



Overview of Health Informatics and Clinical Decision Support Systems

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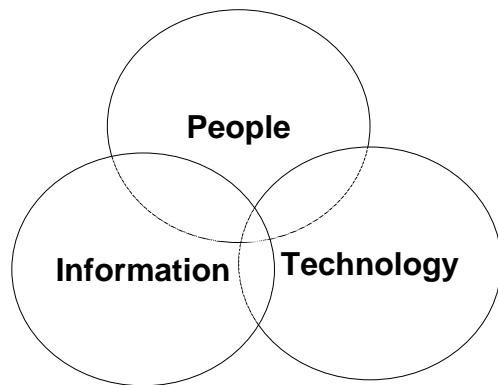
Health Informatics

Scientific field that deals with understanding the meaning and use of health information to support clinical care, health services administration, research and teaching.

Dalhousie's Graduate Program (Masters and Interdisciplinary PhD) is a collaboration among Faculties of Medicine, Computer Science, Management and Graduate Studies

<http://www.healthinformatics.dal.ca>

Environment of Supported Practice



Pointing the Way: Competencies and Curricula in Health Informatics

- Covvey, Zitner and Bernstein, Oct 2001
<http://informatics.medicine.dal.ca/files/PointingtheWay.pdf>
- Types of health informaticians
 - Applied – solution deployers
 - Research and Development – create new capabilities and produce new professionals
 - Clinicians with Health Informatics competence
 - 21 informatics-relevant challenges faced by clinicians, ranging from maintaining information currency to technology assessment

What Health Informaticians Do

- Develop
 - Decision support tools
 - Information systems and tools
- Research
 - Information collection, storage, analysis and effects
 - Model formulation
- Support learning for health and health care
- Lead teams and manage groups
 - effective management of health care resources through information and knowledge technology

Interoperability

- Human and machine-interpretable
- Methods of common communication
 - Information infrastructure for team work
 - Data Interchange → Structured Product Labeling
 - Food and Drug Administration collaborated with HL7 and NLM (<http://daily.med.nlm.nih.gov>)
 - Clinical pragmatics
- *Infoway* Standards Collaborative

Vocabulary Standard

SNOMED CT → analysis/synthesis/inference

Concepts defined using Description Logics

Calcineurin inhibitor (is-a enzyme inhibitor, is-a immunosuppressant)

- Cyclosporine (is-a calcineurin inhibitor)
- Tacrolimus (is-a calcineurin inhibitor)

Canada is a founding nation of International Health Terminology Standards Development Organisation, owners of SNOMED CT



e-Prescribing

MOXXI (Tamblyn et al., JAMIA 13(2))

- lack of integration of electronic prescribing systems was barrier to physician adoption

Functions needed to improve patient safety

1. Display patient demographics
2. Retrieve and display all currently active drugs
3. Alerts for relevant prescribing problems
4. Integration of e-prescriptions with pharmacy
5. Discontinuations sent to dispensing pharmacies
6. Monitor patient adherence/treatment outcomes

Benefits



Evaluating e-Prescribing Systems

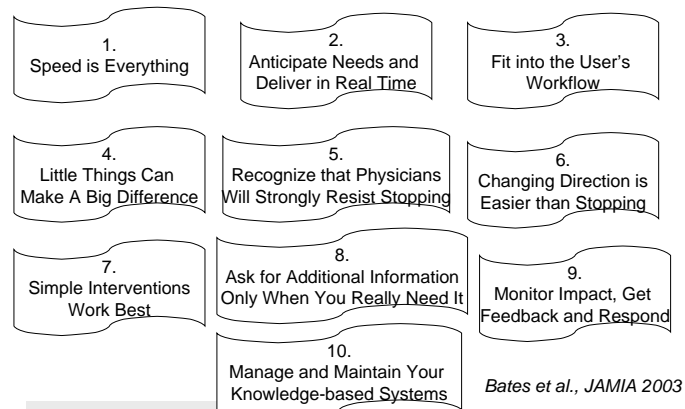
- Process model of medication management
 - Prescribe
 - Transmit
 - Dispense
 - Administer
 - Monitor
- Judge the potential effects of each feature within a specific health care environment

Bell et al., JAMIA 2004;11(1)

Computerized Decision Support Systems

- Effective in
 - Preventive care
 - Prescription behaviour
 - Following guidelines for test ordering
- Effectiveness is influenced by tailoring to the barriers to change
- Improve practitioner performance but need further research on patient outcomes

Clinical Decision Support



Bates et al., JAMIA 2003

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Thank You and Questions

- Thank you to Ingrid Sketris and Raza Abidi for their input
- Questions?
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