

Topic 01

# Introduction to Health Informatics

Kevin Robertson, MBA

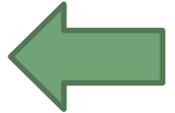
ACS-2816-050 Health Information Systems

Winter 2020

# Topic 1 Outline

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- General Information
- Course Overview
- Health Informatics (HI) Introduction
  - What is HI?
  - HI Relation to Other Sciences & Sub-disciplines
- Medical Charts & Electronic Health Records (EHR)
- EHR Expansion & Integration
  - Clinical Trials / Evidence Based Medicine
  - Integration with Other Health Information Sources
  - Public Health Networks



# General Information

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- **Instructor:** Kevin Robertson, MBA, B.Sc. Applied Comp
- **Office:** 3C07
- **Office Hours:** Tue 16:45 pm – 17:45 pm
- **E-mail:** ke.robertson@uwinnipeg.ca
  
- **Course Name:** Health Information Systems
- **Course Number:** ACS-2816-050
- **Course Web Page:** [www.acs.uwinnipeg.ca/2816-050](http://www.acs.uwinnipeg.ca/2816-050)
- **Class Meeting Time:** Tue 18:00 pm – 21:00 pm
- **Class Room:** 3D03

# Important Dates

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- **First Class:** Tuesday Jan 7<sup>th</sup>
- **Midterm Exam:** Tuesday Feb 25<sup>th</sup>
- **Final Withdrawal Date w/o Academic Penalty:**  
Fri March 13<sup>th</sup> (A minimum of 20% of the work on which the final grade is based will be evaluated and available to the student before the voluntary withdrawal date)
- **Last Class:** Tuesday March 31<sup>st</sup>
- **Final Exam:** Tuesday April 7<sup>th</sup> @ 6:00 pm

# Evaluation Criteria

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- Assignments 15%
- Term Paper 10%
- Midterm Exam 30%
- Final Exam 45%

# Evaluation Criteria - Assignments

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- **Assignments (15%)**
  - There will be 3 assignments worth 5% each
  - All assignments are to be completed **individually**
  - May include any or combination of the following:
    - Theory or analysis homework exercises
    - Close-book in-class quizzes
  - Due at the beginning of class on due dates. Handwritten assignments will not be accepted.
  - No late assignment will be accepted, or under special circumstances accepted with **20% off for each late day**
  - Multiple submissions are not permitted. Students may submit a partially completed assignment, and will receive credit for those attempted problems
  - **If** electronic hand in is requested, students are responsible to review their assignments before submission to make sure the correct files are attached to the email

# Evaluation Criteria – Term Paper

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- **Term Paper (10%)**

- Team Presentation (generally 2 per students per team)
- Study a current article related to the course
- Prepare a PowerPoint presentation
- Present article summary in class by using the PowerPoint presentation
- Schedule Presentations

- **Marks Distribution**

- Content 40% including section compliance and content quality
- Presentation style 20%
- Question period 20%
- Time precision 20% including material delivery compliance and ppt format

# Evaluation Criteria - Exams

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- **Midterm Exam (30%)**
  - Closed-book in-class midterm exam
- **Final Exam (45%)**
  - Closed-book final exam
- **Exam Requirements**
  - Photo ID at exam is required
  - You are expected to write the exam on its given day
  - No electronic devices (e.g. cell phone, laptop, scientific calculators, translators, etc) are permitted
  - **Simple calculators can be used though. Subject to approval.**
  - Unless a medical certificate is provided, no accommodation is made for missed exams

# Text Book (Required)

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## Required Text Book:

Biomedical Informatics,  
Computer Applications in Health Care  
and Biomedicine

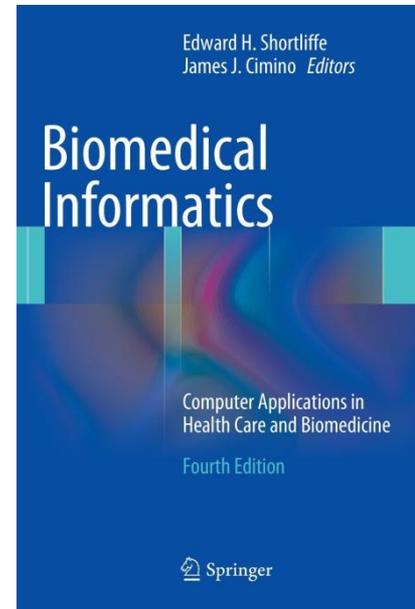
Shortliffe, E. & Cimino, J. (Eds)

Springer

4<sup>th</sup> Edition 2014

ISBN 978-1-4471-4473-1 (Hardcover)

ISBN 978-1-4471-4474-8 (eBook)



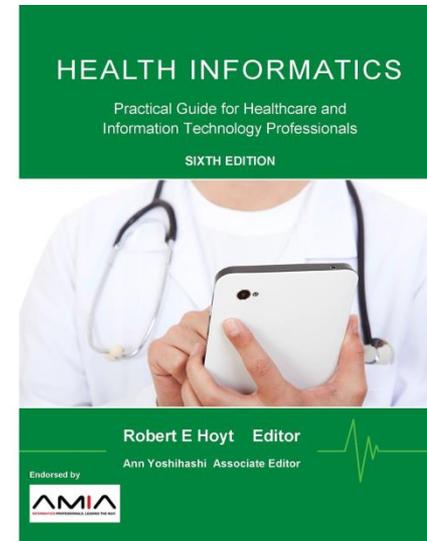
# Text Book (Optional)

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## Complementary Book (optional)

Health Informatics,  
Practical Guide for Healthcare and  
Information Technology Professionals  
Holt, Robert & Yoshihashi, Ann (Eds)  
Informatics Education  
6<sup>th</sup> Edition 2014

ISBN 978-1-3047-9110-8 (Paperback)  
ISBN 978-0-9887-5292-4 (eBook)



# Email Communication

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- It is recommended Email from accounts at uwinnipeg.ca be used in electronic communication related to the course
- Email from other accounts have greater risk to be filtered by UofW email system spam filters

# Three Questions

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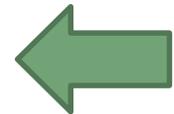
- How is the course organized and managed?
- What is Health Informatics about?
- Why are Electronic Health Records important?

Reading: Biomedical Informatics, 4<sup>th</sup> Ed Chapter 1

# Topic 1 Outline

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- General Information
- Course Overview
- Health Informatics (HI) Introduction
  - What is HI?
  - HI Relation to Other Sciences & Sub-disciplines
- Medical Charts & Electronic Health Records (EHR)
- EHR Expansion & Integration
  - Clinical Trials / Evidence Based Medicine
  - Integration with Other Health Information Sources
  - Public Health Networks



# Course Overview - Objectives

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- Introduction to health informatics concepts and their applications.
- It provides an overview of foundational and current themes in health informatics, central to the understanding of the field.
- It is intended for those who wish to get sufficient background to follow progress and potentially carry out development activities in the field.

# Course Outline (Tentative)

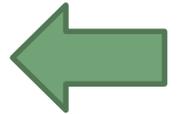
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- I. Foundational Health Informatics
  - Introduction to Health Informatics
  - Medical Data: Acquisition, Storage and Use
  - Medical Decision Making
  - Health Systems Design and Basic Concepts
  - Standards in Health Informatics
  - Integration and Interoperability
  - Ethics, Privacy and Confidential in Health Informatics
  - Evaluation and Technology Assessment
- II. Applied Health Informatics
  - Electronic Health Record Systems
  - Management of Clinical Information
  - Consumer Health Informatics
  - Patient Monitoring Systems
  - Medical Imaging Informatics
- III. Health Informatics Ahead
  - Future of Computer Applications in Health Care

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# What is Health Informatics?

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- **Health informatics** is the field of information science concerned with management of healthcare data and information through the application of technologies
  - Interdisciplinary field
  - Assists caregivers and patients with decisions and actions
  - Improves patient outcomes by better use of information
- AKA Medical Informatics, Clinical Informatics, **Biomedical Informatics** among others

# Emergence of a Discipline

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- Technology advances (a sample)
  - Graphical user interfaces
  - Data storage
  - Internet
  - Mobile technologies
- Health care system
  - Needs and requirements to evolve to 21<sup>st</sup> century
  - Slow to understand & adopt technology

# Health Informatics

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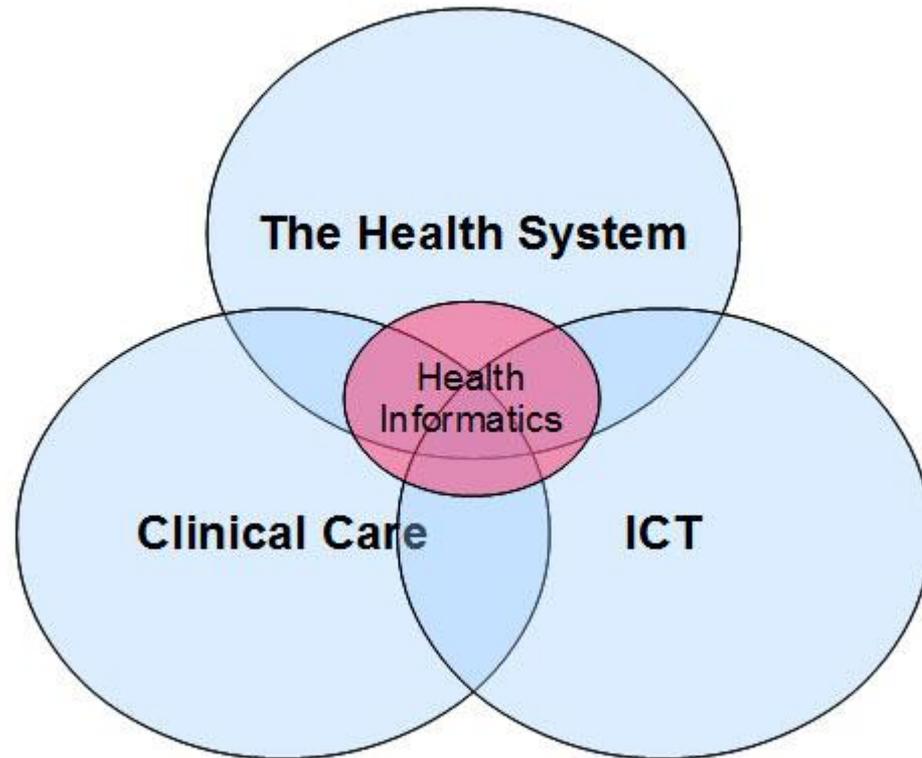


Figure source: [austemrs.com.au/page/health.html](http://austemrs.com.au/page/health.html)

# HI in Relation to Other Sciences

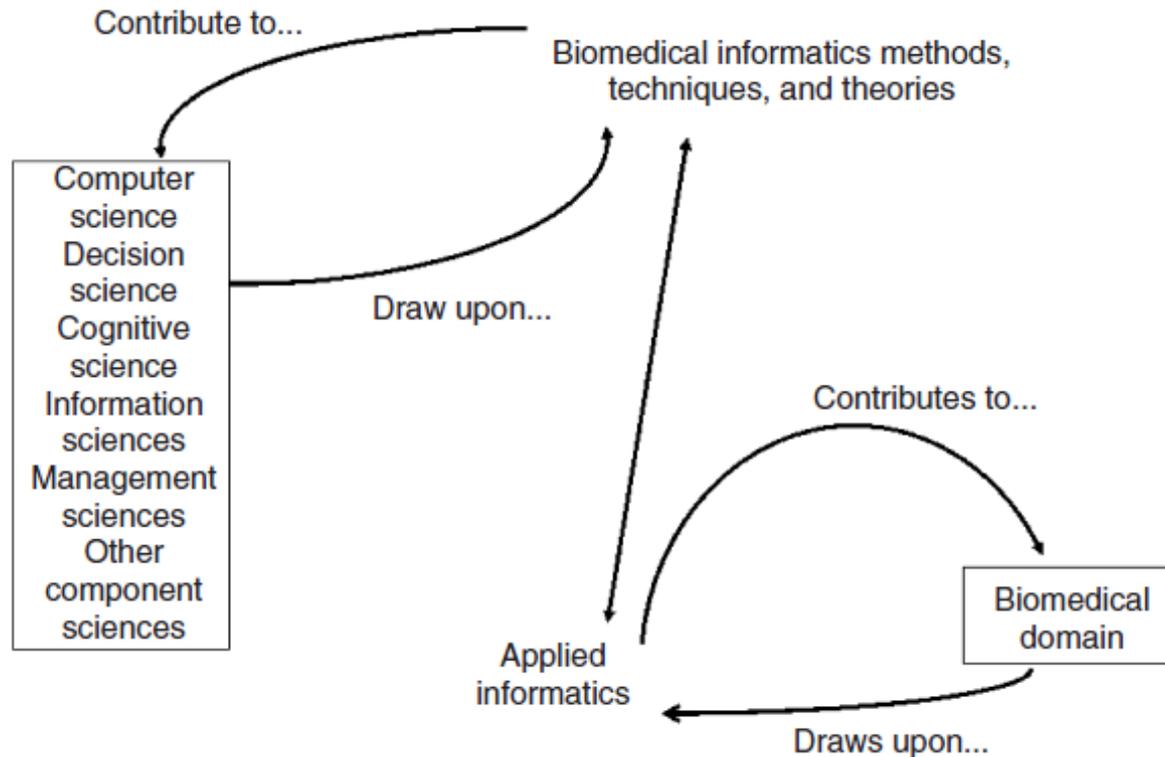


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.22, p37

# HI in Relation to Other Sciences – Radiology Case

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## Diagnostic Imaging / Radiology Reading Station

Figure source: [usa.healthcare.siemens.com/medical-imaging-it/radiology-information-systems/syngo-workflow](http://usa.healthcare.siemens.com/medical-imaging-it/radiology-information-systems/syngo-workflow)

# HI in Relation to Other Sciences – Radiology Case

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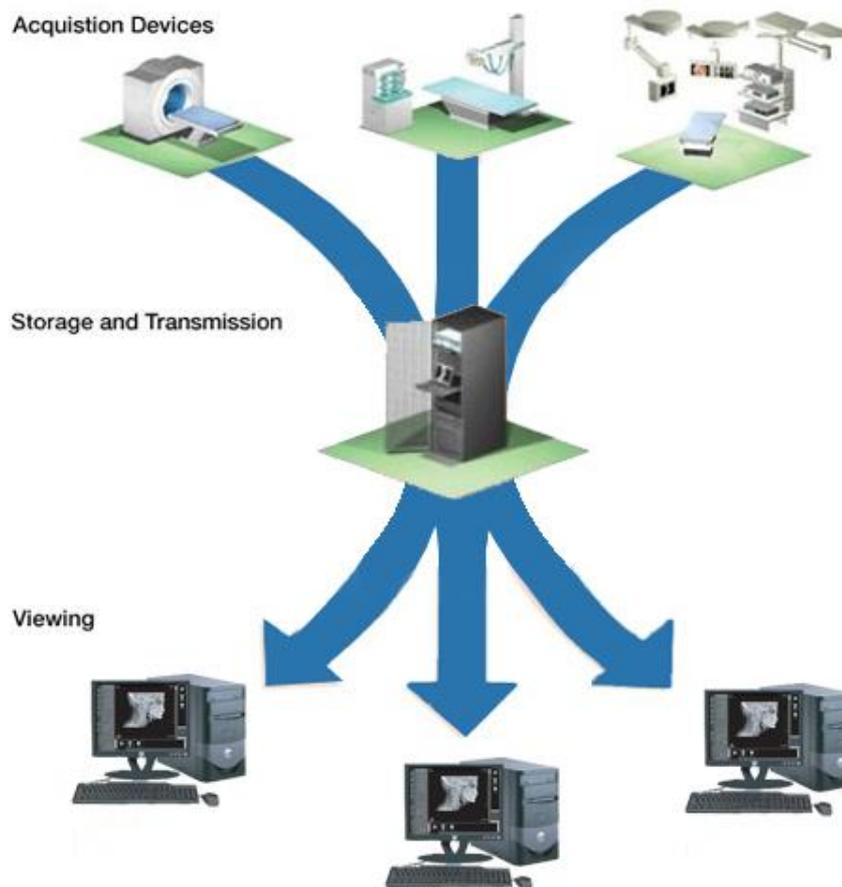
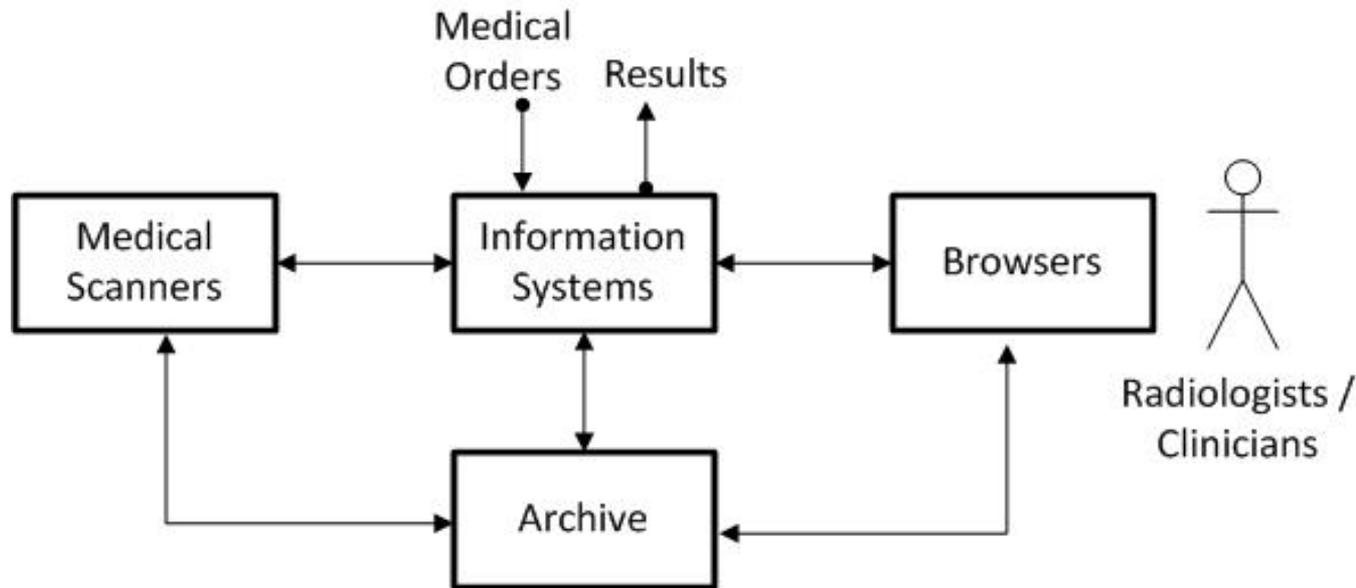


Figure source: [www.flatpaneldr.com/index.php/category/human-medical-dr/](http://www.flatpaneldr.com/index.php/category/human-medical-dr/)

# HI in Relation to Other Sciences – Radiology Case

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Generic Workflow for Diagnostic Imaging / Radiology Services

# Health Informatics Sub-Disciplines

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- Radiology Informatics,
- Diagnostic Informatics
- Medical Imaging Informatics,
- Nursing Informatics,
- Consumer Health Informatics,
- Telehealth Informatics,
- Public Health Informatics,
- Bioinformatics,
- Infectious Disease Informatics,
- Dental Informatics, etc.

# Health Informatics Sub-Disciplines

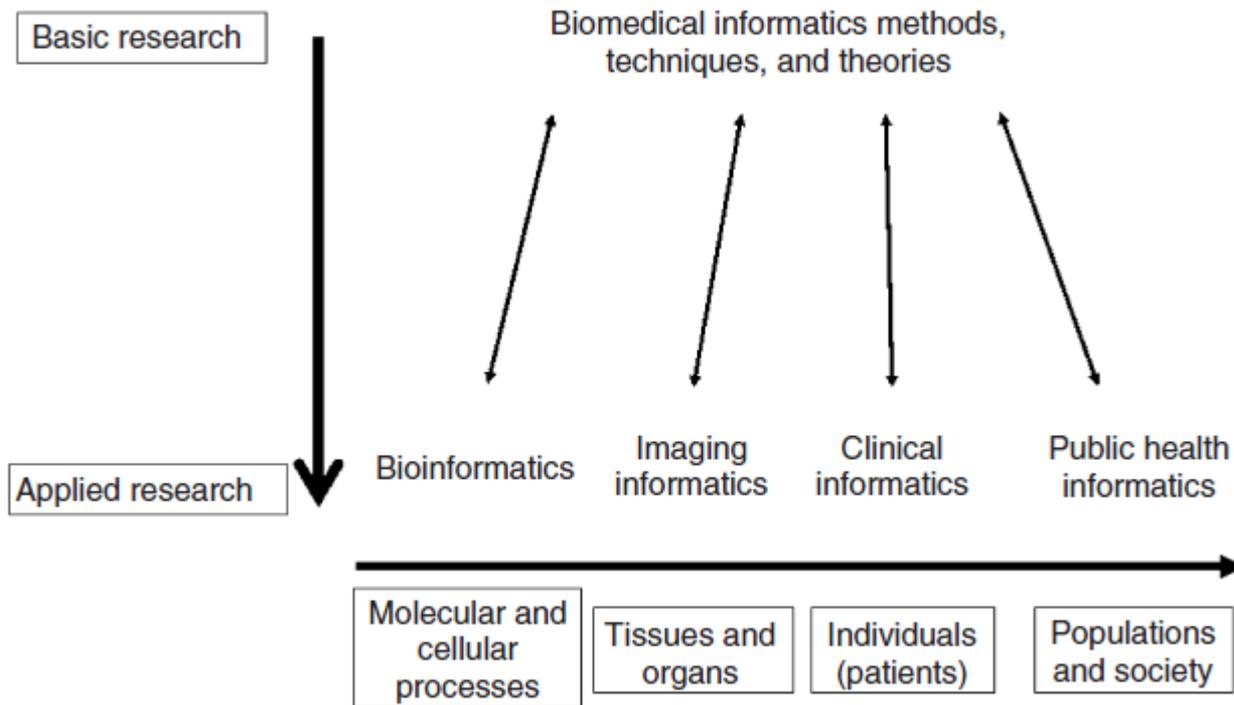
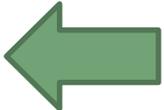


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.21, p34

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# Medical Chart / Medical Record

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- Issues with paper records
  - Integration challenges
  - Medical silos
  - One copy
- Old way to practice medicine
- Continuity of care
- Patient safety
- Quality of care



Figure source: [people.howstuffworks.com/electronic-medical-record-implementation.htm](http://people.howstuffworks.com/electronic-medical-record-implementation.htm)

# Medical Record Inputs

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- Challenges
  - Multiple sources
  - Limited capabilities
  - Workflows
  - Automation processes
  - Data integration
  - System integration

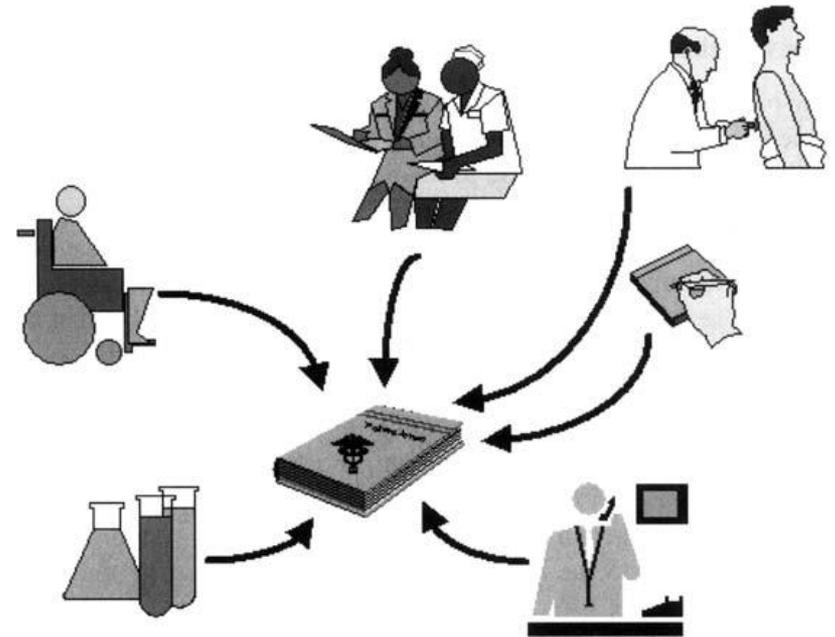


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.1, p6

# Medical Record Outputs

- Challenges
  - Multiple users
  - Workflows
  - Automation processes
  - Data access
  - Security / Privacy
  - System integration

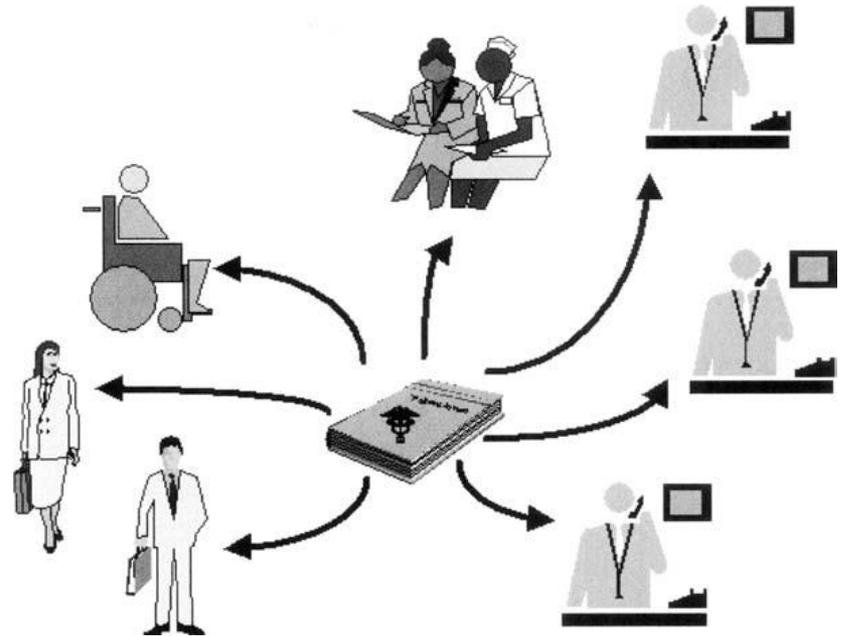


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.2, p7

# Electronic Health Records

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- Electronic Health Record (EHR)
  - *“A longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting”<sup>1</sup>*
  - Includes patient demographics, progress notes, problems, medications, vital signs, medical history, immunizations, lab and radiology data, etc.
- Electronic Medical Record (EMR)

<sup>1</sup>Healthcare Information and Management Systems Society website [www.himss.org](http://www.himss.org), accessed Dec/2012

# EHR Sample - Patients

Browser: [Sergio Camorlinga] - Patients - My Patients

Welcome Sergio Camorlinga [Sign out]      TRLabs CHR [Switch Account]      Preferences

**eCHR™**    Activity    Patients    Admin    More

My Patients    Inpatients    Diabetes Registry    Asthma Registry    Hypertension Registry    More

New Filter

Name ^	DOB	Age	Sex
<a href="#">Pistone, George Bruce</a>	4 Mar 1984	24y	Male
<a href="#">Pistone, Georgette Kathleen</a>	26 Oct 2004	4y	Female
<a href="#">Pistone, Sarah Rochelle</a>	14 Aug 2004	4y	Female
<a href="#">Pistone, Veronica Carol</a>	9 Dec 1986	22y	Female
<a href="#">Reager, Carol Adele</a>	11 Jun 1998	10y	Female
<a href="#">Reager, Denis Aaron</a>	26 Dec 1961	47y	Male
<a href="#">Reager, John Benny</a>	25 Jun 1993	15y	Male
<a href="#">Reager, Rose Lillie</a>	21 Oct 1960	48y	Female
<a href="#">Reager, Tiffany Linda</a>	11 Aug 2002	6y	Female
<a href="#">Rihn, Derrick Gary</a>	30 Jan 2004	5y	Male
<a href="#">Rihn, Elizabeth Kerry</a>	11 Sep 2007	16m	Female
<a href="#">Rihn, Mark Andrew</a>	23 Jun 1982	26y	Male
<a href="#">Robbins, Deborah Marcella</a>	14 Mar 1918	90y	Female
<a href="#">Robbins, Frank James</a>	22 Mar 1920	88y	Male
<a href="#">Schultz, Alan James</a>	23 Feb 1912	96y	Male

101 items

[Download Patient List](#)

More      Feedback

Internet | Protected Mode: On      100%

# EHR Sample – Patient John

The screenshot displays the eCHR (Electronic Clinical Health Record) interface for patient John Winther. The browser address bar shows the URL: [Sergio Camorlinga] - John Winther [Male 78y] - ...

The interface includes a navigation menu with the following tabs: Overview, Problems, Medications, Allergies, Results, Appointments, Encounters, Diagnoses, Observations, Reminders, Plans, and More. The main content area is organized into several panels:

- Problems:** 1972 Diabetes Mellitus (Active), 1942 Hypertension (Active), 1934 Hay Fever (Active).
- Active Medications:** 06/07/72 tolbutamide 500 mg tablets, 06/07/72 glucophage 500 mg tablets, 11/07/42 captopril 25 mg tablets, 11/07/42 chlorothiazide 500 mg tablets.
- Allergies:** 1934 Leaf Mold, 1934 Cedar Pollen, 1934 Ragweed.
- Results:** Jan-1998 urine albumin, Jan-1998 Lipid Panel, Jan-1998 Creatinine, Jan-1998 hemoglobin A1C test, Jun-1997 urine albumin, Jun-1997 Lipid Panel, More...
- Appointments:** 08/12/08 Office Visit Smith.
- Treatment Plans:**
- Encounters:**

The interface also includes a 'Settings' button in the top right corner and a 'Feedback' link at the bottom right. The browser status bar at the bottom shows 'Done', 'Internet | Protected Mode: On', and '100%' zoom level.

# EHR Recurring Issues

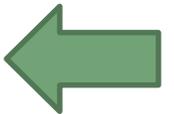
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- Standards and interoperability
- Data privacy and security
- Data entry and usability
- Quality and patient safety
- Information integration

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# Evidence Based Medicine / Clinical Trials

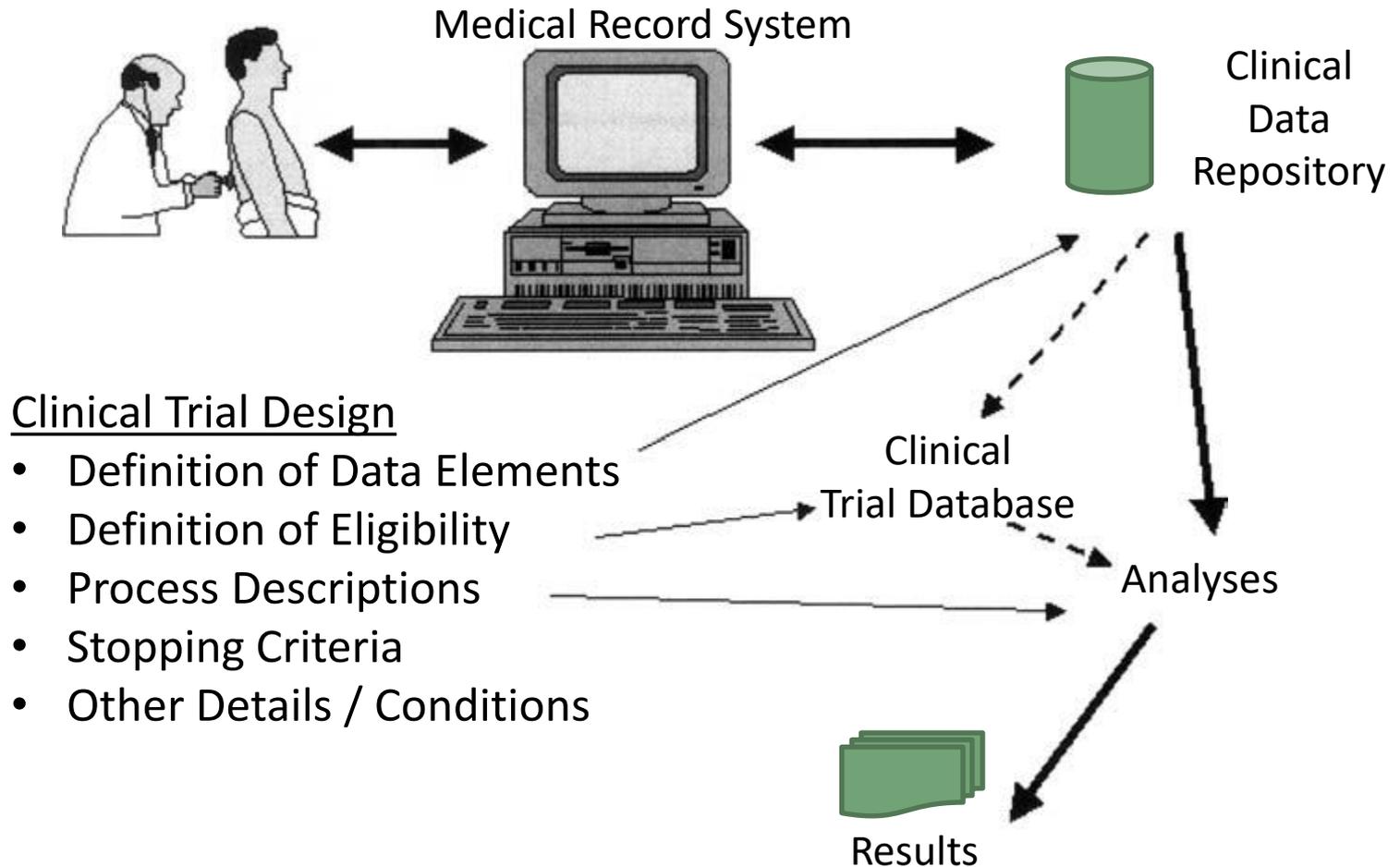
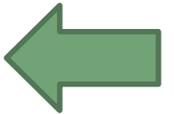


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.5, p10

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# Integration with Other Information Resources

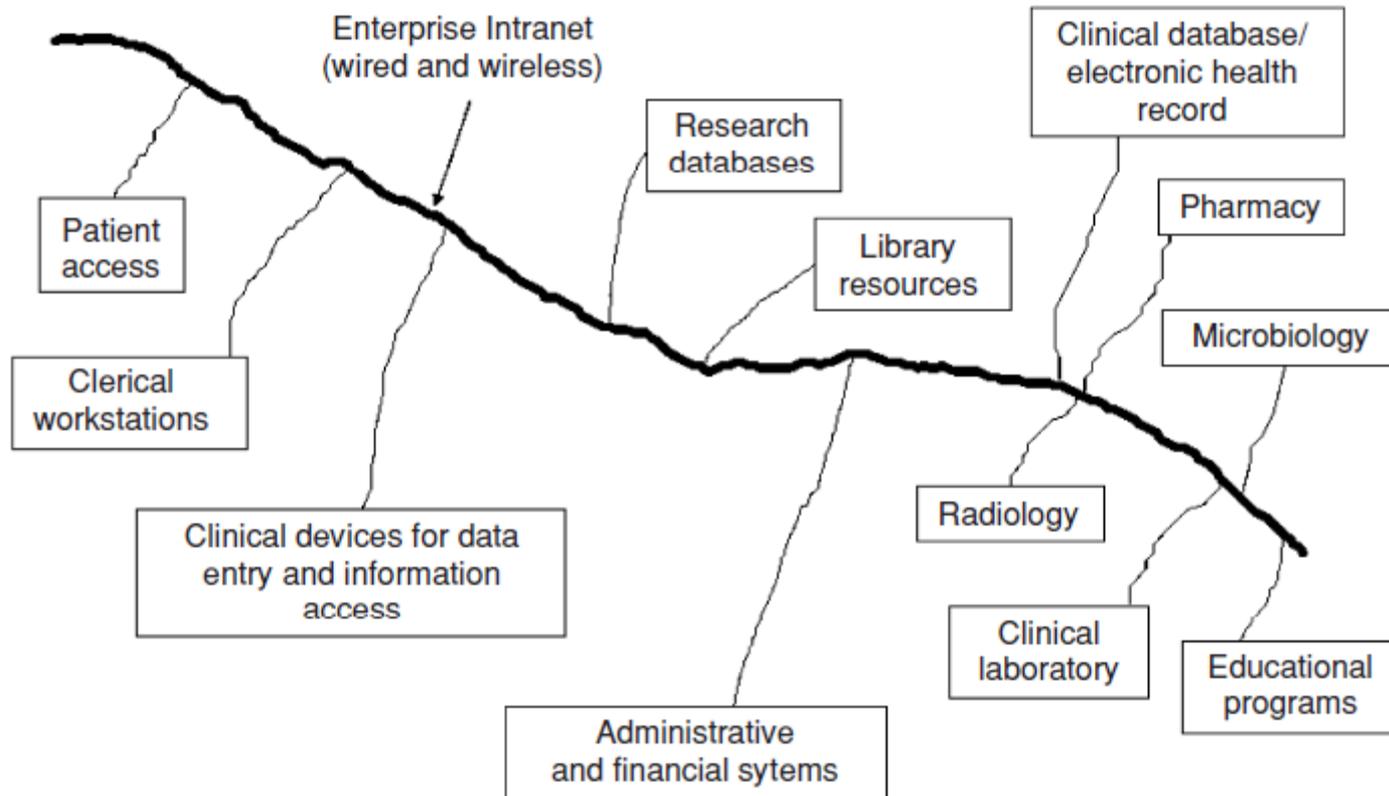


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.6, p11

# Integration with Other Information Resources – MB eChart Example

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- eChart Manitoba
  - Secured electronic system that connects authorized health-care providers with a summary of an individual's key health information
- Info Sources
  - Prescriptions filled – Drug Programs Info Network (DPIN)
  - Immunization – MB Immunization Monitoring System (MIMS)
  - Demographics – MB Provincial Client Registry (CR) system
  - Lab results – several private/public labs
  - Diagnostic imaging reports – MB Radiology System (RIS)
  - Encounter info – St. Boniface Hospital

Source: eChart Manitoba <http://www.connectedcare.ca/echartmanitoba/>

# Integration with Other Information Resources – MB eChart Example

Goodspeed, Annabel
Clinical View with Override
Logout
eChart  
MANITOBA

**Name: SMITH, Freda Jean**      **PHIN: 955500001**    **Age: 54 Years**    **Gender: Female**

Summary | Medications | Laboratory | Pathology | Immunizations | Clinical Documents

**Medications**

From Date: 9/20/2009    To Date:      Show Cancelled  
 Last: 2    Units: Year    Grouped By: Medication

Medications											
12 Records											
Date	Form	Medication	SIG	Duration	Prescriber	End Date	Status	Facility	Dispense	Refill	Source
<b>FUROSEMIDE (2)</b>											
7/19/2011	Tablet	APO FUROSEMI...		30 D	SCOT BARFIELD		Unspecified	CANADA S...	30		CANMB-MB...
3/8/2011	Tablet	APO FUROSEMI...		30 D	SCOT BARFIELD		Unspecified	CANADA S...	30		CANMB-MB...
<b>INSULIN GLARGINE (1)</b>											
<b>INSULIN LISPRO (1)</b>											
<b>OTHER PRODUCTS (2)</b>											
<b>RABEPRAZOLE (1)</b>											
5/8/2011	Tablet ...	RAN-RABEPRAZ...		30 D	TAMEKA MONT...		Unspecified	CANADA S...	30		CANMB-MB...
<b>VALSARTAN (2)</b>											
7/17/2011	Tablet	DIOVAN 80MG TA...		30 D	SCOT BARFIELD		Unspecified	CANADA S...	30		CANMB-MB...
3/6/2011	Tablet	DIOVAN 80MG TA...		30 D	SCOT BARFIELD		Unspecified	CANADA S...	30		CANMB-MB...
8/3/2011	00870...	RATIO-DOCUSA...		10 D	SILVIA KINTNER		Unspecified	CANADA S...	30		CANMB-MB...
6/15/2011	02042...	OS-CAL 250 TAB ...		30 D	SILVIA KINTNER		Unspecified	LYNN LAK...	100		CANMB-MB...
5/28/2011	02237...	ASPIRIN DAILY L...		50 D	SILVIA KINTNER		Unspecified	STONEWA...	50		CANMB-MB...

Figure source: © WRHA & MB eHealth eChart <http://www.connectedcare.ca/echartmanitoba/>

# Integration with Other Information Resources – MB eChart Example

Goodspeed, Annabel
Clinical View with Override
Logout

**Name: SMITH, Freda Jean**      **PHIN: 955500001**      **Age: 54 Years**      **Gender: Female**

Summary Medications Laboratory Pathology Immunizations Clinical Documents

**Labs**

 From Date  To Date 

 Last  Units

Collected	Resulted	Report	Status	Lab Type	Test	Specimen	Ordered By	Facility	Source
<a href="#">7/15/2011 9:30 AM</a>	7/16/2011 9:34 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		MATILDA MCNI...	Health Scie...	DS-DSM-LI...
<a href="#">7/15/2011 8:30 AM</a>	7/17/2011 9:25 AM		Final	MICROBIOLOGY	<a href="#">Midstream Urine: Culture</a>		FERNANDA OR...	St. Boniface...	DS-DSM-LI...
<a href="#">7/15/2011 8:20 AM</a>	7/16/2011 10:30 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">7/15/2011 8:01 AM</a>	7/15/2011 11:20 AM		Final	HEMATOLOGY	<a href="#">Complete Blood Count</a>		CURTIS FROG...	Health Scie...	DS-DSM-LI...
<a href="#">7/7/2011 9:30 AM</a>	7/8/2011 9:34 AM		Final	CHEMISTRY	<a href="#">Glycosylated Hemoglobin</a>		JONI KORMAN	Health Scie...	DS-DSM-LI...
<a href="#">6/28/2011 10:20 AM</a>	7/1/2011 9:52 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">6/23/2011 8:30 AM</a>	6/25/2011 9:53 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">6/15/2011 8:40 AM</a>	6/18/2011 9:52 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">6/7/2011 10:10 AM</a>	6/9/2011 9:53 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">5/28/2011 9:10 AM</a>	6/1/2011 9:34 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		MATILDA MCNI...	Health Scie...	DS-DSM-LI...
<a href="#">5/17/2011 10:15 AM</a>	5/19/2011 10:35 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">4/17/2011 9:00 AM</a>	4/18/2011 9:52 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		SUSANNAH SP...	Health Scie...	DS-DSM-LI...
<a href="#">4/10/2011 10:05 AM</a>	4/13/2011 10:35 AM		Corrected	CHEMISTRY	<a href="#">Glycosylated Hemoglobin</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">4/10/2011 10:05 AM</a>	4/13/2011 10:35 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">3/25/2011 9:05 AM</a>	3/27/2011 9:52 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">2/24/2011 8:00 AM</a>	2/27/2011 9:52 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">12/30/2010 1:30 PM</a>	1/1/2011 9:30 AM		Final	CHEMISTRY	<a href="#">Glycosylated Hemoglobin</a>		JONI KORMAN	Health Scie...	DS-DSM-LI...
<a href="#">12/30/2010 1:00 PM</a>	1/1/2011 9:30 AM		Final	CHEMISTRY	<a href="#">PLASMA/SERUM CHEMI...</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...
<a href="#">10/15/2010 9:40 AM</a>	10/16/2010 9:50 AM		Final	CHEMISTRY	<a href="#">Glycosylated Hemoglobin</a>		BRITNI DAMPE...	Health Scie...	DS-DSM-LI...

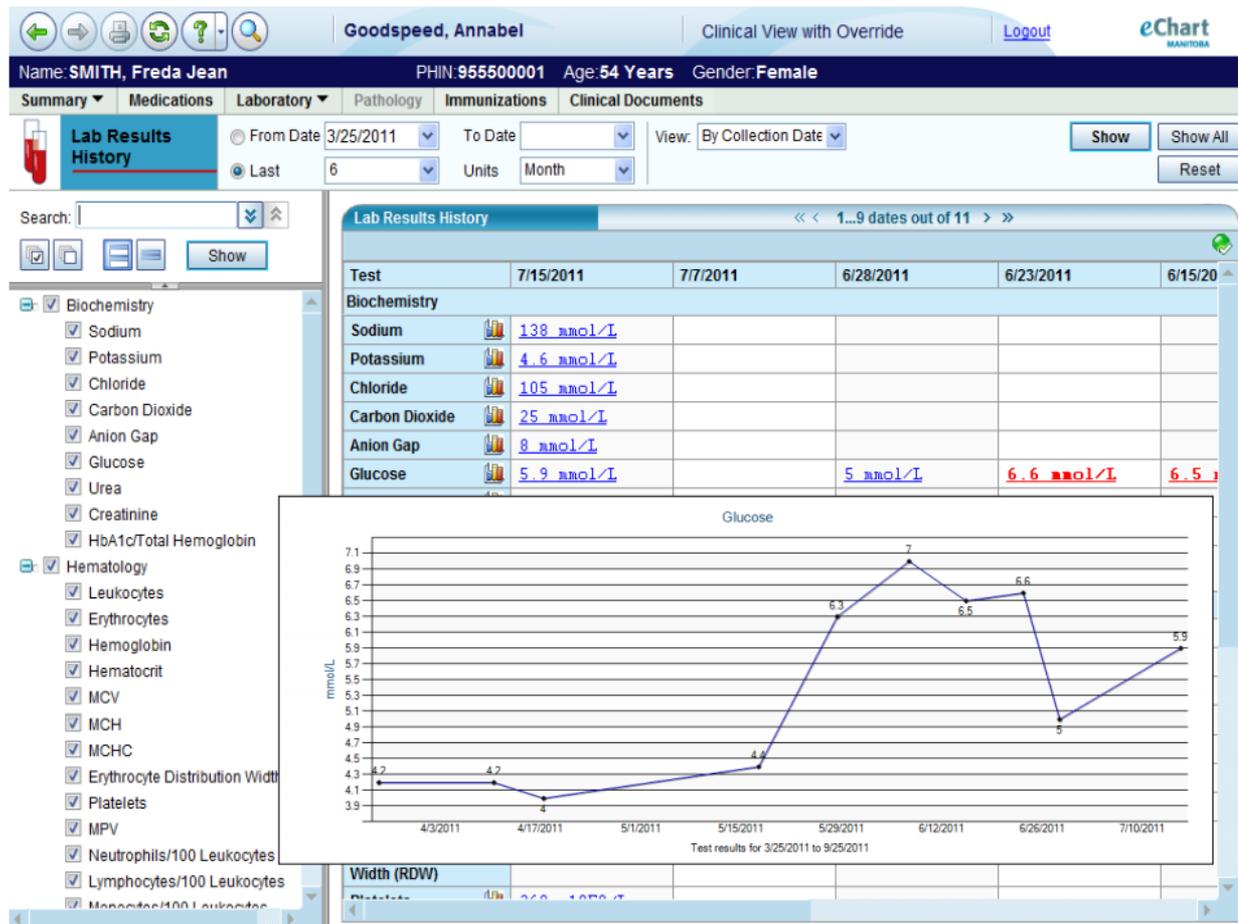
# Integration with Other Information Resources – MB eChart Example

The screenshot displays the MB eChart interface for patient Annabel Goodspeed. The patient's name, PHIN (955500001), age (54 Years), and gender (Female) are shown at the top. The interface includes navigation icons and a 'Logout' link. Below the patient information, there are tabs for 'Summary', 'Medications', 'Laboratory', 'Pathology', 'Immunizations', and 'Clinical Documents'. The 'Laboratory' tab is active, showing a 'Lab Results' section with a sub-tab for 'Lab Results' and a '7 Records' indicator. The lab results are presented in a table with columns for Test, Result, Range, H/L, Status, Facility, and Remarks. The table lists seven biochemistry tests: Sodium, Potassium, Chloride, Carbon Dioxide, Anion Gap, Urea, and Creatinine. The Creatinine result is highlighted in red as 'High'.

	Test	Result	Range	H/L	Status	Facility	Remarks
<input type="checkbox"/>	Sodium	138 mmol/L	135-147		Final	Health Sciences Cen...	
<input type="checkbox"/>	Potassium	4.6 mmol/L	3.5-5		Final	Health Sciences Cen...	
<input type="checkbox"/>	Chloride	105 mmol/L	97-106		Final	Health Sciences Cen...	
<input type="checkbox"/>	Carbon Dioxide	25 mmol/L	22-30		Final	Health Sciences Cen...	
<input type="checkbox"/>	Anion Gap	8 mmol/L	8-16		Final	Health Sciences Cen...	
<input type="checkbox"/>	Urea	6.9 mmol/L	2.8-7.1		Final	Health Sciences Cen...	
<input type="checkbox"/>	Creatinine	100 <b>umol/L</b>	35-97	High	Final	Health Sciences Cen...	

Figure source: © WRHA & MB eHealth eChart <http://www.connectedcare.ca/echartmanitoba/>

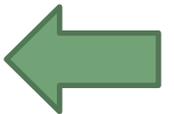
# Integration with Other Information Resources – MB eChart Example



# Topic 1 Outline

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- Course Overview
- Health Informatics (HI) Introduction
  - What is HI?
  - HI Relation to Other Sciences & Sub-disciplines
- Medical Charts & Electronic Health Records (EHR)
- EHR Expansion & Integration
  - Clinical Trials / Evidence Based Medicine
  - Integration with Other Health Information Sources
  - Public Health Networks



# Public Health National Network

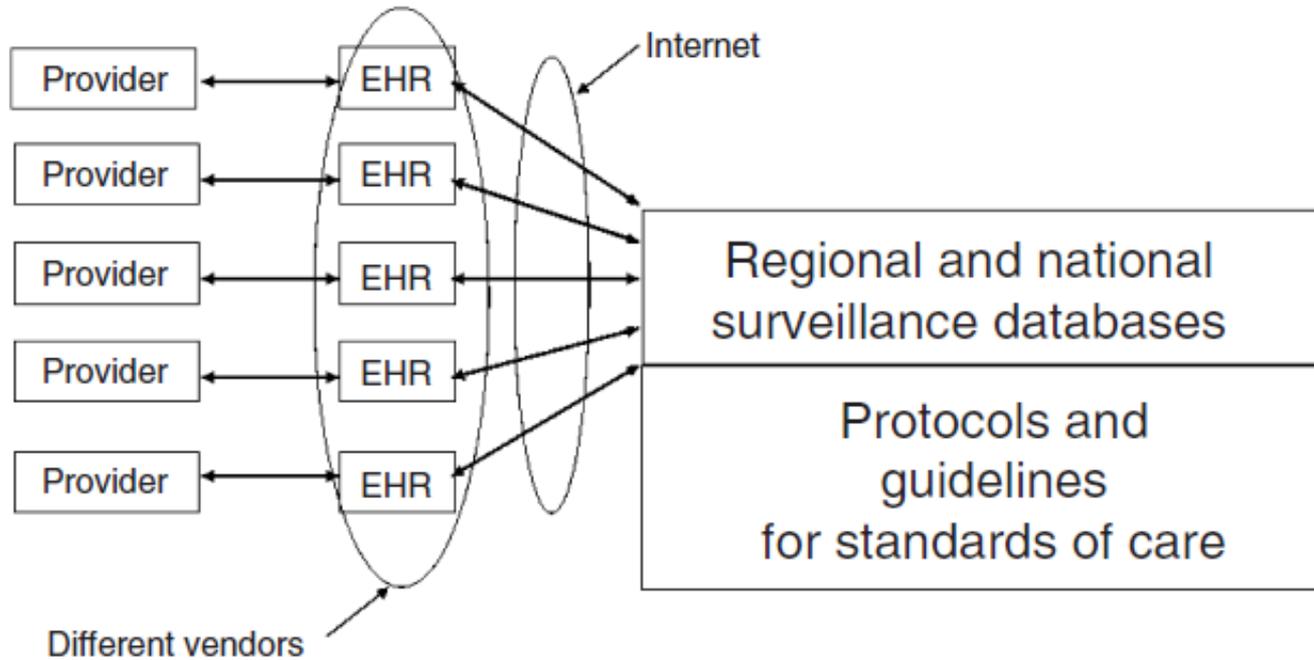


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.7, p14

# Public Health National Network

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- Issues
  - Data encryption
  - Privacy government policies
    - USA - Health Insurance Portability and Accountability Act (HIPAA)
    - MB - Personal Health Information Act (PHIA)
  - Standards for data transmission and sharing
    - E.g. Health Level 7 standard
  - Standards for data definitions
    - E.g. International Classification of Diseases (ICD 9, ICD 10)
  - Quality control
  - Regional & National Surveillance Databases

# Public Health Agency of Canada – Surveillance Sample

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- Canadian Chronic Disease Surveillance System
- Canadian Paediatric Surveillance Program
- Chronic Disease Infobase
- FluWatch
- HIV/AIDS Surveillance
- Tuberculosis Prevention and Control Surveillance
- West Nile Virus Surveillance

Source: Public Health Agency of Canada <http://www.phac-aspc.gc.ca/surveillance-eng.php>

# Why Is EHRs' Expansion & Integration Important?

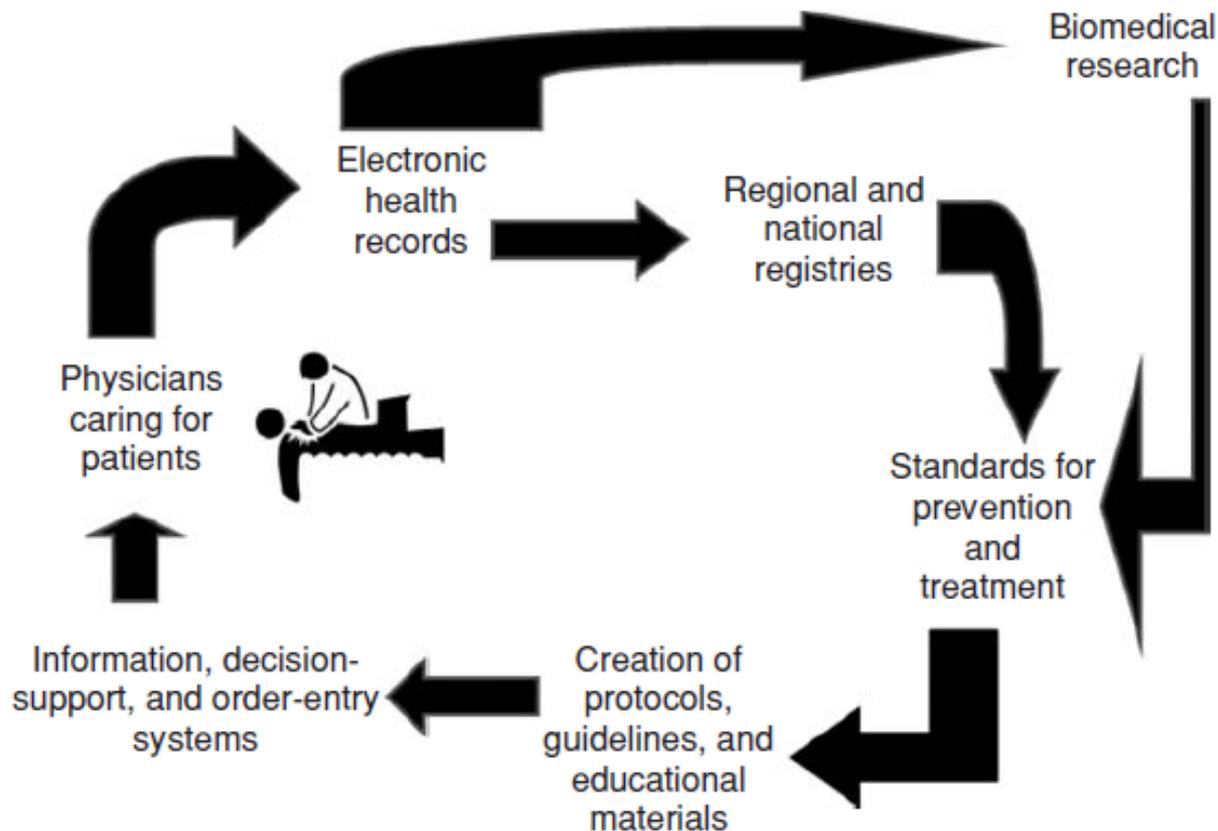


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.10, p18

# Cycle of Improvement

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- The more data and information collected leads to improved areas of research
- Accurate data supports better analysis
- Improves methods, processes and outcomes
- Improves available information and increases knowledge

# Why Is EHRs' Expansion & Integration Important?

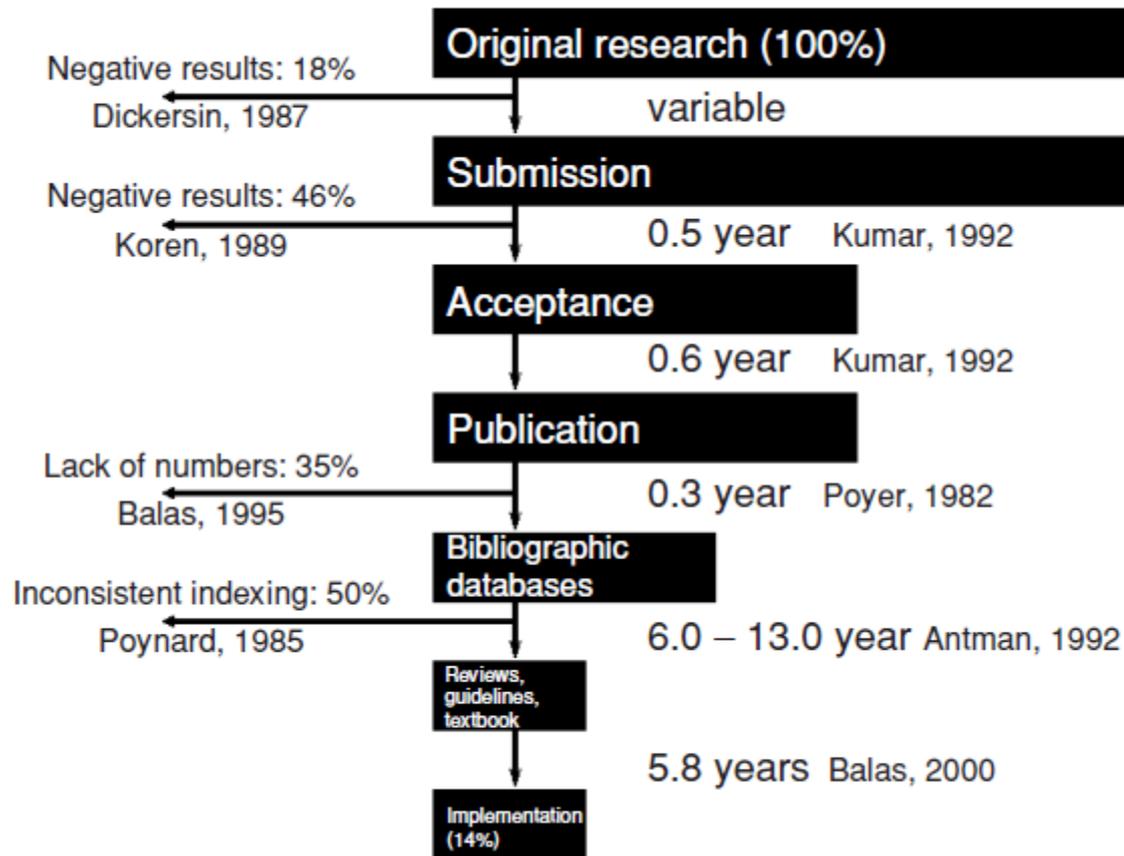


Figure source: Shortliffe et al, 'Biomedical Informatics', 3<sup>rd</sup> Edition, Figure 1.20, p33

# Integrating HI and Medical Practice

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- Information management is fundamental to medical practice
  - Factors affecting rate of adoption of HI into medical practice
    - Advances in hardware & software applications
    - Professional awareness of HI and medical needs
    - Healthcare costs containment
    - Information management needs
- ➔ There is a need to demonstrate financial and clinical value for HI systems

# Three Questions (Recap)

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- How is the course organized and managed?
- What is Health Informatics about?
- Why are Electronic Health Records important?

# Term Paper – Step 1 – Due Tues 14<sup>th</sup>

- Find a partner to team up with
- Select a topic to present
- Develop your plan (work distribution, deadlines)
- Select your date you want to present
  - Preliminary submission – March 3<sup>rd</sup>
  - Presentations March 10<sup>th</sup> – 31<sup>st</sup>
  - 2-3 presentations per class