



Training in Healthcare Informatics

Suggested Course Content



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Introduction

Health informatics, Health care informatics or medical informatics is the intersection of information science, computer science, and health care. It deals with the resources, devices, and methods required to optimize the acquisition, storage, retrieval, and use of information in health and biomedicine. Health informatics tools include not only computers but also clinical guidelines, formal medical terminologies, and information and communication systems. It is applied to the areas of nursing, clinical care, dentistry, pharmacy, public health and (bio)medical research ⁽¹⁾



In simple words Health Informatics is “... the use of computer technologies in healthcare to store, share, transmit and analyse clinical knowledge and data ⁽²⁾ to reduce errors and ensure improved quality of healthcare⁽³⁾.” Today it has become mandatory for all resources working in IT companies with a Healthcare vertical to train in healthcare Informatics. These subjects permit resources to have an advantage in practice since they are based on real world requirements. We even tailor make training workshops for clinicians, nurses, marketing and sales personnel and MBAs.

Our training

Our training follows best practices and consists of a judicious mix of theory, practical workshops, faculty-student interactions and, where required, actual visits or demonstrations of real life applications in the lab or at hospitals/IT companies. The students would, in addition, have access to us through emails to clarify doubts. Healthcare Informatics being a rapidly progressing field, most lectures are updated every month and could include breaking news and information as recent as 1 week previous to the date of the presentation. All class room training is carried out using high tech audio-visual aids and PowerPoint presentations, videos and where relevant, videoconferencing (conditions apply). You can pick and choose the subjects you need and also the number of days of training required. We prepare a package in synch with your needs and carry out the workshop/training at your own premises, any day of the week, to suit your convenience.

Core Content

The content and suggested days of training are as follows:



Healthcare Informatics	Workshops
Understanding the Hospital Environment	1 day
Classifications (LONIC, SNOMED-CT, ICD,CPT , UML, others)	1 day / 2 days
EMR, EHR, PHR	1 day / 2 days
Messaging: HL7 V2.6	3 days, 5 days
ICD 9, ICD 10, Migration	3 days, 5 days
Clinical Information Systems	1 day
HIS, HIMS	1 day / 2 days
LIS	1 day / 2 days
Radiology Information Systems	1 day / 2 days
PACS	1 day / 2 days
DICOM	3 days, 5 days
Decision Support Systems	1 day
Nursing Information System	Half day
Evidence-Based Medicine	Half day
Telemedicine	1 day
HIPAA	Half day
Project Management: Prince2	3 days, 5 days, 15 days
Assessment of HC IT requirements, RFI, RFP, project documentation, project implementation	1 day

- *Details of the topics, as above are provided in appendix 'A' to this document*
- *We also provide customized training as per your requirements*

Trainer Profile

Dr Lavanian MBBS, MD(AM), is a HL7 certified clinician with 29 years of expertise in Healthcare and Healthcare Informatics - Strategy, Implementation, training and Op Management (EHRs, EMRs, PHRs, CPOE, EHealth, HL7, DICOM).

He has been involved in HL7 since 2002 and was formally certified as a 'HL7 Control Specialist' in 2004 by the HL7 Board of directors, HL7 Organisation, USA

He has been training, making presentations, carrying out training seminars and live demos on HL7, DICOM, EMRs, EHR, HIS, CPOE, Telemedicine, TeleHealth and related subjects pertaining to Healthcare IT in India and abroad for more than a decade. He has trained resources at GE Healthcare, Wipro, Apollo healthstreet- Hyderabad , Medvarsity-Hyderabad, Anna University-Chennai, C-DAC- Pune, Crimsonlogic-Singapore, Clinical Solutions- UK, Mittal Steel- Kazakhstan to name a few.



Presentations, workshops and Seminars

- * Speaker - "Next Generation Health Informatics India 2011, New Delhi, Oct 2011
- * Trainer – 1 day Workshop in DICOM at GE Healthcare, Bangalore, India Jul 2011
- * Speaker - "Data mining in Healthcare IT", National Conference on Data Mining, AIMS, Pune, Feb 2011
- * Trainer – 3 day advanced Workshop in HL7 V2.6 Wipro, Bangalore, India Dec 2010
- * Trainer – 3 day advanced Workshop in HL7 V2.6 Cybage, Pune, India Dec 2010
- *Speaker – 'The Economics of Telemedicine' Telemedicon 2009, Pune, India, 06 Nov 2009
- *Speaker - `Global CSR Conclave' - NF Track at NASSCOM India Leadership Forum `07 Grand Hyatt Mumbai, 9 Feb-2007
- * Speaker - "Healthcare Informatics" Marcus Evans, Royal Orchid Sheraton, Bangkok, Thailand, 18-19 Sep 06
- * Speaker -Annual meet of the American Telemedicine Association San Diego, USA, 10th of May 06 (could not attend due to visa unavailability)
- * Speaker - "Healthcare Revenue Cycle Management" Marcus Evans, Intercontinental, Dubai, UAE 8-9 May 06
- * Speaker - `ICT for National Development' CSI, Hyderabad India Nov 2005
- * Speaker - The First Gulf Forum on "Healthcare, Quality Improvement and Accreditation", Bahrain, UAE Jun 2005
- * Speaker - Medi-IT Asia Kuala Lumpur, Malaysia May 2005

- * Speaker and Demo - IntelemedIndia 2005, ISRO, Bangalore
- * Speaker - ICMIT 2005, IIT Kharagpur, India
- * Speaker - CIT 2005, Ahmedabad, India (Hosted by the govt of Gujarat and CII)
- * Speaker - and Demo 'Intel Centrino Launch', 2005, Bangalore, India
- * Speaker - Meditel 2004, Bangalore, India
- * Speaker -and Demo 'Intel Asia Pacific Healthcare Leadership Forum'. Bangkok, Thailand 17 Nov 04
- * Speaker - 4th VSAT India 2004 international conference & exhibition, Delhi, India
- * Speaker - U P Development Sub- committee on Healthcare Meeting, Lucknow, India
- * Speaker - Meeting of the Media Lab Asia Core Group on ICT for Healthcare, Kochi, India
- * Key note Speaker - "Telehealth - How it impacts your health positively" Mittal(ISPAT), Karaganda, Kazakhstan

Professional Memberships

Member, UK Council for Health Informatics Professions

Co-Chair, Memberships Committee, HL7 India

Member ,HL7 Australia (since 2005)

Executive Member, Indian Association of Medical Informatics

Life Member, Telemedicine Society of India

Member, Task Force for Telehealth , Government of India

Co-convener for Standards Sub-Committee, Government of India, Telemedicine Taskforce

Life Member, Indian Society of Aerospace Medicine

Life Member, Indian Society of Hospital Waste Management

Summary of Designations

CEO, HCit Consultant

Vice President – Healthcare Products, Bilcare Research Ltd

Vice President - Software division AxSys Health Tech

Vice President – Technical- ATNF, Apollo Hospitals Group

Deputy Director Medical Services (IT) IAF

Hospital Administrator

Senior Medical Officer

In conclusion

HCit Consultant provides the ideal training experience at your place, at your convenience and as per your needs* - all you need to call us!

We look forward to working with your prestigious Institution to train your students on the cutting edge of HC IT technology.

Please feel free to call Dr Lavanian at +91 9970921266 or +91 20 32345045

You can also email him at ceo@hcritconsultant.com or Lavanian@gmail.com

References:

1. http://en.wikipedia.org/wiki/Health_informatics
2. <http://www.openclinical.org/healthinformatics.html>
3. Dr Lavanian, CEO, HCit Consultant

Appendix 'A'

Understanding the Hospital Environment:

A hospital is a complex environment where expert teams collaborate to provide holistic care to a patient. Due to this complexity, it becomes vital to clearly understand the work flow and different processes in a hospital. Only then would it be possible to understand the requirement of ICT at a hospital and the need and type of interoperability required. On completion of this group of sessions, the student would:

- Understand the layout of a hospital
- Understand the working of different departments and their interdependence
- Understand the patient and work flow
- Get an overview of IT support required in various departments
- Get an overview of the type of IT applications used in these departments
- Deep dive into details of important IT applications used in clinical environments, as detailed below

Medical terminologies, nomenclatures, coding and classification systems

Clinical vocabularies, terminologies or coding systems, are structured lists of terms which together with their definitions are designed to describe unambiguously the care and treatment of patients. Terms cover diseases, diagnoses, findings, operations, treatments, drugs, administrative items etc., and can be used to support recording and reporting a patient's care at varying levels of detail, whether on paper or, increasingly, via an electronic medical record.

A nomenclature is a relatively simple system of names; a vocabulary is a system of names with explanations of their meanings; a classification is a systematic organisation of things into classes, and a thesaurus (such as MeSH) is designed to index medical literature and support search over bibliographic databases. But many of the terms used in this field can prove difficult to define accurately, and their use in practice can be inconsistent.

Medical coding and classification systems work towards implementing a standardised "language for health": a common (computerized) medical language for global use.

The following will be discussed in detail:

LONIC, SNOMED-CT, ICD, CPT

HL7

HL7, which is an abbreviation of Health Level Seven, is a standard for exchanging information between medical applications. This standard defines a format for the transmission of health-related information.

Information sent using the HL7 standard is sent as a collection of one or more messages, each of which transmits one record or item of health-related information. Examples of HL7 messages include patient records, laboratory records and billing information.

EMR

An electronic medical record is dedicated to collecting, storing, manipulating, and making available clinical information important to the delivery of patient care. The central focus of such systems is clinical data and not financial or billing information. Such systems may be limited in their scope to a single area of clinical information (e.g., dedicated to laboratory data), or they may be comprehensive and cover virtually every facet of clinical information pertinent to patient care (e.g., computer-based patient record systems). Such records are restricted to a single hospital or domain.

EHR

An EHR is a longitudinal Electronic Medical record of a single patient and spans his complete health records (both during health and illness) from birth to death. It contains episodes and encounters from different healthcare establishments which could span continents.

PHR

Personal Health Records (PHRs) are "electronic application[s] through which individuals can maintain and manage their health information (and that of others for whom they are authorized) in a private, secure, and confidential environment"

HIS (HIMS)

A hospital information system (HIS) is a comprehensive, integrated information system designed to manage the administrative, financial and clinical aspects of a hospital. This encompasses paper-based information processing as well as data processing machines.

It can be composed of one or a few software components with specialty-specific extensions as well as of a large variety of sub-systems in medical specialties (e.g. Laboratory Information System, Radiology Information System).

LIS

A lab information system is a class of software that receives, processes, and stores information generated by medical laboratory processes. These systems may or may not interface with instruments and other information systems such as hospital information systems (HIS). A LIS is a highly configurable application which is customized to facilitate a wide variety of laboratory workflow models. There are as many variations of LISs as there are types of lab work. Some vendors offer a full-service solution capable of handling a large hospital lab's needs; others specialize in specific modules. Disciplines of laboratory science supported by LISs include hematology, chemistry, immunology, blood bank (Donor and Transfusion Management), surgical pathology, anatomical pathology, flow cytometry and microbiology.

Radiology Information Systems

A radiology information system (RIS) is an application used by radiology departments to store, manipulate and distribute patient radiological data and imagery. The system carries out patient tracking and scheduling, result reporting and image tracking. The RIS complements HIS (Hospital Information Systems) and is critical for efficient workflow in radiology practices.

PACS

A picture archiving and communication system is a combination of hardware and software dedicated to the short and long term storage, retrieval, management, distribution and presentation of images. The biggest consumers of PACS are hospitals. PACS main purpose is to replace hard film copies with digital images that can be used and seen by several different medical professionals and different medical automation systems simultaneously.

DICOM

DICOM (Digital Imaging and Communications in Medicine) is a standard for handling, storing, printing, and transmitting information in medical imaging. It includes a file format definition and a network communications protocol. DICOM files can be exchanged between two entities that are capable of receiving image and patient data in DICOM format.

DICOM enables the integration of scanners, servers, workstations, printers, and network hardware from multiple manufacturers into a picture archiving and communication system (PACS). DICOM has been widely adopted by hospitals, dentists' and doctors' offices.

ICD 9 – ICD 10 Migration

The International Statistical Classification of Diseases and Related Health Problems (most commonly known by the abbreviation ICD) is a medical classification that provides codes to classify diseases and a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or disease. Under this system, every health condition can be assigned to a unique category and given a code, up to six characters long. Such categories can include a set of similar diseases. The International Classification of Diseases is published by the World Health Organization (WHO) and used worldwide for morbidity and mortality statistics, reimbursement systems, and automated decision support in medicine. This system is designed to promote international comparability in the collection, processing, classification, and presentation of these statistics. The ICD is revised periodically and is currently in its tenth edition. The ICD is part of a "family" of guides that can be used to complement each other, including also the International Classification of Functioning, Disability and Health which focuses on the domains of functioning (disability) associated with health conditions, from both medical and social perspectives.

Clinical Information Systems

CISs can be component of a HIS in that the former concentrate on patient-related and clinical-state-related data (electronic patient record) whereas the latter keeps track of administrative issues.

Decision Support Systems

A decision support system (DSS) is a computer-based information system that supports business or organizational decision-making activities. DSSs serve the management, operations, and planning levels of an organization and help to make decisions, which may be rapidly changing and not easily specified in advance.

Clinical decision support system (CDSS or CDS) is an interactive decision support system (DSS) Computer Software, which is designed to assist physicians and other health professionals with decision making tasks, as determining diagnosis of patient data. A working definition : "Clinical Decision Support systems link health observations with health knowledge to influence health choices by clinicians for improved health care".

Nursing Information System

Nursing information systems (NIS) are computer systems that manage clinical data from a variety of healthcare environments, and made available in a timely and orderly fashion to aid nurses in improving patient care.

To achieve this, most Nursing Information Systems are designed using a database and at least one nursing classification language such as North American Nursing Diagnosis (NANDA), Nursing Intervention Classification (NIC) and Nursing Diagnosis Extension and Classification (NDEC).

Evidence-Based Medicine

Evidence-based medicine (EBM) or evidence-based practice (EBP) aims to apply the best available evidence gained from the scientific method to clinical decision making.[1] It seeks to assess the strength of evidence of the risks and benefits of treatments (including lack of treatment) and diagnostic tests.[2] Evidence quality can range from meta-analyses and systematic reviews of double-blind, placebo-controlled clinical trials at the top end, down to conventional wisdom at the bottom.

EBM/EBP recognizes that many aspects of health care depend on individual factors such as quality- and value-of-life judgments, which are only partially subject to scientific methods. EBP, however, seeks to clarify those parts of medical practice that are in principle subject to scientific methods and to apply these methods to ensure the best prediction of outcomes in medical treatment, even as debate continues about which outcomes are desirable.

Telemedicine and Telehealth

telemedicine is "rapid access to shared and remote medical expertise by means of telecommunications and information technologies, no matter where the patient or relevant information is located."

Telemedicine also has the potential to improve the delivery of health care in India by bringing a wider range of services such as radiology, mental health services and dermatology to underserved communities and individuals in both urban and rural areas. In addition, telemedicine can help attract and retain health professionals in rural areas by providing ongoing training and collaboration with other health professional.

HIPAA

HIPAA is an acronym for the Health Insurance Portability and Accountability Act. This Act was introduced in 1996, but not fully implemented until 2003. HIPAA was created to ensure that people between jobs would still have access to quality health care coverage, since in the past it

was difficult or impossible to change insurance carriers without facing lowered coverage or exorbitant premiums. HIPAA was also intended to protect private health care information and create a uniform standard for dispersing personal information.

Project management – Prince2

Projects IN Controlled Environments 2 (PRINCE2) is a structured project management method endorsed by the UK government as the project management standard for public projects. The methodology encompasses the management, control and organisation of a project. PRINCE2 was released in 1996 as a generic project management method. PRINCE2 has become increasingly popular and is now a de facto standard for project management in the UK.

Assessment of HC IT requirements, RFI, RFP, project documentation, project implementation

Resources working in Hospital and other healthcare entities that use complex and expensive electronic systems and computer applications require to hire, purchase, update, upscale or junk such systems periodically. Understanding the processes of such assessments and creating relevant documents to close such activities is vital to ensure planned availability of optimized, cost effective and appropriate systems.