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"Health Information Exchange: Interoperability In a Competitive World"

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The First Region VIII Health IT Roundtable

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Summary

- In our eagerness for the health care industry to adopt electronic medical records and health information exchange networks we have IGNORED what the health care providers want most.
- Providers want RELIEF from costs of information exchange between payers, other providers and patients.
- Providers want administrative simplification and automation and expediting of payments for their services.
- HIEs MUST deal with administrative and payments transactions as well as the clinical transactions.

Health Care Providers Produce Procedures
The HIE Must Support That Production Model

- Providers (physicians and hospitals) paid for procedures
- Payment for procedures requires intricate documentation
- Payment shared between insurers and patients
- What the patient owes depends on the recent history of procedures for that patient
- Paper record keeping very expensive and slow
- Providers are low-margin businesses, and margins are shrinking
- They need financial relief to invest in EMRs and HIEs

Shifting Health Care Costs to the Public Will Drive Need for Standardized HIE

- High Deductible Health Plans
- Consumer Driven Health Care
- Euphemisms for Shifting Health Care Costs to Public
- Bad debt to providers will rise
- Providers need more accurate and timely
  - Eligibility and benefits verification
  - Submission and Adjudication of claims
  - Payments

Other Industries Created Shared Information Exchanges for Standardized Transactions

- Airlines, hotels, automobile rental reservation systems
- Banking and electronic funds transfer (EFT)
- Credit cards and VISA
- Automobile manufacturers and supply chain management
  - Covisint
- Pharmacies and SureScripts
- Pharmacy benefits managers (PBMs) and RxHub

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Definitions of EMR, HIN, EHR, PHR

EMR

- Electronic Medical Record
  - Digital record system to store and communicate among clinicians within a medical office or hospital detailed medical data about clinical findings and treatments for patients. Defined by a software application for storing medical record data in digital form, either as text or images or both.

HIE

- Health Information Exchange (Network)
  - Digital electronic network that interconnects the medical record and health record systems in a community so doctors, hospitals, patients, insurers, pharmacies, suppliers of durable medical equipment, nursing homes, home health agencies and patients can exchange health care data in interoperable digital form.
  - Permits interoperable exchange of clinical information between otherwise independent islands of computing.

EHR

- Electronic Health Record
  - Digital record system of standardized clinical summaries of a person's health care experiences, including diagnoses, procedures, medications, allergies, diets, exercise programs, available over a regional or national health information network to clinicians and the person described by the EHR.

PHR

- Personal Health Record
  - The Personal Health Record is a summary of the medical history of a patient from the perspective of the insurer(s) that have provided health insurance for him or her; the summary is created from the demographic, administrative and clinical data collected by the insurer(s) over time.

Health Information Networks in the USA

- In 2004, US Government set a goal for widespread adoption of interoperable EHRs within 10 years.
- In 2005, US Government awarded a contract to Accenture to build a prototype of the National Health Information Network (NHIN).
- In 2006, four contracts awarded by the Office of the National Coordinator of Health Information Technology to create four prototypes of the NHIN
  - Accenture builds the NHIN in four states: Virginia, West Virginia, Tennessee and Kentucky.

The NHIN Prototypes

- Accenture
- Computer Sciences Corporation (CSC)
- International Business Machines (IBM)
- Northrop Grumman

Federal Initiatives To Create the Standards for Electronic Health Records

- AHIC:
  - American Health Information Community
- HITSP:
  - Health Information Technology Standards Panel
- CCHIT:
  - Certification Commission for Health Information Technology
- HISPC:
  - Health Information Security and Privacy Collaborative
- NHIN:
  - National Health Information Network

Standardization of EMRs That Will Feed EHRs Over the NHIN

- Certification Commission for Health Information Technology (CCHIT)
  - Certifies basic criteria for functionality, interoperability and security
  - Certification of ambulatory EMRs in 2006
  - Certification of inpatient EMRs in 2007
  - Will begin announcing certifications in June, 2006

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State Activities in USA

Health Information Networks

- State Activities
- In 2006: More than 250 RHIOs (Regional Health Information Organizations) have formed and are tracked by eHealth Initiative.
  - They lack direction and money.
  - They will coalesce and defer to state governments.
- In 2007: Most state governments will take responsibility for planning and implementing statewide health information exchanges.
    - West Virginia, Florida, Arizona, Nebraska, Maine

States With HIE Development Activities
(Alphabetical order)

- California (chaotic – twenty RHIOs, no one in charge)
- Delaware (statewide HIE, little funding)
- Florida (multiple RHIOs; plans for FHIN, little funding); Availity mature
- Indiana (INPC, 20+ years old, $30M+ govt. funding)
- Massachusetts (MA-Share, struggling; NEHEN mature)
- Nebraska (NHII, finishing business plan)
- Ohio (HealthBridge, proprietary)
- Tennessee (3 HIEs, each with different design)
- Utah (UHIN – a leader in administrative simplication)
- West Virginia (WVHIN, organizing)

State Alliance for eHealth of the NGA

- Founded by Grant to NGA from ONCHIT
- Purpose to create a standard method for planning, governing, financing, designing, implementing and operating state-wide health information exchanges
- Two meetings, first and second quarter of 2007
- Two more meetings, third and fourth quarters of 2007
- Co-Chairman:
  - Governor Douglas (Republican) of Vermont
  - Governor Bredesen (Democrat) of Tennessee

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Thorny Issues

The Elephant in the Room

We Have the Health Care System We Want!

Acute care – not prevention

Procedures, not a lifetime obligation to health

All services possible when we are sick

Specialized care

High technology care

Choice of providers

No limitations in resources used when we are ailing

What Providers and Payers Want

What Providers Want

- Additional revenue
- More time for more patients
- Lower operating costs per patient
- Relief from bad debt of patients
- Patient safety

What Payers Want

- Lower medical loss ratio
- More profitable accounts
- Lower operating costs per covered life
- Fewer member complaints
- Patient safety

Lack of a Business Model for HIE

- Competing providers of health care services find very difficult knowing how to allocate costs and how govern a shared health information exchange (HIE)
  - Santa Barbara, MA-Share, CalRHIO, many others
- Providers are most interested in increasing revenue and reducing operating costs
- Insurers will not pay for the HIE unless forced by local government (MA)

Existing HIEs Are Founded by Hospital Systems or Payers or Laboratory Vendors

- Cincinnati – HealthBridge - Axolotl
- Indiana Network for Patient Care – Regenstrief Institute
- Shared Health – Tennessee (BCBSTN, Medicaid, Nissan)
- Volunteer Health Network – Tennessee
- Availity – BCBSFL, Humana, HCSC (BCBS: IL, OK, TX, NM)
- Medicity – LabCorp
- MedPlus – Quest Diagnostics
- RxHub – Pharmacy Benefit Manager
- SureScripts – Pharmacy Chains

Key Messages

- The HIE needs to meet the immediate business needs of the organizations that will pay for and share it
  - Providers of care
  - Payers of care
  - Product manufacturers
- The HIE needs to be a utility that offers the means of reducing clinical and administrative and payments transactions for providers of care, otherwise they will not find the capital nor the interest to invest in HIE.
- Unless government pays for the HIE as a community good, like the road system, the HIE will focus on the proprietary needs of its owners

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Questions?

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Appendix

Slides I Did Not Want to Discard

But Don’t Have Time to Talk About

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Appendix

Trends and Cases in Asia-Pacific

China

- EMR and HIN for China-Japan Friendship Hospital
- EMR and HIN for Peking University Hospital
- HIN and Integrated EMR for Peoples Liberation Army Hospitals
- National Health Information Network

Singapore

- Single EMR (Oacis) for National Health Group
- SingHealth, the other large health care system, is interested in EMR and HIN for all of its facilities.

Australia

- NEHTA – National eHealth Technology Architecture
  - Analogous to NHIN in the USA
  - Opportunity to design and implement
- South Australia Health
  - Accenture implemented Oacis in all 8 hospitals and ambulatory clinics
- New South Wales Health
  - Implementation of Cerner PowerChart across the state
- Queensland Health
  - Selection and implementation of EMR and HIN across all facilities
- Victoria Health
  - Selection and implementation of EMR and HIN across all facilities

Korea

- Center for Interoperable Electronic Health Record (CIEHR)
- Planning EHR for nation – September, 2006
  - Planning 12 months
  - Implementation to 154 public hospitals over 24 months
  - Implementation to >400 private hospitals afterward

Taiwan

- Universal access to care: single payer
- Free choice of providers
- Total costs of care as % GDP = 8.7%
- Administrative costs are 1.7% of total
- Advanced uses of information technology

Taiwan

- Electronic claims processing – 1995
- Data warehouse for decision support and profiling providers practices – 1998
- Smart card for every citizen – 2001
- PACs – 2005
- EHR - 2008

Taiwan

- Why a Smart Card for Every Citizen?
  - Validation of care and point of service
    - Fights fraud
  - Timely information on “where” and “when” patients receive services
  - Real time cost management
  - Public health applications

Taiwan

- Smart card for every citizen since 2004
  - 22.4 million people; 150,000 new cards per month
- Card reader for every provider of care
  - 58,000 card readers
- Card carries information on last 6 visits
  - Demographics, physician ID, diagnoses, medical orders (up to 60), prescriptions (up to 30) vaccination records, organ donation status, do-not-resuscitate orders, etc

Taiwan

- Costs of Smart card system about $363 million (USD) over two years.
- Benefits of Smart card system estimated to be $1.2 billion (USD) over ten years.

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Appendix

Accenture Prototype of the NHIN

Accenture Distinct Health Markets

Appalachian Region

- Our location includes: CareSpark from the tri-cities region of northeastern Tennessee and southwestern Virginia; West Virginia eHealth Initiative; and Eastern Kentucky Regional Health Information Organization.
- Our distinct health care markets have RHIOs but do not have regional information infrastructures for sharing health data.
- Provide a live demonstration of the solution at the end of the first year and develop additional functionality in the option year.

Contracts To Build A Prototype of the National Health Information Network (NHIN)

- Reference technical architecture for the NHIN
  - Consistent with the Federal Health Architecture
  - Supports a sustainable business model
- Three distinct health care markets
  - West Virginia (West Virginia eHealth Initiative)
  - Eastern Kentucky (Eastern Kentucky eHealth Network)
  - Northeastern Tennessee and Southwestern Virginia (CareSpark)
- Year 1 – November, 2005 - November, 2006
  - Move data among 15 health care provider organizations in the three distinct health care markets
- Year 2 – November, 2006 - November, 2007
  - Expansion of the participants in the distinct health care markets.

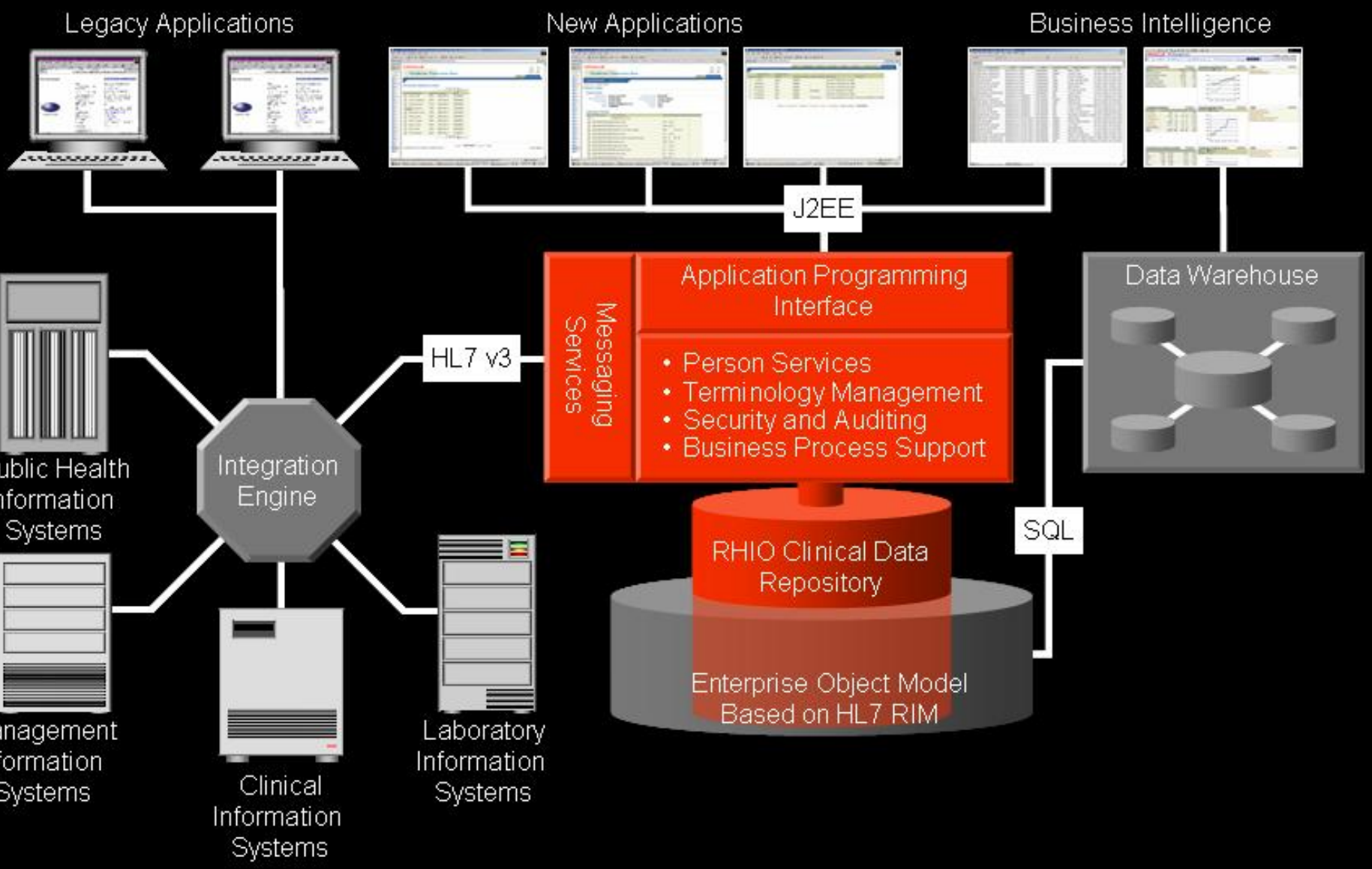
The NHIN Prototypes

- Eastern Kentucky (RHC)
  - ARH-Hazard Regional Medical Center and Family Health Services
  - University of Kentucky Clinic
  - University of Kentucky HealthCare Chandler Medical Center
  - River District Health Dept
  - Perry County Department of Health
- WVA eHealth Initiative (RHIO)
  - New River Health Association - Beckley
  - Cabin Creek
  - ARH-Beckley
  - AMFM-Beckley
  - West VA University Physicians of Charleston
- CareSpark (RHIO)
  - Holston Medical Group
  - Mountain States Health Alliance
  - Johnston Memorial Hospital
  - Sullivan County Regional Health Dept.
  - Wellmont

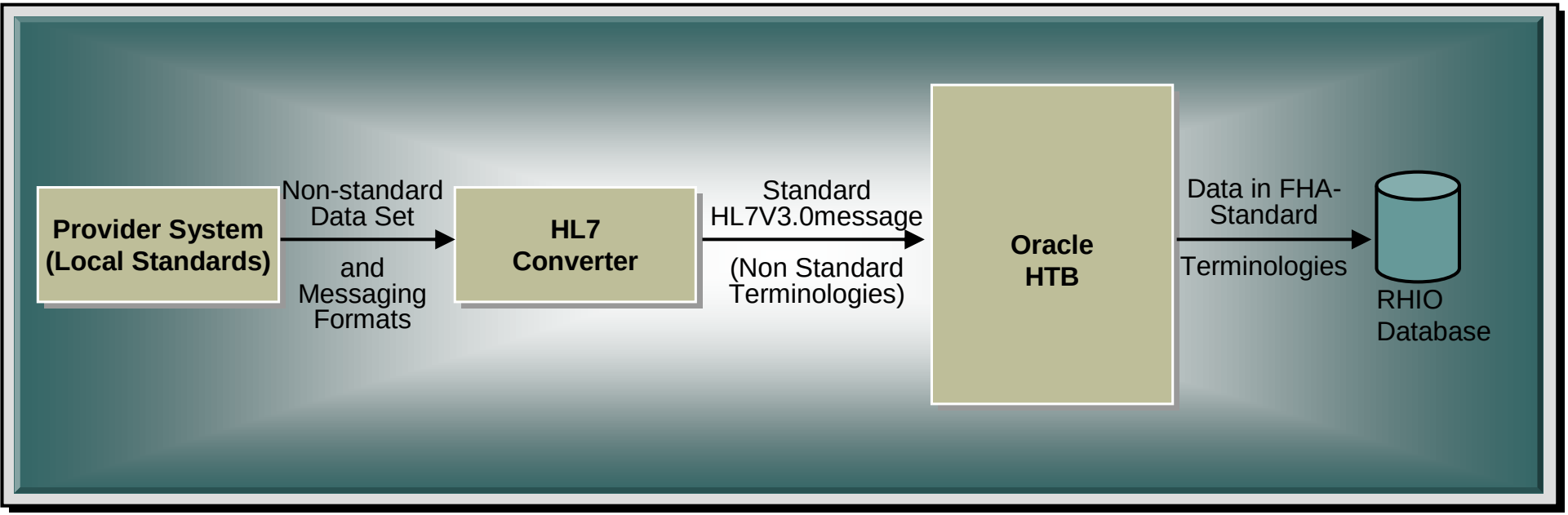
Technical Solution for the National Health Information Network

- Centralized clinical data repository (Oracle)
  - Implementation of the standards-based Reference Information Model of HL7
  - Application Development Framework
  - Robust consent management and Master Person Index
  - Reliable security and performance
- Data Standardization and Terminology Translations (Apelon)
  - Unique experience with Federal Health Architecture standards
- Interfaces to Clinical Applications (Quovadx)
  - Cloverleaf used by 50% of all hospitals in the USA
- Clinician Portal (Orion)
  - Most widely-used clinician portal.
- Digital health information network infrastructure (Intel and Cisco)
  - Investing heavily in the digital health network of the future
- Prime contractor: program management (Accenture)
  - USA, England, Singapore, Spain, Australia, Canada

Application Architecture



Our approach results in the collection of data from multiple legacy systems that is normalized to the HL7 v3.0 message format and FHA terminology standards



This slide discusses a NHIN Architecture Prototype project made possible by a contract from the Office of the National Coordinator for Health Information Technology (ONC), DHHS. The content is solely the responsibility of the authors and does not necessarily represent the official view of ONC.

The Technical Vendors

1. Apelon - Terminology
2. CCSi - Testing
3. CGI-AMS – Cost/Revenue Model
4. Apelon - Terminology
5. CCSi - Testing
6. CGI-AMS – Cost/Revenue Model
7. 4 Cisco – Networking/Infrastructure
8. 5 Etechsecuritypro – Security Services
9. 6 Intellithought – Data Center Hosting
10. 7 Initiate – Application (eMPI)
11. 8 LucentGlow - Mapping
12. 9 Oakland Consulting Group – HTB Services
13. 10 Oracle – Application (DB, HTB)
14. 11 Quovadx – Application (Cloverleaf Interface Engine)
15. 12 Sun MicroSystems – Identity Management
16. 13 Orion - Portal Vendor

Federal Health Architecture: 20 Adopted Standards

- **HL7 – Messaging Standard for Patient Care Delivery Coordination***
- **HL7 – Vocabulary Standard for Demographic Information**
- **HL7 – Vocabulary Standard for Units of Measure**
- **HL7 – Vocabulary Standard for Immunisations**
- **HL7 – Vocabulary Standard for Clinical Encounters**
- **HL7 CDA – Document Standard for Text-based Reports**
- **NCPDP – Messaging Standard for Drug Ordering**
- **IEEE1073 – Messaging Standard for Medical devices**
- **DICOM – Messaging Standard for Imaging**
- **LOINC – Vocabulary Standards for Laboratory Result Names**
- **LOINC – Vocabulary Standards for Laboratory Result Names**
- **SNOMED CT - Vocabulary Standards for Laboratory Result Contents**
- **SNOMED CT - Vocabulary Standards for Non-Laboratory Interventions & Procedures**
- **SNOMED CT - Vocabulary Standards for Anatomy**
- **SNOMED CT - Vocabulary Standards for Diagnosis**
- **SNOMED CT - Vocabulary Standards for Nursing**
- **HIPAA – Messaging/Vocabulary Standard for Billing and Administration**
- **RxNORM/NDF-RT – Vocabulary Standards for Clinical Drug Description & Drug Classification**
- **HUGN – Vocabulary Standard for Gene Role Information in Biomedical Research**
- **The Environmental Protection Agency's Substance Registry System – Standard for non-Medical Chemicals**