Clinical Transformation and the Future of Health I.T.

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Evolutionary vs. Revolutionary Changes

- Aging population
- Exploding Complexities
- Data Avalanche
EHR – The Silver Bullet?

• Retrospective Documentation
  – rec·ord: An account, as of information or facts, set down especially in writing as a means of preserving knowledge.
  – phy·si·cian: A person licensed to document the approved practice of medicine protocol.

  “…you make a better data clerk than a doctor”
  “…I could spend 30-40% more time seeing patients if…”

Transforming Healthcare

• Reactive vs. Proactive care
• EHR vs. Intelligent Assistant
• Data Collection vs. Knowledge Management
• The effective and efficient practice of medicine

Rethinking the role of Information Systems at Marshfield Clinic
EHR
“A race to the starting line”

- Capturing useful data
- Physician adoption
- Decision makers are tethered to computer
- Strategic value of HIT understood
- Patients and other customers able to efficiently interact with system
- Need to invert current model

Paradigm Shift Needed

- Current State
  - Provider Centric
  - Bottom Up
  - Squeaky Wheels
  - Design by Committee
  - Airport Musings
  - Trade Show Driven
  - Operational Focus
  - Heavy I.T. Ownership

- Future State
  - Patient/Population Centric
  - Top Down
    - Determine Outcome
    - Define Measurement
    - Define Process Changes
    - Define System Changes
    - Iterate
  - Information Driven
  - Hypothesis Generation
  - Heavy business ownership
Marshfield Data Warehouse Architecture

Data Collection Systems

- External Sources
  - Hospital
  - Lab
  - Research
  - SHP
  - Clinical
  - Business
  - Clinical Registries

Data Access Pain Index

Information Applications

- Subjects
- End User Defined Applications
  - Casemix
  - Diagnosis
  - AMI
  - Transcription
  - Heart
  - Cost/Acct
  - Performance
  - Statistics

- End Users
  - Physicians
  - Lab
  - Cytology
  - Procedure
  - Patient
  - Cost/Acct
  - Performance
  - Statistics
  - Inpatient
  - Outpatient

Data Access Tools

- Access
- MARS
- SQL Server
- Oracle
- Lawson
- NT
- Sun Unix
- Lab

Data Modeling
Performance tuning
Metadata capture
Application development
Metadata capture
Information Access

Quality assessment and feedback

Leveraging information technology to transform health care

Electronic Health Record

- Clinical Data Curation
- Clinical Data Repository
- Actionable Data
- Population Assessment
- Clinical Data Curation

Intervention

Clinical Data Curation

Clincial Data Repository

Actionable Data

Population Assessment
Improving Patient Adherence

Adult Patient Wellness Summary

BMI: 24.0 Name: John Doe Age: 55 DOB: 01/01/1952
Report Date: 03/12/2007
Primary Provider: Dr. James Smith, MD

Weight

Height

Blood Pressure

Most recent weight: 170 lbs
Most recent height: 68 inches
Most recent blood pressure: 120/80

Physiologic Services

- Hair Analysis
- Hemoglobin
- Lipid Panel
- Pregnancy Test
- Stool Analysis
- Thyroid Panel
- Diabetic Panel

Next Services

- Hair Analysis
- Hemoglobin
- Lipid Panel
- Pregnancy Test
- Stool Analysis
- Thyroid Panel
- Diabetic Panel

Allergies/Adverse Reactions

- Drug: Ibuprofen
- Reaction: Abdominal pain
- Severity: Mild
- Treatment: Omeprazole

Lab Results

- Most Recent LDL: 130
- Most Recent HDL: 40

Provider Notes:

- None

Productivity

Quality

0.9

0.85

0.8

0.75

0.7

0.65

0.6

0.55

0.5

0.45

0.4

0

5

10

15

20

25

30

35

40

- Quality Score: 0.7
- Productivity Score: 0.9

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Results

• Link to Interactive PDF
Summary

• EHRs are only the beginning
• Value is generated by doing something useful with the data/information
• New I.T. paradigm is needed
• Focus on patient/population