Electronic Health Records 101

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Electronic Health Record (EHR) Defined

e·lec·tron·ic health re·cord   /eè lek trónnik helth rékərd/

Noun

1.   a plot by insurance companies to control physicians
2.   a plot by the government to control physicians (may be combined with 1: above)
3.   a plot by hospitals to control physicians (may be combined with 1: and 2: above)
4.   a scheme by software and hardware companies to enrich only themselves
5.   a fad that will hopefully disappear before it causes too much harm
6.   a computer tool that clinicians pay for and everyone else benefits from
7.   a necessary tool for improving health care in an increasingly complex system

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There are Many Different Terms and Definitions

"A secure, real-time point-of-care, patient-centric information resource for clinicians."

… an electronic record of all of your medical information, searchable and available to those who are allowed to use it. (en.wikipedia.org)

"A computerized version of the paper medical record." (marshfield clinic)

A term that may be treated synonymously with computer-based patient record and/or electronic health record; often used in the US to refer to an electronic health record in a physician office setting or a computerized system of files (often scanned via a document imaging system) rather than individual data elements. (ahima)

An electronic patient record that resides in a system specifically designed to support users by providing accessibility to complete and accurate data, alerts, reminders, clinical decision support systems, links to medical knowledge, and other aids." Institute of Medicine

… a repository of clinically pertinent data that may be accessed and searched with relative ease. P. Bergeron, MD Postgraduate Medicine

… electronically originated and maintained clinical health information, derived from multiple sources, about an individual's lifetime health status and healthcare. An EHR is supported by clinical decision systems and replaces the paper medical record as the primary source of patient information. HIMSS

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Rational for EHR

- Keeping track of chart location is difficult
- Only one person can have chart at a time
- Delays in retrieving charts are aggravating
- Handwriting is illegible
- Charts are disorganized, info hard to find
- Some info doesn't get in chart for days
- New volumes don't contain old information
- Paper filing is time consuming
- Chart files take up a lot of space
- Charts have to retired to make space
- Not enough tabs for all the types of forms

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EHR Adoption Raises Many Concerns…

For a facility trying to adopt an Electronic Health Record, it's SCARY!

- What system to choose?
- What about my old records?
- How will I train my staff?
- Who will handle the IT issues?
- What about patient privacy?
- How much will it cost?
- Do I qualify for incentive programs?

First, a facility needs to address some broader questions and determine what is non–negotiable.

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Key Areas to Think About in Choosing an EHR

Functional fit

Can the software be tailored to your current workflow?
Consider examining current workflow for inefficiencies prior to implementation

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Accessibility

Where do you want to access your system? Home? Office?
Will you have secure remote access?
Will you use fixed workstations or wireless tablets or laptops?

Administration

How are administrative privileges handled?
Will your practice handle administrative privileges or will the vendor?
Can you customize the application on your own or will you have to rely on the vendor for customization?
Are there additional charges for customization or are they part of implementation?

Application hosting

Will your system be client/server EHR or SaaS EHR?
What are the cost implications?
What are the hardware considerations?

Key Areas to Think About in Choosing an EHR

Reporting

What kind of reports will you need from your system?
Are your reporting needs satisfied with the vendor's standard reports?
Can you generate ad hoc reports?
Does your vendor require special report training?

Installation

What is your vendor's standard implementation time frame?
Who will do it – the vendor, or will your staff be trained?
What kind of internal resources will you need to devote to the implementation process (i.e. customization and pre-implementation build)?

Training

What kind of training can you expect? On-site? Off site? Web-based? Hands on?
Will you need to incur additional expenses for off-site training?
How much training is include in implementation?
Will additional training cost more?
How will new employees and providers be trained?
Will you receive manuals?

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Key Areas to Think About in Choosing an EHR

Technical support

Will the vendor provide any on-site support?
What about off hours support?
What is the vendor's typical support model?
What are the protocols for support issues?
What are the days and hours for support?

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Maintenance/ support

How is the system updated? By the vendor? By your staff?
How often is the system updated?
Are system updates included in the fees or is there an additional charge for them?
How much does your vendor charge for maintenance and support?
When do support payments begin?

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Disaster recovery

How will your data be backed up?
Who will do system backups?
Who will be responsible for storing it?
How will data be restored if necessary?

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Some Potential Features of EHRs

- Results reporting (lab, radiology, other)
- Order entry (lab, radiology, other)
- Multiple note creation options (templates, macros, dictation, voice recognition, hand writing recognition)
- Automated E/M coding adviser
- Software interfaces with internal and outside labs
- Prescription writer and database (with online formularies and drug-interaction checking)
- Flow charting (labs, vital signs, growth parameters)
- Remote access
- Referral ordering and tracking
- Patient registration information (master patient index)
- Telephone message documentation and tasking
- Internal e-mail

- Secure external e-mail for patients
- Patient Web portal
- Patient education
- Scanning
- Automated chart documentation (problem lists, medication lists, vital signs, health maintenance)
- Automated charge entry
- Inpatient reports (downloadable)
- Electronic fax reports (dictation, lab, radiology) to outside specialists
- Patient follow-up/health-maintenance deficiency alerts
- Practice population analysis tools
- Decision support tools
- Security (audit trails, user access hierarchy, passwords)

Take the time to rate your vendors!

FUNCTIONALITY
Quality/presence of features we prioritized (see demo rating summaries)
Ease of use (e.g., minimizes typing, is intuitive, simple layout)
Speed (network/hardware configuration, minimizes keystrokes)
Individual user flexibility • Multiple note creation options (transcribe, voice, template) • Provider can modify/create own templates • Provider can create own macros
Preloaded templates and patient education
Combined functionality score (total the rankings for each vendor)
A Overall functionality ranking

COST
Initial hardware and network upgrades
Initial interfaces
Initial software
Total initial cost
Annual software maintenance (includes upgrades and support)
Annual interface upgrades
Total annual cost (excludes initial costs)
B Overall cost ranking

VENDOR CHARACTERISTICS
Training
Support
Implementation
Software upgrades
Company stability
Combined vendor characteristics score (total the rankings for each vendor)
C Overall vendor characteristics ranking

D Functionality	%
E Cost	%
F Vendor characteristics	%
	should total 100%

OVERALL RANKING
G Weighted functionality score ((A × D) ÷ 100)
H Weighted cost score ((B × E) ÷ 100)
I Weighted vendor characteristics score ((C × F) ÷ 100)
Weighted overall score (G + H + I)
Final Ranking

Identify your decision makers for your assessment team:
(your most influential people)

- Physician lead
- Key Nurse
- Office manager
- Receptionist
- Most skeptical employee
- Most positive employee

Remember: The most influential people are not always the ones with the titles.

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Be sure you know or have...

- Clear understanding of your organizations operations/workflow
- Clear list of need, wants and can afford
- Current Electronic Systems your EHR needs to interact with (scheduling, billing, RHIO, clinical integration)
- Implementation of an EHR is not a one time event. A good understanding of the support and "service dept" of the EHR vendor.
- An EHR implementation will have a huge impact to your organization and the way you care and manage patients.
- Remember to communicate to your staff the anticipated changes processes and workflow.
- Anticipate and be prepared for resistance

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Implement Specific to Your Facility

- Options for Implementation
    - 1 provider at a time
    - Only new patients
    - Flip a switch
    - Stair Climb Roll Out
    - Most Resistant Provider
    - Most Computer Savvy Provider

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Implement Specific to Your Practice

- Hardware Options
  - Swing Rooms
  - Mobile Tablets
  - Space Issues
  - Users in system
  - Printing Needs
  - Patient Flow

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Who needs to have an EHR as part of a health home?

- Both Lead applicants and "eligible provider" participants in a health home need a "Certified EHR"

- Two types of Certification
    - "Modular Certification" -   given to a specific section of an EHR
    - "Complete Certification" – given to a complete EHR

- All participants in a Health Home need to be <u>contributing</u> data electronically within 18 months.

- Two ways to contribute data
    - Purchase an EHR system
    - Implement an EHR lite product

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How does this fit together with a RHIO?

⊕ Regional Health Information Organizations (RHIOs) brings together health care stakeholders within a defined geographic area and governs health information exchange (HIE) among them for the purpose of improving health and care in that community.

- ⊕ RHIOs focus on improving clinical and economic health of the community
- ⊕ Patient-centric in nature
- ⊕ Provide secure electronic means for information to flow as an HIE
- ⊕ Not for profit organizations comprised of a diverse set of stakeholders that include providers of care, local government, employers, health plans and consumer groups

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RHIOs act as the pipes between organizations
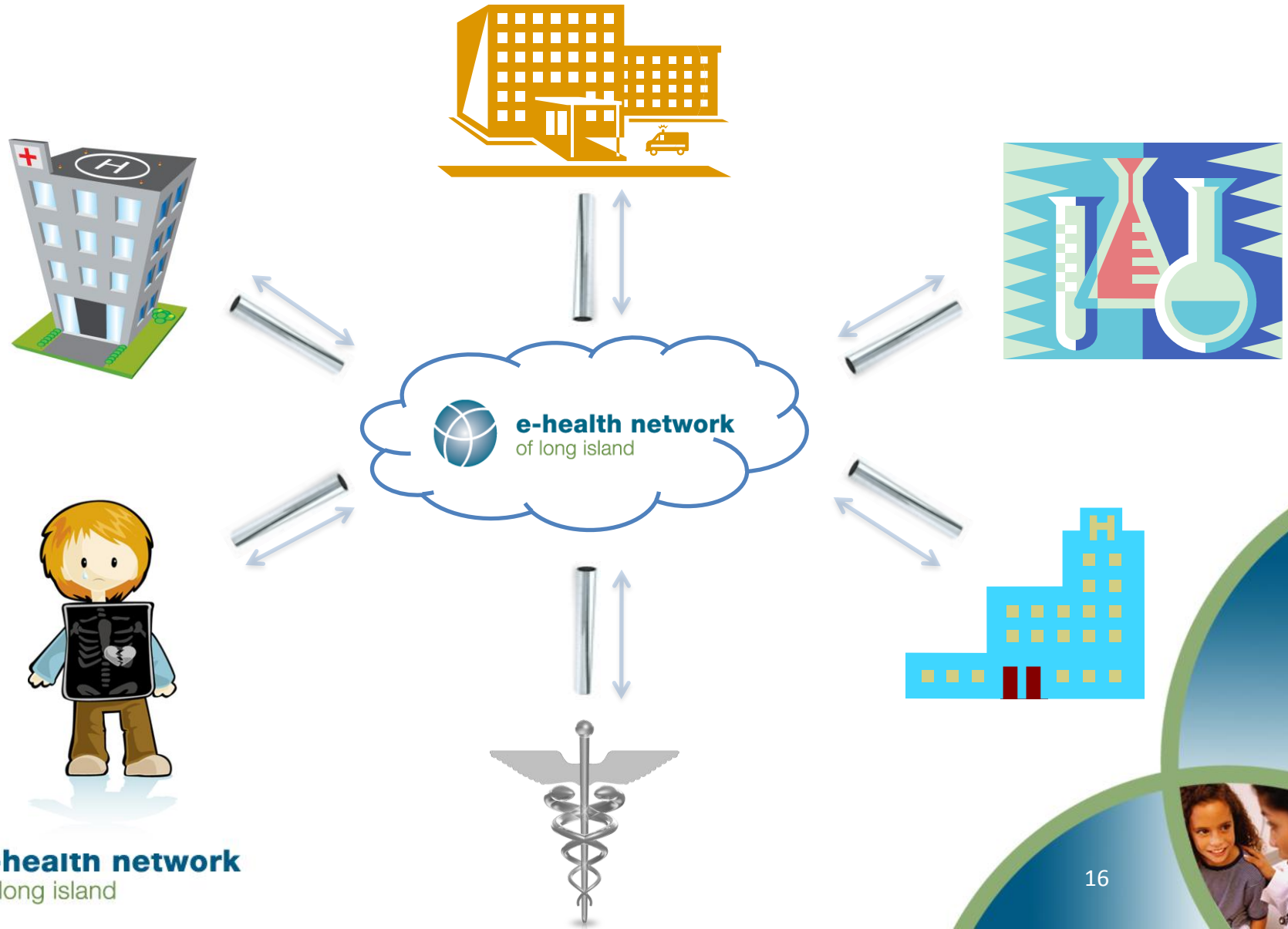
HIT Alphabet Soup: RHIO vs. HIE

RHIO
Regional Health Information Organization

- *Entity* that governs the interoperable exchange of information

- *Entity* that defines and has the responsibility for establishing and enforcing information sharing policies

- Exchanges clinical and administrative information

- Participants are geographically defined

- Mission is to improve quality, safety, efficiency of healthcare for communities in which it operates

Exchanges information among organizations that operate independently of each other

HIE
Health Information Exchange

- *Activity* or process that moves health-related data

- Agreed upon set of interoperable standards, and processes needed to implement information exchange

- Exchanges clinical and administrative information

- Participants may be geographically or non-geographically defined

- Purpose is to exchange information

Exchanges information among organizations that operate independently of each other

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RHIO Rational

- Improve patient outcomes
- Assist with making better clinical decisions
- Decrease costs of care
- Improve quality of care for patient
- Broader view of patient's treatment
- Eliminate duplication of testing
- Easier for the patient

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NY State RHIO Landscape
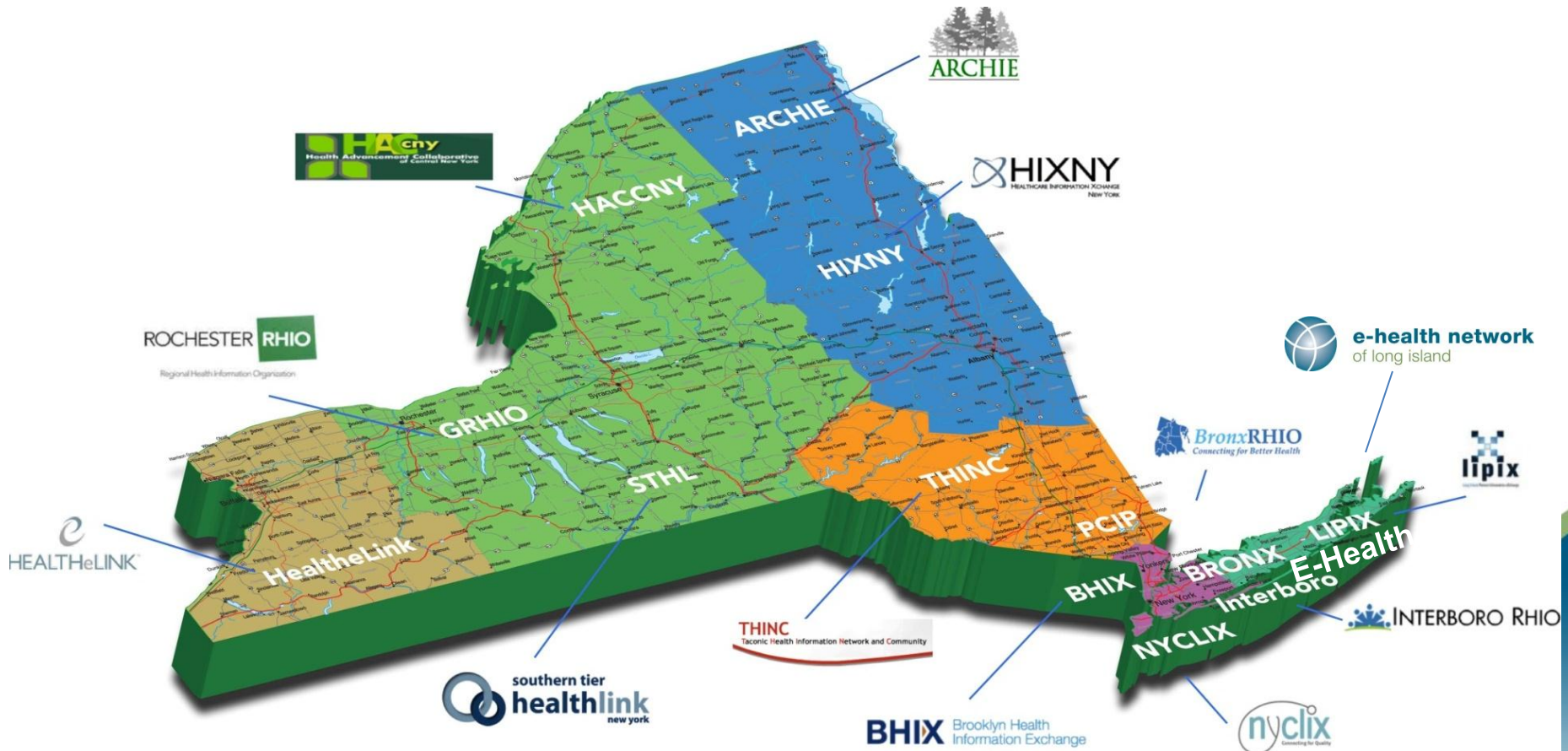
- **Major Differences between NY RHIOs:**
  - **Revenue models**: "membership" or "fee for transaction"
  - **Consent**: bundled consent or single provider consent → issues with x-RHIO sharing
  - **Mixed HIE architectures**: federated vs. central vs. hybrid
  - **Variety of EHR vendors "supported":** interfaces to HIE are custom & expensive

RHIO Points to Consider

State and Federal Requirements

- New York State Consent Law (Opt-In State)
    - At Patient's discretion
    - Consent once at each facility or multi –site consent
    - Patient is consenting for facility to view information from other members of the exchange
    - 10-17 year olds
    - Auditing
- User Roles
- Patient consented prior to treatment
- Withdrawing Consent
- Process for consenting and viewing data
- Providers want Information not Data

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Types of Data to Share

- Allergies
- Medications
- Problem List
- Laboratory/Radiology
- Demographic Information
- Discharge summaries
- Consults
- DNR/Health Care Proxy
- Assessments
- Encounters
- Social History
- Plan of Care
- Immunizations

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Federated Model
(non-technical)

How the data really gets stored!

Master Patient Index (MPI)

Southampton

Stony Brook

Peconic Bay

Eastern LI

Winthrop

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Getting to the Info

Getting to the Info

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Problems

Name	Coding Scheme	Code	Status	Source	OnSet Date
Typhoid fever	ICD-9	002.0	ACTIVE	Southampton Hospital	4/28/2011
Constitutional aplastic anemia	ICD-9	284.0	ACTIVE	Stony Brook University Medical Center	4/28/2011
Iron deficiency anemias	ICD-9	280	ACTIVE	Stony Brook University Medical Center	4/28/2011

Allergies

Name	Type	Reaction	Source	Start Date
Multivitamin	Drug allergy	Difficult Breathing	Southampton Hospital	4/28/2011
Peanuts	Miscellaneous allergy	Vomitting	Stony Brook University Medical Center	4/28/2011

Procedures

| Date	Description	Procedure Type	Physician	Source
11/29/2007	Cast Removal with Examination		Depak Shah	Stony Brook University Medical Center
10/27/2007	X-Ray Interpretation & Consultation		Depak Shah	Stony Brook University Medical Center
10/22/2007	Cast Application - Lower Arm		Depak Shah	Stony Brook University Medical Center
08/11/2007	X-Ray, Forearm		Depak Shah	Stony Brook University Medical Center
04/27/2007	Varicela-Zoster Immunization, Intramuscular		Lisa Kim	Stony Brook University Medical Center
04/27/2007	Hep-A Vaccine, Pediatric/Adults, 3 dose		Lisa Kim	Stony Brook University Medical Center
04/27/2007	MMR Vaccine		Lisa Kim	Stony Brook University Medical Center
04/27/2007	HIB3 Vaccine, 4 Dose Sched., Intramuscular		Lisa Kim	Stony Brook University Medical Center
04/27/2007	IPV4 Vaccine, Inactivated		Lisa Kim	Stony Brook University Medical Center
10/26/2006	DTaP2 Vaccine, Intramuscular		Lisa Kim	Stony Brook University Medical Center

Medications

Name	Dose	Route	Frequency	Status	Source	Start Date	End Date
rivastigmine tartrate capsules	9.6 mg, 1 - 10 DAYS	ORAL	QD	ACTIVE	Stony Brook University Medical Center	4/28/2011	5/8/2011
ampicillin capsules	250 mg, 1 - 1 MONTHS	ORAL	BID	ACTIVE	Stony Brook University Medical Center	4/28/2011	5/28/2011
theophylline tablet	200 mg, 1 - 1 MONTHS	ORAL	BID	ACTIVE	Southampton Hospital	4/28/2011	5/28/2011
amoxi clavu pot tablets	875;125 mg;mg, 1 - 1 MONTHS	ORAL	BID	ACTIVE	Stony Brook University Medical Center	4/28/2011	5/28/2011

Common Patients Venn Diagram
June 4, 2012
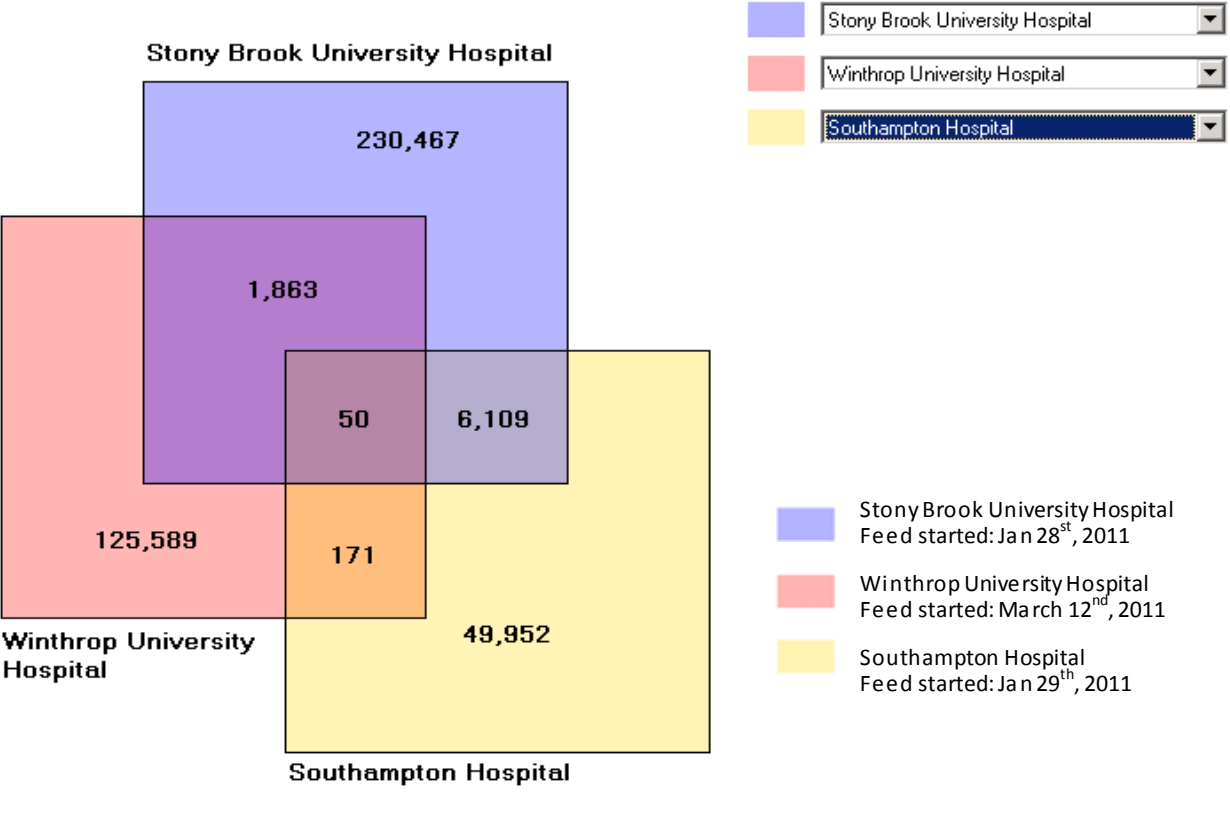
It takes time to change

- Build trust
- Build relationships
- Build it with the right people at the table
- Focus on the patient
- Focus on end user
- Step back and determine turning point of commitment
- What is holding them back
  - Fear
  - Money
  - Change

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HH Implementation Series

All training sessions (recordings and presentations) have been made available on the Medicaid website.

http://www.health.ny.gov/health_care/medicaid/program/medicaid_health_homes/ohitt_ehr_webinars.htm

Topics

- Vendor Selection
- Privacy and Security
- Workflow Optimization
- Patient Centered Medical Home and Meaningful Use
- Care Management
- Interoperability

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