR and EHR interoperability will improve the completeness of immunization histories available to Medicaid offices, public health departments and related entities. As a result, the state will expect to see an improvement in the quality of Medicaid coverage assessments and the data available to other public health systems, such as vaccine preventable disease surveillance units. Improved NCIR interoperability will also reduce duplicative and unnecessary immunizations, thereby saving time and resources. This interface will be developed in coordination with the NC HIE to enable providers to achieve meaningful use.

Data inputs from vital statistics databases to the N3CN Informatics Center will enable more accurate monitoring of mortality rates for Medicaid recipients, as well as more accurate monitoring of birth outcomes and quality of pregnancy care, such as elective c-section rates and rates of early engagement in prenatal care. The addition of this public health data is depicted at the top of **Figure 2**.

Figure 2. N3CN Informatics Center Inbound and Outbound Data Flows: Care Delivery and Management



4. Statement of Alternative Considerations

As detailed in North Carolina's State HIE Plan, NC HIE considered a spectrum of approaches to support statewide HIE in North Carolina. As **Figure 3** reflects, the two “ends” of the spectrum represent two divergent approaches to statewide HIE. On the far left—*Statewide HIE is the Market*—the Statewide HIE would become the primary vehicle for HIE in North Carolina, making regional HIOs obsolete and empowering the State to drive the market. While an attractive option for smaller states, a consolidated, top-down approach was considered to be too rigid for an environment as large and complex as North Carolina.

Figure 3. Approaches to Statewide HIE

| Statewide HIE is the Market | Statewide Network Comprised of Diverse Qualified Organizations | Regional HIEs given Exclusive Territories – Statewide HIE Provides Governance, Outreach | Market Determines Structure – Statewide HIE Backfills |
|--|---|--|---|
| <ul style="list-style-type: none"> ➤ Statewide HIE is primary vehicle for HIE ➤ Statewide HIE builds infrastructure, consolidates HIEs for economies of scale ➤ NC HIEs focus on local governance, adoption ➤ <i>Clinical/Technical Operations Workgroup advised against this option</i> | <ul style="list-style-type: none"> ➤ Range of “qualified organizations” pursuing regional or localized exchange are core structure ➤ Statewide HIE provides statewide policy guidance, core services to enable interoperability ➤ Statewide HIE may provide value-added services that benefit a range of participants to support sustainability. | <ul style="list-style-type: none"> ➤ Divide North Carolina into markets/territories assigned to existing HIEs, new HIEs or the Statewide HIE ➤ Statewide HIE provides governance, manages monopolies for public good ➤ Statewide HIE works with regional HIEs to develop service matrix to avoid duplication and to support joint sustainability. | <ul style="list-style-type: none"> ➤ Abandon core services focus, leaving the private market to address interoperability ➤ Provide backfills where market fails to assure ‘No provider left behind’ ➤ Focus on education, convening, and statewide policy guidance ➤ <i>Clinical/Technical Operations Workgroup advised against this option</i> |

On the far right—*Market Determines Structure - Statewide HIE Backfills*—the Statewide HIE would not actively build or offer core infrastructure or technology services, leaving the provision of technology and the task of interoperability to the market, vendors, and emerging HIOs. Stakeholders advised against a completely market-driven approach as HIE systems evolving in isolation would require each stakeholder to create, maintain and upgrade multiple interfaces and contractual arrangements for connectivity with other stakeholders. Instead, the consensus was a strong desire to move forward with a collaborative and transparent governance model.

The two remaining approaches for consideration were: (1) *Statewide Network Comprised of Diverse Qualified Organizations*; and (2) *Regional HIEs Given Exclusive Territories – Statewide HIE Provides Governance, Outreach*. A brief description of these approaches is provided below.

- **Statewide Network Comprised of Diverse Qualified Organizations.** In this approach, “Qualified Organizations” (e.g., regional HIOs, hospitals, labs, etc.) aggregate providers and connect to a statewide network. The Statewide HIE provides policy guidance, structure, and oversight of participation in the network. The Statewide HIE may also

develop core infrastructure and services to enable interoperability among providers and ultimately value-added services to support a sustainability model.

- **Regional HIEs Given Exclusive Territories - Statewide HIE Provides Governance, Outreach.** In this approach, North Carolina would be divided into a set number of regions or markets; subsequently, each region would be assigned to an organization responsible for implementing HIE among the region's providers. The Statewide HIE serves as an overall governance body for the state, providing policy guidance to promote interoperability and adoption among the regions.

In both approaches, organizations act as aggregators of providers (e.g., a hospital system, FQHC network, or regional HIO). The regional approach determines a definitive number of "connections" or regional efforts, and may be difficult to execute in a state without robust HIE efforts statewide. The Qualified Organization approach allows for greater flexibility and for organizations to emerge as provider aggregators as the HIE market evolves and changes.

Given the considerations and benefits, NC HIE's Board decided to pursue a Qualified Organization approach to a statewide HIE network. Subsequent to this decision, NC HIE is creating a structured review and accreditation process to ensure that potential Qualified Organizations are capable of fulfilling the technical and policy requirements associated with participation in the Statewide HIE network.

In addition to determining the optimal organizational and governance approach for HIE, NC HIE also assessed various strategies for deploying HIE functions that will connect and provide services to the Qualified Organizations, state and national agencies and/or providers, interstate HIOs and other information sources. NC HIE evaluated four alternative networking patterns that could be applied to statewide HIE services:

1. Distributed Node-to-Node Messaging Architecture;
2. Centralized Statewide Technical Architecture;
3. Shared Statewide Technical Architecture; and
4. Hosted Shared Services Architecture.

Based on expert analysis and stakeholder feedback, NC HIE decided to adopt a hosted shared statewide services architecture that would provide: (1) an operational solution in the shortest timeframe and (2) a utility that reduces the per unit cost of delivering high-value services.⁴

5. Personnel Resource Statement

Details on the funding request for NC HIE personnel to support core HIE services is provided in **Section 7**.

⁴ Additional details on NC HIE's assessment and decision-making process regarding statewide architectural approaches are available in North Carolina's Statewide HIE Operational Plan.

6. Proposed Activity Schedule

6.1 HIE Core Service Design and Initial Deployment

NC HIE’s proposed schedule for the design and initial deployment of HIE core service components is provided in **Table 1**.

Table 1. Design, Development, and Initial Testing of NC HIE Core Services

| Project Schedule | Estimated Start Date | Estimated Finish Date |
|---|-----------------------------|------------------------------|
| Design and development of core components: | | |
| o Service Orchestration Layer | | |
| o Security Service | | |
| o Patient Matching | | |
| o Provider/Facility Directory | October 2011 | January 2012 |
| o NwHIN Gateway | | |
| o Secure Messaging (Direct) | | |
| Early Adopters Program | | |
| o Two Qualified Organizations connected | | |
| o Deployment of targeted value-added services | January 2012 | July 2012 |
| o Technical onboarding processes validated | | |
| Completion Date | | July 2012 |

NC HIE has established an alliance with Blue Cross Blue Shield of North Carolina and Allscripts to identify and enable access for 600 rural physician practices and 39 free clinics. This program, NC PATH, will include participants in the early adopters program. In parallel, NC HIE will begin onboarding, training and connecting additional Qualified Organizations in an incremental fashion.

NC HIE’s implementation strategy will initially focus on connecting safety net providers and integrating state resources and databases to assist end users in meeting meaningful use. The objective is to ensure every provider has the ability to participate in the NC HIE. Focus areas include addressing the market segments with unique financial challenges (e.g., free clinics) and providing a safe haven for “independent” providers.

NC HIE anticipates that many Qualified Organizations, particularly those with complex sub-networks or diverse entities, will choose to extend connectivity from NC HIE’s core services to their participants in a gradual, phased approach. As a result, NC HIE expects the total number of physicians that are connected to the statewide HIE network to grow steadily at the pace projected in **Table 2**.



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Table 2. Onboarding of Qualified Organizations and Physicians to Core Service Platform

| Calendar Year | Quarter | Cumulative # of Qualified Orgs | Cumulative # of Physicians Connected | Percentage of NC Physicians Connected⁵ |
|----------------------|----------------|---------------------------------------|---|--|
| 2012 | Q1 | 0 | 0 | 0% |
| | Q2 | 2 | 2,948 | 11% |
| | Q3 | 5 | 4,189 | 16% |
| | Q4 | 8 | 6,046 | 23% |
| 2013 | Q1 | 10 | 7,070 | 27% |
| | Q2 | 12 | 8,330 | 32% |
| | Q3 | 13 | 9,702 | 37% |
| | Q4 | 14 | 9,996 | 38% |
| 2014 | Q1 | 15 | 11,409 | 44% |
| | Q2 | 16 | 11,902 | 45% |
| | Q3 | 18 | 14,004 | 53% |
| | Q4 | 19 | 14,403 | 55% |
| 2015 | Q1 | 20 | 15,922 | 61% |
| | Q2 | 20 | 16,309 | 62% |
| | Q3 | 20 | 16,705 | 64% |
| | Q4 | 21 | 17,462 | 67% |
| 2016 | Q1 | 21 | 18,586 | 71% |
| | Q2 | 22 | 19,773 | 75% |
| | Q3 | 22 | 20,761 | 79% |
| | Q4 | 23 | 21,799 | 83% |

⁵ The calculation of the total number of providers (26,195) is based on 2010 data from North Carolina's MMIS system for the number of Medicaid providers within the state who are categorically eligible for the Medicaid EHR Incentive Program (e.g., doctors of medicine, doctors of osteopathy, nurse practitioners, certified nurse midwives and dentists). This number should accurately reflect NC's Medicaid provider universe, as providers who show no activity with Medicaid over a 12-month period and do not respond to a request for extension are terminated on an annual basis and removed from MMIS.



7. Proposed Budget

NC HIE requested that DMA fund its proportional share of the technical and personnel costs to develop core HIE services outlined in **Tables 3 and 4**.

Table 3. NC HIE's Estimated Costs for Core HIE Services Development

| Cost Category | Description |
|--|---|
| NC HIE's Core HIE Technical Costs | |
| - Technology Licenses | License from Orion for core HIE service components ([REDACTED] in three installments: December 2011; April 2012; July 2012). |
| - Hosting Services | Hosting of HIE core services is [REDACTED] annual cost. |
| - Software Maintenance | Maintenance on the core HIE services license is [REDACTED] cost. |
| - Implementation Cost | One-time [REDACTED] cost to implement core HIE services. |

NC HIE's core HIE services consist of the following components.

1. **Security Services:** Multiple functional processes that ensure only authorized users access system or service resources. Processes must adhere to state and federal privacy and security standards. Access begins with a secure Web interface that conforms to security design standards. A consistent audit trail will be established across components.
 - o Provider Directory: Includes services for locating providers by facility location and unique identifier; may include interdependent master facilities and clinician indices.
 - o Master Facilities Index: Index of facilities with which the clinician (or other user) has an affiliation/relationship. It processes additions, deletions, and updates to the facility index and processes requests for information from facilities index.
2. **Master Clinician Index:** An index containing all relevant information on all registered clinicians within North Carolina. It will be an open and authoritative state level provider directory accessible to all QOs in the state.
3. **Message / Record Routing / Return Receipt:** Enables participating providers to securely exchange key clinical information between their EHR systems (e.g., accept and route continuity of care documents (CCDs) between connected providers).
4. **Identity Management and Authentication:** Authentication is frequently handled through digital certificates that prove to the HIE that the systems are trusted sources. Services will include an index of participating entities (or QOs) and storage of participating entity rules (based on data sharing agreements) in order to enable sharing of clinical records.
5. **Transaction Logging:** Maintains a transaction log that can facilitate audit activities. The transaction log will track the origination and destination of an information transaction and

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verify that the transaction was completed.

6. **Consent Management:** Facilitates consent policies and patient preferences. NC HIE's technology partner will be expected to provide capability to facilitate consent policies for multiple consent models. NC HIE will also require the ability to provide system wide capability to restrict access to specially-protected data according to state and federal law.
7. **Terminology Services:** Capability to provide translation between various medical vocabularies in clinical records, to provide LOINC encoding for lab results according to HHS standards, and in later phases, to provide mappings and encodings for all meaningful use standards.
8. **Transformation Service:** Capability to provide transformation between different document formats (e.g., HL7v2 to v3 or EDI to XML), to parse and validate various document formats (e.g., XML and XSD), and to create and map across different message envelopes and content requirements.
9. **Patient Matching/Record Locator Service:** The service provides three capabilities:
 - o Reconciliation service that matches (i.e., cleans up) records from existing systems to provide a definitive mechanism to locate all records for a patient.
 - o Enables requesting a list of patient information documents or clinical data locations using this index, either via a demographic attribute query or a direct index lookup.
 - o Enables requesting one or more of the documents listed from a query be transferred to the requester's system.
10. **NwHIN Gateway:** Provides for a single statewide implementation of the NwHIN Connect gateway available as a web service for authorized users and entities.

In addition to these infrastructural components, NC HIE's deployment of core services will include: (1) normalization of laboratory results; (2) transmission of CCD among participating entities; and (3) deployment of services in support of secure messaging using the Direct implementation specification.

Table 4. Proposed Staffing

| Staff Title | % of Time | Project Hours | Cost with Benefits | Description of Responsibilities |
|--------------------------------|-----------|---------------|--------------------|--|
| Solutions Architect | 100% | 40/week | [REDACTED] ry: | Full time permanent employee responsible for the development and deployment of solutions to support the creation, exchange and utilization of health information across the multiple entities within the broader healthcare community of North Carolina. Begins November 2012. |
| Interface & Testing | 100% | 40/week | [REDACTED] | Full time permanent employee responsible for the development and deployment of solutions |



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|---------------------------------|-----|---------|--|---|
| Engineer | | | | to support the creation, exchange and utilization of health information across the multiple entities within the broader healthcare community of North Carolina. Begins November 2012. |
| Chief Technology Officer | 50% | 20/week | | Full time permanent employee responsible for the technical architecture of the HIE. The Chief Technology Officer will dedicate 50% time to the design, development and deployment of core services. Begins December 2011. |
| Program Director | 50% | 20/week | | Full time permanent employee responsible for the creating and managing project plans, identifying issues and risks, reporting on status, managing vendors to ensure proper completion of deliverables and managing milestone completion and deliverables. Begins December 2011. |

Based on CMS guidance from its May 18, 2011 SMD letter (SMD# 11-004), DMA has prepared a budget that will leverage 90% FFP until North Carolina's statewide HIE system is "established and functional as determined by the degree of provider enrollment." NC HIE and DMA believe that NC HIE's core services will be fully functional once a critical mass (i.e., 75%) of North Carolina's health care providers are enrolled in the statewide HIE network.

Therefore, DMA requests Medicaid meaningful use administrative funds until 75% of North Carolina's 20,752 MDs/DOs have signed participation agreements and have been connected to the statewide HIE network. NC HIE anticipates that this threshold will be reached no later than May 31, 2016, after which Medicaid support for statewide HIE services will shift to a 50/50 ratio.

As described in **Appendix D**, Medicaid's proportional share of costs eligible for 90% FFP is 20.8%.

The State's total estimated budget for NC HIE's core HIE services [redacted] (see **Table 5**) which includes:

- o [redacted] (90% Federal share)
- o [redacted] (10% State share)

Table 5. Anticipated Medicaid Share of NC HIE Core HIE Services Through Operational Phase

| Cost Category | 90% Fed Share | 75% Fed Share | 50% Fed Share | 10% State Share | Total |
|--|---------------|---------------|---------------|-----------------|------------|
| NC HIE's Core HIE Technical Costs | | | | | |
| - Technology Licenses | [redacted] | \$0 | \$0 | [redacted] | [redacted] |
| - Hosting Services | [redacted] | \$0 | \$0 | [redacted] | [redacted] |
| - Software Maintenance | [redacted] | \$0 | \$0 | [redacted] | [redacted] |
| - Implementation | [redacted] | \$0 | \$0 | [redacted] | [redacted] |
| NC HIE's Core HIE Personnel Costs | | | | | |
| - Solutions Architect | [redacted] | \$0 | \$0 | [redacted] | [redacted] |
| - Interface & Testing Engineer | [redacted] | \$0 | \$0 | [redacted] | [redacted] |



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| Cost Category | 90% Fed Share | 75% Fed Share | 50% Fed Share | 10% State Share | Total |
|----------------------------|---------------|---------------|---------------|-----------------|------------|
| - Chief Technology Officer | [REDACTED] | \$0 | \$0 | [REDACTED] | [REDACTED] |
| - Program Director | [REDACTED] | \$0 | \$0 | [REDACTED] | [REDACTED] |
| TOTAL | [REDACTED] | \$0 | \$0 | [REDACTED] | [REDACTED] |

For Federal Fiscal Year 2012, North Carolina requests [REDACTED] in new I-APD funds for activities from December 1, 2011 through September 30, 2012.

The State's total estimated budget for NC HIE's core HIE services, MMIS, HITECH implementation and HITECH FFP for incentive payments is provided in **Table 6**.

Table 6. Total Anticipated Medicaid Funding

| FFY | MMIS 90% FFP | HITECH @ 90% FFP | Core HIE Services @ 90% FFP | HITECH @ 100% FFP (Incentive Payments) | Total |
|----------------------|--------------|------------------|-----------------------------|--|------------|
| FFY 11 | [REDACTED] | [REDACTED] | \$0 | [REDACTED] | [REDACTED] |
| FFY 12 | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| FFY 13 | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| FFY 14 | * | * | [REDACTED] | * | [REDACTED] |
| FFY 15 | * | * | [REDACTED] | * | [REDACTED] |
| FFY 16 | * | * | [REDACTED] | * | [REDACTED] |
| TOTAL Costs | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| Federal Share | [REDACTED] | | | | |

* This table includes funds requested in DMA's approved I-APD, as well as the fair share costs requested in this I-APD Update. DMA did not include requests for MMIS 90/10, HITECH 90/10 or HITECH incentive payments beyond what has already been approved.

For each subsequent Federal Fiscal Year that NC HIE's core services remain in the development stage, the State will make additional FFP funding requests for core HIE services based on NC HIE's progress toward its connectivity goals and the Department's assessment of the State's HIE marketplace, national HIE trends, and meaningful use requirements.



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8. Cost Allocation Plan for Implementation Activities

This section is not applicable to DMA's I-APD Update for statewide HIE core services.

9. Assurances, Security, Interface Requirements and Disaster Recovery Procedures

The Department confirms that it will adhere to the provisions identified from federal regulations in **Table 7**, CMS Required Assurances, as marked:

Table 7. CMS Required Assurances

| <u>Procurement Standards (Competition/Sole Source)</u> | | |
|---|---|-----------------------------|
| 42 CFR Part 495.348 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| SMM Section 11267 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 45 CFR Part 95.615 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 45 CFR Part 92.36 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| <u>Access to Records, Reporting and Agency Attestations</u> | | |
| 42 CFR Part 495.350 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 42 CFR Part 495.352 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 42 CFR Part 495.346 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 42 CFR Part 433.112(b)(5) – (9) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 45 CFR Part 95.615 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| <u>Software & Ownership Rights, Federal Licenses, Information Safeguarding, HIPAA Compliance, and Progress Reports</u> | | |
| 42 CFR Part 495.360 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 45 CFR Part 95.617 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 42 CFR Part 431.300 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 42 CFR Part 433.112 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| <u>Security and interface requirements to be employed for all State HIT systems</u> | | |
| 45 CFR 164 Securities & Privacy | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |



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Appendix A: Allowable Expenditures for MMIS FFP

DMA is not requesting MMIS FFP in this I-APD Update.

Appendix B: Provider Incentive Payment Estimates

This I-APD Update does not include provider incentive payment estimates as its sole intent is to request HIE support.

Appendix C: Funding Sources

As described above, funding for core HIE services is expected to reflect the cost allocation plan in **Table 8**. Please note that Medicaid's total anticipated fair share allocation is a total of 20.8%, as reflected in the Medicaid Share (Federal) and State Share (Medicaid Match) columns.

Table 8. Cost Allocation Plan

| Federal State Program | Medicaid Share (Federal) | Federal Share | State Share (Medicaid match) | BCBS of North Carolina | HIE Participant Fees | Total Program Cost |
|--------------------------------|--------------------------|--|------------------------------|------------------------|----------------------|--------------------|
| Medicaid EHR Incentive Program | [REDACTED] | ONC Cooperative Agreement: [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |

*Due to rounding, percentages do not add up to 100%.



Appendix D: Description and Justification of HIE Approach and Funding Request

D.1 HIE Approach

Coordinated planning for statewide HIE in North Carolina began in early 2009, when the North Carolina HIT Strategic Planning Task Force (HIT Task Force) was established to forge a new vision of how health and healthcare can be improved by enhancing the use of health IT.

Details on the statewide HIE approach can be found in Section A.7.1 of the SMHP Version 1.3.

D.2 Infrastructure Development Transition to Ongoing Operations

NC HIE will incrementally implement North Carolina's statewide HIE network in a three step process.

Step 1: Creating the Core Services Platform

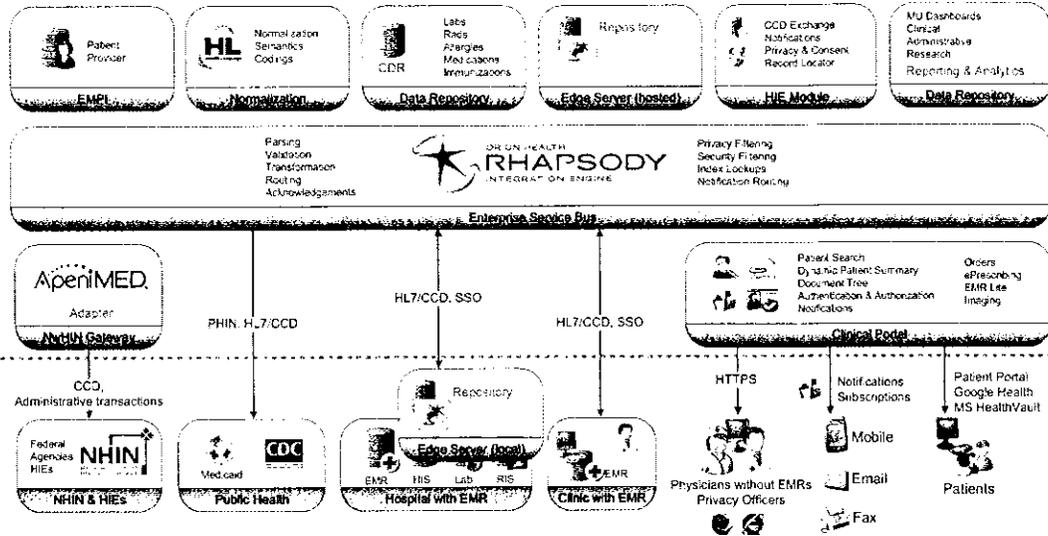
Based on intensive assessment, prioritization and planning facilitated by national subject matter experts and vetted through a public process, NC HIE developed and released an RFP for statewide HIE services on April 25, 2011. In July 2011, NC HIE's Board approved the selection of CapGemini/Orion as NC HIE's technical services vendor. In August 2011, CapGemini/Orion and NC HIE began the formal design process. The initial implementation of core HIE services will include:

- Connectivity with participating systems: CCD, HL7, SSO, Web Services (Rhapsody™);
- Privacy and consent services;
- Enterprise MPI;
- Data normalization;
- Public health reporting;
- User subscribed notifications;
- Clinical Data Repository;
- Web-based access to the longitudinal patient record (Clinical Portal);
- Direct secure messaging; and
- NwHIN gateway.

In December 2011, CapGemini/Orion will begin defining and building interfaces and integration services to promote exchange of clinical messages between organizations. A visual representation of the initial design of core services and interactions with Qualified Organizations is provided in **Figure 4**.

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Figure 4. Phase 1 Implementation of Core HIE Services



Step Two: Testing Core Services in an Early Adopters Program

End users, including eligible professionals and hospitals, will be incrementally connected to core services beginning with a pilot program in early 2012. As part of NC HIE's Phase 1 Deployment of the core services, two Qualified Organizations will be identified and enrolled in a pilot program. Participants in the Early Adopter Program will be part of the NC PATH initiative, as described in Section 6.1. In January 2012, NC HIE will also launch a marketing program around Direct messaging. The program will concentrate on enabling public health, behavioral health and practices without existing EHR capabilities.

Step Three: Expanding Connectivity

Once the initial pilot project is completed, NC HIE will incrementally onboard, train, and connect additional Qualified Organizations in an incremental fashion. NC HIE anticipates that many Qualified Organizations, particularly those with complex sub-networks or diverse entities, will choose to extend connectivity from NC HIE's core services to their participants in a gradual, phased approach. As a result, NC HIE expects the total number of physicians that are connected to the statewide HIE network to grow steadily (as projected in **Table 2** on page 16).

D.3 Risks and Mitigation Strategies

Details on the risk and mitigation strategies can be found in Section B.2.2 of the SMHP Version 1.3.

D.4 Annual Benchmarks and Performance Goals

Details on annual benchmarks and performance goals for statewide HIE approach can be found in Section B.2.3 of the SMHP Version 1.3.

D.5 Link to Meaningful Use Strategy

Details on statewide HIE's support of the state's meaningful use strategy can be found in Section B.2.4 of the SMHP Version 1.3.

D.6 Clinical Quality Measures and Public Health Interfaces

As stated above, DMA plans to expand N3CN Informatics Center's collection and analysis of quality data to include the new data as a result of meaningful use. The addition of these and other public health data to a statewide service is described in **Section 3** and in Section B.2.5 of the SMHP Version 1.3.

D.7 Short- and Long-Term Value Proposition

Details on the value propositions for statewide HIE approach can be found in Section B.2.6 of the SMHP (Version 1.3).

D.8 Role of State Government

Details on the state government's support of and involvement in statewide HIE can be found in Section B.2.7 of the SMHP (Version 1.3).

D.9 Stakeholder Investments

Stakeholder investments will reflect the cost for creating, deploying and maintaining the policy and technical infrastructure required to support statewide HIE. NC HIE has created a detailed plan to finance the development, deployment and ongoing operations of the technical, policy and legal infrastructure in support of statewide HIE in North Carolina. The finance plan addresses both the near-term capital investment costs and the long-term costs of operations. NC HIE's finance plan for statewide HIE has been structured such that stakeholders' benefits align with and cover costs of design, development, deployment and operations.

Funding from early investors with limited investment periods (i.e., ONC through the State HIE Cooperative Agreement and HIE Challenge Grant funds) will be leveraged for initial design and development costs. Funding from other initial investors with longer term benefit horizons (e.g., commercial insurers) will see their payment mechanisms adapt over time.

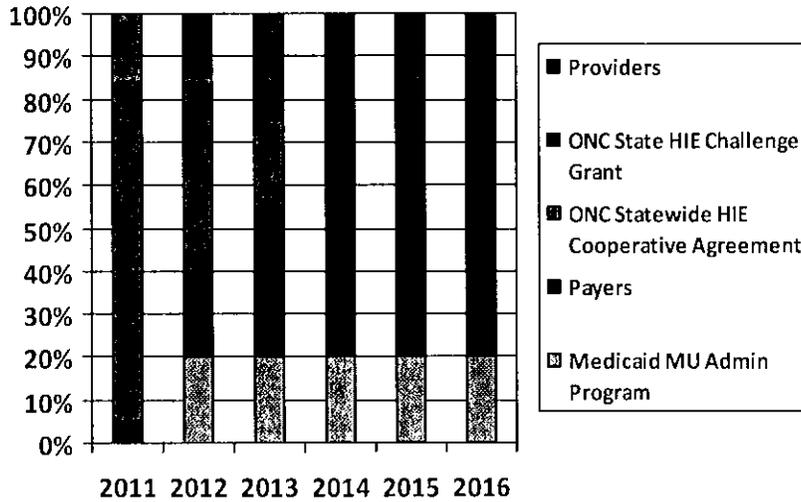
DMA is cognizant of the need to ensure other stakeholders join Medicaid in supporting the costs associated with statewide HIE. As such, DMA has worked closely with NC HIE on both its initial funding approach and the longer-term plan for financial support from stakeholders.

After initial funding has been exhausted, NC HIE's financing strategy will shift to a services model, whereby participant fees will cover ongoing costs of the core services. The NC HIE Board of Directors is currently exploring a model where payers will be charged per member/per year fees that will, in aggregate, cover 80% of statewide HIE costs with an expectation that 30% of this cost will be recovered from the hospital systems through reimbursement changes or

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other contractual mechanisms.⁶ The remaining 20% will be covered by fees to hospitals and practices based on size and number of physicians. Costs for NC HIE will be proportionally allocated among stakeholders as illustrated in **Figure 5**. In addition to the participant fees for core services, NC HIE envisions deploying a set of advanced services that will be billed to participants based upon utilization or subscription.

Figure 5. Distribution of Stakeholder Contributions to Statewide HIE



D.10 Legal Agreements

To substantiate stakeholder contributions to statewide HIE efforts, NC HIE has documented support from Blue Cross Blue Shield of North Carolina, which has agreed to provide prefunding for NC HIE that has multiple components:

- An unrestricted payment of [REDACTED] made in December, 2011 to support the ongoing development and launch of the core services.
- A contingent payment of [REDACTED] in June, 2012 which is approximately a 1:1 match of the projected support from Medicaid for NC HIE’s core services in 2012. This payment is contingent on the commitment of four leading health systems to participate in the NC HIE as well as Medicaid’s approval of this IAPD-U.
- A payment to match the first [REDACTED] of Medicaid funding in each of 2013 and 2014, contingent upon the continued commitment of leading health systems to participate in the NC HIE.

Blue Cross Blue Shield North Carolina has also committed to begin paying annual participation fees once participation in the NC HIE grows to the extent necessary to provide value to its members and employers.

⁶ NC HIE proposes to build its fee structure on a per member basis for two reasons. First, the alternative to a member-based subscription are transactions fees, which increase the costs to participants relative to volume of use and can provide disincentives to utilization. Second, NC HIE’s member-based subscription model can leverage payers’ and providers’ familiarity with similar payment models and the administrative infrastructure that is being developed to advance the State’s Community Care of North Carolina efforts.

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In addition, NC HIE has secured additional funding from Blue Cross Blue Shield of North Carolina to operate and manage the North Carolina Program to Advance Technology for Health (NC PATH). In September 2011, Blue Cross and Blue Shield of North Carolina announced a \$23 million program help more than 750 physicians pay for software, training and support needed to transition to EHRs. Blue Cross will contribute [REDACTED] to the program, and EHR vendor Allscripts will contribute [REDACTED] in discounted licenses of its certified EHR, MyWay.⁷

NC PATH will provide a financial incentive to encourage health care providers to demonstrate meaningful use of these EHRs, which are natively connected to NC HIE, and to promote the adoption of patient-centered medical home practices.

Appendix F contains copies of the legal agreements substantiating the financial commitments to NC HIE.

D.11 Cost Allocation Methodology

In determining the proportion of HIE services that would be eligible for 90 percent FFP, DMA prioritized meeting the CMS cost allocation principles given that a range of other entities, including health plans, would benefit from statewide HIE.

DMA's goal was to identify the number of Medicaid providers within the state among those who are categorically eligible for the Medicaid EHR Incentive Program (e.g., doctors of medicine, doctors of osteopathy, nurse practitioners, certified nurse midwives and dentists). These data would serve as the denominator in the fair share ratio. In identifying the numerator, DMA sought to balance the number of providers that could eventually meet the Medicaid EHR Incentive Program's volume thresholds (20 percent volume requirements for pediatricians, 30 percent volume for all other eligible professionals) with the lack of historical data that all states face in predicting enrollment in the program. Ultimately, DMA determined that the numerator needed to inclusive not just of those providers that already met Medicaid volume requirements but of those providers who could potentially meet these requirements over the next five years.

According to data from the American Academy of Family Physicians, the average family physician has 85 patient visits per week.⁸ This is equivalent to 340 visits per month. Twenty percent of this volume (i.e., the volume threshold for pediatricians) would equal 68 visits or encounters. DMA felt that 68 visits was not sufficiently broad that it would reflect providers that would be eligible over five years, particularly with Medicaid expansion efforts and increased Medicaid payment rates as a result of the Affordable Care Act. Therefore, DMA determined that providers with 60 or more encounters per month should be included in the numerator.

In performing these calculations, DMA found that 20.8 percent of the state's providers met this volume threshold. Denominator data were obtained from DMA's MMIS as were numerator data. Data from the numerator took the average number of encounters over a three-month period in order to account for variability in patient volume in any one month.

⁷ Blue Cross and Blue Shield of North Carolina commitment of funding to PATH for HIT adoption and HIE connections is separate from its commitment from to match Medicaid's funding of core HIE services.

⁸ American Academy of Family Physicians. (2008). Average number of family physician visits per week and average number of patients in various settings, June 2008 [Table 5]. Accessed October 20, 2011 from: <http://www.aafp.org/online/en/home/aboutus/specialty/facts/5.html>

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Beginning in 2014 and accelerating rapidly as the network migrates to fully operational status, the financing strategy will shift to a services model, whereby participant fees will cover ongoing costs. Payers will be charged per member/per year fees that will, in aggregate, cover 80% of statewide HIE costs. The remaining 20% will be covered by fees charged to hospitals and practices based on size and number of physicians.

To minimize costs to payers and providers, NC HIE will pursue opportunities to develop additional value-added services from vendors that are willing to offer "at-risk" pricing models.

With respect to the development and deployment of core HIE services, NC HIE estimates that the distribution of funding from the sources will be as listed in **Appendix C**.



D.12 MMIS and HITECH Funding Requests



Appendix E: Centers for Medicare and Medicaid Services Seven Conditions & Standards

Yes No **Modularity Condition.** Use of a modular, flexible approach to systems development, including the use of open interfaces and exposed application programming interfaces; the separation of business rules from core programming; and the availability of business rules in both human and machine readable formats.

Yes No **MITA Condition.** Align to and advance increasingly in MITA maturity for business, architecture, and data.

Yes No **Industry Standards Condition.** Ensure alignment with, and incorporation of, industry standards: the Health Insurance Portability and Accountability Act of 1996 security, privacy and transaction standards; accessibility standards established under section 508 of the Rehabilitation Act, or standards that provide greater accessibility for individuals with disabilities, and compliance with Federal civil rights laws; standards adopted by the Secretary under section 1104 of the Affordable Care Act; and standards and protocols adopted by the Secretary under section 1561 of the Affordable Care Act.

Yes No **Leverage Condition.** Promote sharing, leverage, and reuse of Medicaid technologies and systems within and among States.

Yes No **Business Results Condition.** Support accurate and timely processing of claims (including claims of eligibility), adjudications, and effective communications with providers, beneficiaries, and the public.

Yes No **Reporting Condition.** Produce transaction data, reports, and performance information that would contribute to program evaluation, continuous improvement in business operations, and transparency and accountability.

Yes No **Interoperability Condition.** Ensure seamless coordination and integration with the Exchange (whether run by the state or federal government), and allow interoperability with health information exchanges, public health agencies, human services programs, and community organizations providing outreach and enrollment assistance services.

Appendix F: Letters of Support



BlueCross BlueShield of North Carolina

December 22, 2011

Jeff Miller
CEO
North Carolina Health Information Exchange
2300 Rexwoods Drive
Raleigh, NC 27607

Dear Jeff,

This letter is to confirm BCBSNC's commitment to providing prefunding of the NC HIE and to describe the related requirements, schedule and deliverables.

1. All monies provided to NC HIE by BCBSNC under this arrangement will be applied to future fees that BCBSNC would otherwise pay when it commences participating in the NCHIE commensurate with its level of participation.
2. BCBSNC will provide the NC HIE an initial prefunding payment [REDACTED] by 12/31/11, to meet the institution's liquidity needs.
3. The NC HIE leadership team will facilitate discussions within 30 days from receipt of this letter with a number of the leading health care systems in the state including but not limited to: Baptist Hospital, CHS, Duke University Health System, Mission Health System, Novant UHS, UNC Healthcare and WakeMed, to discuss their participation in prefunding activities and committing to participate in the NC HIE.
4. All subsequent prefunding payments will subject to the following conditions:
 - a. For the June 2012 payment of [REDACTED] from BCBSNC, the following will be required:
 - i. Approval of Medicaid funding [REDACTED] through the EHR Incentive Program.
 - ii. Commitments of at least four leading health care systems to participate in NC HIE and payments or prepayments of at least [REDACTED] from each committed health care system.
 - b. For the June 2013 payment of [REDACTED], the following will be required:
 - i. Cumulative Medicaid funding of [REDACTED].
 - ii. Commitments of at least an additional two leading health care systems (for a cumulative minimum total of six) to participate in NCHIE, and payments or prepayments of at least [REDACTED] each from each committed health care system..

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- c. For the June 2014 payment of [REDACTED], the following will be required
- i. Cumulative Medicaid funding of [REDACTED]
5. Commitments of at least an additional two leading health care systems (for a cumulative total of eight) to participate in NCHIE and payments or prepayments of at least [REDACTED] from each committed health care system. The NC HIE will create an Advisory Board comprised of individuals selected by each of the entities that elect to participate in or pre-fund the exchange.
 6. BCBSNC and the NC HIE will work to determine the point in time that BCBSNC will begin participating in the NC HIE. This will involve identifying required changes, if any, to BCBSNC infrastructure and workflow, and will be predicated upon a level of participation in the exchange that will provide value to the Company. The date participation is deemed to begin (based on both BCBSNC's ability to make the infrastructure and workflow changes needed) will be the date that the fees incurred by BCBSNC's participation in the NC HIE shall be credited against prefunding balances received by the same.
 7. Contractual documents shall be drafted and executed by the parties in January 2012 to formally manifest the agreement set forth in this commitment letter.

These commitments are in addition to the [REDACTED] restricted grant that was provided to NC HIE to fund the NC Program for the Advancement of Technology in Healthcare that was successfully launched this fall. BCBSNC looks forward to continuing to build its relationship with the NC HIE and is excited about the potential to improve healthcare outcomes and lower costs for all the citizens of North Carolina.

Sincerely,

Maureen K. O'Connor
Executive Vice President and Chief Strategy Officer

cc: Susan Helm-Murtagh
Henry Jay

