



# Health IT Innovations Delivered Over Information Transport Systems

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# Overview

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- Health Information Technology (HITECH) Act & Related Legislative Initiatives
- TIA Healthcare Facility Cabling Standard
- Healthcare Facility IT Case Study

# HITECH Act

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- Title XIII of American Recovery and Reinvestment Act (ARRA) of 2009
- Created Office of the National Coordinator (ONC) for Health Information Technology within Department of Health and Human Services

# HITECH Act

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- ONC Purpose and Duties
  - Health IT (HIT) Policy Committee
  - HIT Standards Committee
  - Create Federal HIT Strategic Plan
  - Program for voluntary certification program for HIT

# HITECH Funding

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- \$2 billion to ONC
  - \$1.7 billion for
    - Establishment of HIT Research Center
    - Acceleration of HIT / electronic exchange and use
    - Loan programs to providers to facilitate adoption of certified Electronic Health Records (EHRs)

# HITECH Funding

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- \$2 billion to ONC
  - \$300 million for health information exchange
  - \$20 million to support NIST development of data standards
  - \$5 million for administration

# HITECH Funding

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- \$17 billion through Medicare and Medicaid to adopt and use EHRs
  - “Meaningful Use” of EHR for federal funding

# Meaningful Use

- Third revision defined August 14, 2009

Health Outcomes Policy Priority	Care Goals	2011 <sup>1</sup> Objectives <i>Goal is to electronically capture in coded format and to report health information and to use that information to track key clinical conditions</i>		2011 <sup>1</sup> Measures	2013 Objectives <i>Goal is to electronically capture in coded format and to report health information and to use that information to track key clinical conditions</i>		2013 Measures	2015 Objectives <i>Goal is to achieve and improve performance and support care processes and on key health system outcomes</i>	2015 Measures
		Eligible Providers	Hospitals		Eligible Providers	Hospitals			
Improve quality, safety, efficiency, and reduce health disparities	<ul style="list-style-type: none"> <li>• Provide access to comprehensive patient health data for patient's health care team</li> <li>• Use evidence-based order sets and CPOE</li> <li>• Apply clinical decision support at the point of care</li> <li>• Generate lists of patients who need care and use them</li> </ul>	<ul style="list-style-type: none"> <li>• Use CPOE for all orders<sup>2</sup></li> <li>• Implement drug-drug, drug-allergy, drug-formulary checks</li> <li>• Maintain an up-to-date problem list of current and active diagnoses based on ICD-9 or SNOMED</li> </ul>	<ul style="list-style-type: none"> <li>• 10% of all orders (any type) directly entered by authorizing provider (e.g., MD, DO, RN, PA, NP) through CPOE<sup>2</sup></li> <li>• Implement drug-drug, drug-allergy, drug-formulary checks</li> <li>• Maintain an up-to-date problem list of current and active diagnoses based on ICD-9 or SNOMED</li> </ul>	<ul style="list-style-type: none"> <li>• Report quality measures to CMS including:               <ul style="list-style-type: none"> <li>○ % diabetics with A1c under control [EP]</li> <li>○ % hypertensive patients with BP under control [EP]</li> <li>○ % of patients with LDL under control [EP]</li> <li>○ % of smokers offered smoking cessation counseling [EP, IP]</li> </ul> </li> <li>• % of patients with recorded BMI [EP]</li> <li>• % eligible surgical patients who receive VTE prophylaxis [IP]</li> <li>• % of orders (for medications, lab tests,</li> </ul>	<ul style="list-style-type: none"> <li>• Use CPOE for all orders</li> <li>• Use evidence-based order sets</li> <li>• Manage chronic conditions using patient lists and decision support</li> </ul>	<ul style="list-style-type: none"> <li>• Use CPOE for all order types</li> <li>• Use evidence-based order sets</li> <li>• Record clinical documentation in EHR</li> <li>• Generate and transmit permissible discharge prescriptions electronically</li> <li>• Manage chronic conditions using patient lists and decision</li> </ul>	<ul style="list-style-type: none"> <li>• Additional quality reports using HIT-enabled NQF-endorsed quality measures [EP, IP]</li> <li>• % of all orders entered by physicians through CPOE [EP, IP]</li> <li>• Potentially preventable Emergency Department Visits and Hospitalizations [IP]</li> <li>• Inappropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Achieve minimal levels of performance on quality, safety, and efficiency measures</li> <li>• Implement clinical decision support for national high priority conditions</li> <li>• Medical device interoperability</li> <li>• Multimedia support (e.g., x-rays)</li> </ul>	<ul style="list-style-type: none"> <li>• Clinical outcome measures (TBD) [OP, IP]</li> <li>• Efficiency measures (TBD) [OP, IP]</li> <li>• Safety measures (TBD) [OP, IP]</li> </ul>

<sup>1</sup> The HIT Policy Committee recommends that incentives be paid according to an "adoption year" timeframe rather than a calendar year timeframe. Under this scenario, qualifying for the first-year incentive payment would be assessed using the "2011 Measures." The payment rate and phaseout of payments would follow the calendar dates in the statute, but qualifying for incentives would use the "adoption-year" approach.

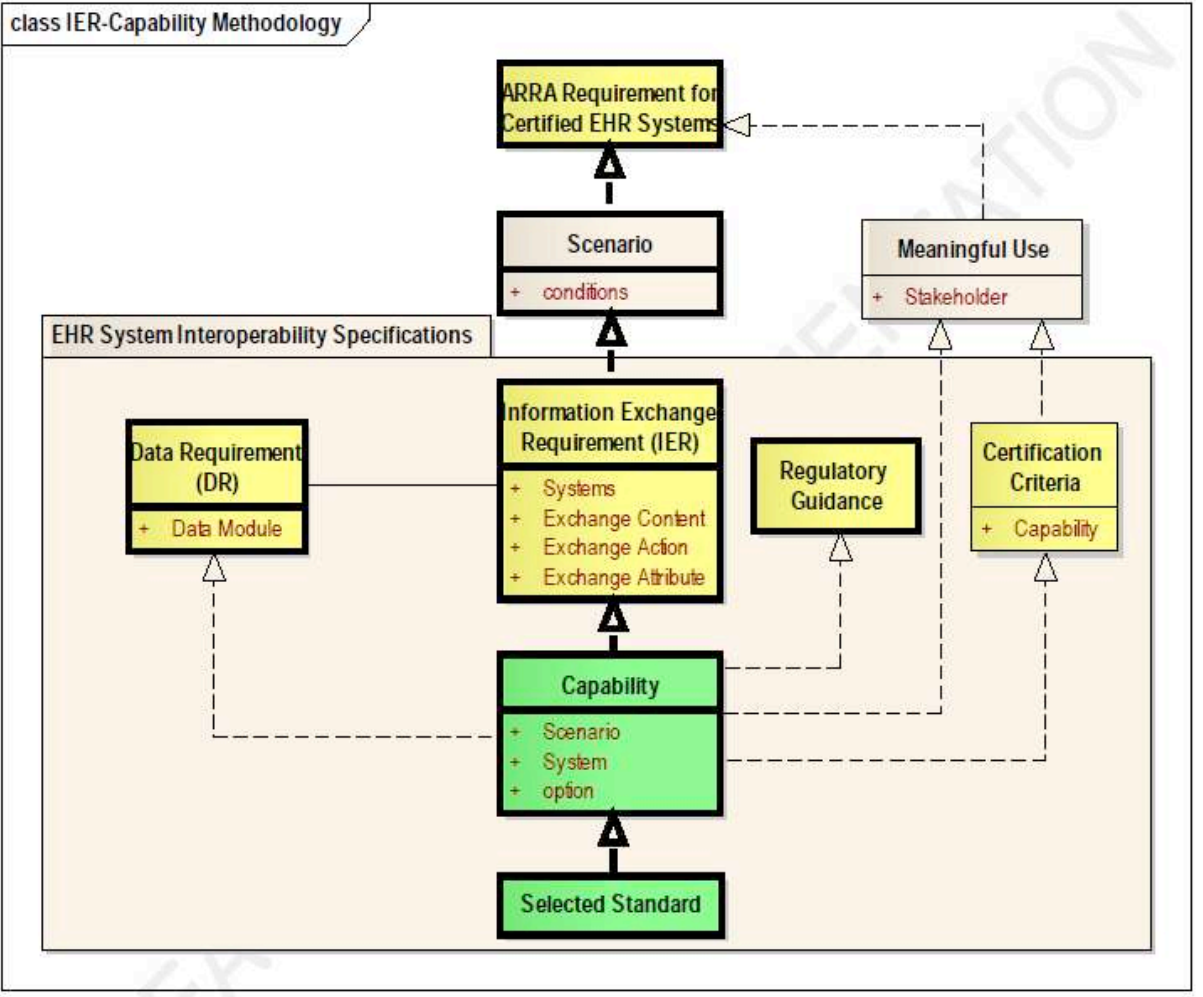
<sup>2</sup> CPOE requires computer-based entry by providers of orders (medication, laboratory, procedure, diagnostic imaging, immunization, referral) but electronic interfaces to receiving entities are not required in 2011

<sup>3</sup> Race and ethnicity codes should follow federal guidelines (see Census Bureau)

# Health Information Technology Standards Panel (HITSP)

Figure 4-6 IER-Capability Methodology Followed by HITSP

July 8, 2009  
Version 1.0



HITSP Harmonization Framework and Exchange Architecture  
Technical Note

HITSP/TN904



Submitted to:  
Healthcare Information Technology Standards Panel

Submitted by:  
Harmonization Framework and Exchange Architecture Tiger Team

# HITECH Priority Grants Program Rollout

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- \$1.2 billion HITECH grants announced  
August 20, 2009
- \$598 million to create 70 health information technology extension centers nationwide
  - Help physicians and hospitals implement electronic health records

# HITECH Priority Grants Program Rollout

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- \$564 million to help states support the development of health information exchanges (HIEs)
  - Technical, legal, financial support for information exchanges across health care providers
  - Facilitate coordination and alignment among states

# TIA Health IT Working Group



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# The TIA Healthcare Facility Cabling Standard

Herbert V. Congdon II, PE  
Tyco Electronics

# History

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- Call for Interest Issued
  - Sept. 2003
- Study Group was Formed
  - Oct. 2003
- Survey Issued – Dec. 2003
  - 316 valid responses

# Survey Summary

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- 316 respondents
- Would additional guidance be worthwhile?
- Survey Says:

65% Yes

23% No

# Survey Summary

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- 316 respondents
- Would additional guidance be used?
- Survey Says:

74% Yes

15% No

# TR-42.1 Action

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- Establish task group to develop guidance
  - Develop specific guidance relative to the healthcare environment
  - Coordinate with other sub-committees such as TR42.3, TR42.6 etc.

# 568-C Series Construction

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- 568-C.0 - Generic Telecommunications Cabling for Customer Premises
  - Foundation
- 568-C.1 - Commercial Building Telecommunications Cabling Standard
  - Model

# TR-42.1 Action

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- Reactivate task group
  - 35 Consultants/Designers
  - 13 End-users
  - 11 Manufacturers
  - 4 Healthcare Technology Groups

# Task Group Progress!

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- Conference Calls
- Clause Editors
- Draft 0.0 & Draft 0.1
  - Created & Reviewed
- Draft 0.2
  - Created and Presented
  - TR-42.1 Action
- To be TIA-1179

# TIA-1179 - Draft Scope

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- This Standard specifies requirements for telecommunications infrastructure for healthcare facilities (e.g. hospitals, clinics). It specifies cabling, cabling topologies, and cabling distances. Additionally, pathways and spaces and ancillary requirements are addressed. Telecommunications cabling specified by this standard is intended to support a wide range of healthcare facilities and systems.

# TIA-1179 - Initial Draft Agreements

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- 568-C.0 Foundation
- Adopt/use the same nomenclature as 568-C.1 for connection points and cabling between points



# Healthcare Facility IT Case Study

University of Kentucky HealthCare



# Overview of UK HealthCare

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- UK HealthCare is the umbrella organization for the growing and vibrant academic medical center at the University of Kentucky
  - Medicine, Pharmacy, Nursing, Health Sciences, Dentistry and Public Health
  - Two Hospitals and Several Clinics
- Over 2,600,000 ft<sup>2</sup> of hospital, clinic and academic facilities
- Established in 1957

# Decision-Making

UKHealthCare

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- Vision
  - Implement technologies that enable the university to move forward without having to request funds for cabling changes every 2-3 years

# Justification

UKHealthCare

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- Network Value
  - Shift in management understanding why good networks are necessary
- HIPPA
  - Management realizing a good network is in their best interests
- IP Convergence
  - Growing realization that “anything they want to do will require a data connection”

# Decision

UKHealthCare

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- Technology
  - 10 Gigabit Capability via Shielded Category 6A
    - Experience from other facilities
    - Did not want network to be limiting factor
    - Pathway sharing



# TIA-1179 - Initial Draft Agreements

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- Recognized media as in 568-C.1 were acceptable
  - OM3 is recommended MM fiber
  - Includes Category 6A, Category 5e and Category 6

# Decision-Making

UKHealthCare

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- Embrace IP Convergence
  - Information Systems in medical centers, particularly patient care and monitoring, are more and more tying to IP or migrating to IP
  - Cost savings in VoIP recognized

# Decision

UKHealthCare

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- Limited analog phone service
- Similar model for other parts of network and other services

# TIA-1179 - Draft Scope (Pt II)

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- In addition to telecommunication systems, the telecommunications cabling specified by this standard is intended to support a wide range of biomedical systems (RFID, BAS, nurse call, security, access control, pharmaceutical inventory, etc.), particularly those which utilize or can utilize IP-based infrastructure. These systems will have effects on the sizing of TRs, sizing and location of pathways, etc.

# TIA-1179 - Draft Scope (Pt III)

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- Systems which are not supported by this Standard are considered outside the scope. While these systems are allowed, additional references (usually provided by the vendor) should be consulted. It is important, however, to consider the impact of these systems on the size and location of the cabling spaces.

# Decision-Making

UKHealthCare

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- Longevity
  - Building lifespan: 100 years
  - Space lifespan: 10-15 years or more
- Flexibility
  - Moves, adds, changes very complex
    - infection control
    - disruption of patient care mission
  - Outlet locations planned for long term fit
- Five 9's Reliability

# Decision

UKHealthCare

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- Spaces
  - Additional space needed to accommodate multiple systems
    - Separate space, not shared space
      - Give them connections, but not TR space
      - “You want five 9s? Stay out of our space!”
    - Other systems migrating from wall-mount boxes to rack-mount applications
  - Maintain the security of telecom spaces

# TIA-1179 - Draft

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- Entrance Facilities (EFs)
  - Multiple entrance points
  - Route diversity
    - Required for critical care locations
      - Critical care areas are those that may be severely impacted by a loss of access provider services

# TIA-1179 - Draft

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- EFs (continued)
  - Larger size if expected to accommodate other systems (e.g. building automation systems, nurse call, security, CATV and biomedical systems)
  - If a larger EF cannot be accommodated, these other systems shall be installed in the ER or in an ER dedicated for such applications.

# TIA-1179 - Draft

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- Equipment Rooms (ERs)
  - A growth factor of 100% should be considered when determining room size
    - This growth can be accommodated by dedicating space adjacent to the ER that can be claimed in the future if so required (e.g. storage room).

# TIA-1179 - Draft

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- TRs
  - The typical TR in a healthcare facility shall be sized at 12m<sup>2</sup> (130 ft<sup>2</sup>) or larger
    - Basically twice the size of office-oriented networks

# Decision

UKHealthCare

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- Pathways
  - Minimum tray space and clearance (24” side, 12” above)
    - Manage the exceptions to invade the space
  - Conduit and tray combination
    - Conduit from tray to outlet

# TIA-1179 - Draft

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- Infection control requirements (ICRA) could have a serious impact on the times and conditions for cabling installation, moves, adds and changes
  - Wall penetrations
  - Pathways and labeling
  - Cabling component disposal (biohazard issues)

# Decision-making

UKHealthCare

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- Port Counts in Patient Rooms
  - Support multiple systems on an IP-capable platform
  - Initial review
    - 16 ports for patient care and infotainment systems

# Decisions

UKHealthCare

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- Port Counts – Patient Rooms
  - 8 ports, partially due to packaging of systems
    - 4 ports by patient bed
    - 1 outlet on viewing wall
    - 1 other outlet in room
    - Boom-mounted outlets

# TIA-1179 - Draft

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- Work Areas
  - Several Classifications:
    - Patient Services
    - Surgery/Procedure/Operating Rooms
    - Emergency
    - Ambulatory Care
    - Women's Health
    - Diagnostic and Treatment
    - Caregiver
    - Service/Support
    - Facilities
    - Operations
    - Critical Care

# TIA-1179 - Draft

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- Work Areas
  - A table lists the recommended cabling densities (L, M or H) of the work areas based on the function at that location
    - L = Low: 2 to 6 outlets in each area
      - 34 of 75 listed work areas
    - M = Medium: 6 to 14 outlets in each area
      - 19 of 75 listed work areas
    - H = High: > 14 outlets in each area
      - 22 of 75 listed work areas
  - Above midpoint recommended
    - Adding horizontal cabling or outlets can be very complicated

# TIA-1179 - Draft

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- Table for Work Areas Classified as Patient Services

a) Patient Services							
Administration	Registration	Patient Room	Family Lounge	Waiting Room	Nurses Stations	Library	Consultation
M	M	H	L	L	H	M	L

# TIA-1179 - Draft

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- Work Areas
  - It is neither expected, nor required, that all outlets be located together
    - Location of the outlets should take into consideration the various uses for each outlet, which can be located or grouped accordingly

# TIA-1179 - Draft

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- Horizontal Cabling
  - CPs not allowed
  - MUTOAs allowed, but not recommended for new installations

# Status

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- Draft 1.0 issued for Committee Ballot
- Closes on Sept. 28<sup>th</sup>
- Ballot Comment Resolution in November
  - Maybe Industry Ballot
  - Maybe publication in February or June 2010



## Summary

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# Summary

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- New legislative and regulatory provisions will affect healthcare facilities, their funding and their cabling
- New standard should enable a consistent, robust infrastructure to support today's applications and any IP migration
- End users are already seeing parallel influences on today's decisions

# Special Thanks

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- Donna Schultz, RCDD
  - University of Kentucky
    - Infrastructure Engineer
    - Communications & Network Systems





Thank You!!

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