Slide 1

Tensions between big data versus
high quality clinical data:
Bridging the gap through clinical intelligence

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Slide 2

Objectives

- Describe the tension between the promises of big data and the current state.

- Recognize that clinical intelligence (CI) is the new business intelligence of health care.
  - Highlight how CI is linked inextricably to the 'big data discourse'

- Expose the critical dependency on leadership by nurse informaticians and nurse executives in clinical intelligence.

Slide 3

Presenter Disclosure

- **Presenters**
  - **Sally Remus**
  - **Dr. Margie Kennedy**

- **No Conflict of Interest**

Slide 4

Tensions between 'big data' &
high quality clinical data

Understanding the Root Causes

- 3 perspectives that influence 'big data' tensions
  - Current literature, research findings & authors' experiences
1. Health system structures
2. "State" of industry available ICTs across the health system
3. Health system resources

HIMSS Analytics Continuity of Care Maturity Model

STAGE 7	Knowledge Driven Engagement for a Dynamic, Multi-vendor, Multi-organizational Interconnected Healthcare Delivery Model
STAGE 6	Closed Loop Care Coordination Across Care Team Members
STAGE 5	Community Wide Patient Record using Applied Information with Patient Engagement Focus
STAGE 4	Care Coordination based on Actionable Data using a Semantic Interoperable Patient Record
STAGE 3	Normalized Patient Record using Structural Interoperability
STAGE 2	Patient Centered Clinical Data using Basic System-to-System Exchange
STAGE 1	Basic Peer-to-Peer Data Exchange
STAGE 0	Limited to No E-communication

Reference: Hoyt, J. & Bizzarro, D. (May 21, 2014:p.8). HIMSS Analytics Continuity of Care Maturity Model: Transforming Health Through Effective Usage of Interoperability and Analytics.

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1. Health System Structures

Industrial Revolution	Information Age (Today)	Knowledge Age - Our Preferred Future
Tiered, Bureaucratic Provider Centric Structures Acute Care Driven	Flattened, Programmatic-Provider Centric Structures	Consumer-Patient-Client Centric Structures
Professional Care Silos Memory based practices	Interdisciplinary Teams Information Workers Evidenced Based Practice Outcomes Orientation	Interdisciplinary Knowledge Teams Knowledge Workers Practice Based Evidence Outcomes Based
Paper record based care	Hybrid electronic-paper based systems.	Integrated EHR, business & clinical systems.

Reference: Kennedy & Remus, 2012

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2. State of ICTs Across Health System

Disappointing performance of health IT

- EHR usability – 'love/hate' relationship
  - Sluggish adoption coupled with choice of systems that are neither interoperable, nor easy to use
  - Failure of health care providers & institutions to re-engineer care processes
- Poor EHR software design - vendors & users
  - Replicating paper processes into a digital format
  - Interoperability - tactical vs. strategic

References - Kellerman & Jones 2013, HIMSS 2013, Monegain 2012, Murphy 2010; Hendrich, Chow & Skierczynski 2008

Sidebar on Interoperability* as our preferred future

Interoperability - "..the ability of health information systems to exchange, transform and interpret shared data across multiple systems and devices, and across organizational boundaries" (p 2).

- Tactical – focuses on ensuring applications are synchronized with our data, or 'talking to each other'

- Strategic - Builds upon the ability to connect systems & devices with the ability or the delivery mechanisms to provide the '5 rights'

  The **right data type**, in the **right amount**, to the **right person**, at the **right time**, in the **right workflow**" (p.7)

*HIMMS Media (2013). Strategic Interoperability: The Clinical & Business Imperative for Healthcare Organizations.

Opportunities for Resolution

3. Health System Resources

Lack the necessary contemporary perspectives, skills & knowledge **informatics** that position nursing and nurses to:

- Lead strategic interoperability (IT) discussions::
  - Support & facilitate eHealth agendas & mandates
    - i.e., access to quality, safety, efficient and effective health care
  - Advocate for & be active sponsors for IT patient care quality initiatives
    - E.g.., eMAR projects should be initiated by nursing as a professional practice change, not b/c of CPOE
  - Be informed IT Project sponsors who can
    - Support diverse clinician workforce from 'millennials 'to baby boomers throughout the IT system lifecycle ensuring proper investments are in place for education, workflow process re-design, engagement & adoption.
    - Drive system design standards that support 'tactical' interoperability supporting 'big data' where high quality clinical data is achieved.

References -Simpson 2013; Kennedy & Remus 2012; Remus & Kennedy 2012; Manos 2012; Harrington 2012,2011; Murphy 2011 & 2010; Cadmus 2011; Monegain 2011; Harris & Murphy 2010; Nickitas & Kerfoot 2010 ; IOM/RJWF 2010

Analytics: Big Data or Clinical Intelligence

Ultimate benefit of the time, energy, and cost of an EHR is clinical intelligence (Harrington, 2011)

- Drive clinical outcomes and operational efficiencies
- Data quality & management
- Practice-based evidence & analytics
- Requires Nursing workforce preparation

Rowe 2014 ; HIMMS Strategic Interoperability Survey 2013; Simpson 2013; Harrington 2012,2011; Remus & Kennedy 2012

Clinical Intelligence
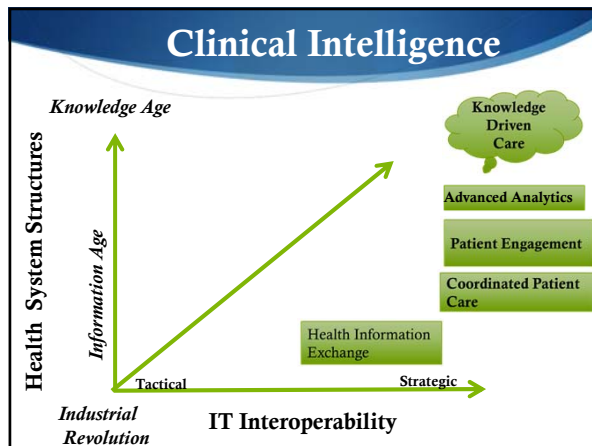
Thank you

Questions/Discussion