

The Importance of Developing a Relationship with IT

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Learning Objectives

- Recognize the expanded role of IT in healthcare
- Outline the regulatory complexities driving health IT expansion, and related requirements
- Review potential risks and rewards of health IT
- Identify the potential teams involved in health IT
- Discuss the importance of business, clinical and IT relationships

Disclosures

- No conflicts of interest or disclosures related to the material in this presentation

Evolution of Health Information Technology (HIT)

Part I

Evolution of HIT

Health information

- Generally includes information about
 - Health status
 - Provision of care
 - Billing and payment for care

Evolution of HIT

Health information

- Protected Health Information (PHI)
 - Can be linked to a specific individual
 - Any part of the medical record or payment history
 - Created or collected by “covered entity” or “business associate”

Ref (1)

Evolution of HIT

Health information – primary uses

- Patient diagnostics and treatment
- Patient health risk assessment
- Claims and payment processing

- Primary use information normally is PHI

Evolution of HIT

Health information – secondary uses

- Public health monitoring
- Health system planning
- Quality control and monitoring
- Research

- Information is often aggregated
- May be PHI or de-identified information

Evolution of HIT

Information technology

- The use of tools to store, retrieve, transmit data
- Four distinct phases of IT evolution (so far...)

Ref (k)

Evolution of HIT

Information technology

Pre Mechanical Era
3000 BC – 1450 AD

Stone cuneiform letter to the King of Lagash
Circa 2400 BC



Louvre Museum [Public domain], via Wikimedia Commons

Evolution of HIT

Information technology

Mechanical Era
1450 – 1840

Gutenberg Printing Press Replica



Credit: DT Parker 2/21/09 - CC BY 2.0

Evolution of HIT

Information technology

Electro Mechanical Era
1840 – 1940

German Enigma Machine
Circa 1930



Credit: Alessandro Nassiri - CC BY-SA 4.0

Evolution of HIT

Information technology

Electronic Age
1940 – Present

Computer Data Center
Circa 2014



Wallpaperstop.net

Evolution of HIT

Key advances in IT in current era

- Moore's Law (an observation)
 - Dramatic increase in raw computing power
 - Significant reduction in cost
- The Internet
- Smart phones
- "Big Data", "AI" and "virtual assistants"

Evolution of HIT

The Big One

The "Internet of Things"

Term coined by Kevin Ashton
of Proctor & Gamble, in 1999



By Wlilgenbroed on Flickr [CC BY 2.0]

The Regulatory Landscape

Health Information Technology

The Regulatory Landscape

Health Insurance Portability & Accountability Act

- Signed into law in 1996, updated in 2013
- Title I – Access, portability, renewability
- **Title II – Fraud, abuse, privacy, security**
- Title III – Pre-tax medical spending and savings
- Title IV – Group health plans
- Title V – Company-owned life insurance

Ref (a)

The Regulatory Landscape

HIPAA Title II – HHS rules

- **Privacy rule**
- Transactions and code sets rule
- **Security rule**
- Unique identifier rule
- **Enforcement rule**

Ref (h)

The Regulatory Landscape

HIPAA Title II – HHS privacy rule

- Regulates use and disclosure of PHI
- Applicable to “covered entities”
 - Medical service providers
 - Health plans, clearinghouses, etc.
- Applicable to “business associates”
 - Anyone working with PHI on behalf of “covered entity”
 - Subcontractors, tech companies, individuals, etc.

Ref (b, d, f)

The Regulatory Landscape

HIPAA Title II – HHS privacy rule

- Establishes patient rights to their own PHI
- Privacy complaints channeled through HHS Office of Civil Rights

Ref (b, c, f)

The Regulatory Landscape

HIPAA Title II – security rule

- Establishes national standard for confidentiality, integrity and availability of e-PHI
- Initially applied only to “covered entities”
- Three categories of required security
 - Administrative safeguards
 - Physical safeguards
 - Technical safeguards

Ref (g)

The Regulatory Landscape

HIPAA Title II – security rule

- Administrative safeguards
 - Security management process
 - Security personnel
 - Information access management
 - Workforce management and training
 - Periodic evaluation

Ref (g)

The Regulatory Landscape

HIPAA Title II – security rule

- Physical safeguards
 - Facility access controls
 - Workstation and device security

Ref (g)

The Regulatory Landscape

HIPAA Title II – security rule

- Technical safeguards
 - Access control
 - Audit controls
 - Integrity controls
 - Transmission security

Ref (g)

The Regulatory Landscape

HIPAA Title II – enforcement rule

- Establishes investigatory and due process procedures for potential HIPAA violations
- Establishes civil penalties for violations
 - Range from \$100 to \$50k per violation
 - Certain violations may result in criminal prosecution

Ref (i)

The Regulatory Landscape

HITECH Act

- Health Information Technology for Economic and Clinical Health Act
- Part of the American Recovery and Reinvestment Act of 2009

Ref (i)

The Regulatory Landscape

HITECH Act – four subtitles

- **A – Promotion of health information technology**
- B – Testing of health information technology
- C – Grants and loans funding
- **D – Privacy and security**

Ref (i)

The Regulatory Landscape

HITECH Act – Subtitle A – promotion of HIT

- Improving healthcare quality, safety, efficiency
- Meaningful use
 - Voluntary CMS program to encourage use of electronic health record systems
 - Three stages with increasing financial incentives
 - Goal is to drive EHR adoption to gain anticipated quality, safety and efficiency benefits

Ref (i)

The Regulatory Landscape

HITECH Act – Subtitle D – security

- Enhances the security provisions of HIPAA
- Extends “breach notification” requirements
- Extends HIPAA privacy and security requirements to all business associates

Ref (1)

Evolution of HIT

Part II

Evolution of HIT

Why the rapid convergence of healthcare and IT?

- The HITECH incentive
- Spotlighting healthcare costs
- Consumerism
- The “connected” world
- The “Amazon Effect”
- Non-traditional players with new ideas

Evolution of HIT

Rapid advances in a short period of time

- Robust EMR systems and information sharing
- Telemedicine makes care more accessible
- Implantable and externally worn devices provide real-time patient monitoring
- Patient care equipment monitors itself and asks for service as needed

HIT – Risks and Rewards

HIT – Risks and Rewards

Potential rewards for individual patients...

- Comprehensive patient medical record
- Faster patient care
- More accurate diagnoses
- More precise treatments
- Reduced medical errors
- In general, BETTER patient care

HIT – Risks and Rewards

Potential rewards for general population...

- Population health predictions
- Early detection of disease outbreaks
- More accessible care
- More affordable care

HIT – Risks and Rewards

Realized rewards – a few examples

- Telemedicine for comprehensive stroke care
- “Big data” predictive analytics to improve infusion and OR scheduling
- Automated MRI brain structure analysis using crowd-sourced data sets
- MRI guided robotic deep brain surgery (SEEG, ablations, and more)

HIT – Risks and Rewards

Potential risks...

HIT – Risks and Rewards

Potential risks...

- More complex systems require more vigilance
- Patient equipment reliability
- Risks from interconnectedness
- Network reliability
- Complacency

HIT – Risks and Rewards

Potential risks...

- ID theft, PHI theft
- Data manipulation
- Ransomware attacks

HIT – Risks and Rewards

Recent ransomware attacks (large scale)

- WannaCry (May, 2017)
Impacted nearly 70k devices operated by UK's National Health Service, including PCs, MRI, blood refrigerators, and more. Estimated over 300,000 organizations affected worldwide.
- NotPetya (June, 2017)
Drug maker Merck, Heritage Valley Health Systems and several other US healthcare orgs impacted, as well as others around the world.

HIT – Risks and Rewards

Hacker initiated data breaches in 2017

- Anthem BlueCross BlueShield – 18k members impacted
- Henry Ford Health – 18k patients impacted
- Mid-Michigan Physicians Imaging – 106k patients
- Pacific Alliance Medical Center – 266k patients
- Peachtree Neurological Clinic – 176k patients
- Plastic Surgery Assoc. of South Dakota – 10k patients
- + at least 35 more publicly reported incidents

HIT – Risks and Rewards

Potential negative impacts of hacker risks

- Degraded patient health outcomes
- Delayed patient care
- Loss of patient confidence in provider
- Potential fines for data breaches
- Revenue loss
- More...

HIT – Risks and Rewards

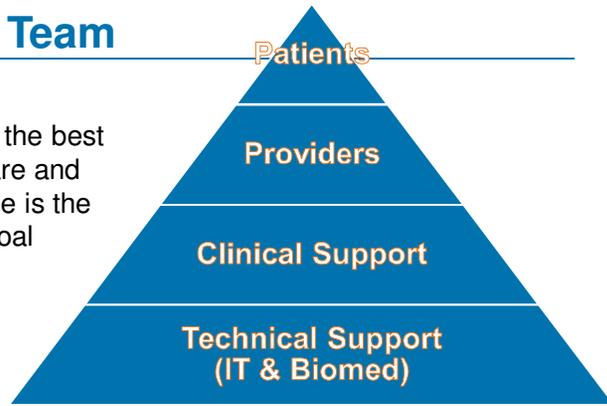
Reward vs. risk



The HIT Team

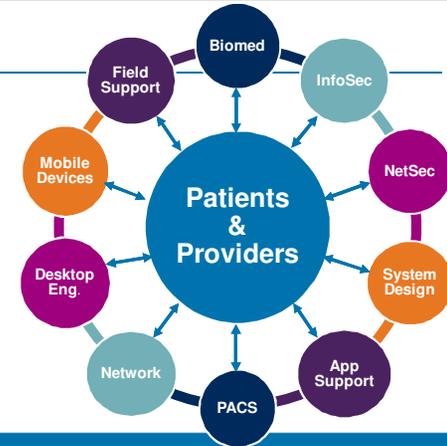
The HIT Team

Providing the best patient care and experience is the *primary goal*



The HIT Team

Many highly technical, non-clinical disciplines are now critical to health care delivery



The HIT Team

Potential technical support teams

- Clinical engineering (Biomed)
- Information security
- Network security
- Solution architecture and design
- Integration and application support
- PACS

The HIT Team

Potential technical support teams

- Network infrastructure
- Desktop engineering
- Desktop field support
- Mobile device management
- Disaster planning and return to operation (recovery)

The HIT Team

Potential clinical and operations teams

- Clinicians
- Nurses, technicians and other medical support
- Clinical operations support (supply, EVS, etc.)
- Executive leadership
- Business operations support (finance, etc.)
- Facilities management
- More...

The HIT Team

Diverse team backgrounds

- Three distinct professional areas
 - Clinical care and support
 - Business operations and support
 - Information technology and support
- Each team has a unique set of goals
- Each area has its own unique “language”
- Experts in one area generally not experts in others

The HIT Team

Vendors

- HIT vendors often present unique challenges
- May not fully understand the healthcare, IT or regulatory environments
- Particularly a risk with non-traditional HIT vendors

Working Together

It's all about relationships

Working Together

Quick recap

- Healthcare continues to advance rapidly
- IT has evolved briskly in past 15 years
- There are complicated regulatory schemes
- Many diverse teams involved in HIT
- Many non-traditional players

Working Together

“The single biggest problem in communication is the illusion that it has taken place.”

– George Bernard Shaw



Working Together

Creating relationships for better communication

- Get to know several key players within all areas
- Understand that each area has *real* experts
- Learn the goals and objectives of their business
- Discover their “language”
- Embrace a “lifelong learning” mindset

Working Together

Facilitating IT / business relationships

- Many organizations have a “navigator” role
- At OhioHealth - IT/Business Relationship Manager
 - Experts in communication and relationship management
 - Sufficient knowledge across all areas of the business to know who to connect, and when
 - Strategic advisors to IT, clinical and operations

Working Together

Recipe for successful projects

- Be prepared – clearly understand your objectives
- Ask if the organization has an IT “Navigator”
- Draw on the relationships you’ve built
- Involve each area early in the idea process
- Ask lots of questions, provide lots of answers
- Let ____ be ____

Questions and Comments

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References and further reading

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