New York eHealth Collaborative

Health Information Exchange and Interoperability

April 2012

Agenda

- Introductions
- Information exchange – patient, information, care team
- How is Health information exchanged
- Value of exchanging health Information – clinical and administrative
- New York eHealth Collaborative (NYeC) and the SHIN-NY
- What is available, what will be available?
- Health Home connectivity needs
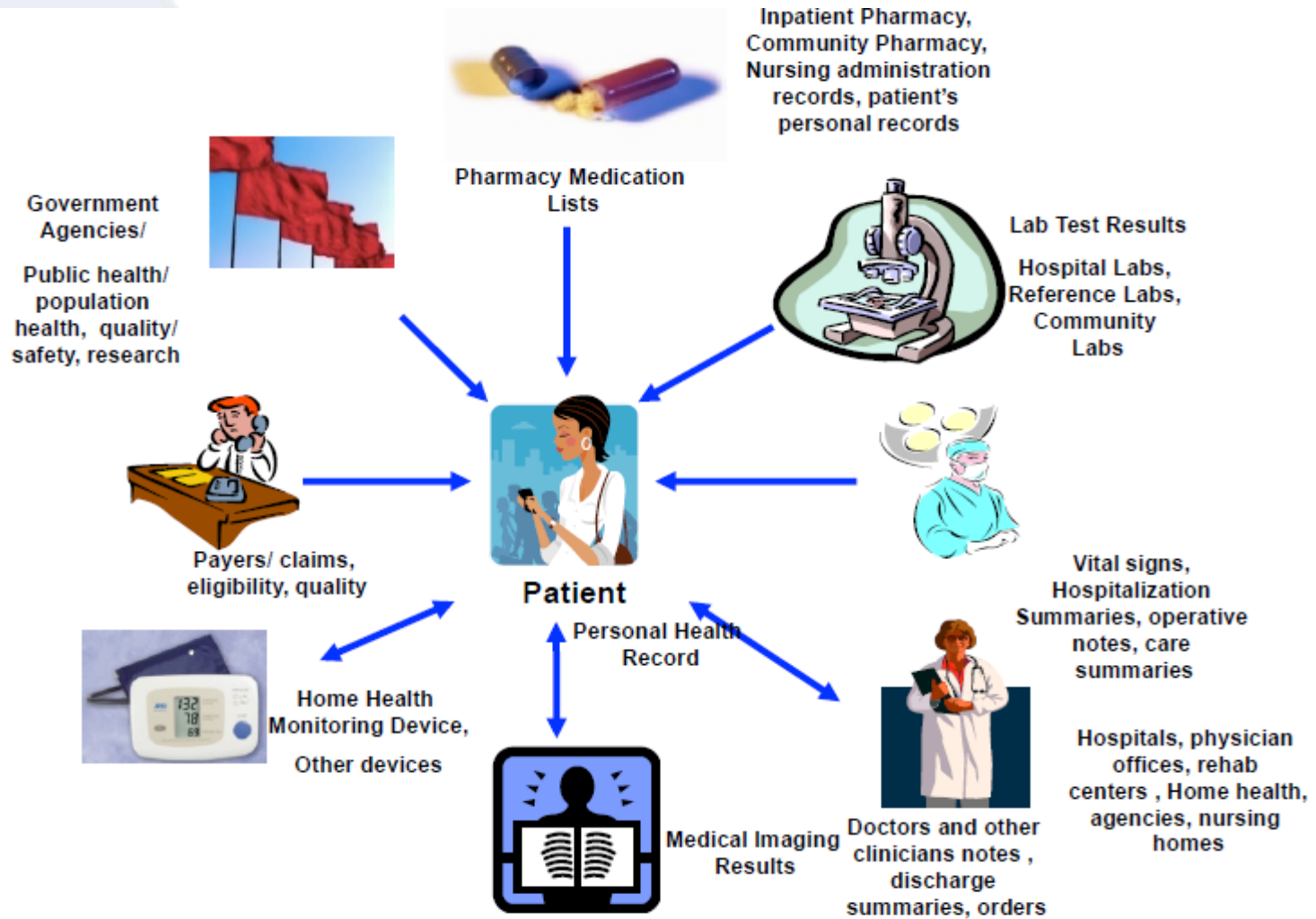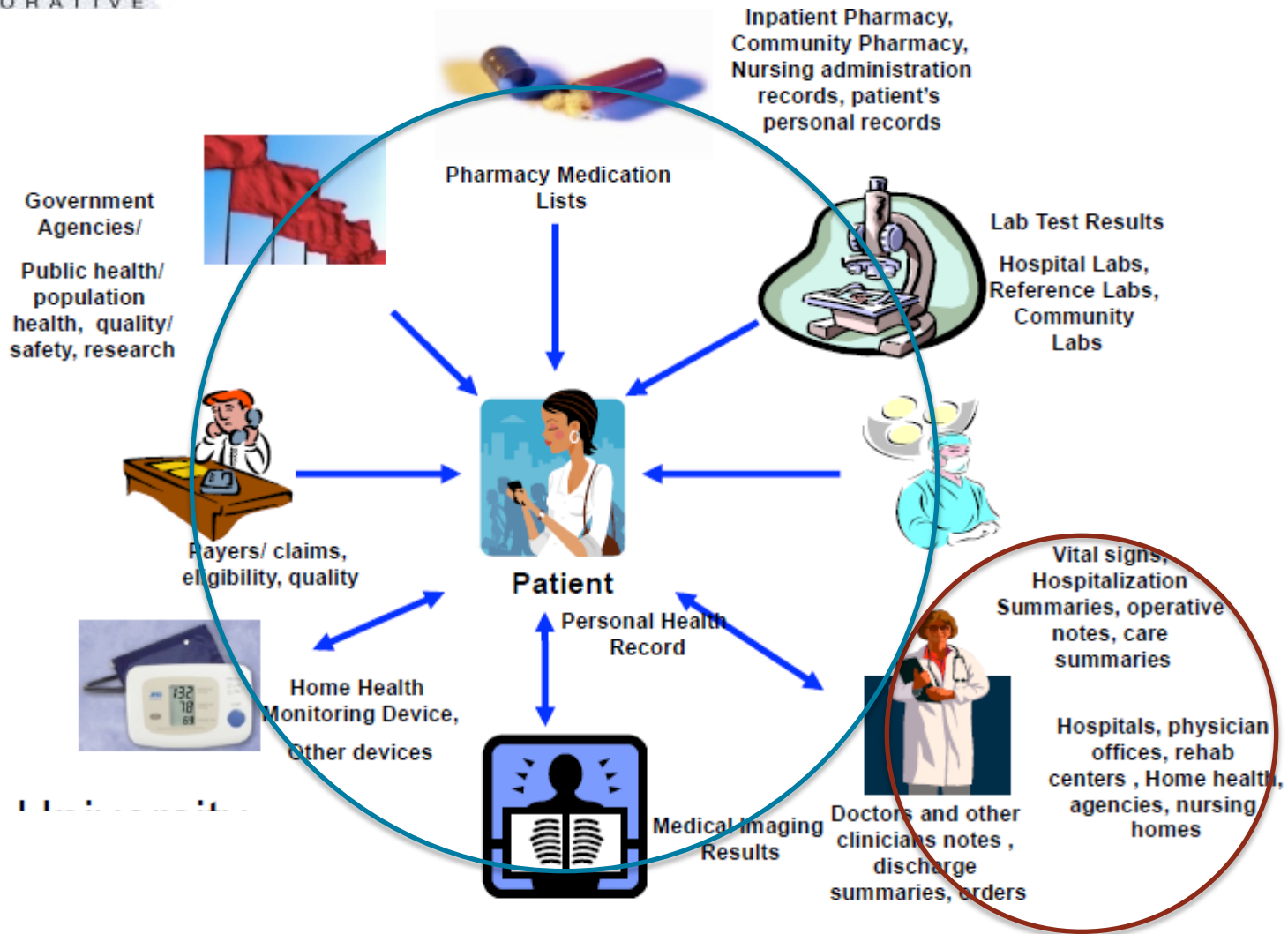- How can organizations connect?
- Questions

Information Exchange
Patient – Care Team

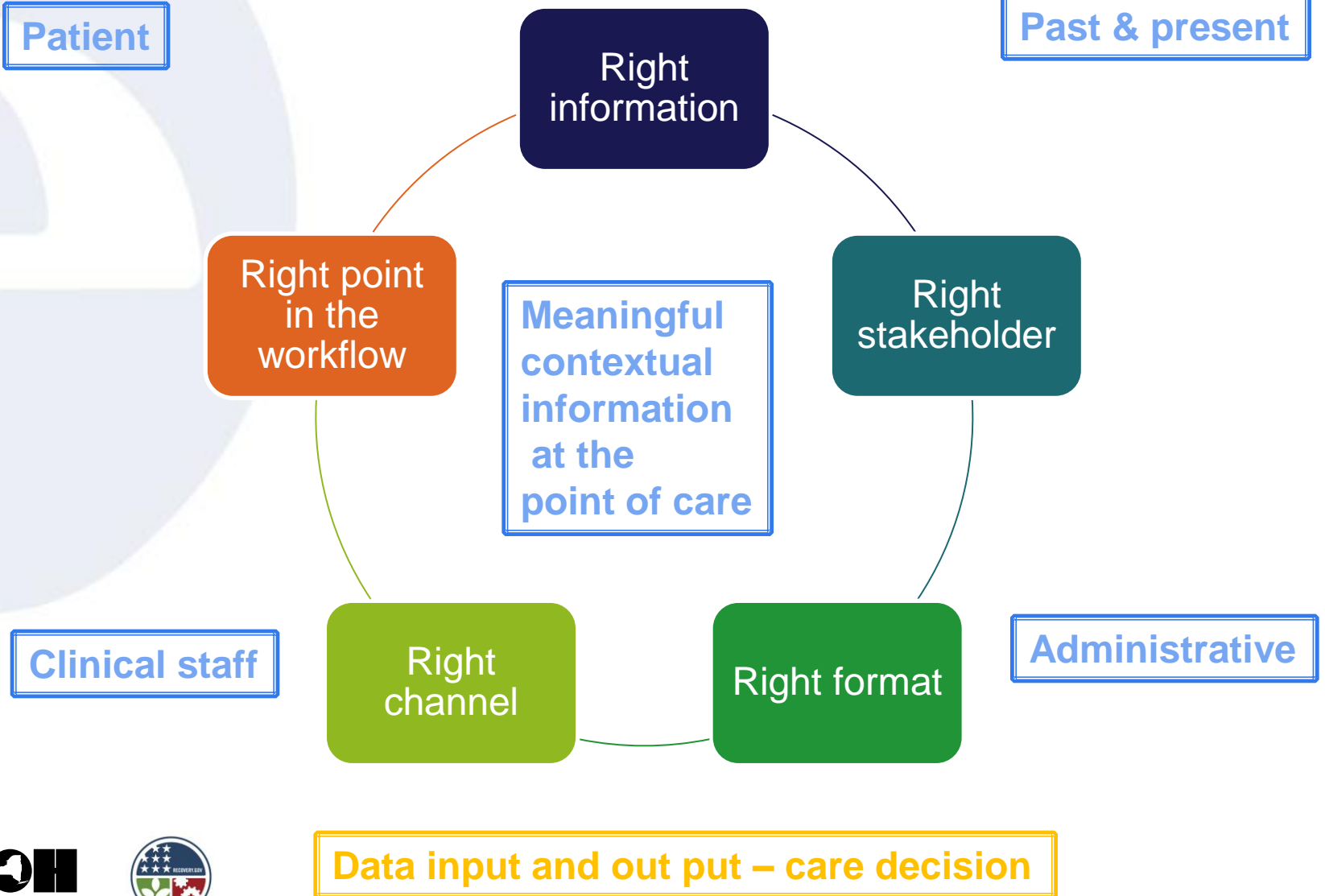# Clinical and Administrative Data Sources and Stake Holders

Inpatient Pharmacy, Community Pharmacy, Nursing administration records, patient's personal records

Pharmacy Medication Lists

Government Agencies/

Public health/ population health, quality/ safety, research

Lab Test Results

Hospital Labs, Reference Labs, Community Labs

Payers/ claims, eligibility, quality

Patient

Personal Health Record

Vital signs, Hospitalization Summaries, operative notes, care summaries

Home Health Monitoring Device,

Other devices

Medical Imaging Results

Doctors and other clinicians notes , discharge summaries, orders

Hospitals, physician offices, rehab centers , Home health, agencies, nursing homes

* HL7 University

Interoperability and Data Exchange

* HL7 University

What Must Happen?

Patient

Past & present

Right information

Right point in the workflow

Right stakeholder

Meaningful contextual information at the point of care

Clinical staff

Administrative

Right channel

Right format

Data input and out put – care decision

Information Exchange
Value and Progression

HIT Objective for the US Healthcare System

Build a foundation for the exchange of health information across diverse entities, within communities and across the country, to improve patient care and achieving the goals of HITECH Act

http://www.nchica.org/HIT_HIE/NHIN2/NHIN1209.htm

Evolution in Health Information Exchange

Transaction
- IT supports individual providers in delivering care and measuring outcomes

Interaction
- Basic care coordination capabilities with initial population based metrics

Integration
- Care coordination capabilities improve health status measurements is possible

Collaboration
- Seamless care coordination with demonstrated improvement in population health

Transformation
- Ability to predict outcomes based on data collected, prevention and long term improvement

Value of Interoperability of Health Care Information Systems

- ❑ Informed decisions for patients care

- ❑ Easy access to current data

- ❑ Progress tracking and review

- ❑ Measure and improve quality and safety

- ❑ Improve population health (prevention and disease surveillance)

- ❑ Efficient research and outcome measurement for future interventions
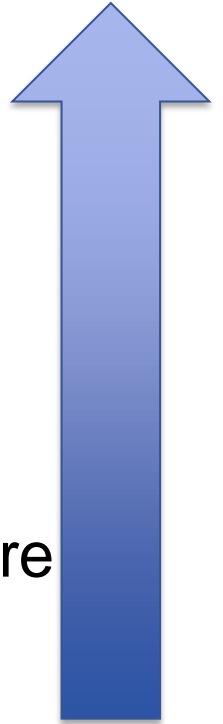
Coordinated HIT Expansion Path

Adopt Technology	Care Coordination	Clinical Integration	Population Management	Provider Sustainability
Practice mgmt and EMR	Clinical decision support	Outcome measurement and reporting	Evidence based standards	Advanced population analytics
Health information exchange	Care management and registries	Virtual care team coordination	Team based care collaboration	Continuous process Improvement
Process measurements and reporting	Population analytics	Patient engagement	Patient accountability	Risk and Financial management

Growth of utilization and expansion of data and usage

Information Exchange
Standardization

Standards and Interoperability

- Fire in Baltimore 1904

- Firefighters from different parts of the northeast rush to help

national standard to ensure fire safety

Lack of standards causes a problem
Standardization can prevent issues

13

Medical and Clinical Information Standards

- **Pharmacy – NCPDP**

- **Labs – LOINC**

- **Electronic exchange of Clinical information - HL7**

- **Radiology – DICOM**

- **Technical PCC – IHE**

* HL7 University

HIT Current Specifications

Standards – what we started with: HL7, HITSP, NwHIN

- Implementation Specifications – what we leveraged: IHE, HITSP, Direct Project

Reference Implementations – what we developed:

- Continuity of Care Document (HITSP C32)
- NwHIN Direct Reference Implementation
- NwHIN Connect Reference Implementation

Interoperability in NY State

SHIN-NY 2.0

NY State RHIO's

- Through the HEAL grant program, the NYS DOH helped create 12 regional health information organizations (RHIOs) in New York

- Each RHIO has built a local health information exchange network and is connecting the healthcare providers in their community – SHIN-NY 1.0,

- There are regional differences between upstate and downstate utilization behavior

- Health Home applicants and providers encouraged to join RHIO and establish connectivity for data exchange

SHIN-NY 2.0 will connect the individual RHIO's into a statewide network
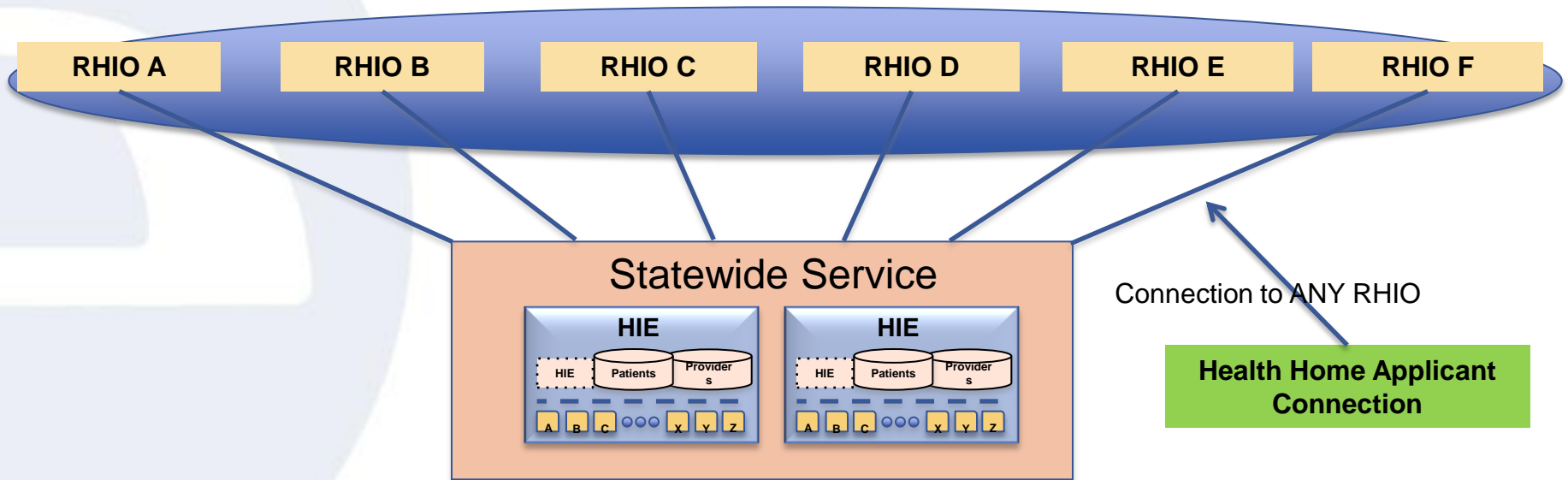
NY RHIO Data Repository

RHIOs are able to currently provide:

- ❑ Patient encounter history (e.g. admission, and discharge)
- ❑ Medication history
- ❑ Diagnosis codes
- ❑ Patient problem list including allergies
- ❑ Chronic disease information

Some RHIOs provide:

- ❑ Lab order and results
- ❑ Radiology order and reports

SHIN-NY 2.0 Information Flow

| RHIO A | RHIO B | RHIO C | RHIO D | RHIO E | RHIO F |

Statewide Service

| HIE | HIE |

| HIE | Patients | Providers |
| A | B | C | ○○○ ○○○ | X | Y | Z |

Connection to ANY RHIO

Health Home Applicant Connection

- SHIN-NY 2.0 will connect existing RHIOs – creation of network of networks
- Consolidation of down state RHIO infrastructure.
- Upstate RHIOs connect to the SHIN-NY for data interoperability.
- NYeC will manage the SHIN-NY to provide reliable, high quality, low cost HIE infrastructure services, facilitate interoperability
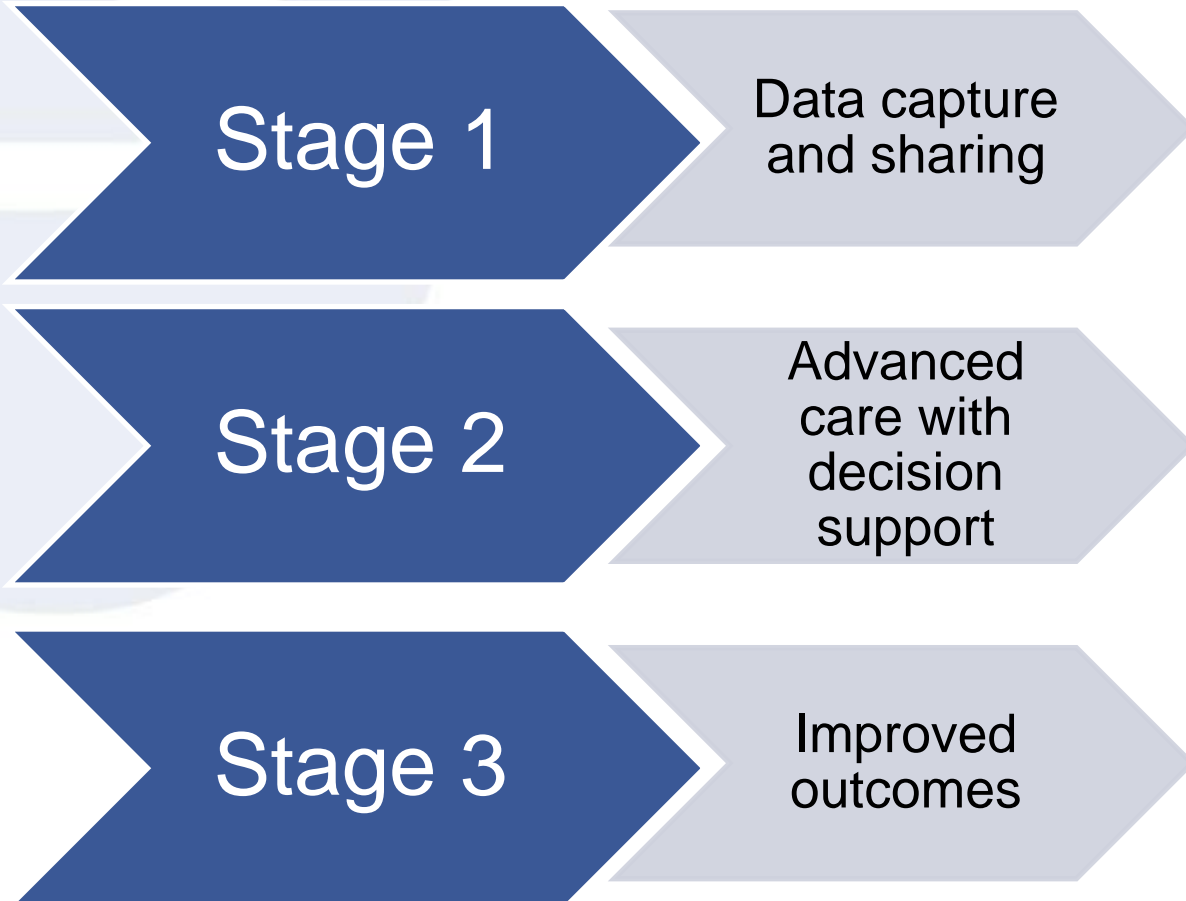
http://www.nyehealth.org/index.php/resources/rhios

STATE OF NEW YORK
DEPARTMENT OF HEALTH

NY Health Information Technology Initiatives

❑ The Regional Extension Center (REC) Program has given states purchasing and influence power with physician organizations, the NY state REC and NY REACH

❑ Once physicians have implemented an EHR and are on the path towards Meaningful Use, the next step is interoperability and connecting to an HIE

❑ Collaboration with vendors towards conformance of the specifications that will reduce the barriers of connecting to an HIE

National leaders interoperability standards

http://http://www.interopwg.org/

Meaningful Use and Interoperability

Stage 1 — Data capture and sharing

Stage 2 — Advanced care with decision support

Stage 3 — Improved outcomes

Interoperability is component for MU all stages

Participation of Stakeholders
Work in Progress

State

- ❑ Actively participate and obtain buy-in with state policy groups

- ❑ Agree to develop compliance process for interfaces within state

- ❑ Ensure that specifications developed are utilized in their state.

- ❑ Market to the healthcare provider community the value of using EHRs and HIEs that pass the "plug and play" compliance testing

Health Home all Stages

- ❑ Follow and comply with requirements

- ❑ Identify issues and work with the state to resolve

- ❑ Ensure that proposed solutions work

- ❑ Work with patients to improve care

- ❑ Provide state with timely reports, correct or adjust as needed to help continuous improvement

Interoperability in NY State
SHIN-NY 2.0

Standardize the Standards

NwHIN Direct

❑ Develops specifications for a secure, scalable, standards-based way to establish universal health addressing and transport for participants (including providers, laboratories, hospitals, pharmacies and patients) to send encrypted health information directly to known, trusted recipients over the Internet.

IHE profiles

❑ provide a common language for purchasers and vendors to discuss the integration needs of healthcare sites and the integration capabilities of healthcare IT products.

CCD

❑ specification is an XML-based markup standard intended to specify the encoding, structure and semantics of a patient summary clinical document for exchange.

Important HIE capabilities for various stakeholders

State and Regional HIE – in NY the SHIN-NY

❑ Ability to rapidly deploy interconnection of systems by having standard interfaces and interface approaches -simplify adoption

❑ Minimize costs associated with connection fees by individual EHRs each time a new connection is made – increase adoption

Providers - clinicians

❑ Increase value proposition of individual EHRs – contribute and extract data

❑ Eliminate HIE connection cost as prohibitive barrier for adoption – commoditize data sharing costs

Vendors – focusing on EHR and HIE capabilities

❑ Differentiate product in highly fragmented market by developing a product that offers "plug and play" to HIE across multiple states (superior interoperability)

❑ Build interface once, use for many different HIEs and EHRs

❑ Better utilize limited resources to focus on product functionality improvements and customer adoption

What functionality is available?

Statewide Send and Receive Patient Record Exchange

❑ Enables user interaction with a common service to identify the address of an intended recipient such as an individual provider or entity

❑ Defines a recipient's application capability to conduct exchange with compatible protocols and provides the ability for receiving systems to process specific payloads

Statewide Patient Data Inquiry Service:

❑ Defines a patient inquiry and record retrieval service utilizing message record routing, master patient index, authorization framework and identity management

❑ Extensible and is adaptable to the needs of other interoperability services such as a Statewide Master Patient Index (SMPI) and Record Locator Service (RLS)

Continuity of Care Document (CCD):

❑ Priority was assigned to development of a consistent implementation of the HITSP C32 CCD specification which could be implemented in a repeatable manner between EHRs and HIEs.

Push: Functionality Overview NwHIN Direct

- ❑ Find Entity Electronic Address

- ❑ Find Provider Electronic Address

- ❑ Retrieve Certificates and Node Information

- ❑ Send Patient Record/Protocol Conversion

- ❑ Deliver Patient Records

- ❑ Validate Sender's/Recipient's certificate

- ❑ Consume Document:

  - ❑ View Patient Record/Extract Patient record

Pull: Patient Record Lookup

Patient Discovery

❑ PIX/PDQ for SMPI* model

❑ XCPD for non-SMPI* model

Document Discovery

❑ Document Register

❑ Document Query

❑ Document Retrieve

❑ Document Retrieve with Aggregated CCD Return (optional)

*SMPI = State-Level Master Patient Index

Health Home – RHIO's - SHIN-NY

- Connection with any of the NY RHIOs allows access to patient information regardless of physical location

- NYeC is identifying needs and vendors who can tailor software to Health Home needs (special population and variety of partners)

- Providing centralized information architecture and flow commoditizes the cost of infrastructure and simplifies the process, resulting in higher efficiency and lower cost of operation

- Upcoming dates to keep
  - April 2012 – Innovation accelerator program
 - October 2012 – Digital Health Conference

Health Home
Connected Capability Needs

Health Home IT Goals

- Identify common tools used by Health Homes
- Focus on needs for various uses:
  - Care management and coordination
  - Provider Alerts - type, priority, information need
  - Patient engagement – for patients and their families
  - Analytics – clinical quality measures, operational tools
- Share good practice and offer solutions
- Simplify administrative steps
- Assure accurate information flows at the right time to the right person and allows quality patient care

Platform of Connected Capabilities
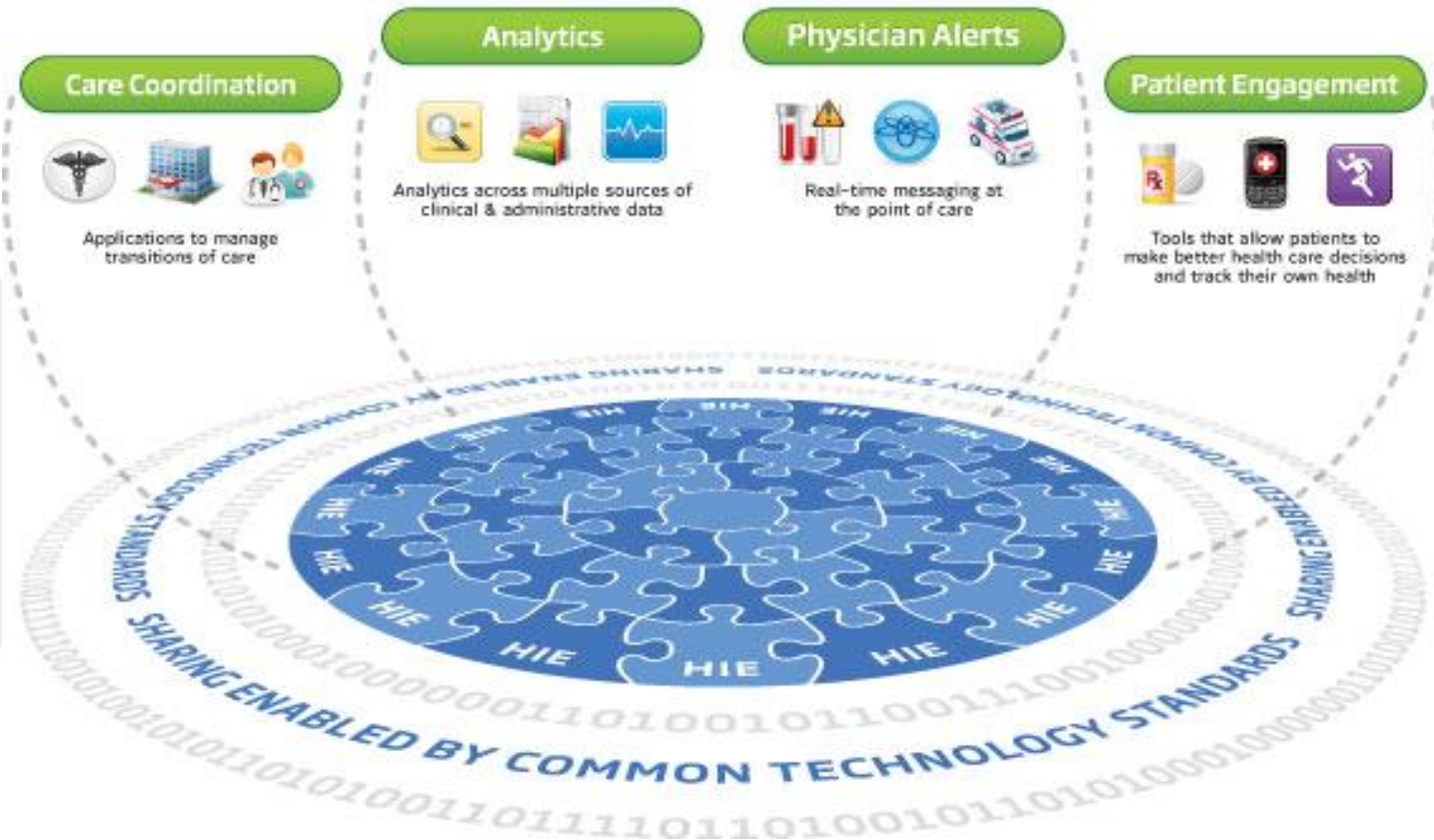
Emerging Needs

CARE PLAN MANAGEMENT
- Access and update plans – real time vs. Informational tool
- Flag specific populations
- Consent management levels

ANALYTICS
- Quality Management – reporting quickly an efficiently
- Dashboard for case managers – historical view, current status, planning

PROVIDER ALERTS
- Prioritize and differentiate based on interaction with patient (administrative vs. clinical)
- Secure messaging

PATIENT ENGAGEMENT
- Patient consent to share info with family
- Self management of conditions, and information input (mood, weight, exercise etc.)

Care Plan Management - Connectivity Needs

- Routing data in support of care transitions including referrals across all providers

- Connectivity to Health Plan and DOH data

- Routing visit and other data for clinical decision

- Electronic update capability for designated team members

- Avoidance of double entry

- Medication history (prescriptions, adherence, etc.)

- Real-time capability for care plan data input that avoids double entry functions.

- Ability to identify patient Health Home status/assignment/special population.

Patient Engagement – Connectivity Needs

- Personally controlled health records, data routed for personal management
- Standardized consent and access across the continuum of care
- Patient access to care plan and status updates with variety of devices
- Online capability for appointment scheduling and medication refills
- Patient and community education tools for self management
- Enable secure messaging of patient personal health information.
- Capacity for online appointment scheduling and medication refills.
- Patient access to care team contact information.

Analytics - Connectivity Needs

- Ability to integrate data across the continuum

- Live analytics dashboard

- Ability to import and export data to and from multiple systems

- Access data for reporting purposes: QA, provider satisfaction etc.

- Eligibility/claims data tracking for reporting and analysis.

- Data capture capability that tracks and analyzes patient outreach contacts, consent, and functional assessment scores for Health Home reporting requirements.

Provider Alerts – Connectivity Needs

- Event notification on hospital admission, discharge, medication changes etc.

- Transitions in care notification

- Secure messaging

- Targeted alerts provide information on medication adherence and missed appointments

- Real time alerts on multiple devices

- Alerts that are configured to identify urgency, frequency, and routine procedures.

- Patient enabled health status change notifications to providers/care plan team.

Health Home Special Considerations

- Event notification on hospital admission, discharge, medication changes etc.

- Unique population
  - Mental health
  - HIV
  - Prisons
- Variety of tools and organizations
- Connectivity beyond clinical setting
- Infrastructure heterogeneous and fast changing

Potential Uses and Information

- ❏ Clinical decision support
- ❏ Registry functionality
- ❏ Task prioritization
- ❏ Checklist reminders
- ❏ Follow up reminders
- ❏ Referrals
- ❏ Status Updates
- ❏ Specific patient summary
- ❏ Recommendations and assessments from a variety of organizations
- ❏ Quality Measurements
- ❏ Quality improvements
- ❏ Analytics (registry)
- ❏ Care plan management and documentation
- ❏ Consent management

Summary

Suggested next steps for Health Home Applicants/ Participants

- ❑ Talk to RHIOs in your region http://www.nyehealth.org/index.php/resources/rhios
- ❑ Make sure your providers connect
- ❑ Contribute data and obtain data
- ❑ Participate in HIT discussion
- ❑ Educate other of the importance of this initiative

NYeC Next Steps

- ❑ Identify common needs for HH applicants on the HIT field
- ❑ Work to provide centralized architecture and flow
- ❑ Continue education and out reach of physician and consumer community around the state

Questions????

Additional information or questions

Thank You

Nick VanDuyne, Chief Technology Officer

Nvanduyne@nyehealth.org - 646-6196568

Mina Rasis, Product Line Manager

Mrasis@nyehealth.org – 646-6196755

Appendix

HIE Connections are a Major Barrier to the Adoption of HIE Services

❑ Limited adoption on HIE around the US

❑ Existing standards such as Direct Project, IHE and other federal and statewide standards have been developed but have not been consistently implemented across states

❑ Each regional HIE does not have enough leveraging power with the vendor community to drive towards a common implementation of the standards, resulting in high cost of connection

❑ The industry is asking for more uniform and scalable interoperability capabilities, standards adoption by vendors is critical

Key Components of Specifications

Statewide Consumable Continuity of Care Document

1. CCD based on C32/C83

Tighter data element requirements based on C32 semantics and syntax.

Send and Receive Patient Record Exchange (Push)

1. Provider Directories

HPD, LDAP vs. HPD = HPD+ (supportive and adaptive)

2. NwHIN Direct

Main expansion beyond Direct is locating the provider through querying Provider Directory and finding digital cert per S&I.

Statewide Patient Data Inquiry Service (Pull)

1. Register and Query patient Identity, Provide and Register/Query and Retrieve Patient Documents

MPI search, provide and register document , and query and retrieve document, Consent management (ACP) under development

Creating a Common C32Roadmap: Teamwork & Pragmatism

Align the requirements from multiple programs with that of what was achievable by the vendor community.

1. States established priorities based on Clinical input

2. Mapped C32 to Stage 1 Meaningful Use Priorities

3. Determined Vendor Capabilities – each vendor submitted what was in CCD and in EMR; data de-identified for confidentiality

4. Worked with Beacon Communities and ONC Transitions of Care to establish programmatic priorities (harmonization)

5. Decisions made taking into account each program's requirements and what is achievable by vendors within 1 year

CCD Decisions

CCD (C32) Subject Areas:

❑ 80+% of subjects and fields aligned with the basic CDA (C83) specification (biggest delta in medication & encounter). Plan of Care not included; Orders reviewed but decision was to not specify.

❑ Aligned the States' Interop specification in all cases where the majority of vendors indicated that data existed in their applications.

❑ In many cases Beacon requirements were more restrictive than ONC but equal or less than the States' requirements

All vendors will be required to:

❑ Produce NIST-validated CCD with discrete elements

❑ Display and consume a CCD in a consistent manner with discrete elements/**store discrete elements**

❑ Differences in internal modeling accounted for

New York eHealth Collaborative (NYeC) Health Information Exchange

NYeC is a public-private partnership designated by the federal and state governments to advance health information technology (HIT) in NY State in order to improve the quality of healthcare and benefit the public good

Build the Statewide Health Information Network-NY (SHIN-NY), a secure network for sharing electronic medical records across the state

- Allow providers to share information
- Promote collaborative care so doctors work as a team to benefit the patient

Health Information Exchange allows

- Access to specific patient information statewide
- Adherence to privacy and security requirements
- Document , track and compare quality measures

NYeC is working to connect the Downstate Regional Health Information Exchanges (RHIOs) together as well as allow access to Upstate RHIOs