EHRs, Quality Measurement, and the Foundation for a Learning Health System

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At the completion of this session, the learner will:

- Describe standards necessary to extract data for quality measurement and performance improvement
- Describe an electronic measure (eMeasure)
- Articulate the definition of nursing informatics
- Describe the relationship between Meaningful Use, quality measurement and a learning health system
Informatics – Defined

IMIA Special Interest Group on Nursing Informatics

Nursing Informatics science and practice integrates nursing, its information and knowledge and their management with information and communication technologies to promote the health of people, families and communities world wide.”

Foundational Framework for the Benefits of Clinical Information Systems (CIS)

DIWK framework. Reprinted with permission from Nelson.
“The skill of writing is to create a context in which other people can think”

Edwin Schlossberg
What do These Diverse Projects have in Common with Healthcare?

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| 3. | A pattern matching tool is developed to find  
|    | Any citizen can go online and, in a few clicks, see how his tax dollars are spent by award size, jobs created, status, location, and other variables. |
What do These Diverse Projects have in Common with Healthcare?

- Management of Data, Information, and Knowledge
- The Use of Data to Gain Insight and Knowledge
- Different Ways Stakeholders are Accomplishing Business Objectives Using Data
Important Ideas

• Exponential Growth of Technology and Informatics - so You Must Jump the Curve – in Order to Stay Competitive
  – Explosion of devices
  – Too much data, not enough insight
  – Seeing this across all areas of informatics, within research, education, and practice

• Meaningful Use “Re-defining the EHR”
National Quality Strategy: **Infrastructure**

**Better Care**
- Affordable Care
- People/Communities

- Health and Well Being
- Prevention and Treatment
- Person Centered Care
- Patient Safety
- Affordable Care
- Care Coordination
- Workforce Development
- Rapid Cycle Learning & Innovation
- Measurement of Process and Outcomes
- Health Information Technology

**Infrastructure Supports**
- Payment
- Patient Safety Organizations
- Quality Improvement Organizations
- Certification Regulation
- Consumer Incentives
- Public Reporting

#HealthIT4Nurses

2011 Report to Congress: National Strategy for Quality Improvement in Health Care
http://www.ahrq.gov/workingforquality/nqs/nqs2011annlrpt.htm#app1
Redefinition of the Electronic Health Record

The EHR must support care delivery AND quality measurement – all in ‘real time’
Quality Measurement

Shift From Using Claims Data And Chart Audits for Quality Measurement

To Using Electronic Point of Care Documentation For Quality Measurement

Burden Shifts from Abstractor to Point of Care

#HealthIT4Nurses
EHR to Guide Care
Peer Audits to Assess Quality
Quality Measurement as a Byproduct of Care Delivery
Data for Performance Improvement

Learning Health System Foundation
Electronic Measure (eMeasure) Life Cycle

1. Quality Measure
   - Measure Content (Logic, Numerator, Denominator)

2. Represent Using QDM (Quality Data Model)

3. Map to Standardized Terminologies (Value Sets)

4. EHR

Electronic Reporting and Sharing

Capture Data

Provide Care

QRDA: Quality Reporting Data Architecture

Health Quality Measure Format

#HealthIT4Nurses
What’s an eMeasure?

An eMeasure is the electronic format for quality measures using the Quality Data Model (QDM) and the Healthcare Quality Measure Format (HQMF), an HL7 standard.
# Human Readable - Header

## eMeasure Title
Demo - Coronary Artery Disease (CAD): Drug Therapy for Lowering LDL-Cholesterol (NQF 0074)

## eMeasure Identifier
None

## eMeasure Version number
0

## NQF Number
None

## GUID
63A24CBA-F9E7-4A52-93BE-E9878B4E422

## Measurement Period
September 17, 2011 through September 17, 2012

## Measure Steward
American Medical Association - Physician Consortium for Performance Improvement

## Measure Developer
National Quality Forum

## Endorsed By
National Quality Forum

## Description
Percentage of patients aged 18 years and older with a diagnosis of CAD who were prescribed a lipid-lowering therapy (based on current ACC/AHA guidelines)

## Copyright

## Measure Scoring
Proportion

## Measure Type
Process

## Stratification
None

## Risk Adjustment
None

## Rate Aggregation
None

## Rationale
Studies have demonstrated that active treatment with lipid-lowering therapy is associated with stabilization and regression of coronary atherosclerotic plaques and decreased incidence of clinical events. Recent clinical trials have further documented that LDL-lowering agents can decrease the risk of adverse ischemic events in patients with established CAD.

## Clinical Recommendation Statement
The LDL-C treatment goal is <100 mg/dL. Persons with established coronary heart disease (CHD) who have a baseline LDL-C 130 mg/dL should be started on a cholesterol-lowering drug simultaneously with therapeutic lifestyle changes and control of nonlipid risk factors (National Cholesterol Education Program [NCEP]).

## Improvement Notation
Higher score indicates better quality

## Reference

## Definition
Initial Patient Population(s):
- Patient Age: Patients aged 18 years and older at the beginning of the measurement period.
- Diagnosis Active: Patient has a documented diagnosis of coronary artery disease.
- Encounter: At least 2 visits with the physician, physician's assistant, or nurse practitioner during the measurement period.

Denominator(s): All patients aged 18 years and older with a diagnosis of coronary artery disease.

Exclusion(s):
- Documentation of medical reason(s) for not prescribing lipid-lowering therapy (e.g., clinical contraindication, drug allergy, drug interaction, drug intolerance, other medical reason(s)).
- Documentation of patient reason(s) for not prescribing lipid-lowering therapy (e.g., patient declined).
- Documentation of system reason(s) for not prescribing lipid-lowering therapy.

Numerator(s): Patients who were prescribed lipid-lowering therapy.

Exclusion(s): None

## Guidance

## Transmission Format
None

## Initial Patient Population
None

## Denominator
None

## Denominator Exclusions
None

## Numerator
None

## Numerator Exclusions
None
Electronic Quality Management Life Cycle

- Evidence Based Guidelines
- Quality Measures
- Learning Health System
- Quality Improvement
- Analysis
- Action Messages
- Care Delivery
- Reporting (QRDA)
- Data
- Electronic Health Records
- Workflow
- eMeasure HQMF QDM Clinical Decisions HeD/vMR
- ePressUlcer Representation
- VSAC Terminology Value Sets
- Syntax Logic Semantic Meaning
ANÀ’s Pressure Ulcer Cumulative Incidence eMeasure (ePressUlcer$^{CI}$)

$$ePressUlcer^{CI} = \frac{\text{Number of hospital acquired pressure ulcers}}{\text{number of discharged patients}} \times 1,000$$

Pressure Ulcer eMeasure purpose:

- Determine the incidence of pressure ulcers using data from the Electronic Healthcare Record (EHR).
- Determine the rate and timing of skin and pressure ulcer risk assessment performance and prevention using EHR data.
- Explore the relationships among nursing assessments performed, intervention plans in use, and pressure ulcer development.
### Major Measures

**Peer Group: Academic Medical Centers**

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<th>TNHPPD</th>
<th>RNHPPD</th>
<th>% RN</th>
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<th>% BSN+</th>
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**Unit Type Summary - Mean**

#### Peer Group: Academic Medical Centers

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Quality Measurement

Think Differently
Using Meaningful Use as the Foundation for a Learning Health System
Trends in Informatics

1. Near Continuous Patient (Consumer) Monitoring
2. Rise in Nontraditional Sources of Data
3. Big data – Clinical Analytics
4. Empowered end users
5. Learning Health System
Important Ideas

1. HIT – Data Driven
   - Sensors / Devices
   - Clinician Entered
   - Collective Action of Consumers

2. Harvesting of Data to Find Solutions and Create Knowledge
   - Collective Intelligence
   - Learning Health System
Exponential Growth of Patient Data Available for Improving Outcomes

Patient Data
Empowering End Users

Alerts to potentially prevent bed sores

Is this patient getting out of bed?

Remote observation for tracheotomy patients (Are they sitting up?)

Viewing trends of the vital signs

Level of activity

Designated to detect falls
Turning Data into Information and Knowledge
http://www.youtube.com/watch?v=f-dfWLaDBPE
Informatics Top 10 Tech Trends

- Increases the importance of formal data governance, management and architecture
  - Path that describes where data was created
    - And by whom
    - How it is transformed
    - How it flows
    - How it is combined with other data
- Focus on specific problems you’re trying to solve – targeted approach
- If you neglect these fundamental principles, you’ll paint yourself into a corner
Turning Data into Information, Knowledge, and Quality Improvement

Create Learning Health Systems
A Learning Health System for the Nation

Figure. The 6 phases of the rapid-learning health care system, from scanning to dissemination.

- **Evaluate**: Collect data and analyze results to show what does and does not work.
- **Design**: Design care and evaluation based on evidence generated here and elsewhere.
- **Implement**: Apply the plan in pilot and control settings.
- **Adjust**: Use evidence to influence continual improvement.
- **Disseminate**: Share results to improve care for everyone.
- **Internal and External Scan**: Identify problems and potentially innovative solutions.
The future of computing are we on the road yet?
“This sort of change in healthcare will not be evolutionary but revolutionary, like going from water to steam.”

This vision is a chasm that cannot be crossed in two steps.
Know what to do with the data you have
Redefinition of the Electronic Health Record

• What was ‘secondary use of data’ is now ‘primary use of data’

• Creation of a Strategic Plan for “Data”

• “If You Can’t be There Yourself, Don’t Send Anyone”
  
  Deming 1985
References

Questions? Comments?

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