Curriculum Development Centers Program

Awardee of The Office of the National Coordinator for Health Information Technology

Component 6: Health Management Information Systems

Instructor Manual

Version 3.0/Spring 2012

Notes to Instructors

This Instructor Manual is a resource for instructors using this component. Each component is broken down into units, which include the following elements:

- Learning objectives
- Suggested student readings, texts, reference links to supplement the narrated PowerPoint slides
- Lectures (voiceover PowerPoint in Flash format); PowerPoint slides (Microsoft PowerPoint format), lecture transcripts (Microsoft Word format); and audio files (MP3 format) for each lecture
- Self-assessment questions reflecting Unit Objectives with answer keys and/or expected outcomes
- Application Activities (e.g., discussion questions, assignments, projects) with instructor guidelines, answer keys and/or expected outcomes

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Contents

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Component Overview

Each Learning Unit requires 2-3 contact (or instructional) hours and an additional 6-9 hours of independent or team work on the part of the student to be successfully completed. Each unit contains more material than would likely be used in any one teaching/learning experience so that the instructor can pick and choose material most applicable to local workforce needs.

Content covering Hardware and Software Supporting Health Information Systems can be found in Component 4.

Content covering Human-Computer Interaction can be found in Component 15.

Content covering Public Health and Biosurveillance in Health Care Systems can be found in Component 13.

This entire Component is estimated to require 20-30 total contact/instructional hours plus 50-65 additional hours of independent or team work, depending on the learning activities and assessments used within each unit.

Component Objectives

At the completion of this component, the student will be able to:

- Describe general functions, purposes and benefits of health information systems in various health care settings
- Describe the federal initiatives and other significant developments that have influenced the evolution and adoption of health information systems
- Compare/Contrast different types of health information systems in terms of their ability to meet the needs of various types of health care enterprises
- Explain how electronic health records affect patient safety, quality care, efficiency, productivity, and reporting/documentation mechanisms
- Propose strategies to minimize major barriers to the adoption of electronic health records
- Explain how the principles of health care data exchange and health care data standards relate to patient care, productivity and data analysis

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Likewise, the above also applies to the Curriculum Development Centers (including Columbia University, Duke University, Johns Hopkins University, Oregon Health & Science University, University of Alabama at Birmingham, and their affiliated entities).

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Component 6/Unit 1

Unit Title
What is Health Informatics?

Unit Description
Lecture **a** defines information management, information technology, and informatics, describes the fundamental theorem of informatics, explains the meaning of biomedical and health informatics as a field of study, and offers definitions of the major biomedical informatics areas of applications. It also provides an overview of informatics drivers and trends in the health care field. Lecture **b** defines the informatics team, their skills, roles and responsibilities, and identifies how health informaticians process data into information and knowledge for health care tasks with the support of information technology to improve patient care.

Unit Objectives
By the end of this unit the student will be able to:

1. Define information management, information system (technology) and informatics
2. Explain the basic theoretical concept that underlies informatics practice
3. Define the meaning of biomedical and health informatics as a field of study
4. Describe the biomedical informatics areas of applications
5. Summarize the informatics drivers and trends
6. State the professional roles and skills of health informaticians
7. Identify how health informaticians process data into information and knowledge for health care tasks with the support of information technology to improve patient care

Unit Topics / Lecture Titles
1a Introduction to Health Informatics
1b Roles and Skills of Health Informaticians

Unit References
(All links accessible as of 12/13/2011)

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Lecture 1a

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14. World Health Organization. (2011). eHealth. Retrieved from http://www.who.int/topics/ehealth/en/

Lecture 1a Charts, Tables and Figures

1.1 Figure: Friedman, C. (2009). A "fundamental theorem" of biomedical informatics. *Journal of the American Medical Informatics Association*, 16(2), 169-170. doi: 10.1197/jamia.M3092

1.2 Figure: Biomedical Informatics: Modified by Dr. Jiajie Zhang, The University of Texas at Houston, School of Biomedical Informatics from Shortliffe, E., & Blois, M. (2006). The computer meets medicine and biology: Emergence of a discipline. In Shortliffe, E., & Cimino, J.J. (Eds.), *Biomedical informatics: Computer applications in health care and biomedicine* (3rd ed.) (pp. 3-45). New York, NY: Springer Science + Business Media.

Lecture 1b

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Unit Required Readings

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Student Application Activities

comp6_unit1_discuss.doc
comp6_unit1_discuss_key.doc
comp6_unit1_activity.doc
comp6_unit1_activity_key.doc
comp6_unit1_self_assess.doc
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Component 6/Unit 2

Unit Title
Health Information Systems Overview

NOTE: This Unit was previously titled Hardware and Software Supporting Health Information Systems. It is now Health Information Systems Overview

Unit Description
Lecture **a** defines the concept of an information system and its characteristics, describes the different types of information systems, and describe various types of technologies that support health care information systems. Lecture **b** examines the challenges presented by emerging trends in information technology (e.g., mobility, web services, the Internet, Intranet, and wireless computing), social media, and global communications and discusses the advantages and disadvantages of using the Internet as a platform for health care applications.

Unit Objectives
By the end of this unit the student will be able to:

1. Define the concept of an information system and its characteristics
2. Describe the different types of information systems
3. Describe various types of technologies that support health care information systems
4. Examine the challenges presented by emerging trends in information technology, social media, and global communications
5. Discuss the advantages and disadvantages of using the Internet as a platform for health care applications

Unit Topics / Lecture Titles
2a Introduction to Health Information Systems
2b Emerging Trends in Health Information Technology

Unit References
(All links accessible as of 2/10/2012)

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Lecture 2a

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Lecture 2b

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Unit Suggested Readings

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Student Application Activity

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Component 6/Unit 3

Unit Title
Electronic Health Records

Unit Description
Lecture a defines an electronic medical record (EMR) and electronic health record (EHR) and explains their similarities and differences, identifies attributes and functions of an EHR, discusses the issues surrounding EHR adoption and implementation, and describes the impact of EHRs on patient care. Lecture **b** links EHRs to the Health Information Exchange (HIE) and the Nationwide Health Information Network (NHIN) initiatives, discusses how HIE and NHIN impact health care delivery and the practice of health care providers, summarizes the governmental efforts related to EHR systems including meaningful use of interoperable health information technology and a qualified EHR, describes the Institute of Medicine's vision of a health care system and its possible impact on health management information systems, and lists examples of the effects of developments in bioinformatics on health information systems.

Unit Objectives
By the end of this unit the student will be able to:

1. State the similarities and differences between an electronic medical record (EMR) and electronic health record (EHR)
2. Identify attributes and functions of an EHR
3. Describe the perspectives of health care providers and the public regarding acceptance of or issues with an EHR, which can serve as facilitators of or major barriers to its adoption
4. Explain how the use of an EHR can affect patient care safety, efficiency of care practices, and patient outcomes
5. Discuss how Health Information Exchange (HIE) and Nationwide Health Information Network (NHIN) impact health care delivery and the practice of health care providers
6. Outline issues regarding governmental regulation of EHR systems, such as meaningful use of interoperable health information technology and a qualified EHR
7. Summarize how the Institute of Medicine's Vision for 21st Century Health Care and Wellness may impact health management information systems

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8. Identify how ongoing developments in biomedical informatics can affect future uses and challenges related to health information systems

Unit Topics / Lecture Titles
3a Introduction to Electronic Health Records
3b External Influences

Unit References
(All links accessible as of 12/13/2011)

Lecture 3a

1. AHIMA e-HIM Work Group on Maintaining the Legal EHR. (2005). Update: Maintaining a legally sound health record—paper and electronic. *Journal of AHIMA 76*(10), 64A-L. Retrieved from http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_028509.hcsp?dDocName=bok1_028509
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Lecture 3a Charts, Tables and Figures

3.1 Table: EMR and EHR Comparison
3.2 Table: HL7 2007 EHR-S Functional Model Direct Care Functions Subsets with Examples

Lecture 3b

1. Department of Health and Human Services. (n.d.). *Nationwide health information network: Background and scope*. Retrieved from http://www.hhs.gov/healthit/healthnetwork/background/*
2. Department of Health and Human Services. (2011, November 7). *EHR incentive programs overview.* Retrieved from https://www.cms.gov/ehrincentiveprograms/#BOOKMARK1
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Student Application Activities

comp6_unit3_assign.doc
comp6_unit3_assign_key.doc
comp6_unit3_discuss.doc
comp6_unit3_discuss_key.doc
comp6_unit3_self_assess.doc
comp6_unit3_self_assess_key.doc

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Component 6/Unit 4

Unit Title
Computerized Provider Order Entry (CPOE)

Unit Description
Lecture **a** defines CPOE, states the purpose of CPOE, lists attributes and functions of CPOE, and explains how CPOE is currently being used in health care. Lecture **b** describes the major value to adopting CPOE applications, identifies the common barriers to adoption, and summarizes the potential impact CPOE has on patient care safety, quality and efficiency, and patient outcomes.

Unit Objectives
By the end of this unit the student will be able to:

1. Describe the purpose, attributes and functions of CPOE
2. Explain ways in which CPOE is currently being used in health care
3. Discuss the major value to CPOE adoption
4. Identify common barriers to CPOE adoption
5. Identify how CPOE can affect patient care safety, quality and efficiency, as well as patient outcomes

Unit Topics / Lecture Titles
4a. Introduction to CPOE
4b. Aspects of CPOE

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Student Application Activities

comp6_unit4_discuss.doc
comp6_unit4_discuss_key.doc
comp6_unit4_activity.doc
comp6_unit4_activity_key.doc
comp6_unit4_self_assess.doc
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Component 6/Unit 5

Unit Title
Clinical Decision Support Systems

Unit Description
Lecture **a** will offer a definition of clinical decision support, provide some historical context surrounding clinical decision support, describe the requirements of a clinical decision support system, and discuss the relationship of clinical practice guidelines and evidence-based practice to clinical decision support systems. Lecture **b** will identify the challenges and barriers in building and using clinical decision support systems, explain how legal and regulatory technologies may affect their use, and introduce the future directions for clinical decision support systems.

Unit Objectives
By the end of this unit the student will be able to:

1. Describe the history and evolution of clinical decision support
2. Describe the fundamental requirements of effective clinical decision support systems
3. Discuss how clinical practice guidelines and evidence-based practice affect clinical decision support systems
4. Identify the challenges and barriers to building and using clinical decision support systems
5. Discuss legal and regulatory considerations related to the distribution of clinical decision support systems
6. Describe current initiatives that will impact the future and effectiveness of clinical decision support systems

Unit Topics / Lecture Titles
5a Introduction to Clinical Decision Support
5b Perspectives on Clinical Decision Support

Unit References
(All links accessible as of 2/10/2012)

Lecture 5a
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Lecture 5a Tables and Figures

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Lecture 5a Images
Slide 7: Clinical Decision Support Model. Boone, K. (2006, June 27). Clinical decision support [Web log post]. Retrieved from http://motorcycleguy.blogspot.com/2008/06/clinical-decision-support.htm
Slide 20: HIMSS. (n.d.). So you want to do CDS? Retrieved from http://himss.org/ASP/topics_cds_101.asp?faid=509&tid=14*
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Component 6/Unit 6

Unit Title
Patient Monitoring Systems

Unit Description
Lecture **a** offers a definition of patient monitoring systems, describes the purpose, attributes, and functions of patient monitoring systems, discusses the primary applications and how automation can improve quality of care, and analyzes how the integration of data from many sources assists in medical decision making. Lecture **b** discusses how telehealth communication technologies support clinical care, explains the effectiveness and economic benefit of telehealth, and examines the role smart technology in the home and remote links to health information systems play in enhancing the quality of patient care.

Unit Objectives
By the end of this unit the student will be able to:

1. Describe the purpose, attributes, and functions of patient monitoring systems
2. Discuss ways in which automation can improve the quality of patient care
3. Analyze how the integration of data from many sources assists in making clinical decisions
4. Discuss how telehealth communication technologies support clinical care
5. Discuss the effectiveness and economic benefit of telehealth
6. Examine how smart technology in the home and remote links to health information systems can enhance the quality of patient care

Unit Topics / Lecture Titles
6a. Introduction to Patient Monitoring Systems
6b. Telehealth and Other Remote Patient Monitoring Technology

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(All links accessible as of 2/10/2012)

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Slide 15: MedAps healthPAL - mobile wireless health monitoring. (2008, July 7). [image on the Internet]. Available from: http://www.flickr.com/photos/timgee/2653394081/ Attribution-NonCommercial 2.0 Generic (CC BY-NC 2.0)

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Component 6/Unit 7

Unit Title
Medical Imaging Systems

Unit Description
The lecture offers a definition of medical imaging, describes the purpose, processes, and management issues of medical imaging systems, analyzes the economic and technological factors that must be considered in the adoption of digital displays in radiology departments, looks at the major challenges with imaging systems faced by health care institutions and informaticians, and examines the future directions for imaging systems.

Unit Objectives
By the end of this unit the student will be able to:

1. Examine the purposes, processes, and management issues
2. Understand the economic and technological factors associated with digital displays
3. Describe the major challenges
4. Describe the future directions

Unit Topics / Lecture Titles
7 Medical Imaging Systems

Unit References
(All links accessible as of 2/10/2012)

Lecture 7

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Lecture 7 Figure

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Student Application Activities

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Component 6/Unit 8

Unit Title
Consumer Health Informatics

Unit Description
Lecture a provides a definitions of health communication, e-Health, consumer health informatics, and interactive health communication, identifies how the Internet has impacted consumer health informatics, explains how current and emerging technologies may affect consumer health informatics, and introduces the role of genomics in consumer health informatics. Lecture b offers definitions of personal health records or PHRs, describes the role of PHRs and their implications within health care, and discusses the challenges of consumerism in health information systems.

Unit Objectives
By the end of this unit the student will be able to:

1. Explain how current and emerging technologies have impacted and may continue to affect consumer health informatics
2. Describe the role of genomics in consumer health informatics
3. Describe the emergence of personal health records and their implications
4. Discuss how consumerism influences the ongoing development and use of health information systems

Unit Topics / Lecture Titles
8a Introduction to Consumer Health Informatics
8b Personal Health Records and Consumerism

Unit References
(All links accessible as of 2/10/2012)

Lecture 8a

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Student Application Activities

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Component 6/Unit 9

Unit Title
Administrative, Billing, and Financial Systems

Unit Description
Lecture a examines the relationship of administrative, billing, and financial systems to the health care information system, explains applications that need to be integrated in health care information systems, explores health care organizations' integration strategies, identifies the critical elements for integration of these systems with clinical information systems, and discusses how health care organizations may gain valuable insights from integrated data through data analytics and trending. Lecture b defines a master patient index or MPI and describes its core elements and discusses current trends to establish a unique patient identifier.

Unit Objectives
By the end of this unit the student will be able to:

1. Explain applications that need to be integrated in health care information systems
2. Describe the strategies used by health care organizations to ensure integration of functions
3. Discuss the critical elements needed to integrate billing, financial, and clinical systems
4. Discuss the core elements of a Master Patient Index (MPI)
5. Describe current trends to establish a Unique Patient Identifier (UPI)

Unit Topics / Lecture Titles
9a Introduction Administrative, Billing, and Financial Systems and Health Care Information Systems Integration
9b Master Patient Index and the Unique Patient Identifier

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Lecture 9a
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Lecture 9a Figure

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Student Application Activities

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Component Acronym Glossary

Acronym	Name
AAFP	American Academy of Family Physicians
ABIM	American Board of Internal Medicine
ACK	Acknowledgment (Data networks)
ACLs	Access Control Lists
ACM	Association for Computing Machinery
ACMI	American College of Medical Informatics
ACR	American College of Radiology
ADaM	Analysis Data Model (ADaM)
ADA	American Dental Association
ADEs	Adverse Drug Events
ADR	Adverse Drug Reaction
ADT	Admissions, Discharge, Transfer
AHIC	American Health Information Community
AHIMA	American Health Information Management Association
AHIP	America's Health Insurance Plans
AHRQ	Agency for Healthcare Research and Quality
AM	Amplitude Modulation
AMA	American Medical Association
AMIA	American Medical Informatics Association
ANSI	American National Standards Institute
API	Application Programming Interfaces
ARRA	American Recovery and Reinvestment Act
ASC X12	Accredited Standards Committee
ASTM	American Society for Testing And Materials
ASQ	American Society for Quality
ATA	American Telemedicine Association
ATCB	Authorized Testing and Certification Bodies
ATM	Asynchronous Transfer Mode
AUP	Acceptable Use Policy
BCMA	Bar Code Medication Administration
BCP	Business Continuity Planning
BIS	Bispectral Index
BMI	Body Mass Index
bps	Bits Per Second
BRIDG	Biomedical Research Integrated Domain Group
BSA	Body Surface Area

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BSLM	Bioinformatic Sequence Markup Language
CA	Certificate Authority
CaDSR	Cancer Data Standard Repository
CAP	College of American Pathologists
CBA	Cabarrus Health Alliance
CCD	Continuity of Care Document
CCHIT	Certification Commission for Healthcare Information Technology
CCOW	Clinical Context Object Workgroup (HL7)
CCR	Continuity of Care Record
CDA	Clinical Document Architecture
CDASH	Clinical Data Acquisition Standards Harmonization
CDC	Centers for Disease Control and Prevention
CDE	Common Data Elements
CDISC	Clinical Data Interchange Standards Consortium
CDM	Chronic Disease Management
CDS	Clinical Decision Support
CDSR	Cochrane Database of Systematic Reviews
CDSS	Clinical Decision Support System
CEN	European Committee for Standardization
CG	Clinical Genomics
CHF	Congestive Heart Failure
CHI	Consumer Health Informatics
CICA	Context Inspired Component Architecture
CIS	Clinical Information System
CMET	Common Message Element Type
CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integration
CMS	Centers for Medicare and Medicaid Services
COPD	Chronic Obstructive Pulmonary Disease
COTS	Commercial Off-the-Shelf
CPM	Common Product Model
CPOE	Computerized Provider Order Entry
CPT	Current Procedural Terminology
CQI	Consumer Quality Initiatives
CRL	Certificate Revocation List
CRT	Cathode Ray Tube
CSI	Computable Semantic Interoperability
CSMA/CA	Carrier Sense Multiple Access/Collision Avoidance
CSMA/CD	Carrier Sense Multiple Access / Collision Detection

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CT	Computed Tomography
CTA	Center for Technology and Aging
CTSA	Clinical Translational Science Act
CWM	Common Warehouse Model
DAC	Discretionary Access Control
DAM	Domain Analysis Model
DFDs	Data Flow Diagrams
DHCP	Dynamic Host Configuration Protocol
DHHS	Department of Health and Human Services
DICOM	Digital Imaging and Communications in Medicine
DMAIC	Define, Measure, Analyze, Improve, Control
DMIM	Domain Message Information Model
DNS	Domain Name Service
DoD	Department of Defense
DoS	Denial of Service
DRG	Diagnosis-related Group
DSL	Digital Subscriber Line
DSS	Decision Support System
DSTU	Draft Standard for Trial Use
DTD	Document Type Definition
DURSA	Data Use and Reciprocal Support Agreement
EA	Enterprise Architecture
EBM	Evidence Based Medicine
ECG	Electrocardiography
ED	Emergency Department
EDI	Electronic Data Interchange
EDMS	Electronic Document Management System
EEG	Electroencephalogram
EHR	Electronic Health Records
EHR-FM	Electronic Health Record-Systems Functional Model
EHR-S	Electronic Health Record-Systems
EHRVA	Electronic Health Record Vendors Association
eMAR	Medication Administration Records
EMEA	European Medicines Agency
EMI	Electromagnetic Interference
eMR	Electronic Medical Records
EMR	Electronic Medical Records/ Patient Management
EMR/PM	Electronic Protected Health Information
ePHI	Enterprise Master Patient Index
EPMI	Electronic Prescribing

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E-R	Entity-Relationship
ERDs	Entity-Relationship Diagrams
eRX	Electronic Prescribing
EVS	Enterprise Vocabulary Service
FACA	Federal Advisory Committee Act
FDA	Food and Drug Administration
FDDI	Fiber Data Distributed Interface
FERPA	Family Educational Rights and Privacy Act
FM	Frequency Modulation
FMEA	Failure Mode and Effects Analysis
FTP	File Transfer Protocol
FQHC	Federally Qualified Health Center
GDSN	Global Data Synchronisation Network
GELLO	an object-oriented expression language for clinical decision support
GEM	Guideline Elements Model
GIN	Generic Incident Notification
GIS	Geographic Information System
GLIF	GuideLine Interchange Format
HCD	Human Centered Design
HCIS	Health Care Information System
HDC	Health Disparities Collaborative
HDF	Hierarchical Data Format
HHS	U.S. Department of Health and Human Services
HIE	Health Information Exchange
HIM	Health Information Management
HIMSS	Health Information and Management Systems Society
HIPAA	Health Insurance Portability and Accountability Act
HIS	Health Information System or Hospital Information Systems
HISPC	Health Information Security and Privacy Collaboration
HIT	Health Information Technology
HITECH	Health Information Technology for Economic and Clinical Health
HITPC	Health Information Technology Policy Committee
HITSC	Health Information Technology Standards Committee
HITSP	Health Information Technology Standards Panel
HL7	Health Level Seven
HMD	Hierarchical Message Descriptions
HRSA	Health Resources and Services Administration

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HSSP	Healthcare Services Specification Project
HTTP	Hypertext Transfer Protocol
HW	Hardware
Hz	Hertz
IANA	Internet Assigned Numbers Authority
ICD	International Classification of Diseases
ICD-10-CM	International Classification of Diseases, 10th Revision, Clinical Modification
ICH	International Conference on Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use
ICMP	Internet Control Message Protocol
ICPC	International Classification of Primary Care
ICSR	Individual Case Safety Report
ICT	Information and Communication Technologies
ICU	Intensive Care Unit
IDS	Intrusion Detection System
IE	Internet Explorer
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force
IG	Implementation Guide (HL7)
IHE	Integrating the Healthcare Enterprise
IHS	Indian Health Services
IHTSDO	International Health Terminology Standards Development Organisation
IIS	Internet Information Services
INR	International Normalized Ratio
IOM	Institute of Medicine
IP	Internet Protocol
IP/OP	Inpatient/Outpatient
IS	Information System
ISDN	Integrated Services Digital Network
ISO	International Organization for Standardization
ISO/TC	International Organization for Standardization's (ISO) Technical Committee (TC) on health informatics
IT	Information Technology
ITS	Implementable Technology Specifications (HL7)
JIC	Joint Initiative Council
LAB	Laboratory Data Model

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LAN	Local Area Network
LDAP	Lightweight Directory Access Protocol
Leapfrog Group	Consortium of major companies and other large private and public healthcare purchasers
LIMS	Lab Information Management System
LLC	Logical Link Control
LOINC	Logical Observation Identifiers Names and Codes
MAC	Mandatory Access Control
MAR	Medication Administration Record
MD	Medical Doctor
MDA	Model Driven Architecture
MDE	Master Data Element
MDF	Methodology Development Framework
MDM	Master Data Management
MEDCIN	System of standardized medical terminology developed by Medicomp Systems
MedDRA	Medical Dictionary for Regulatory Activities
MICR	Multipurpose Internet Mail Extensions
MIME	Magnetic Ink Character Recognition
MIS	Management Information System
MLM	Medical Logic Module
MLLP	Minimal Lower Layer Protocol
MMA	Medicare Prescription Drug, Improvement, and Modernization Act or Medicare Modernization Act
MMIS	Medicaid Management Information System
MOTS	Modifiable Off-the-Shelf
MPI	Master Patient Index
MSH	Message Header Segment
MU	Meaningful Use
NAHIT	National Alliance for Health Information Technology
NAT	Network Address Translation
NCPDP	National Council for Prescription Drug Programs
NCI	National Cancer Institute
NCI-CBIIT	National Committee on Vital Health Statistics
NCVHS	National Cancer Institute Center for Bioinformatics and Information Technology
NDC	National Drug Codes
NDF	National Drug File
NDF-RT	National Drug File-Reference Terminology
NEMA	National Electrical Manufacturers Association

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NEDSS	National Electronic Disease Surveillance System
NETSS	National Electronic Telecommunications System for Surveillance
NetBUI	NetBios Extended User Interface
NGC	National Guideline Clearinghouse
NHIMG	National Health Information Management Group
NIC	Network Interface Cards
NIH	National Institutes of Health
NIST	National Institute for Standards and Technology
NIST-ATL	National Institute for Standards and Technology-Advanced Technology Laboratories
NHIN	Nationwide Health Information Network
NLB	Network Load Balancing
NLM	National Library of Medicine
NPI	National Provider Identifier
NRZ	Non Return to Zero
NTFS	New Technology File System
NQF	National Quality Forum
OASIS	Organization for the Advancement of Structured Information Standards
OCC	Office of Care Coordination
OCL	Object Constraint Language
OCR	Office of Civil Rights
ODM	Operational Data Model or Optical Character Recognition
OID	Object Identifier
OLAP	Online Analytical Processing
OMG	Object Management Group
ONC	Office of the National Coordinator for Health Information Technology
ONC-ATCB	Office of the National Coordinator Authorized Testing and Certification Body
OOD	Operating Room
OR	Object Oriented Design
OS	Operating System
OSI	Open Systems Interconnection
OTP	One-Time Passwords
OUI	Organizational Unique Identifier
OWL	Web Ontology Language
PACS	Picture Archiving and Communication Systems

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PBMS	Pharmacy Benefit Managers
PCI	Peripheral Componet Interconnect
PCT	Primary Care Trust
PDAs	Portable Digital Assistants or Personal Digital Assistants
PDCA	Plan–Do–Check–Act
PDSA	Plan-Do-Study-Act
PDUs	Protocol Data Units
PHDSC	Public Health Data Standards Consortium
PHER	Public Health Emergency Response
PHI	Protected Health Information
PHII	Personal Health Record
PHR	Pubic Health Informatics Institute
PHR-FM	Personal Health Record-Functional Model
PIC	Process Improvement Committee (HL7)
PIX	Patient Identifier Cross-Referencing
PKI	Public Key Infrastructure
PM	Project Management
PMH	Past Medical History
PMI	Patient Master Index
PMS	Practice Management System
POP	Post Office Protocol
PPP	Point-to-Point Protocol
QAP	Quality Assurance Project
QFD	Quality Function Deployment
QI	Quality Improvement
RA	Registration Authority
R-ADT	Reservation/Registration-Admission, Discharge, Transfer
RAID	Redundant Array of Independent Disks
RAM	Random Access Memory
RBAC	Role Based Access Control
RCRIM	Regulated Clinical Research Information Management
RELMA	Regenstrief LOINC Mapping Assistant
RF	Radio Frequency
RFI	Radio Frequency Interference
RFID	Radio Frequency Identifiers
RFP	Request For Proposal
RHIOs	Regional Health Information Organizations
RIM	Reference Information Model

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RIS	Radiology Information Systems
RMIM	Refined Message Information Model
RMPI	Registry Master Patient Index
ROI	Return On Investment
RPM	Remote Patient Monitoring
RPS	Regulated Product Submission
RSNA	Radiological Society of North America
RX	Prescription
SAEAF	Services-Aware Enterprise Architecture Framework
SAIF	Services Aware Interoperability Framework
SAN	Storage Area Network
SATA	Serial Advanced Technology Attachment
SCO	SDO Charter Organization
SCSI	Small Computer System Interface
SDLC	Software Development Life Cycle
SDM	Systems Development Method
SDO	Standard Development Organization
SDTM	Study Data Tabulation Model
SEI	Subject Matter Expert
SME	Software Engineering Institute
SMTP	Simple Mail Transport Protocol
SNOMED	Systematized Nomenclature of Medicine
SNOMED CT	Systematized Nomenclature of Medicine--Clinical Terms
SNOMED RT	Systematized Nomenclature of Medicine--Reference Terminology
SNOP	Systematized Nomenclature of Pathology
SOA	Service Oriented Architecture
SOAP	Simple Object Application Protocol
SOP	Structured Product Labeling
SPC	Statistical Process Control
SPL	Standard Operating Procedure
SSA	Social Security Administration
SSID	Service Set Identifier
SSL	Secure Socket Layer
SSN	Social Security Number
SSO	Single Sign-On
STP	Shielded Twisted-Pair
TCP/IP	Transmission Control Protocol / Internet Protocol
TEPR	Toward an Electronic Patient Record Conference

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TLS	Transport Layer Security
TOC	Table of Contents
TP	Twisted-Pair
TPS	Transaction Processing System
TSC	HL7 Technical Steering Committee
TTL	Time to Live
UAT	User Acceptance Testing
UDP	User Datagram Protocol
UML	Uniform Modeling Language
UMLS	Unified Medical Language System
URLs	Universal Resources Locators
UPI	Unique Patient Identifier
UPS	Un-interrupted power supply
US	Ultrasound
USB	Universal Serial Bus
US TAG	U.S. Technical Advisory Group
UTP	Unshielded Twisted-Pair
VA	Veterans Administration
VA_NDF-RT	Veterans Administration National Drug File-Reference Terminology
vMR	Virtual Medical Record
VPN	Virtual Private Network
VSS	Volume Shadow Copy Service
VUHID	Voluntary Universal Healthcare Identification System
VUMC	Vanderbilt University Medical Center
W3C	World Wide Web Consortium
WAN	Wide Area Network
WAP	Wireless Access Point
WHO	World Health Organization
WLAN	Wireless Local Area Network
WONCA	World Organization of National Colleges, Academies and Academic Associations of General Practitioners/ Family Physicians. (World Organization of Family Doctors)
WSDL	Web Services Description Language
WWW	World Wide Web
XDR	External Data Representation
XML	Extensible Markup Language

*Indicates this link is no longer functional.

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