The Road to Clinical Transformation

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Learning Objectives

1. Describe strategies to improve patient safety and clinical outcomes leveraging informatics & technology
2. List the primary factors driving care delivery transformation
3. Discuss opportunities, partnerships and trends for enhancing and promoting nursing informatics
Kaiser Permanente

- 8 Regions serving 9 states & DC
- 9 million members
- 17,000 physicians; 173,000 employees (including 48,000 nurses)
- 37 hospitals (co-located with medical offices)
- 611 medical offices & other outpatient facilities
- $48 billion operating revenue
- $2 billion net income
- $1.8 billion invested in our community
- 67 years of providing care
Patient Engagement

Top 10 Tech Trends: Pushing the Patient into the Picture

13 million email sent by patients
3 million appointments booked
33 million test results viewed

Improved quality scores...
...associated with secure messaging, including 2 percent to 6.5 percent improvements in glycemic, cholesterol and blood pressure screening and control.
U.S. Health Care is Poised for Transformation

Life expectancy at birth years

Source: The Atlantic 3-12
Better healthcare

Improving patients’ experience of care within the Institute of Medicine’s 6 domains of quality: Safety, Effectiveness, Patient-Centeredness, Timeliness, Efficiency, and Equity.

Better health

Keeping patients well so they can do what they want to do. Increasing the overall health of populations: address behavioral risk factors; focus on preventive care.

Reduced costs

Lowering the total cost of care while improving quality, resulting in reduced monthly expenditures for Medicare, Medicaid, and CHIP beneficiaries.

HIT Helping to Drive the Triple Aim

Health Information Technology
IOM Report: Health IT & Patient Safety

• Technology has the potential to dramatically improve the quality and safety of care
• The evidence in the literature is mixed; CPOE and BCMA has shown to improve medication safety.
• Safety is a property of a larger system including not only the hardware and software but how it is used by clinicians.
• The larger system, a socio-technical system includes technology, people, processes, organization and external environment.
• Comprehensive safety analysis needs to consider these factors as a whole and how they affect each other rather than one root cause.
Challenges in the Current Work Environment

- Documentation is burdensome and overwhelming
- Nurses carry multiple communication devices but care gaps, interruptions and lack of knowledge are pervasive
- Nurses are the ‘information integrators’
- There is huge memory load on the nurse; need for real time contextual information at the point of care
- The environment does not support efficiency
- Technology is not fully integrated
- Documentation tools do not support documentation at the point of care or documentation as an automatic product of care
- Lack of appropriate infrastructure to support technology at the bedside
Definition of Clinical Transformation

Clinical transformation involves assessing and continually improving the way patient care is delivered at all levels in a care delivery organization.

- It occurs when an organization rejects existing practice patterns that deliver inefficient or less effective results and embraces a common goal of patient safety, clinical outcomes and quality care through process redesign and IT implementation.
- By effectively blending people, processes and technology, clinical transformation occurs across facilities, departments and clinical fields of expertise.

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Model for Clinical Transformation

- Build evidence out of practice
- Leverage advanced analytics to extract actionable knowledge
- Collaborate to foster knowledge translation
- Focus on “Making it Easy to do the Right Thing”

Set standards based on clinical goals, and evidence-based practice
Leverage EHR to optimize workflow and support clinical decision making
Measure the impact of the change through outcomes analysis and research
Develop reports to monitor the practice change
We have to stop **ADDING** work and start

**Organizing and Simplifying** the workflow of the nurse

Make it **EASY** to do the **RIGHT THING**
Ten Most Costly Medical Errors and Associated Annual Cost

Pressure Ulcers were the most FREQUENT and 2\textsuperscript{nd} most COSTLY medical error identified.

1. Postoperative infections .................................................. $3.3$ billion
2. Pressure ulcers ............................................................... $3.2$ billion
3. Mechanical device or implant complications (non-cardiac) .... $1.0$ billion
4. Postlaminectomy syndrome .............................................. $995$ million
5. Hemorrhage complicating a procedure .............................. $678$ million
6. Infection due to central venous catheter ............................ $589$ million
7. Pneumothorax ................................................................. $569$ million
8. Infection from injection/infusion/transfusion/vaccination ...... $566$ million
9. Other complications of device, implant and graft ................. $398$ million
10. Abdominal hernia ........................................................... $342$ million

The $17.1$ Billion Problem: The Annual Cost of Measurable Medical Errors. Van Den Bos, J, Rustagi, K, Gray, T., Halford, M., Ziemkiewicz E., Shreve, J Health Affairs 30, No 4 April 2011
Call to Action

How might we disruptively innovate and transform the inpatient work environment to enable simple, reliable patient care delivered by nurses and their inter-professional partners through the wise use of data, analytics and information technology?
Vision:
Leverage data & technology to transform care delivery and improve patient safety and quality outcomes.

Strategy:
Accelerate the adoption of smart, standards-based, interoperable, patient centered technology that will make healthcare delivery safer, more efficient, timely, and accessible.

Execution:
Strategic implementation of key technology initiatives within the clinical setting.
Clinical Transformation

**Rapid Sign-On**
Eases the burden and repetition of logging-in to the EHR every few minutes

**Clinical Intelligence**
Provides cognitive support and real-time contextual information

**Workflow Automation**
Manage tasks, schedules and events

**Mobility**

Biomedical Device Integration (BDI) captures patient data automatically resulting in real-time, accurate, easily available patient information. BDI is foundational to the KP SmartCARE Strategy.
Nursing Clinical Practice Transformation

Providing a real time clinical care dashboard leverages the data within KPHC transforming it into information and synthesizing that information into knowledge which can be utilized by the nurse to transform that knowledge into wisdom and impact patient care.
Beyond Data Entry

Leveraging Data to Enable Actionable Clinical Intelligence for Nursing

By Tonya L. Harrison, RNC-BC, MSN

Impact of Clinical Care Dashboard - Preliminary results
NW – Sunnyside Medical Center

Clinical Care Dashboard

- Promotes patient safety and satisfaction: Patient-Centered
- Provides dynamic triggers for key clinical indicators: Real Time
- Improves usability and staff satisfaction: Intelligent
- Engages staff, managers & quality nurses: Collaborative
- Decreases steps in the process workflow: Efficient
- Links to flowsheet group for documentation: Actionable
- Improves compliance with timed interventions such as pain reassessment and turning/repositioning: Effective
All improvements in pressure ulcer prevention outcomes are the result of a comprehensive and multi-pronged approach to performance improvement.
Rapid Improvement Model

1. **Set goals**
   What are we trying to accomplish?

2. **Establish measures**
   How will we know that the change is an improvement?

3. **Select changes**
   What changes will result in improvement?

4. **Test change**
   Plan, Do, Study, Act
Best Care at Lower Cost

Recommendations

1. Improve the capacity to capture clinical, care delivery process, and financial data for better care, system improvement, and the generation of new knowledge.
2. Involve patients and families in decisions regarding health and health care, tailored to fit their preferences.
3. Accelerate integration of the best clinical knowledge into care decisions.
4. Continuously improve health care operations to reduce waste, streamline care delivery, and focus on activities that improve patient health.
5. Improve coordination and communication within and across organizations.

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transforming healthcare through IT  
Boston Children’s Hospital  

BEST CARE AT LOWER COST  
The Path to Continuously Learning Health Care in America  

INSTITUTE OF MEDICINE  
OF THE NATIONAL ACADEMIES  

•  September 2012
Operating Principles for Clinical Transformation

• Leadership & Governance
• Intuitive to our care teams
• Simplify workflows
• Intelligent use of our data
• Decrease waste
• Engage staff closest to the work
• Lead with the clinical problem – not the technology
• Build skills in boundary spanning leadership
Figure. Proposed “Wedges” Model for US Health Care, With Theoretical Spending Reduction Targets for 6 Categories of Waste

Opportunities to Remove Waste

Berwick, Donald M., MD, MPP and Hackbarth, Andrew D., MPhil “Eliminating Waste in US Health Care”, JAMA, April 11, 2012-Vol.37, No. 14
Interactive Patient Care Technology

IPC Systems return control to the patient in their hospital room by providing increased autonomy, capability and comfort.
Four Sites of Care

Care in the future will be delivered in four distinct “sites of care” which are incredibly and increasingly well supported with technology to provide personalized access.
Mobile will be Dominant
Communication & Mobility

Patients / Families

Clinician to Clinician

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Real-time, Personalized Health Care

Smart
Networked
Collaborative
Affordable
Preventive
Interprofessional Collaborative Practice Core Competency Domains

The Learning Continuum

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Transformation Priorities & Themes

- Evidence Based Care
- Clinical Decision Support
- Advanced Analytics
- Usability
- Clinical Intelligence
- BioMedical Device Integration
- Mobility
- Performance Improvement & Removing Waste
- Patient & Family Engagement
- Data Portability, Data Exchange & Data Reuse
- Inter-Professional Clinical Informatics Teams

United States EMR Adoption Model

<table>
<thead>
<tr>
<th>Stage</th>
<th>Cumulative Capabilities</th>
<th>2013 Q2</th>
<th>2013 Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 0</td>
<td>All Three Ancillaries Not Installed</td>
<td>7.2%</td>
<td>6.9%</td>
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<tr>
<td>Stage 1</td>
<td>Ancillaries - Lab, Rad, Pharmacy - All Installed</td>
<td>3.8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Stage 2</td>
<td>CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging, HIE capable</td>
<td>9.0%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology</td>
<td>34.5%</td>
<td>31.9%</td>
</tr>
<tr>
<td>Stage 4</td>
<td>CPOE, Clinical Decision Support (clinical protocols)</td>
<td>14.6%</td>
<td>15.1%</td>
</tr>
<tr>
<td>Stage 5</td>
<td>Closed loop medication administration</td>
<td>18.7%</td>
<td>20.9%</td>
</tr>
<tr>
<td>Stage 6</td>
<td>Physician documentation (structured templates), full CDSS (variance &amp; compliance), full R-PACS</td>
<td>10.0%</td>
<td>11.1%</td>
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<tr>
<td>Stage 7</td>
<td>Complete EMR; CCD transactions to share data, Data warehousing, Data continuity with ED, ambulatory, OP</td>
<td>2.1%</td>
<td>2.2%</td>
</tr>
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Data from HIMSS Analytics® Database ©2012

N = 5439
N = 5437

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IOM Report: Transforming Nursing Roles

- Leaders in the effective design & use of EHR systems
- Full partners in decision making
- Care coordinators across disciplines
- Experts to improve quality, safety, efficiency and reduce health disparities
- Advocates for engaging patients & families
- Contributors to standardize infrastructure within the EHR
- Researchers for safe patient care
- Preparing the workforce in a technical & digital environment
- Leaders on federal committees impacting health IT and quality measures

Judy Murphy, Journal of Healthcare Information Management Vol. 24, 2 Spring 2010
The Future is in Your Hands
The 'Connected' (Technology-Enabled) Nurse of the Future is: