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**MSSNY Contract Number: CO24582**  
**Deliverable #6**  
**Technology Component –**  
**Implementation Plan for Quality Measurement &**  
**Performance Reporting**



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## 1. HISTORY AND BACKGROUND

The DOH OHITT/MSSNY PPSO contract is a result of 2005 legislation directing the Department to “issue grant funding to one or more organizations broadly representative of physicians licensed in this state.” Project funding was directed “to include, but not to be limited to”:

- a) efforts to incentivize electronic health record adoption;
- b) interconnection of physicians through regional collaborations;
- c) efforts to promote personalized health care and consumer choice;
- d) efforts to enhance health care outcomes and health status generally through interoperable public health surveillance systems and streamlined quality monitoring.”

The legislation also called for a final report from the Department that includes among other requirements “the appropriateness of a broader application of the health information technology program to increase the quality and efficiency of health care across the state.”

The Medical Society of the State of New York (MSSNY) was awarded a contract in April 2009. The contract Statement of Work calls for MSSNY, along with representatives from NYS DOH and NYeC, to work with rural and solo and small group physician practices to plan, design, build, and initiate operations for PPSO’s that will focus on the following goals to improve the efficiency and effectiveness of health care consistent with the HIT vision and strategy being employed by NYS DOH and NYeC:

1. Performance reporting capabilities and interoperable HIT capacity connecting patients, clinicians, and payors and leveraging health information exchange among all stakeholders
2. Readily available evidence-based care guidelines
3. Improved access to care
4. Enhanced practice-level quality of care evaluation and reporting of health care outcomes
5. Coordination of care for patients with chronic disease
6. Physician practice change management to leverage technology and delivery models
7. A new business model with payors actively supporting physician participation through an enhanced payment system

The following is Deliverable #6 of MSSNY Contract Number CO24582.

## 2. DELIVERABLE #6 OVERVIEW

It is well known that the major health IT building blocks (organizational, clinical/quality, and technical specifications) must be developed simultaneously to realize full value for end users. All health technology, whether electronic health records (EHR) at a practice level or regional products such as information exchanges, should be applied with the intention of improving clinical quality and performance data for clinicians. Additionally, ensuring cross functional interoperability through the use of common health information exchange protocol (CHIXP) is vital. The technology developed and implemented throughout this project is designed to provide the mechanism by which the quality of care rendered to patients can be measured and ultimately improved. Deliverable 3 outlined the performance measures each participating practice will be reporting, including the data flow, data fields, interrelated technical reporting, and consistent data elements that will be used. The overall technology design is to ensure collection of standardized data from disparate systems (both hospital and provider) and to promote interoperability through homogenous data elements that will be submitted to HIXNY. This Deliverable details the implementation plan and identifies outstanding issues to successful deployment of the technology component of the pilot program.

The technology design and implementation plan will be considered successful if quality of care (including disease management activities) is enhanced and if it allows for access to data necessary to easily analyze the performance of practices participating in the Pilot program. The planned technology is designed to improve the level of population health information available, assist in identifying gaps in care against evidence-based guidelines, effectively identify patients that will benefit from disease management activities to appropriately prevent admissions/re-admissions, and successfully manage high-utilizers.

## 3. IMPLEMENTATION OF TECHNOLOGY SOLUTIONS

One of the challenges in implementing technology designed to standardize quality and performance reporting was the disparity between the participating practitioners' and associated hospitals' electronic health record (EHR) capabilities. One of the first steps was to determine which EHR's and accompanying functionalities were being used within each practice. The chart below provides the breakout of vendors and practices.

<b><i>EHR Vendor</i></b>	<b><i># Practice Sites</i></b>	<b><i># Providers</i></b>
Athenahealth	13	97
Medent	9	28
GE	6	38
ECW	6	24

STI	5	9
Encounter Pro	1	5
Allscripts	1	4
Intergy (Sage)	1	1
<b>Total</b>	<b>42</b>	<b>206</b>

All practices within Pod 1 (AMC) and Pod 2 (HHN) utilize e-Clinical Works (eCW) and Athena Health, respectively. As was expected, Pod 3 (CVPH) had the most diversity with practices utilizing Intergy (Sage), Medent, eCW, Allscripts, GE, STI, and Encounter Pro. Detailed discussion of each EHR's ability to support the exchange of clinical and performance data is provided later.

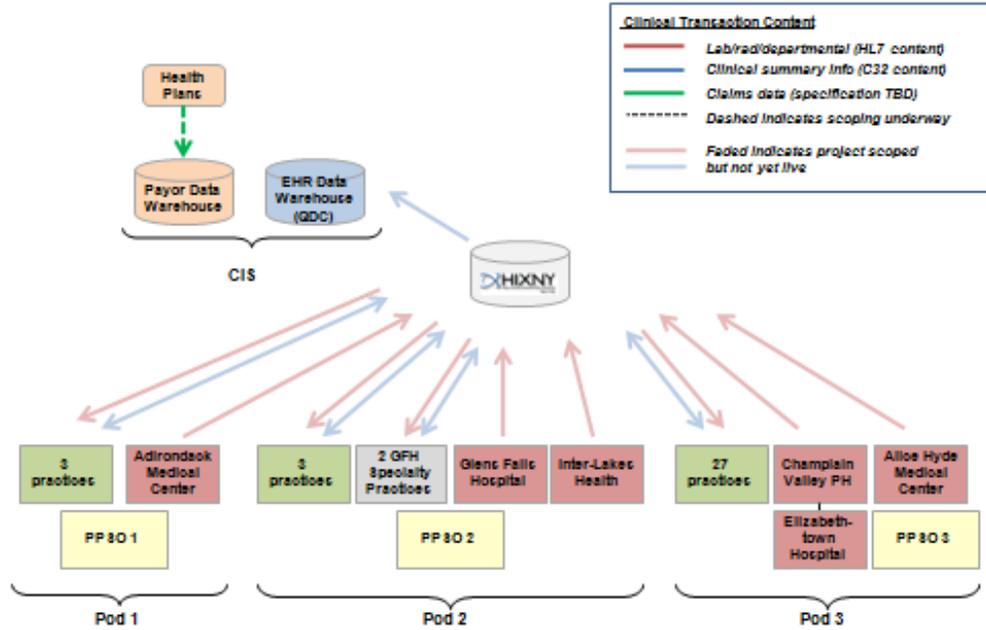
Once the baseline assessment was completed, work was undertaken to assess the level of use of technology and to work with practices to develop corrective actions/remediation where necessary for practice workflows. Special emphasis was given to:

- Ensure practices were enabled for e-prescribing in order to support the PCMH model.
- Encourage providers to apply HIE to order to inform clinical decisions and to communicate with patients, plus to utilize EHR's to support PCMH.
- Analyze and evaluate practices' use of EHR's in providing care to the chronic disease population and to help providers develop corrective action plans where necessary.
- Measure the achievement of quality/performance improvement outcomes and document lessons learned from the PCMH initiative.

## Overview

The implementation plan creates capabilities to enable secure data exchanges between each of the participating practices and hospitals and the Health Information Exchange New York (HIXNY), the regional health exchange serving northern New York. HIXNY will then have the capability to securely send clinical data to the clinical data warehouse (QDC). Participating health plans will submit financial data, by patient, to a separate payor data warehouse. Information from both the payor and EHR warehouses will ultimately be available to participating practices. The planned flow of information is visually demonstrated on the following page.

## All Pod View



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The EHR Data Warehouse (Quality Data Center) and the Payor Data Warehouse are designed to provide complementary information. Combined, these data warehouses and their reporting tools will facilitate the practices' and the Pods' ability to improve chronic disease care management on a patient and a population basis. Furthermore, the implementation plan includes additional training for all participating practices and Pods on continuous quality improvement processes via the "Plan Do Study Act" (PDSA) methodology. Training will also include education about goal setting, data collection, report writing and process improvement.

### Hospital Interfaces to HIXNY

To ensure standardization, common data elements for hospitals and participating practices were identified for submission to HIXNY. All hospitals will submit ADT, laboratory results, imaging reports, medications, and departmental reports such as a discharge summary. In addition, HIXNY will provide support to enable the hospital-to- HIXNY data exchange, and to ensure interoperability through project management, integration consulting, quality assurance testing, and maintenance.

### Tri-Lakes Pod 1

Adirondack Medical Center (AMC) will utilize their preferred interface vendor (IATRIC) to complete the five required feeds from their hospital inpatient MediTech system to HIXNY. A locally hosted HIXNY edge server will be utilized.

### **Lake George Pod 2**

Glens Falls Hospital (GFH) is connected today to the Adirondack Regional Community Health Information Exchange (ARCHIE) and provides clinical data to that entity. As part of the HEAL 5 grant initiative, HIXNY and ARCHIE have agreed to share data. GFH data is anticipated to be available through HIXNY in the future.

Inter-Lakes Health will utilize their preferred interface vendor (HMS) to complete the five required feeds from their Hospital Inpatient system (HMS) to HIXNY. HMS will be extracting all required data elements from its own system supporting Inter-Lakes, translating these data elements in the HIXNY standard HL7 format, and transmitting these to the HIXNY InterSystems platform. A centrally hosted HIXNY edge server will be utilized.

### **Plattsburg Pod 3**

Champlain Valley Physician's Hospital (CVPH) will utilize internal resources to complete the five required feeds from their hospital inpatient Siemen's system to HIXNY. CVPH has engaged a full-time interface resource, and is in the process of internally developing all interfaces required for both grants (HEAL 5 and HEAL10). The HEAL 5 development efforts are underway, with some interfaces completed, and the HEAL 10 interfaces will be developed upon completion of those for HEAL 5. The result will be a full set of interfaces and a complete set of CVPH data in the HIXNY exchange. A locally hosted HIXNY edge server will be utilized.

Alice Hyde Medical Center will utilize their preferred interface vendor (Summit) to complete the five required feeds from their hospital inpatient system (MediTech), translate the data elements into HIXNY standard format and transmit them to the HIXNY InterSystems platform. A centrally hosted HIXNY edge server will be utilized.

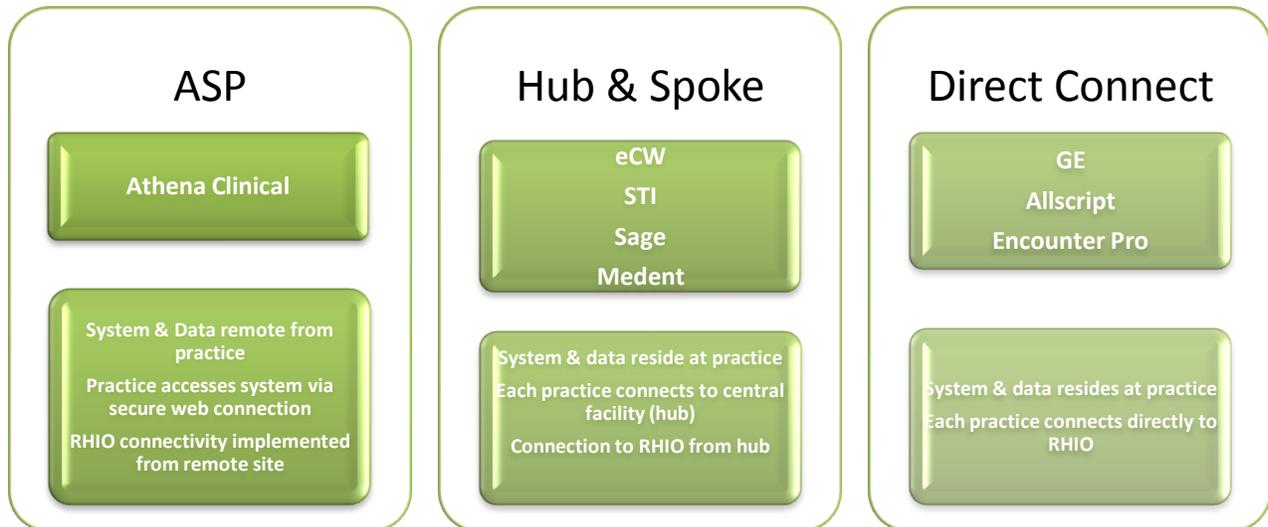
Elizabethtown Community Hospital (ECH) contracted with their interface vendor (CPSI) prior to the beginning of this project to deliver both of the required interfaces and other functionality needed to support and utilize the HIXNY system. This will provide a full set of data elements to HIXNY in standard format, and the required RHIO consent logic in CPSI. A locally hosted HIXNY edge server shared with CVPH will be utilized. Elizabethtown will utilize their preferred interface vendor (CPSI) to complete the five required feeds from their hospital inpatient system (CPSI) to HIXNY. This was an internally funded project, as no HEAL 10 match dollars have been captured in the budget.

### **Participating Practice Interfaces with HIXNY**

Each participating practice will submit a data set to HIXNY.

To accommodate the variations and capabilities of the EHRs being utilized, several approaches are planned. Some will connect using an application service provider (ASP); some a hub and

spoke structure; and some will utilize direct connect. The chart below illustrates the various structure utilized by the applicable EHR.



### Tri-Lakes Pod 1

In Pod 1 (AMC), all practices utilize e-Clinical Works (eCW). eCW integrates data for submission to third party organizations using CHIxP compliant electronic health exchange (eEHX) platform. eEHX can be implemented in a number of ways, but AMC has already deployed a local eEHX platform to support their community exchange. The local exchange will need to be upgraded to allow integration with the statewide Health Information Exchange New York (HIXNY). eCW supports the XDS.B protocol and is capable of both producing and consuming HITSP C32 CCD.

### Great Lakes Pod 2

In Pod 2 (Hudson Headwater Health Network), all participating practices have implemented Athenahealth's EHR. Athenahealth deploys the Athena Clinicals, an application service provider (ASP) platform utilizing Software as a Services (SaaS) cloud computing technology. The web service approach to health information exchange (HIE) is to have a single point of integration (interface) between their cloud and each third party organization which can then be used by all client practices exchanging data with that third party. Athena is currently building and will soon be testing (with HIXNY) their CHIxP compliant interface; they support the XDS.B protocol and are capable of both producing and consuming HITSP C32 CCD. They expect to be CHIxP compliant by December 2010. They do not require any additional software or hardware.

### Plattsburg Pod 3

As mentioned previously, Pod 3 (Champlain Valley Physicians Hospital) utilizes the most diverse technology, as practices within this Pod apply a wide variety of platforms.

- Intergy's (Sage) approach to interoperability is through a hub and spoke architecture. The hub is a hosted interface service that is exposed to the third party (HIXNY) and any common configurations can be used across multiple participating Sage practices. Sage is in the process of developing a CHixP compliant version with a couple of RHIOs in NY; it will be available in 2011. They support the XDS.B protocol and are capable of both producing and consuming HITSP C32 CCD.
- Medent is in the final stages of development to become CHixP compliant. Their web services architecture supports IHE PIX, PDQ and XDS.B profiles. Medent is capable of both producing and consuming HITSP C32 CCD documents; no additional hardware will be required.
- Allscripts' Enterprise EHR can support an XDS.B HIE/RHIO and is able to both produce and consume a HITSP C32CCD. Allscripts has not yet created a CHixP compliant interface and does not currently support XACML declarations or SAML assertions. Allscripts requires a secure VPN connection from the practice network to the HIE. No additional hardware or software is anticipated. They estimate compliance within 12 months.
- EncounterPro is committed to an aggressive development schedule to insure that they have the capability to establish a CHixP compliant interface with HIXNY as part of this project. They have significant experience in establishing other interfaces using a wide range of transports and protocols. They are confident that they will be ready within the specified timeframe. No additional hardware is anticipated.
- GE currently expects to be CHixP compliant in approximately 6-12 months (mid 2011). Their next release of Centricity v9.2 will have core functionality that enables users to be ready for MU; this will include the ability to produce and consume a HITSP C32 CCD, using XDS.b, and PIX/PDQ. Each practice will be able to establish a direct and secure (TLS) connection to HIXNY from their upgraded Centricity EMR. No additional hardware is anticipated.
- STI has established interfaces with NYS RHIOs; their February 2011 release of Chartmaker EHR will be capable of producing and consuming HITSP C32 CCD. Their integration architecture is a secure hub and spoke through their centralized "health portal". They provide a single point of interface for third parties (e.g. HIE/RHIO) to connect to all STI clients. STI is active in NYS and will meet SHINNY requirements. No additional hardware is anticipated.

## **HIXNY To Data Warehouse**

Standardized data will be extracted from the EHR's and sent through HIXNY and then submitted securely to the clinical data warehouse (QDC).

The implementation plan is to establish the standard ability to populate data from the practices to the QDC. Clinical Information Services will be comprised of two distinct data warehouses that will both provide clinical decision support for population health management as well as the tools necessary for practice level continuous quality improvement. The EHR Data Warehouse will include data from the primary care providers' EHR's. These data warehouses leverage similar web based reporting tools but utilize different, yet complementary information. The EHR data warehouse vendor is Massachusetts eHealth Collaborative, whom will be utilizing their Quality Data Center product.

The data warehouses create a more comprehensive view of the patients' experience that neither warehouse would be able to individually provide. The EHR Data Warehouse is designed to be an analytic engine and reporting portal leveraging the primary care practices' EHR data. The EHR Data Warehouse aggregates demographic data (surrogate unique patient ID, DOB and gender) and pertinent structured clinical data elements (Problems/Diagnoses, Procedures, Medications, Allergies, Immunizations, Lab & Radiology Results, vitals and social history) from EHR source systems using HIXNY as the intermediary. The data set contains clinically rich information not available in the Payor Data Warehouse. The reporting portal will include tools for quality reporting and condition reporting. Specific tools will identify gaps in care, assess provider performance across peers, and monitor progress over time.

## **Payor Data Warehouse**

The data set within the Payor Data Warehouse contains the broadest view of the patient's care. The analytic engine and reporting portal will allow for quality reporting, condition tracking, and generation of patient specific care management that highlights evidence based gaps in care.

The Payor Data Warehouse will accept enrollment, claims, and pharmacy data via secure electronic portal. Numerous data validation and quality checks will be then be completed. Once the data feeds are complete, the payor data will be structured and risk adjusted to identify clinical variation and track performance. Key features will include identification of gaps in care inclusive of all claims. The breadth of information from all the providers submitting claims will not be available to the EHR-based Quality Data Center. In addition, the Payor Data Warehouse augments identification of patients with newly acquired chronic diseases as well as those patients with recent clinical deterioration or progression of disease. The Payor Data

Warehouse also allows for appropriate assignment into case management by the pods as well as identification of potentially preventable admissions, readmissions and ER visits.

Choosing an appropriate payor data warehouse vendor who could construct the appropriate data warehouse generating the necessary project information was critical to delivering the intended cost savings from this project. In choosing a vendor the following capabilities were evaluated:

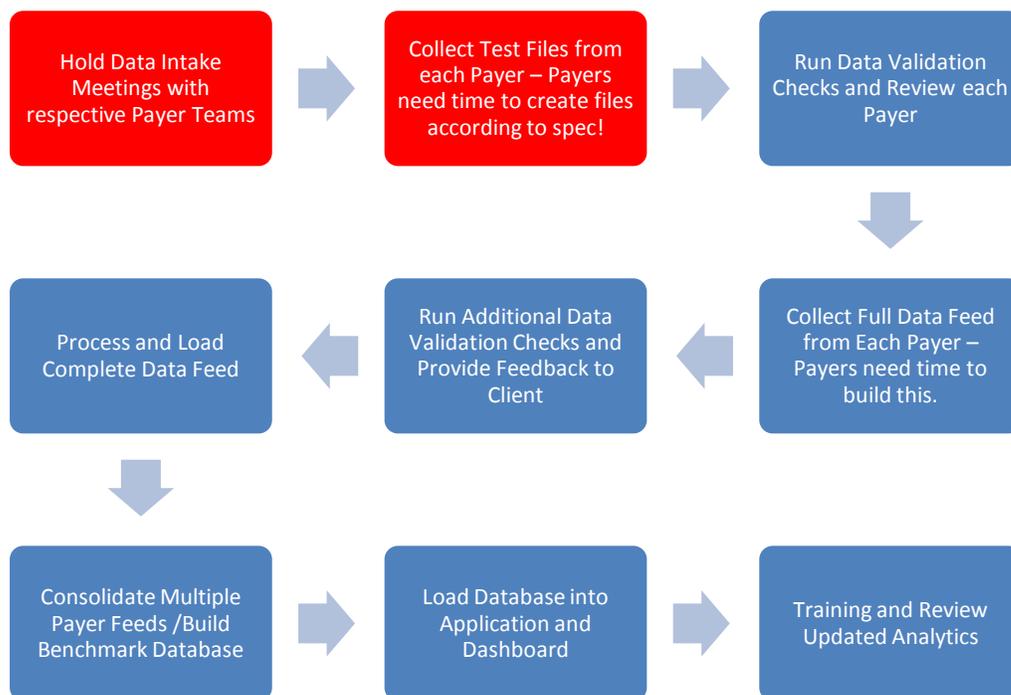
- Ability to collect cost, utilization, and pharmacy data from all payors on a timely basis
- Ability to build a stable, flexible data warehouse that stores this cost, utilization, and pharmacy data on a timely basis
- Understanding and application of widely accepted risk adjustment methodologies that allow for meaningful comparative analysis
- Ability to provide access to the data warehouse with user-friendly interface tools
- Ability to offer easily configurable reports to provide flexibility to meet project initiatives
- Use of predictive modeling methodologies to identify patients that might require proactive interventions
- Flexibility to assist a variety of entities and users meet of the needs of the project
- Utilization of generally accepted standards of reporting of population-based data
- Experience working with payors and payor data

As noted above, the payor data warehouse will be used to measure cost and utilization of professional services, medical facilities, and pharmaceuticals. Examples of the types of reports required from the payor data warehouse include:

- Pharmacy
  - Generic/Brand utilization
  - Total spending
  - Formulary adherence
  - Dispense as written rates
- Inpatient Utilization
  - Bed days in a rate per 1000
  - Admissions in a rate per 1000
  - Preventable/Ambulatory Sensitive
- Emergency Department Utilization
  - PKPY utilization rate
  - Preventable
- Ancillary Utilization
  - Specialty utilization

- Radiology utilization
- Surgical utilization
- Readmissions
  - Days post discharge
  - Preventable
- Cost of Care
  - Total Cost
  - Total Spend

Based on a careful analysis of vendor’s abilities to build and manage the payor data warehouse, expertise in risk adjustment of reporting measures, and ease of use for associated analytical tools, TREO Solutions was chosen to develop and support the payor data warehouse. TREO Solutions has been working aggressively with all the payors, in addition to developing the platform for the payor data warehouse. The methodology used by TREO Solutions to ensure clean data is mined and available to populate the payor data warehouse is illustrated in the graphic below.



#### 4. RISKS AND RISK MITIGATION

The major risk associated with this plan is one of funding. Technology design, development, and implementation take significant financial resources. This project is no exception. While the budget for the technology portion of the pilot is substantial at \$4.6M (from HEAL 10, the MSSNY pilot program, and grant-match funding from participants), there is always a risk that unforeseen contingencies might render the amount insufficient to meet the complete needs of the project.

Another risk is HIXNY’s capacity to meet its entire member needs in 2011. HIXNY was heavily committed in 2010 to bringing the rest of its existing members on to the exchange with significant financial impact. HIXNY continues to add staff and resources and is committed to meeting the project requirements of completing the hospital to HIXNY interfaces, the EHR to HIXNY interfaces, and the HIXNY to QDC interface in 2011.

A final risk is the ability for EHR vendors to meet their commitments to the interfaces as they also comply with the Meaningful Use requirements. To date, the majority of the EHR vendors have contractually committed to meeting the interface specification within the project timelines. The mitigation strategy for each of these risks is intense program management with constant milestone tracking to ensure compliance with the requirements and timelines. The goal is to identify issues quickly and rapidly work to their resolution in an effort to maintain milestone compliance and reduce financial and personnel resource consumption

The agreed-upon implementation timelines are provided below by vendor.

