Slide 1

Introduction to QI and HIT

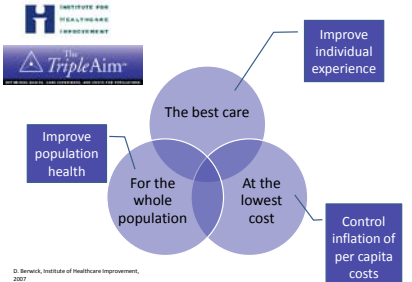
Unit1.2: Relationship of QI and HIT

Slide 2

Objective

- Analyze the ways that HIT can either help or hinder quality improvement

Slide 3



D. Berwick, Institute of Healthcare Improvement, 2007

Slide 4

IHI Triple Aim and HIT

- Introduce information tools into clinical practice
- Electronically connect clinicians to other clinicians
- Use information tools to personalize care delivery
- Advance surveillance & reporting for population health improvement

Slide 5

IOM Aims and HIT

Health care should be:

- Safe
- Effective
- Patient-centered
- Timely
- Efficient
- Equitable

Slide 6

Benefits of HIT

Can lead to improvement of patient safety, efficiency, effectiveness, equity, timeliness, and patient-centeredness

Slide 7

Enhancing Patient Safety with HIT

CPOE
- Computerized provider order entry
- Can reduce errors in drug prescribing and dosing

Medical Device Interface
- Automated vital sign capture
- Can reduce errors in transcription

e-MAR
- Computerized medication administration record
- Can reduce errors in drug administration

e-Allergy List
- Computerized allergy list
- Can reduce errors in preventable adverse drug events

Slide 8

Enhancing Patient Safety with HIT

Knowledge Links
- Reference information links
- Can reduce errors due to lack of knowledge

Reminders
- Prompts and flags
- Can reduce errors in omission

Monitoring
- Quality metric reporting
- Can identify opportunities for improvement

Structured Notes
- Standardized observations
- Can reduce errors related to failure to detect subtle changes in status

Slide 9

Enhancing Clinical Effectiveness with HIT

Knowledge Links
- Reference information links to clinical practice guidelines
- Can increase use of best practices

Monitoring
- Quality metric reporting
- Can identify gaps in practice

Reminders
- Prompts and flags
- Can remind provider of recommended interventions

Structured Notes
- Standardized observations
- Can enhance assessment and diagnosis

Slide 10

Enhancing Patient Centeredness with HIT

Knowledge access

- Patient-friendly web sites
- Can provide medical information and access to support groups

Patient portal

- Patient access and manage own health record
- Can enable self-management

Tailor to Patient Needs

- Clinical decision support
- Can tailor information according to patient characteristics and condition

Disease management

- Customized health education and disease management messaging
- Can enable self-management

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Enhancing Timeliness with HIT

Telemedicine

- Internet-based access
- Can provide immediate access to medical information

Clinicians Reminders

- Task list schedules
- Can remind nurses when treatments are due

Time-sensitive Prompts

- Timed draw alerts
- Can remind nurse when to draw blood based on a medication intervention

Patient Reminders

- Appointment scheduling
- Can remind patients when they need to return for follow-up visits

Slide 12

Enhancing Efficiency with HIT

Wireless mobile technology

- Vital Sign Capture
- Can eliminate need to write or type vital signs

Character expansion

- Ability to translate a few characters into phrases, sentences or paragraphs
- Can decrease typing time

System integration

- Pull forward historical information
- Can reduce data collection time

Clinical decision support

- Prompt for duplicate labs
- Can reduce redundant laboratory testing

Slide 13

Enhancing Equity with HIT

Data capture

- Monitoring by population characteristics
- Can uncover health care disparities

Tailor to Patient Needs

- Competency-based patient education
- Can tailor information to educational background and development status

Multi-Modal functionality

- Various ways for patients to get health information
- Can decrease health care disparity

Decision support

- Drug cost information
- Can assist providers in selecting alternatives for low income patients

Slide 14

Unintended Consequences of HIT

Work-arounds and artifacts can lead to unintended consequences

Slide 15

Work-arounds

Defined

- Alternative processes that help workers avoid demands placed on them that they perceive to be unrealistic or harmful
- Unanticipated behaviors directly or indirectly caused by the EHR when the system impedes one's work

Examples

- Nurses taking verbal orders rather than prescribers entering the order into POE due to workflow timing of event
- Significant events located in multiple locations in the EHR due to lack of standardization of data entry screens

Slide 16

Artifacts

Defined

- Man-made tools that aid or enhance the worker's thinking abilities
- Developed to meet the demands of an activity

Examples

- Bedside references
- Patient locator boards
- Report sheets
- Documenting on paper then transcribing into electronic record

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HIT & Workarounds

Dr. Foxwood creates a new order each time he wants to re-order a medication. The nurse enters a verbal order to discontinue the previous medication order, so that the medication will be removed from the electronic medication record. Dr. Foxwood fails to co-sign the discontinuation order because he sees this as an administrative task.

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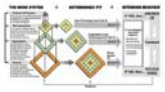
The next three slides describe work-arounds caused by poor HIT design.

1)Patient Armbands



2)Children's Hospital – Pittsburgh, PA.

3)Cedar's Sinai Medical Center

Slide 19

When a bar-coding medication system interfered with their workflow, nurses devised workarounds, such as removing the armband from the patient and attaching it to the bed because the barcode reader failed to interpret bar codes when the bracelet curved tightly around a small arm.

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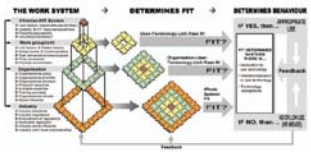

Investigators found increased mortality among children admitted to Children's Hospital in Pittsburgh after CPOE implementation.

Three reasons were cited for this unexpected outcome:

- CPOE changed the workflow
- Order entry required as many as 10 clicks & took as long as 2 minutes
- When the team changed its workflow to accommodate CPOE, face-to-face contact among team members diminished.

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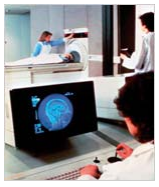
A Washington Post article reported that Cedars-Sinai Medical Center in Los Angeles had shut down a $34 million system after 3 months due to the medical staff's rebellion. Reasons for the rebellion included the additional time it took to complete the structured information forms, failure of the system to recognize misspellings, and intrusive and interruptive automated alerts the clinicians' workflow.



Slide 22

Summary:

- When designed well and used as intended, HIT can
  - Improve safety, effectiveness, efficiency, equity, timeliness, and patient-centeredness of care
  - Work to accomplish the best care for the whole population at the lowest cost
- When designed poorly and subject to work-arounds, HIT can result in unintended adverse consequences