Clinical Informatics Governance for Health IT Adoption and Optimization: A Study of Nurse Leaders Perspectives and Recommendations

Sarah Collins, RN, PhD
Partners Healthcare Systems

Victoria L. Tiase MSN, RN-BC
New York - Presbyterian Hospital &

Rebecca Freeman, PhD, RN, PMP
Hospital Corporation of America

March 5, 2015
Dr. Sarah Collins is a Clinical Informatician in Clinical Informatics Partners eCare at Partners Healthcare Systems and an Instructor in Medicine at Harvard Medical School and Brigham and Women’s Hospital Division of Internal Medicine and Primary Care. Dr. Collins is an experienced critical care nurse. Her research, as well as her applied clinical informatics work, is focused on modeling, developing, and evaluating standards-based, patient-centered collaborative informatics tools to further patient safety, knowledge development, clinical decision-support, and coordinated patient-centered care. In 2012, Dr. Collins was selected as one of two national Emerging Leaders by the Alliance for Nursing Informatics and investigated models of nursing informatics governance within health care organizations as part of that program. Her research has been recognized and awarded by the American Medical Informatics Association (AMIA) and the 11th International Congress on Nursing Informatics.
Acknowledgements

• Alliance for Nursing Informatics Emerging Leaders Program

• Participation of nursing informatics leaders from health organizations throughout the United States

• Co-authors: Jacqueline Moss & Dana Alexander
Learning Objectives

1. To discuss common structures for Clinical Informatics and Nursing Informatics governance including roles, partnerships, and councils

2. To describe the 4 themes that emerged from interview data with nursing informatics leaders related to Clinical Informatics governance

3. To describe how the proposed model of the nursing domain of CI governance provides a starting point for nursing informatics leaders to further explore and validate best practices
Outline

• Background
• Objective
• Methods
• Results
• Discussion
Background

• HIT adoption is rapidly increasing
• Lack of recommended models & best practices for Clinical Informatics (CI) governance structures
• EHR implementation projects are large & complex
Clinical Informatics Practice

What is it? “Clinical informatics is not simply ‘computers in medicine’ but rather is a body of knowledge, methods, and theories that focus on the effective use of information and knowledge to improve the quality, safety, and cost-effectiveness of patient care as well as the health of both individuals and populations.”

(Detmer DE, Shortliffe EH. Clinical Informatics. JAMA Published Online First: 13 May 2014.)

Which roles are included? “Circumscribed roles related to deployment and configuration of electronic health records in pursuit of meaningful use” are not Clinical Informatics roles, unless those roles, such as a Chief Medical or Nursing Information Officer, require individuals with Clinical Informatics cross-training.


How should it be structured? Do we “lump” (grouping together) or “split” (keeping siloed) the roles of those working in various clinical domains, such as nursing, medicine, and other health professions, within a Clinical Informatics governance structure?
Objective

• To understand existing CI governance structures and provide a model with recommended roles, partnerships, and councils based on perspectives of nursing informatics leaders.

• Rationale:
  – Nurses serve as the vast majority of clinically experienced staff who are on the front line configuring, implementing, and optimizing the EHR
Methods

• Targeted Sample:
  – Nursing informatics leaders
    • Currently serving in executive or director level Clinical Informatics roles
    • Integrated Healthcare System
    • Early Adopter Pioneer Organization

• Data Collection:
  – Semi-structured Interviews

• Data Analysis:
  – Open, axial, & selective coding
  – Visualizations of each governance structure
Results: Participant Demographics

- 12 nursing informatics leaders (100% response rate)

- Titles
  - 6 Chief Nursing Information Officers
  - 4 Directors of Nursing Informatics
  - 1 Chief Clinical Informatics Officer
  - 1 Chief Information Officer

- All had a clinical nursing background

- Education
  - 3 DNP, 3 post-masters, 5 MSN/MBA, 1 BSN

- Reporting
  - 6 through nursing to the Chief Nursing Officer (CNO)
  - 3 through IS to the Chief Informatics Officer (CIO)
  - 2 through a combination of nursing and IS to CNO & CIO
  - 1 through IS to the Chief Medical Information Officer (CMIO)
Results: Health System Demographics

• Range of 1-35 hospitals/system (average 12)

• All vendor-based EHRs
  – 9 sites had one EHR vendor system-wide
  – 3 sites had blend of multiple EHR vendors but were moving toward enterprise system

• HIMSS adoption: Level 6 (n=9), Level 7 (n=1)
  – Remaining 2 => blends of mature legacy systems moving toward vendor

• All sites => Strategy to standardize the EHR across the health system
Results: Operational Definition of Clinical Informatics

• Which disciplines/professions are included in your organization’s operational definition of Clinical Informatics?
  – Nursing and Allied Health Professionals = 8
  – All clinical disciplines (including Medicine) = 2
  – Nursing only = 1
  – No definition = 1

• Organizations that excluded Medicine from their definition
  – Considered Medical Informatics a separate operational focus
# Results: Themes

Coding Results: 128 open codes (average 3.8 references); 18 axial coding categories; 4 themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example of Theme in Action</th>
<th>Model Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Critical role-based levels of practice and competencies need to be defined</td>
<td>Nurses on the ground are responsible for multi-professional CI work</td>
<td>Roles</td>
</tr>
<tr>
<td>2. Interprofessional partnerships are essential</td>
<td>Parallel system and hospital level roles</td>
<td>Partnerships</td>
</tr>
<tr>
<td>3. Integration into existing clinical infrastructure facilitates success</td>
<td>Committees embedded in hospital shared governance structures</td>
<td>Councils</td>
</tr>
<tr>
<td>4. CI governance is an evolving process</td>
<td>Periodic re-evaluation of committee participants, end-user engagement, and definition of informatics roles</td>
<td>Overall implications for Governance Structure</td>
</tr>
</tbody>
</table>
# Model of CI Governance for Nursing: Roles and Level of Practice

## Clinical Informatics Practice

<table>
<thead>
<tr>
<th>Levels of Practice</th>
<th>Key Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Leader that Values, Invests in, and Supports Interprofessional Informatics</td>
<td>Chief Officers (e.g., Nursing, Medical)</td>
</tr>
<tr>
<td>Centralized and Strategic Leader with Decision-making Authority and Operational Oversight</td>
<td>Chief Information Officers (e.g., Nursing, Medical)</td>
</tr>
<tr>
<td>Experts to Evaluate and Optimize System Design and Align and Enhance Interprofessional Informatics Practice</td>
<td>Director of Professional Competencies, Director of Clinical Process Transformation, Clinical Informaticians</td>
</tr>
<tr>
<td>Respected Leaders to Manage Projects, Make Decisions, and Engage Clinicians to Ensure Strategic Goals, Practice Goals, and End-User Needs Are Met</td>
<td>Clinical Informatics Managers, Clinical Informatics Champions</td>
</tr>
<tr>
<td>Expert Clinicians and End-Users that Communicate Clinical Relevance for System Design</td>
<td>Training Specialists, Clinical Informatics Coordinator, Super Users, Subject Matter Experts</td>
</tr>
</tbody>
</table>
## Model of CI Governance for Nursing: Critical Partnerships

<table>
<thead>
<tr>
<th>Key Nursing Informatics Roles</th>
<th>Key Interprofessional Partnerships*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Nursing Officer</td>
<td>Chief Medical Officer</td>
</tr>
<tr>
<td>Chief Nursing Information Officer</td>
<td>Chief Information Officer</td>
</tr>
<tr>
<td>Director of Professional Competencies</td>
<td>Chief Analytics Officer</td>
</tr>
<tr>
<td>Director of Clinical Process Transformation</td>
<td></td>
</tr>
<tr>
<td>Nurse Informatician</td>
<td>Medical Informatician</td>
</tr>
<tr>
<td>Clinical Informatics Managers</td>
<td>Director of Clinical Systems</td>
</tr>
<tr>
<td>Nurse Informatics Champions</td>
<td>Directors of Analytics</td>
</tr>
<tr>
<td>Training Specialists</td>
<td>Knowledge Management</td>
</tr>
<tr>
<td>Clinical Informatics Coordinator</td>
<td></td>
</tr>
<tr>
<td>Super Users</td>
<td></td>
</tr>
<tr>
<td>Nursing Subject Matter Experts</td>
<td></td>
</tr>
<tr>
<td>Medical Subject Matter Experts</td>
<td></td>
</tr>
<tr>
<td>Clinical Analysts</td>
<td></td>
</tr>
</tbody>
</table>

*Example interprofessional partnerships are shown and not intended to be exhaustive of all roles and titles.
Model of CI Governance for Nursing: Hospital Shared Governance Councils

Executive Steering Committee

Interprofessional Clinical Informatics Advisory Steering Committee
(Co-Chairs CNIO and CMIO)

Interprofessional Clinical Informatics Workgroup
(Co-Chairs Nurse Champion and Physician Champion)

- System Standardization Council
- Patient Safety Council
- Front Line User Group Council
- Clinical Process Advisory Councils
  - e.g., medication reconciliations

Nursing and Patient Care Services Executive Council

Health Professional Advisory Council
(e.g., Physical Therapy, Nutrition)

Medical Executive Council

Physician Advisory Council

Transparency decision-making and shared governance representation on councils

Interprofessional cross-council coverage
Results: Lessons Learned

• **Top-down** communication must clearly delineate strategies/tactics for:
  – Achieving system standardization
  – Processes for change management decisions
  – Capability of the EHR
  – Expectations for professional competencies

• **Bottom-up** communication must include transparent processes for:
  – Patient-safety issues
  – Change management requests
  – End-user requests
  – Workflow requirements
Results: Facilitators for success

1. Experienced clinicians who have CI skills and competencies to articulate clinical and technology needs
2. CI strategy that fits within the organization’s overall strategic plan
3. Explicit guiding principles for CI decision-making that are common among all councils and aligned with the overall EHR strategy
4. Escalation process for contentious decisions
5. CI councils with inclusive representation modeled after shared governance
6. Full time CI staff that do not have patient care responsibilities
Results: Barriers to Success

• Lack of Resources!
  1. Staff development that includes professional CI competencies
  2. EHR training
  3. Hiring of experienced clinicians into CI/EHR roles
  4. Iterative optimization of the EHR system post-implementation

• Post-implementation: decreased support & perceived value from leadership

• Integrated health systems are very complex organizations
  – Need to balance:
    • Health system level standardization versus hospital practice-based autonomy
    • Constraint: Limitations of existing vendor-based EHRs
Lumping vs Splitting Clinical Informatics work across professions

• Lumping pros and cons
  (+) Opportunity to integrate traditional silos
  (-) Decrease visibility for
  • Strategic decisions
  • Allocation of resources
    – Adequate staff to conduct interprofessional work
    – Support for interprofessional competency expectations
What was missing in the data?

“Informatics roles evolved to enable thoughtful problem-identification and systems-based solutions leveraging informatics principles, as opposed to roles that were ‘more of a fire-fighter’” (Participant quote)

- Data lacked evidence of Centralized Clinical Informatics Groups
  - Yet, complexity evolves as EHR implementation progresses
    - HIMSS EMRAM levels 6 and 7 - advanced and complex features & dependencies
  - Need for formal training & expertise related to
    - Knowledge management, information modeling, reference standards, clinical decision support (CDS), workflow integration, requirements analysis, usability, and feasibility
Future work

• Competencies
  
  • Ongoing study: Active survey to validate an informatics self-assessment scale for Nurse Leaders
    https://redcap.partners.org/redcap/surveys/?s=VRJKeS8HBU
  
• Role of centralized Clinical Informatics group focused on system complexities, dependencies, and optimization

• Opportunities to validate and extend proposed model
HIMSS Nursing Informatics Executive Profile

Victoria L. Tiase MSN, RN-BC
NewYork-Presbyterian Hospital
Victoria Tiase is Director of Informatics Strategy at New York-Presbyterian Hospital in New York City. She is responsible for planning, organizing, and implementing a range of clinical information technology projects related to electronic health record adoption and meaningful use, clinical workflows, patient engagement, and care coordination. She also serves on the AMIA Nursing Informatics Working Group Board and was recently named to the Alliance for Nursing Informatics Emerging Leaders Program. She received the BS in Nursing from the University of Virginia and the MS in Nursing Informatics from Columbia University.
NYP Governance Structure - Nursing Informatics Roles

Chief Nursing Officer

Director, Nsg Informatics

Project Lead

Project Lead

Chief Information Officer

Director, Informatics Strategy
Nursing Electronic Documentation Committee (NED)
Lessons Learned

Successes:
• Consistent process
• ‘Go to’ staff nurses
• Coordination with policies and procedures

Areas for Opportunity:
• Communication of changes
• Involvement of bedside nurses
• Shared responsibility
• Expand beyond the EMR
HIMSS Nursing Informatics Executive Profile

Rebecca Freeman, PhD, RN, PMP
Hospital Corporation of America
Rebecca Freeman, PhD, RN, PMP is an Assistant Vice President and Epic Nurse Champion for the Hospital Corporation of America (HCA), based in Nashville, TN.

Dr. Freeman's PhD research focused on interdisciplinary collaboration and she has a keen interest in the collaboration of nursing with other healthcare team members, specifically the barriers that hinder, and variables that encourage, teamwork. Her ultimate goal with implementations is always to enhance care and satisfaction for the clinician and optimize care/outcomes/satisfaction for patients, through the use of the EHR.
Learning Objectives

1. Describe existing governance structures and current state of Nursing Informatics
2. Discuss current obstacles to interdisciplinary governance and change/project management
3. Discuss lessons learned and future plans
Informatics Governance at HCA

Background

• Hospital Corporation of America
  – 165 hospitals, 115 freestanding surgery centers
  – Five major EHR systems + Enterprise Analytics + Mobile/Innovation
  – USA and London, England
• Corporate Headquarters in Nashville, TN
  – CHIO, CNIO…*and all the usual suspects.*
  – Highly matrixed
• Governance structures are both silo-based and enterprise in scope (facility, division, group, corporate)
• Informatics structure is poorly defined
Clinical Informatics – National Structure

President, Clinical Services & CMO

CHIO

CNIO
Clinical Informatics – *National Systems*

- Meditech 5.6
- Meditech 6.0
- Epic
- Cerner
- Patient Keeper
Informatics – **Obstacles**

- Silo-based and Enterprise EHRs
- Longstanding approach to governance and build
  - Optimization, prioritization, PM, governance
- Inconsistent roles/titles in the Informatics space
  - Scope is difficult: governance to innovation
- Interdisciplinary national governance:
  - Ascending (build requests)
  - Descending (initiatives, regulatory changes)
- Lack of valid metrics that show worth
- Applications/Systems space not exclusively owned by clinicians
Lessons Learned

• Definitions are important
  – Informatics – who and what?
    • Clinical, nursing, rad/lab/pharm, allied health
    • Device integration, innovation, governance, EBP
  • Leaders have to lead
    – Top-down interdisciplinary, integrated, efficient governance
    – Vendor-agnostic…get the content right, then look at the system
Moving Forward

• CNIO roadmap for Nursing Informatics
  – Career ladder: facility, division, national team
  – Facility discipline-specific informatics to CNIO
  – Training for clinicians, to include certification

• Interdisciplinary, enterprise EHR governance at the national level
  – Optimization, Prioritization, Change Management process, PM system standardization
Discussion Points

1. Does your organization Lump or Split Clinical Informatics & Nursing Informatics?
   - At which level of reporting hierarchy?

2. What are your organizations expectations for Clinical Informatics competencies?
   - What types of resources are available?
   - Ongoing study: Active survey to validate an informatics self-assessment scale for Nurse Leaders
     https://redcap.partners.org/redcap/surveys/?s=VRJKeS8HBU
   - What is the role of the bedside nurse?

3. How are increasingly complex dependencies, maintenance, and optimization handled at your organization?
   - Centralized Clinical Informatics group?
   - What roles comprise such a group?

4. How relevant is this proposed model to your organizations?
   - Opportunities to validate and extend proposed model
Thank you!

Sarah Collins, RN, PhD
Clinical Informatician, Clinical Informatics Partners eCare
Partners Healthcare Systems
sacollins@partners.org

Victoria L. Tiase MSN, RN-BC
Director of Informatics Strategy
New York - Presbyterian Hospital
vtiase@nyp.org

Rebecca Freeman, PhD, RN, PMP
Assistant Vice President and Epic Nurse Champion
Hospital Corporation of America
Rebecca.Freeman@hcahealthcare.com