Disclaimer

• This material is designed and provided to communicate information about health data in an educational format and manner.
• The authors are not providing or offering legal advice but, rather, practical and useful information and tools to achieve compliant results in the area of data quality and analysis.
• Every reasonable effort has been taken to ensure that the educational information provided is accurate and useful.
• Applying best practice solutions and achieving results will vary in each hospital/facility, and testing situation.
$600,000,000,000 (six hundred billion dollars)
– Annual cost of poor data quality in American businesses according to the Data Warehousing Institute
Overview

Agenda

• Why is healthcare data quality so important?
• Why is healthcare data so difficult?
• Data management
• Steps to ensure data integrity
• Data analytics role in HIM
• Challenges and future goals
Why is data quality especially important in healthcare?

• Clinical data is a basic staple of health
  Creating, protecting patients and public health

Right data
Right time  Right care
Right context

Institute of Medicine (IOM) goal:
By 2020, 90% of clinical decisions will be supported by accurate, timely, up to date clinical information
The electronic health record leads to an increase in clinical documentation which then translates to an increase in the volume of clinical data available.
WHY HEALTHCARE DATA IS DIFFICULT

Retrieved from www.healthcatalyst.com
Where are the data?

- Resides in multiple places
  - Multiple EHR systems
  - Lab, radiology, clinics, inpatient

- Multiple formats
  - Images, claims data, clinical data
  - Paper records
  - EHR contains voluminous rows of text and numerical data
What is the structure of the data?

- **Structured data**
  - Entering data in structured fields as designed
  - Improves quantity and quality of data for analytics

- **Unstructured data**
  - Free text, paper records, images
  - Common due to frustrated EHR users
How are the data defined?

• Lack of definitions in industry
• Dynamic definitions especially in healthcare as new diagnoses and treatments are discovered daily
How complex is healthcare data?

• Data varies due to human conditions
• Outcomes are difficult to quantify and predict
What are the regulatory limitations?

• Privacy and security of data
• Regulatory reporting
• Limitations on analysis and use of data
• Aggregate data vs. patient specific data
Data Quality Management

Definition=roles, responsibilities, policies and procedures specifically concerning acquisition, maintenance, dissemination, disposition and destruction of data

Data quality $\equiv$ 100% accuracy with zero errors

Manage and reasonably define for your organization
Accurate business decisions

Quality data

Effective data management
Effective Data Management

• Acquisition
• Maintenance
• Dissemination
• Destruction
Data Quality and Integrity: Cleaning & Validating

• Primary goal: Data source
  – Focus on the data being entered
    • Registration/admitting/anywhere data is input into the system

• Secondary goal: Data validity
  – Determining errors, especially patterns
    • Return to source to correct/reduce repeat errors
Some steps to data integrity

1) Training, training, and more training

2) Incorporate public reporting elements

3) Data validation
   – System reconciliations
   – Find missing documentation and WHY is it missing?
4) Find errors

- More clearly defined values => less errors
- Sampling
  - Looking at a portion of the data to determine if there are errors in entire database
- 100 records test
  - Visually inspect data set for errors
  - Especially easy to see when entire field is incorrect
  - Use filters with 10 most important fields to narrow down search
Data validation elements

- Credibility
  - Trustworthy results

- Completeness
  - All valid codes entered?

- Reasonability
  - Unexpected spikes/changes

- Consistency
  - 78 year old man cannot have pediatric values
Data analytics in HIM

**Proactive**
- Overall governance
  - Data dictionary
- Defining roles
- Quality expectations
  - Accuracy rates
- Supporting business practices
  - Productivity
- Technical environments
  - Software interfaces with EHR vendor

**Reactive**
- Problems inherent in data (MPI cleanup)
- Data in legacy systems
  - Pre-data quality
- Mergers/centralizations
  - Combining data
- Reducing existing data problems
Managing the data has its challenges
Benefits of good data management

- Healthcare Information Exchange
- Fraud Detection
- Data Clarity and Transparency
- Save Time and Cost
- Ease of handling big data
- Emergency Care and Preventive Care
Data quality challenges

1) “Not my problem”
2) “We don’t have data issues”
   -often takes a major catastrophe to bring problems into light
3) Financial investment
4) ROI difficult to quantify
   -patient safety
Future Goals

• Focus on data quality as a standard
• Improve data accuracy, timeliness, and definition
• Improve security of the data, including confidentiality and protection from loss
• Reduce redundancy of the data
• Address challenges with data
Good data steward duties

• Patient safety first
• Advocate data quality
• Train and discuss the criticality of data quality
• Exceed standards
• Be proactive
• Keep learning
Questions?

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References

- [www.ahima.org](http://www.ahima.org) – Information Governance
- [www.healthcatalyst.com](http://www.healthcatalyst.com)