

# Emergency Health Records



Standardizing Data From Multiple EPRs  
Using a Core Data Set Approach



# Agenda

- Background on COMPETE II
- The Central Challenge for EPRs in Canada
- The Solution – A Standardized Core Data Set (CDS)
- The Proof is in the Pudding – using the CDS to support an Emergency Health Record and Clinical Decision Support



# What is COMPETE II?

- A research study to investigate whether a Diabetes Tracker tool will:
  - Improve communication between patients and MDs
  - Empower patients to participate in their own care
  - Improve the process of care for diabetic patients
  - Improve outcomes for diabetic patients
- Conducted by the Centre for Evaluation of Medicines (CEM)
  - Research institute at McMaster University, Canada
- Principal Investigator: Dr. Anne Holbrook
  - Co-Investigators: Dr. Karim Keshavjee, Dr. Hertzell Gerstein, Dr. Hui Lee, Dr. Robert Bernstein
- Funded by a grant from Health Canada and in-kind contributions from private sector partners



# National Challenges with EPR

- A major dilemma faces us in EPR roll-out
  - Physicians want choice of electronic patient record (EPR) interface and platform
  - Yet, they need to share information with other physicians
- System managers, researchers and physicians need access to high quality data so they can provide better care, manage the system better and allocate resources more appropriately
- Privacy and Confidentiality remains a central barrier
- Cost and sustainability of investment in IT
- EPR doesn't meet physician requirements for up to date information and clinical 'smarts'



# Resolving the Dilemma

- How do we resolve contradictory needs of physicians?
- Develop a standardized core data set
  - Allow multiple EPR vendors to extract data from their systems into a standard format
  - Allows physicians to have their interface and proprietary database of clinical information
  - Allows physicians to share information



# Standardized Core Data Set

<b>Patient Identifiers</b>
<b>Name section</b>
<b>Address section</b>
<b>Telephone section</b>
<b>Program Eligibility</b>
<b>Alerts</b>
<b>CLINICAL INFORMATION</b>
<b>Ongoing Health Conditions</b>
<b>Past Medical History</b>
<b>Medication History</b>
<b>Other Treatments</b>
<b>Immunization</b>
<b>Risk Factors</b>
<b>Laboratory</b>
<b>Vital Signs/Physical Exam/Diagnostic Test</b>
<b>Referrals/Hospitalizations</b>
<b>Family Medical History</b>
<b>Other</b>
<b>Stakeholders/Associate</b>



# HL7 and XML Compatibility

- The CDS has been converted into an XML document that is HL7 compatible
  - XML allows the standard to be platform independent
  - Allows future extensibility of functionality – e.g., import data from one EPR to another across platforms
  - HL7 allows for transmission to and from multiple platforms



# The Emergency Health Record

- Consists of information that might be useful during an emergency
- Should be accessible 24/7/365 wherever the patient may present
- Should have data in a standardized and computer readable format
  - Data can then be analyzed or extracted into hospital information systems
- Should have data in human readable format (duh!)



# Issues in Computer Readability

- Regardless of having defined a standard Core Data Set, there are several issues:
  - Physicians use different terminologies and approaches to documentation
    - Quality of core data set is limited by quality of input data
    - Need to use vocabulary standards for medications and diagnoses
    - Need to define documents for transfer of information from consultants and hospitals to family physicians
  - Physicians enter data to different extents – completeness of data will be an issue at the patient and the population level



# Issues in Computer Readability

- Data from health services providers is not readily available electronically
  - i.e. laboratory, radiology, pathology, etc.
- Data in other databases are inconsistent with data in the core data set
  - Issues of priority and accuracy will need to be resolved



# Solutions to Readability Issues

- Use of different terminologies
  - EPRs need to use standard terminologies
  - Physicians need to be trained in their use
- Quality and quantity of data
  - Physicians need to understand the benefits of providing high quality data
    - Better decision-support, better practice audits
  - Physicians need to be given incentive to provide data on all patients seen
    - Documentation incentives need to be in place



# Solutions to Readability Issues

- Data from health services provides needs to be readily available electronically
  - LOINC and HL7 are already well-established standards –they need to be widely adapted
- Data inconsistency across databases
  - Data needs to be collected once and shared rather than being replicated independently in multiple databases



# Conclusion

- Achieving an Emergency Health Record is a non-trivial task
- Beyond the development of the standardized core data set, there are several barriers
- Barriers need to be understood at the stakeholder, system and technology level
- Barriers need to be addressed at each level to achieve the final goal



# Dr. Karim Keshavjee

- A Family Physician with a part-time practice in Mississauga. He spent five years in the pharmaceutical industry managing clinical trials and an electronic drug utilization project. He is currently an Associate Member of the Centre for Evaluation of Medicines, an independent academic research institute affiliated with McMaster University in Hamilton, Ontario.

At the Centre for Evaluation of Medicines he is the Clinician-Project Director for the COMPETE II (Computerization of Medical Practices for the Enhancement of Therapeutic Effectiveness) study. COMPETE II is funded by a Health Canada CHIPP grant. The COMPETE II mission is to develop an effective, integrated clinical decision-support tool for patients and health care providers. It will develop and test a diabetes tracker as a model for evidence-based, chronic disease management. The diabetes tracker will be built on the base of a standardized core data set (CDS) for health. The core data set will be an interoperability standard that allows all Electronic Medical Record (EMR) systems, regardless of platform, to export data into a common format. This core data set will be advanced to serve as a national prototype for information exchange, research, clinical decision-support and system management. In collaboration with our partners and federal and provincial lead health organizations, this project aims to provide a pathway to an integrated national electronic health record network.