

CURRENT TRENDS IN MEDICAL INFORMATICS

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Guest Lecture




Current Trends in Medical Informatics


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Systems used in Medical Informatics



H.I.S., P.C.S., Labs.
Imaging, Communication
Med. Edu., Litera. Search
C.B. Therapy, Treatment etc.

Art. Intelligence, Expert System
N. Networks, Robotics


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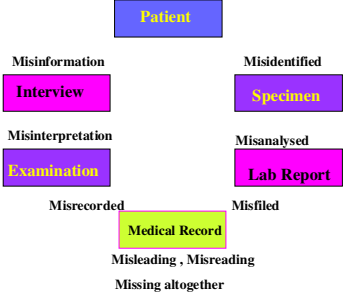
Problems in Health Industry

- Information Explosion
- Multi Modalities
- Super Specialties
- Cost / Benefit & Life/Death Situation
- Fuzziness of Facts
- Imprecise Medical Language

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Precision in Medical Information



Patient


Misinformation Interview Misidentified Specimen

Misinterpretation Examination Misanalysed Lab Report

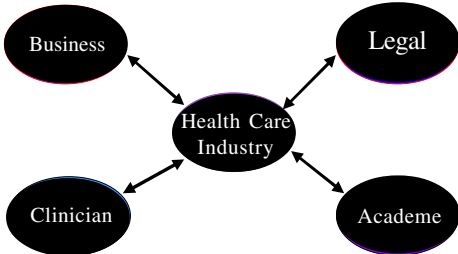
Misrecorded Medical Record Misfiled

Misleading, Misreading
Missing altogether

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Push Pull in Health Care Industry



Business Legal

Health Care Industry

Clinician Academe

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Recent Technical Developments

- Low cost PC's
- Multimedia
- Networking
- Client/server, N-Tier Architecture
- Internet, Intranet, Extranet
- Web Enabled services
- Standards
- Cyber and e-Health Laws

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Trend in Medical Informatics

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Vocabulary Control

- Context
- Polysemy
- Synonymy
- Granularity
- Content

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Trends in Medical Informatics (Contd.)



Unified Medical Language System (ULMS)

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Standard- Development Process

- 1 Ad hoc Method ... ACR/NEMA's DICOM standard for imaging
- 2 De facto Method ... Microsoft Windows
- 3 Government mandate method ... HCFA's UB92 insurance claim form
- Consensus Method ... HL7

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Standards

MeSH
SNOMED
ICD
UMLS
DICOM
HL7
MIB

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Structure and average volume of an in Patient Data

- Personal 1 KB
- Requests 1 KB
- Physical Examinations 6 KB
- Findings 1 KB
- Image 30 MB

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Trends in Medical Informatics (Contd.)

Picture Archival and Communication System
(PACS)

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Trends in Medical Informatics (contd.)

- * Artificial Intelligence
- * Expert system
- * Neural Networks
- * Robotics

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Trends in Medical Informatics (Contd.)

- Tele medicine
- Tele radiology
- Tele pathology
- Tele surgery

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Telemedicine facility used in

- Seeking referral services
- Second opinion
- Post- acute care
- Interpretation services and
- Health education

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Useful clinical content sites on web

Organization	Content	URL
CliniWeb	Catalog of clinically oriented Web Pages indexed by MeSH terms	www.ohsu.edu/clinweb
Medical Matrix	Catalog of clinically oriented Web sites	www.medmatrix.org
MedWeb	Catalog of clinically oriented Web sites	www.cc.emory.edu/WHSC/medweb.html

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Medical Content Aggregators

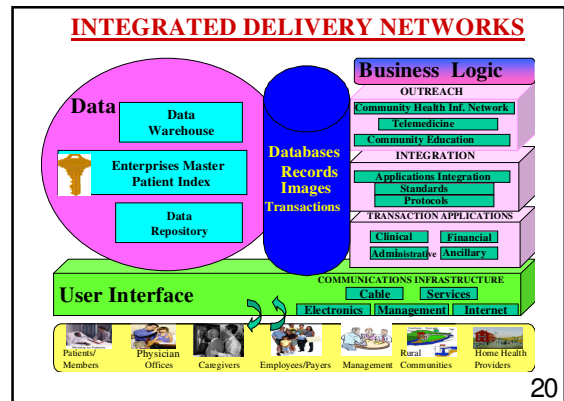
Organization	Content	URL
HighWire Press	Aggregation of leading science journals	www.highwire.org
MD Consult	Online service that includes MEDLINE, textbooks, drug information and medical news	www.mdconsult.com
Ovid Technologies	Aggregation of bibliographic databases (e.g.,MEDLINE), leading biomedical journals, evidence based medicine reviews, and text books	www.ovid.com
Medscape	Online service that includes MEDLINE, electronic mail, discussion groups, and CME	www.medscape.com

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Health- care organizations disseminate med. Inf. via web

Organization	Content	URL
Professional societies		
American Medical Association	Electronic versions of journal articles	www.ama-assn.org
American college of physicians- int. med.	Electronic inf. For internists	www.acponline.org
Indian Assoc. of Med. Inf.		www.iamindia.org
American Medical Informatics Asso.	Elec. Inf. about Med. Inf.	www.aima.org
Government agencies		
N. L. M.	MEDLINE and other NLM databases; Visible human project	www.nlm.nih.gov
Centers for Disease Control and Prevention	Health information for travelers; MMWR, a public health journal	www.cdc.gov
Agency for Healthcare & Quality Research	Clinical guidelines; evidence-based practice summaries; technology assessments	www.ahrq.gov

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DIGITAL DIVIDE

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Trends in Medial Informatics (Contd.)

Digital Medical Imaging in Developing Countries

- * High Cost of Equipment
- * Immense Computing Power
- * Huge Memory Requirements

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- Important Journals**
- Int. J. of Medical Informatics www.contentdirect.elsevier.com
 - Indian J. of Medical Informatics www.iamindia.org
 - J. of Medical Internet Research ,JMIR
 - J. of Telemedicine and Telecare [www.rsm.ac.uk /pub/jtt.htm](http://www.rsm.ac.uk/pub/jtt.htm)
 - Computers in Biology and Medicine www.elsevier.com/locate/combiomed
 - Medical Informatics and the Internet in Medicine <http://www.medicinarena.com>

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- Books –**
1. Medical Informatics – Computer Applications in Health Care and Biomedicine
Ed. Edward H. Shortliffe Leslie.Perreault
Springer
ISBN 0-387-98472-0
 2. Health Information Systems (2nd ed.)
Ed. Kevin Beaver (2003)
Auerbach Publications (Best Practices Series)
ISBN 0-8493-1498-4

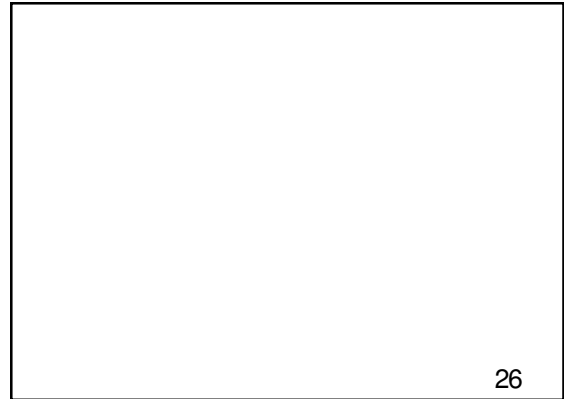
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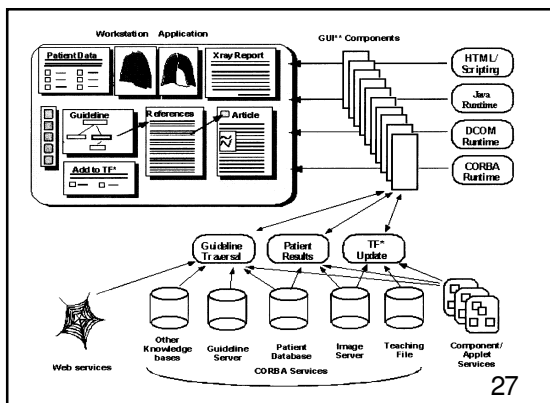
Suggestions:

- **Formulation/ issue National Policy**
- **Legislative Protection of rights and privacy of the individual patient**
- **Guidelines for acquiring safe and appropriate Medical Technology**
- **Incorporation of Medical Informatics into UG curricula**

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Conclusion:

- **Enhanced Medical Education/ Research and Training**
- **Standardize Clinical Practices**
- **Unite Clinicians Worldwide**