

Chapter 9

The Knowledge-Enabled Organization

Learning Objectives

- Describe the impact of “knowledge” on quality of care.
- Articulate the differences between knowledge and information.
- Define *sensemaking* and describe how can it be applied to healthcare organizations.
- Define *knowledge management*.
- Articulate what it means to “bake in” knowledge into organizational workflows, and provide examples of how that is being done in the healthcare field.
- List some reasons why healthcare organizations invest in enterprise data warehouse, data mining, and data analytics capabilities.

Overview

- Knowledge management
- Building the knowledge-enabled healthcare organization
- Knowledge-enabled workflows
- Data warehousing, mining, and analytics

(Lack of) Knowledge Kills

- Provider decision complexity increasing
 - Managed care → Less time per patient
 - Providers unable to stay abreast of expanding medical knowledge
 - Increased “information load” on providers
- IOM (1999) suggests that 98,000 Americans die each year as a result of errors

Information (Over)Load

“**Information load** is a complex mixture of the quantity, ambiguity, and variety of information that people are forced to process. As (information) load increases, people take increasingly strong **steps to manage it**. They begin with **omission**, and then move to **greater tolerance of error**, queuing, filtering, abstracting, using multiple channels, escape, and end with chunking.” (Weick 1995)

Sensemaking

- Sensemaking is the ability to more accurately make sense of any given situation.
- Healthcare organizations are beginning to use knowledge management for sensemaking to reduce medical errors and increase efficiencies (Middleton et al. 2004)

Knowledge Management

Knowledge management is the organizational practice of explicitly and deliberately building, renewing, and applying relevant intellectual assets to maximize an enterprise's effectiveness (Wiig 2000).

Forms of Knowledge Management

- Explicit form
 - Databases
 - Spreadsheets
 - Presentation slides
 - Documents or other media
- Tacit form
 - The “know-how” in an individual’s head

Task of Knowledge Manager

“The task of knowledge managers is to explicitly and deliberately build the organizational processes and toolsets that bring the knowledge assets to bear on the thousands of daily tactical and strategic decisions that are made each day in a healthcare organization.” (Smaltz and Cunningham 2005).

Building the Knowledge-Enabled Healthcare Organization

- Two key means that healthcare organizations are using to become knowledge-enabled:
 - “Baking in” knowledge into clinical and administrative workflows
 - Robust data warehousing, data mining, and analytics capabilities

“Baking In” Knowledge with Workflow Examples

- Alerts

- Within an electronic medical record system, an alert is triggered when a provider orders a new drug for a patient that interacts negatively with another drug that either the physician has ordered previously or the patient is already taking.

- Reminders

- On a nursing unit, a nurse is reminded that a patient is due for another dose of a particular medication at a prescribed time.

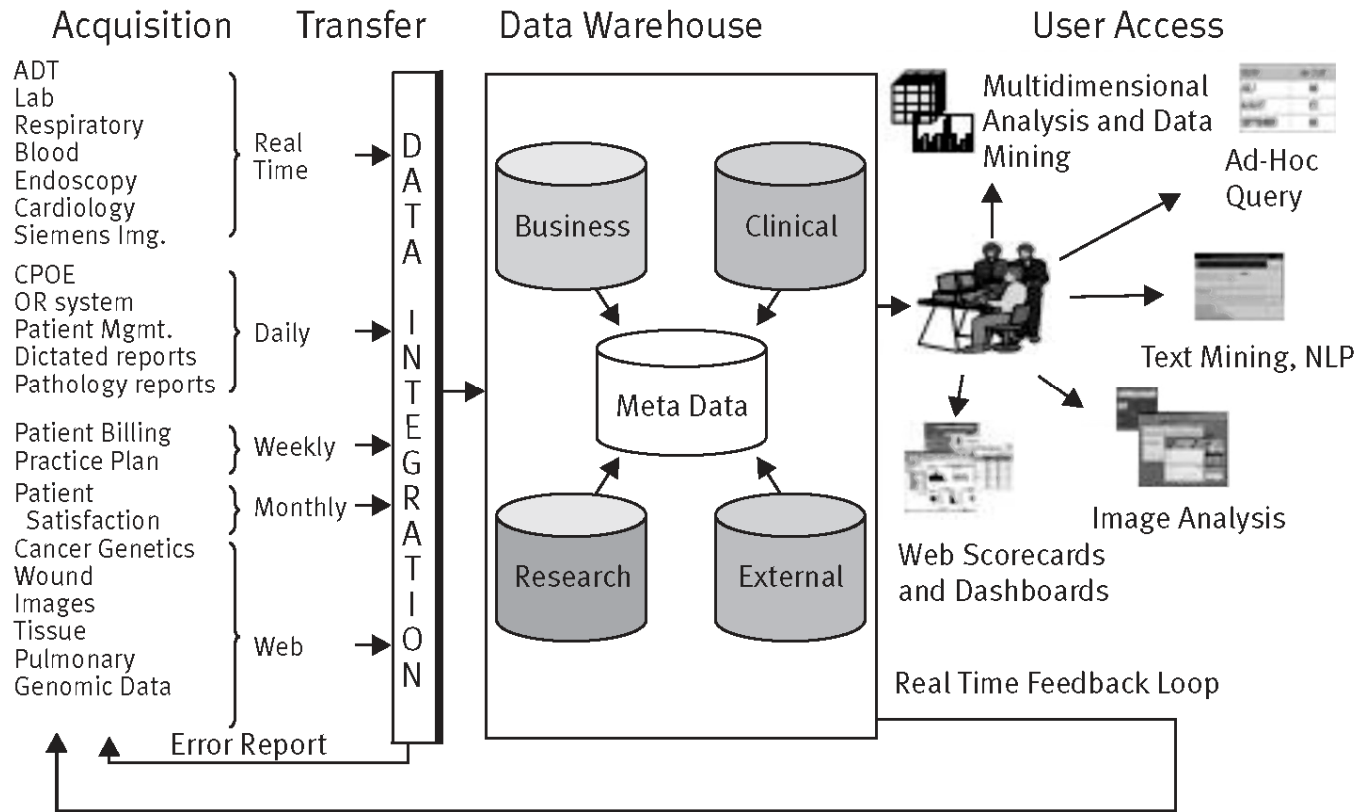
“Baking In” Knowledge with Workflow Examples

- Evidence
 - Within an electronic medical record system, the organization provides “click-through” capability to access relevant medical literature.
- Order sets
 - Within an electronic medical record system, physicians often place orders for various drugs or treatments. Creating order sets is the practice of pre-populating orders into groups that evidence has shown to be effective together; rather than having to place individual orders, a physician may select an entire order set.

“Baking In” Knowledge with Workflow Examples

- Automatic billing codes
 - During an outpatient visit, evaluation and management codes are automatically generated to facilitate billing via information that the caregiver team annotates in the electronic medical record.

Notional Depiction of a Data Warehouse



Data Warehousing, Mining, and Analytics

“Organizations cannot avoid investing in people, processes and capabilities that are expressly focused on leveraging enterprise-wide data, information and knowledge..., if they want to truly achieve and sustain superior clinical and business results.” (Smaltz and Cunningham 2005)