

Informatics Concepts and Initiatives of Relevance to Antimicrobial Resistance

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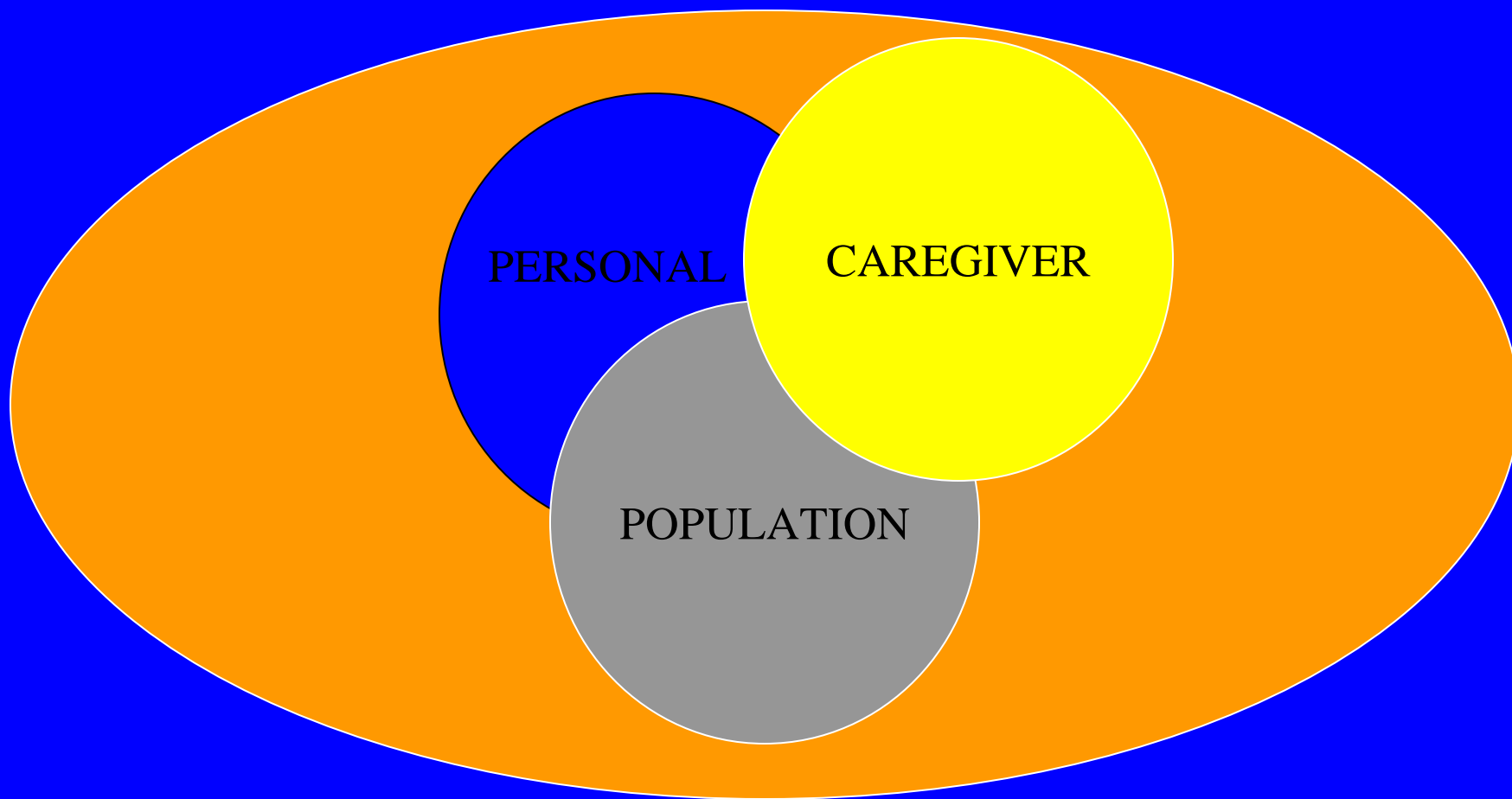
Purpose

- Overview of selected informatics concepts and initiatives of relevance to antimicrobial resistance
 - National Health Information Infrastructure
 - IOM Patient Safety Data Standards Report
 - Framework for Strategic Action
- Discuss potential application to CIRAR

National Health Information Infrastructure (NHII)

- Not just technologies, but more importantly, values, practices, relationships, laws, standards, systems, and applications that support all facets of individual health, health care, and public health
- 3 dimensions provide means for conceptualizing the capture, storage, communication, processing, and presentation for each group of users

NHII



Health Care Provider Dimension

- Encompasses information to enhance the quality and efficiency of health services for individual
- Includes information captured during patient care process
- Integrates clinical guidelines and protocols, specific information from Personal Health Dimension, as authorized, and from Population Health Dimension
- Example: decision support related to appropriate prescribing practices

Personal Health Dimension

- Supports the management of individual wellness and health care decision-making
- Includes a personal health record, created and controlled by the individual or family
- Includes non-clinical information such as self-care trackers, health materials, local public health and health care services
- Example: interactive, tailored (e.g., to knowledge, literacy, and language) health communication program for those at risk for inappropriate antibiotic use

Population Health Dimension

- Supports the identification of health threats, assessment of population health status, focusing programs and services, research and evaluation
- Encompasses population-based health data and resources, statutorily authorized data in public health systems and the Health Care Provider Dimension, and other anonymous data
- Example: NNIS, biosurveillance (e.g., RODS <http://rods.health.pitt.edu/>)

Patient Safety: A New Standard of Care

Committee on Data Standards for
Patient Safety

Committee Members

- Paul C. Tang, MD, MS
(Chair)
- Molly Joel Coye, MD, MPH
(Vice-Chair)
- Suzanne Bakken, RN,
DNSc
- E. Andrew Balas, MD, PhD
- David W. Bates, MD, MSc
- John R. Clarke, MD
- David Classen, MD, MS
- Simon P. Cohn, MD,
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- Carol Cronin, MSW, MS
- Jonathan Seth
Einbinder, MD, MPH
- Larry D. Grandia, ME
- W. Ed Hammond, PhD
- Brent James, MD, MStat
- Kevin Johnson, MD, MS
- Jill Rosenthal, MPH
- Tjerk W. van der
Schaaf, PhD

Committee Charge

Patient Safety Data Standards

- Recognizing that patient safety relies on data systems...
- ...and data systems rely on data standards...
 - Produce a detailed plan to facilitate development of data standards applicable to patient safety
 - Identify key standardization issues pertaining to "priority areas" and develop an action plan for addressing them
 - Provide guidance to DHHS on a set of key capabilities for EHR systems

Data Standards for Patient Safety

A Systems Approach

- Patient care information systems depend on data standards
- Patient safety data standards include:
 - Clinical data standards
 - Data interchange
 - Terminologies
 - Knowledge representation
 - Patient safety reporting data standards

Definitions

- Original IOM Errors report: "An adverse event is defined as an injury caused by medical management [*commission*] rather than by the underlying disease or condition of the patient."
- Patient Safety definition: "An adverse event results in unintended harm to the patient by an act of *commission or omission* rather than by the underlying disease or condition of the patient."

Recommendation 1

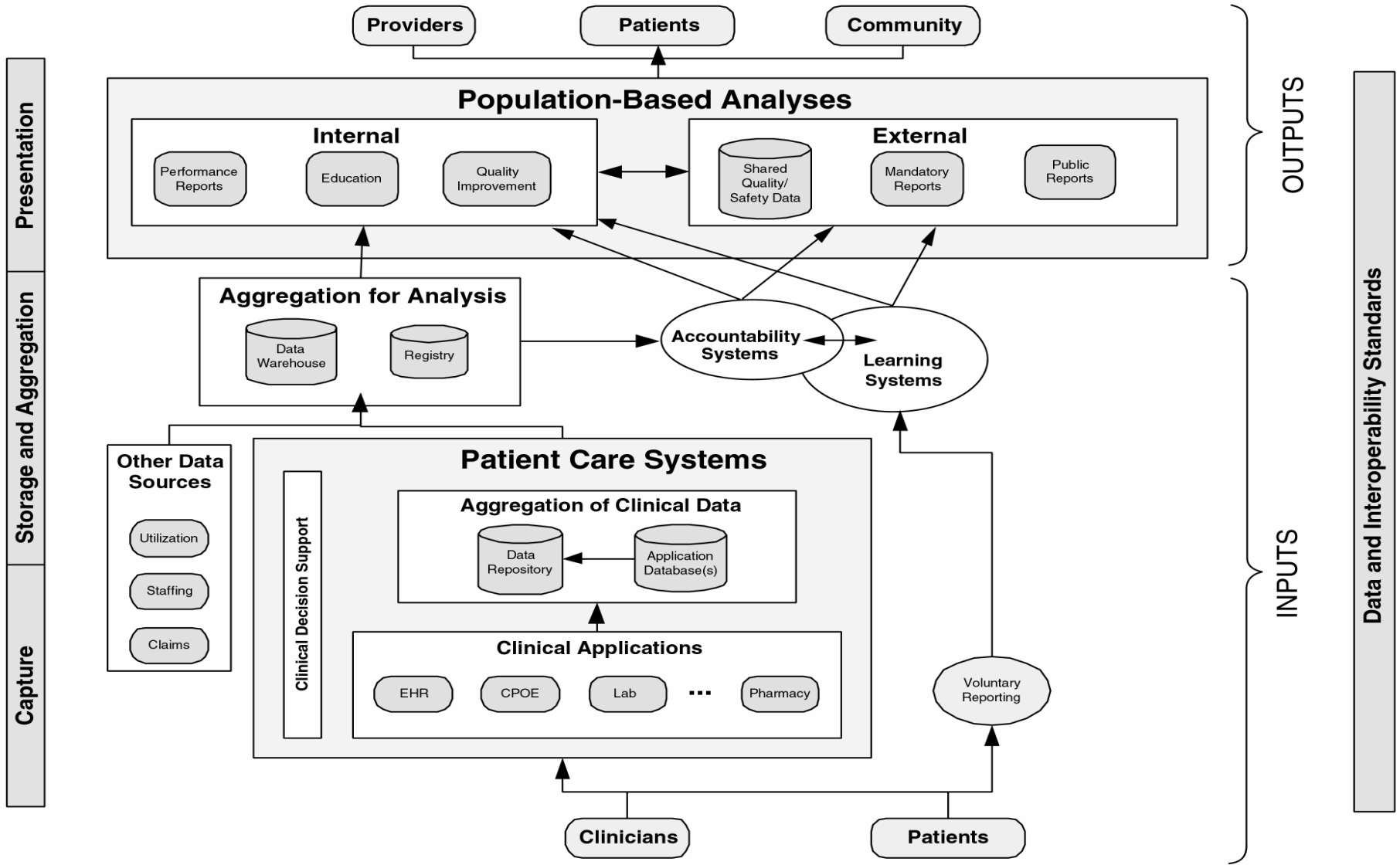
Patient Safety Data Systems

- Improved information systems are needed to support efforts to make patient safety a standard of care, in all settings of care
- All healthcare organizations should implement comprehensive patient safety systems that:
 - Provide immediate access to patient information and decision-support tools
 - Capture patient safety information (adverse events and near misses) as a byproduct of care to design safer care delivery systems

Recommendation 2

National Health Information Infrastructure

- **NHII** – a foundation of systems, technology, applications, standards, and policies – **required** to make **patient safety** a **standard** of care
 - **Federal** government should facilitate deployment of NHII through **funding development** and **maintenance** of **patient safety data standards**
 - Health care **providers** should **invest** in electronic health record (**EHR**) **systems** with key capabilities to **support safe care**



Recommendation 3

Federal Leadership for Data Standards

- Congress should direct, authorize and fund HHS to lead and maintain a public-private partnership for the promulgation of data standards for patient safety:
 - CHI should work with NCVHS to identify data standards for adoption and gaps needed to be filled
 - AHRQ and NLM and others:
 - Provide administrative and technical support to CHI/NCVHS
 - Provide financial support and oversight for standards development activities
 - Ensure development of tools to implement data standards
 - Coordinate activities, maintain clearinghouse
 - NLM responsible for mapping and distributing terminologies

Recommendation 4

Work Plan for Standards Development

- Accelerate development and adoption of patient safety data standards:
 - Clinical data interchange standards
 - Incorporate CHI standards (HHS, VAH, DoD) into contracts and regulatory requirements
 - AHRQ support accelerated completion of:
 - HL7 version 3 (within 2 years)
 - CDA specifications and implementation guides
 - Analysis to address unique health identifier for individuals

Recommendation 4

Work Plan for Standards Development

- Clinical terminologies
 - AHRQ should support creation of an integrated, non-redundant core terminology set that includes patient safety requirements
 - Begin with 20 IOM priority areas
 - NLM should provide mappings from existing terminologies to core terminology set
 - NLM should accelerate completion of RxNorm

Recommendation 4

Work Plan for Standards Development

- Knowledge representation
 - NLM should support development of standards for evidence-based knowledge representation
 - AHRQ, NIH, FDA, and other agencies should support development of generic guideline representation model to facilitate use by EHR decision support tools

Recommendation 5

Comprehensive Patient Safety Programs

- All health care settings should establish comprehensive patient safety programs operated by trained personnel within a culture of safety that encompass:
 - Case finding
 - Analysis
 - System redesign
- Patients and families should be included

Reporting vs. Prevention

Paradigm Shift

Patient Safety Reporting

- Retrospective
- Acts of commission
- Analysis of errors
- Blame-oriented
- Target individuals
- Blue moon reporting
- Harm already occurred

Preventive Safety

- Culture of safety
- Omission and commission
- Prevent or ameliorate harm
- Prospective, hazard analysis
- Systems (redesign) approach

Recommendation 6

Applied Research Agenda

- Tool Development
 - Develop point-of-care decision support tools to prevent errors
 - Develop capabilities for early detection of adverse events
 - Develop data-mining techniques, including natural language processing
- Dissemination
 - Deploy knowledge and decision support tools to clinicians and patients

Recommendation 7

Patient Safety Reporting Systems

- AHRQ should establish a national patient safety database of de-identified patient information
- AHRQ should develop an event taxonomy and common patient safety report format
 - Event taxonomy includes
 - Adverse events and near misses
 - Errors of commission and omission
 - Multi-factorial causes
 - Incorporated into SNOMED CT

Patient Safety: Achieving a New Standard for Care

- The IOM released the report, *Patient Safety: Achieving a New Standard for Care* on Thursday, November 20, 2003.
- To view the Press Release, go to:
<http://www4.nationalacademies.org/news.nsf/isbn/0309090776?OpenDocument>
- You may read or purchase the report online by following this link: <http://www.nap.edu/catalog/10863.html>
- For more information on the Data Standards for Patient Safety study, please visit the project's webpage at <http://www.iom.edu/project.asp?id=4629>

Electronic Health Record (EHR)

Tuesday, July 1, 2003

HHS LAUNCHES NEW EFFORTS TO PROMOTE PAPERLESS HEALTH CARE SYSTEM

HHS Secretary Tommy G. Thompson today announced two new steps in building a national electronic health care system that will allow patients and their doctors to access their complete medical records anytime and anywhere they are needed, leading to reduced medical errors, improved patient care, and reduced health care costs.

...the Secretary announced that HHS has commissioned the Institute of Medicine to design a standardized model of an electronic health record. The health care standards development organization known as HL7 has been asked to evaluate the model once it has been designed. HHS will share the standardized model record at no cost with all components of the U.S. health care system. The Department expects to have a model record ready in 2004.

EHR: Charge from CMS

- IOM – Provide guidance to DHHS on a basic set of “basic functionalities” that an electronic health record should possess to promote patient safety. The IOM Committee will consider functions such as the types of data that should be available to providers when making decisions (e.g., diagnoses, allergies, laboratory results); and the types of decision support capabilities that should be present (e.g., the potential to alert providers to drug-drug interactions).
- HL7 - At the April 2003 Working Group Meetings in Cleveland, the HL7 board authorized the EHR SIG to accelerate the development of a functional model of the electronic health record (EHR). The catalyst for acceleration was a request by the Center for Medicare and Medicaid Services (CMS).

Of Relevance to Nursing-Sensitive Performance Measurement

- Type of data includes that related to patient acuity/severity of illness/risk adjustment and specifically mentions nursing workload
- Patient safety & quality reporting
 - Clinical dashboard
 - External accountability
 - Ad hoc reporting



EHR Home

- Getting Familiar
- Getting Involved
- Ballot Document
- Balloting Signup
- Document Center
 - Minutes
 - Documents
 - Presentations
 - Press Releases
 - FAQs
- Glossary (PDF)
- Calendar
- Task Schedule
- Related Links
- Help
- Log Out

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[Email for Information](#)
[HL7 Website](#)

Welcome

Welcome to the HL7 Electronic Health Record Functional Model and Standard Home Page. This site is the central repository for information related to this project. You will find information describing the project, how to get involved in the project, how to vote on the EHR Ballot document, a calendar of events related to the project, and links to the other organizations that are providing support to this project.

Calendar

All Dates are Subject
Change

Getting Familiar with EHR

- [Read the Project Overview](#)
- [Read the HL7 Newsletter Article](#)
- [Read the HHS Press Release](#)
- [Read the HIMSS Insight Article \(PDF\)](#)
- [Read the Institute of Medicine's Report on EHR \(PDF\)](#)
- [Read the FAQs](#)

How to Get Involved

- [Join the EHR Mailing Lists](#)
- [Sign Up to vote on the current EHR Ballot](#)
- Attend Field Input Meetings
- Participate in HL7 EHR Meetings

EHR Initiatives

- ISO Technical Specification for Electronic Health Record Reference Architecture (EHRRA) – based on GEHR & others
- OpenEHR Foundation
- Thompson announcement at NHII on July 1, 2003
 - IOM – EHR functionality across settings and time frame
 - HL7 – development of functional model
- EHR Collaborative – Open Meetings
 - American Health Information Management Association (AHIMA)
 - American Medical Association (AMA)
 - American Medical Informatics Association (AMIA)
 - American Nurses Association (ANA) (tentative)
 - eHealth Initiative
 - College of Healthcare Information Management Executives (CHIME)
 - Health Information Management and Systems Society (HIMSS)
 - National Alliance for Health Information Technology (NAHIT)
- Continuity of Care Record – ASTM E31, HIMSS, Massachusetts Medical Society, interim step to EHR

Conclusions

- NHI vital to scalable informatics solutions for health
- Cannot expect solutions to support nursing without nursing input
- Many opportunities for nursing leadership