# From Data to Database

**Moderator: Joseph Greenway**
*Director,* The Center for Health Information Analysis, UNLV

**Leanne Candura**
*Health Data Team Lead,* HSRI

**Deborah Green**
*EVP/Operations and COO*, AHIMA

**Tracey Campbell**
*Director of APCD*, CIVHC

**Joseph Eberle**
*Delivery Director*, CTG Health Solutions

Human Services Research Institute

# Improving Transparency in the Collection and Validation of Healthcare Claims Data

**Presented by: Leanne Candura, MPH**
*Health Data Team Lead, Human Services Research Institute (HSRI)*

***Collaborators:***
**Karynlee Harrington**
*Acting Executive Director, Maine Health Data Organization (MHDO)*
**Kevin Rogers**
*Product Development Lead, Human Services Research Institute (HSRI)*
**Tim Mulcahy**
*Program Director Data Enclave, NORC at the University of Chicago*

# Data Ecosystem

- Involve All Stakeholders
- Create Transparent Processes
- Make System User-Friendly/Flexible
- Provide Metadata to Data Users
- Improve Data Quality

# Involve All Key Stakeholders in Design Process

- Design was based on input from
  - Payers
  - System Administrators
  - Data Users
  - Consumers

- Ongoing Relationship with System Users for Continuous Quality Improvement

# Create a Transparent Process

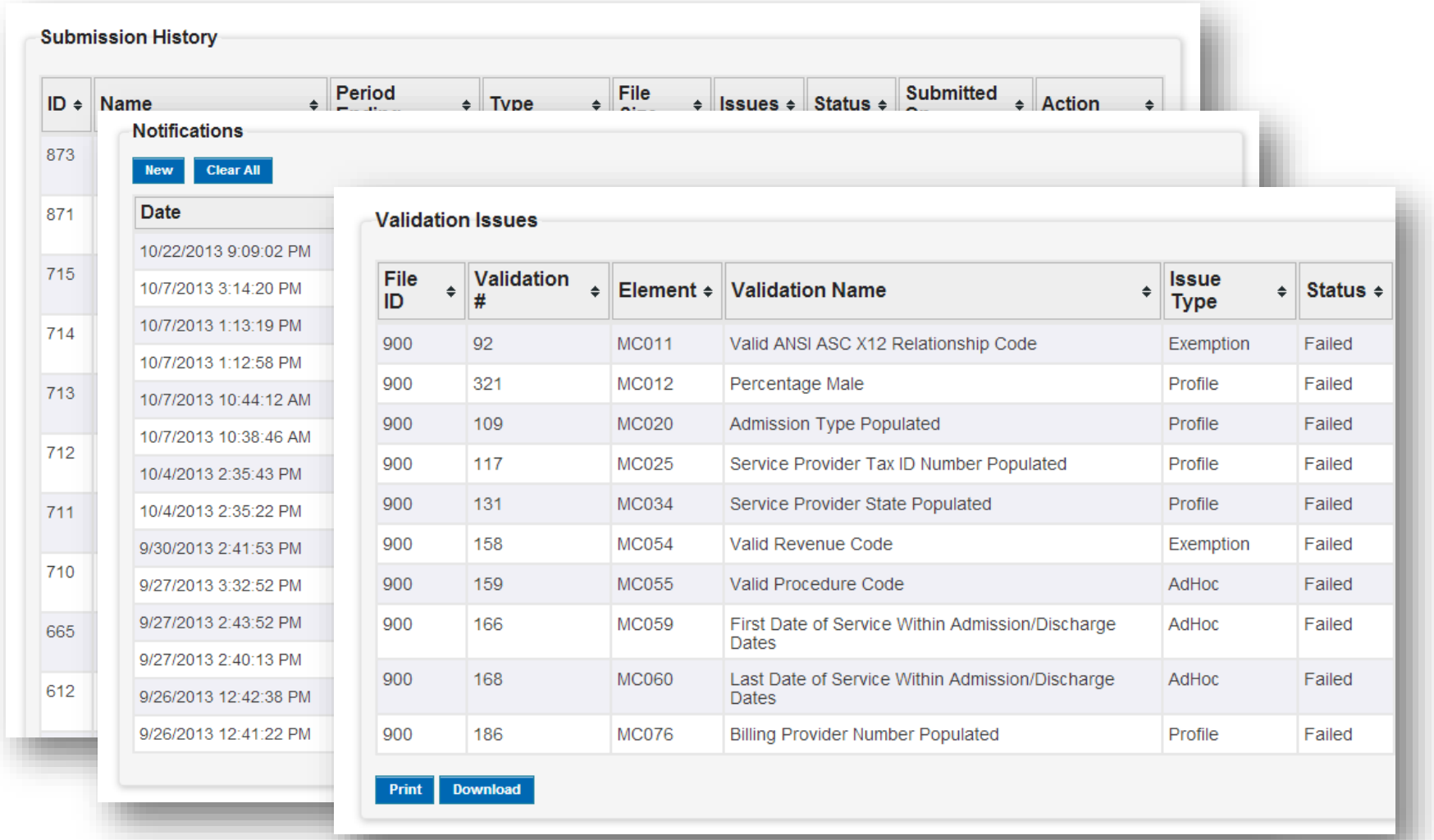
# Validation Rules and Results Available to Data Submitters and Data Users

**Validations for Medical Claims Files**

| # | Element | Validation | Reason for Issue | Validity Criteria | Issue Type | Threshold |
|---|---|---|---|---|---|---|
| 76 | MC001 | Valid Submitter ID | Fewer than 100% of medical claims have a valid Submitter ID. | A valid entry means that the Submitter ID is on the list containing all valid codes for registered entities. | Failure | 100% |
| 77 | MC002 | Valid Payer ID | Fewer than 100% of medical claims have a valid Payer ID, when populated. | For the records where MC002 is not blank, a valid entry means the Payer ID is on the Payer ID list containing all valid codes for registered entities. | Profile | 100% |
| 78 | MC003 | Valid ANSI ASC X12 Insurance Policy Type Code | Fewer than 100% of medical claims have a Valid ANSI ASC X12 Insurance Policy Type Code, when populated. | When not blank, a valid entry means the Insurance Policy Type Code is on the list of ANSI ASC X12 Insurance Policy Type Codes. | Exemption | 100% |

# Make System User-friendly and Flexible

# Provide Convenient Feedback



# Provide Metadata to Data End Users

# Validation Result Summary

| Validation | Passing Threshold | # Passing | Denominator | % Passing |
|---|---|---|---|---|
| MC001 - Valid Submitter ID | 100.00% | 9,956,627 | 9,956,627 | 100.00% |
| MC002 - Valid Payer ID | 100.00% | 3,100,239 | 3,102,424 | 99.93% |
| MC003 - Insurance Policy Type Code Populated | 100.00% | 9,956,627 | 9,956,627 | 100.00% |
| MC003 - Valid ANSI ASC X12 Insurance Policy Type Code | 100.00% | 9,964,956 | 9,964,956 | 100.00% |
| MC004 - Payer Claim Control Number Populated | 100.00% | 9,956,627 | 9,956,627 | 100.00% |
| MC005 - Valid Line Counter | 100.00% | 9,956,627 | 9,956,627 | 100.00% |
| MC005A - Valid Version Number | 100.00% | 9,956,627 | 9,956,627 | 100.00% |
| MC005A - Version Number Populated | 99.50% | 9,912,033 | 9,956,627 | 99.55% |
| MC006 - Insured Group or Policy Number Populated | 99.90% | 9,956,627 | 9,956,627 | 100.00% |
| MC007 - Valid Subscriber SSN | 33.00% | 9,273,997 | 9,956,627 | 93.14% |

# Improve Data Quality

# Data Quality Characteristics

- ✓ Accuracy
- ✓ Completeness
- ✓ Integrity
- ✓ Validity
- ✓ Consistency
- ✓ Reliability
- ✓ Relevance
- ✓ Timeliness

# Examples of Data Standards: Incoming Data

- Data are due monthly or quarterly by submitters
- Data must meet validation requirements
- Required data fields must be populated
- Data are checked against external lists for matches (i.e., zip codes, ICD 9 codes, NPI)

# Examples of Data Standards: Release Data

- Quarterly releases include over 95% of expected claims volume
- Maintain or improve Provider, Patient, and Payer Index Match Rates
- Maintain consistent claim volume over time
- Claims data released must have a matching eligibility file 100% of the time

# Lessons Learned

- “Nothing About Us Without Us”
- Ongoing feedback from key stakeholders is critical for developing a transparent process
- Feedback to stakeholders about what we are doing with the feedback (closing the loop)
- Developing a data pipeline that is easily configurable and extensible, flexible in dealing with a changing business environment

# AHIMA – First Benchmarking Survey on Information Governance in Healthcare

**Deborah K. Green, MBA, RHIA**
***Executive Vice President, Chief Operating Officer***
***AHIMA***



AHIMA
American Health Information Management Association®

# AHIMA: Leading IG for Healthcare

- **Collaborators**
  - *ARMA International*
  - *CHIME*
  - *HFMA*
  - *NAHQ*
  - *NARA*
  - *ISACA*
  - *ACHE*
  - *The Joint Commission*
  - *Private Sector*

- **Promoters**
  - *IGI*
  - *Health Data Consortium*
  - *eHealth Initiative*

# Information Governance for Healthcare

"For healthcare, like other industries, adopting IG underscores the value of information as an asset essential for advancing the goals and priorities of the organization."

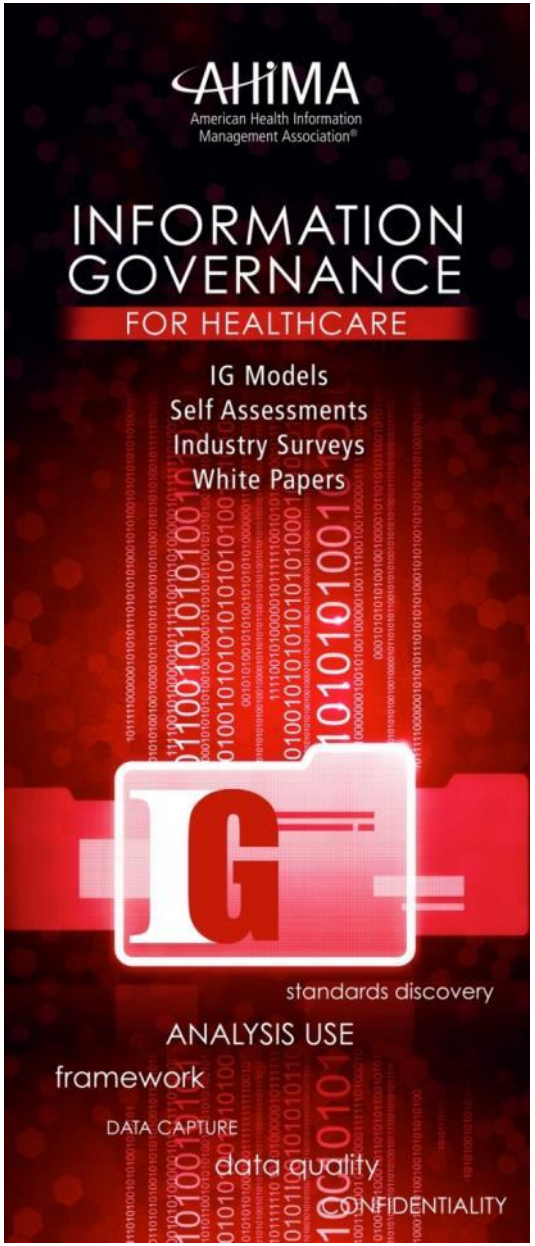
*Cohasset Associates | AHIMA 2014 "Information Governance in Healthcare – A Call to Adopt Information Governance Practices".* http://www.ahima.org/IGwhitepaper.

AHIMA

# AHIMA:
# Leading IG for Healthcare

## AHIMA Definition

*An organization-wide framework for managing information throughout its lifecycle and for supporting the organization's strategy, operations, regulatory, legal, risk, and environmental requirements.*



# AHIMA: Leading Information Governance for Healthcare


- Available Now!
- Free Download
- ahima.org/infogov

ADAPTED FOR HEALTHCARE

# IG in Healthcare First Benchmarking Survey – White Paper


**White paper available now:**

ahima.org/infogov

*Cohasset Associates | AHIMA 2014 "Information Governance in Healthcare – A Call to Adopt Information Governance Practices".* http://www.ahima.org/IGwhitepaper.

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# First Benchmarking Survey on IG in Healthcare

AHIMA
American Health Information Management Association®

Cohasset Associates

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# Information Governance for Healthcare

**Scope of survey:**

**Providers and Non providers**
**Included All Types of Information:**
***Clinical***
***Operations***
***Financial***

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# IG in Healthcare
# AHIMA - First Benchmarking Survey

- The survey was conducted using a web-based survey tool. Over 1,000 survey responses were received
- Invitees:
  - healthcare and industry professionals such as clinical and non-clinical leaders, officers, directors and managers in both provider and non-provider setting
  - AHIMA members
- Survey open during March and April

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# IG-Healthcare Benchmarking Survey Highlights

1. **Overall, IG programs are less prevalent and less mature in healthcare organizations than is warranted, given the importance of information.**

2. Most organizations have not yet established a comprehensive strategy for information governance.

3. The information governance framework and its foundational components call for strengthening and expansion.

4. Information lifecycle management practices related to core functions require improvement.

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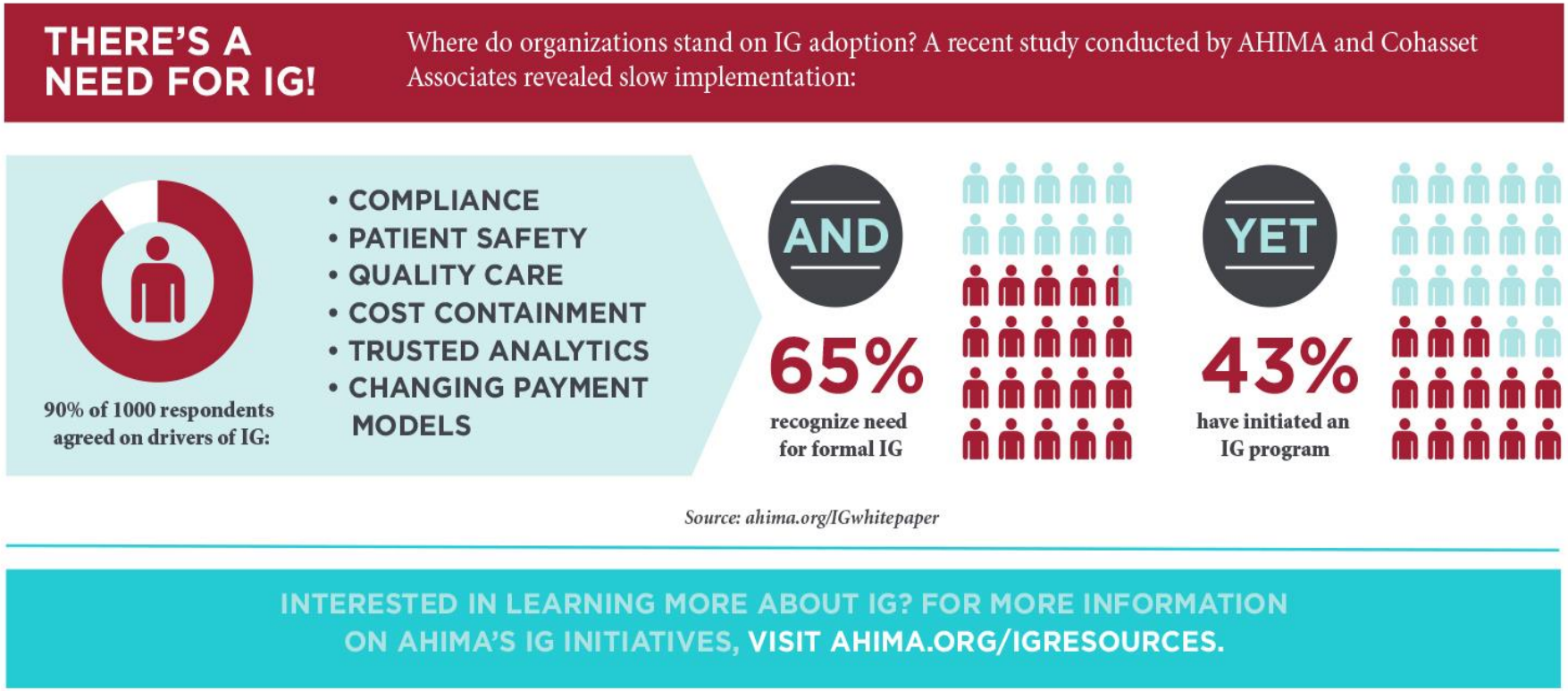
# IG Prevalence in Healthcare

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# Need for Comprehensive Strategy for IG

| Guidance | Mature | Improve-ment underway | Priority for next 12 months | Not planned | Don't Know |
|---|---|---|---|---|---|
| Business continuity, disaster recovery, crisis management * | 26% | 39% | 12% | 7% | 16% |
| Data map that identifies key information repositories * | 15% | 31% | 17% | 13% | 24% |
| Training for all employees on IG topics * | 15% | 28% | 18% | 21% | 18% |
| Cross-functional IG structure * | 11% | 32% | 15% | 18% | 24% |

** Improvement Needed in all 4 Fundamental Areas !!*

*Only 35% have a comprehensive strategy to guide IG implementation and only **11% have a cross-functional IG Structure in place***

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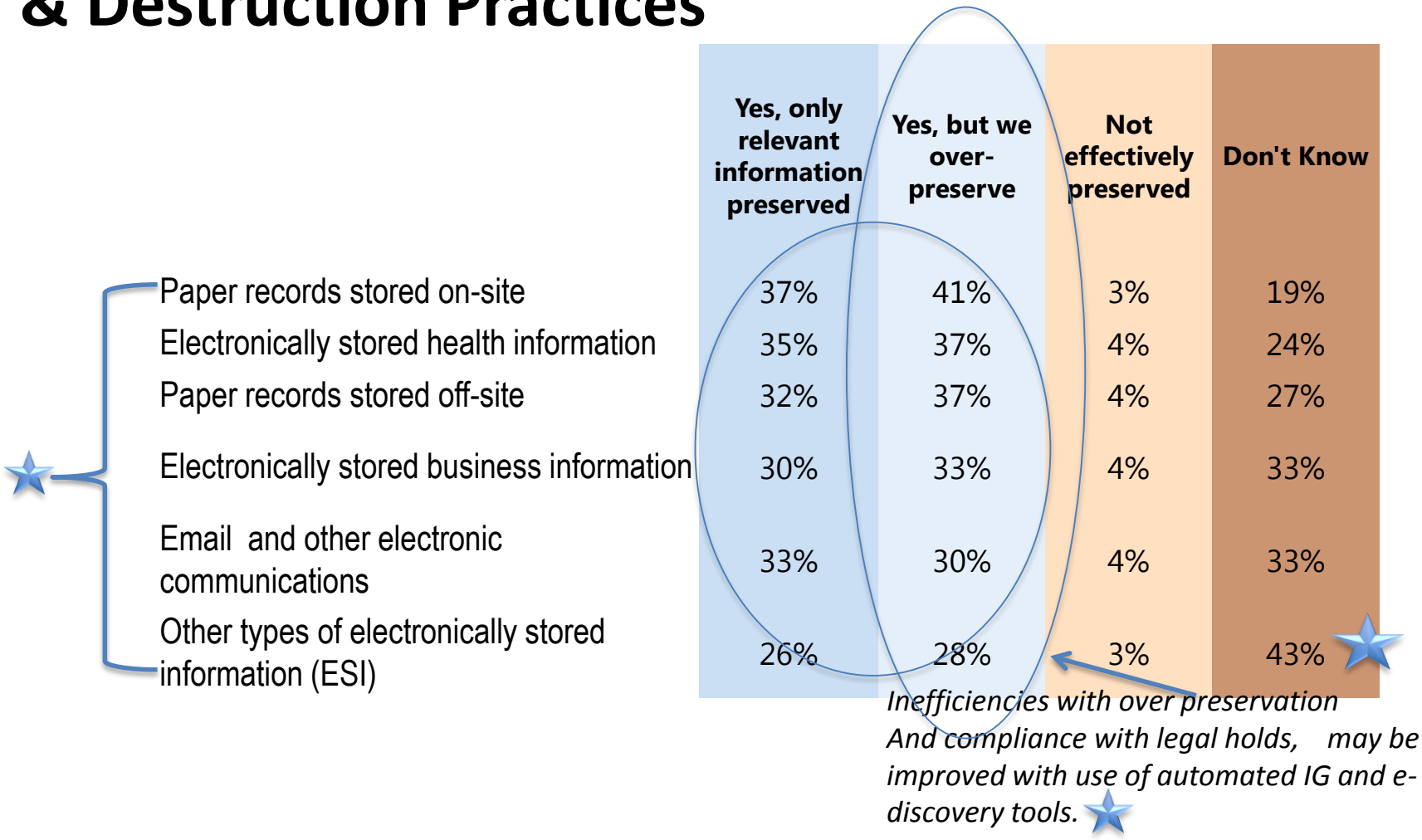
# Low Maturity Ratings (17%) for IG Policies & Practices, and < 30% for Retention, Preservation & Destruction Practices

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# Quality Controls and Quality Measures

| | Strongly Agree | Mostly Agree | Mostly Disagree | Strongly Disagree | Don't Know |
|---|---|---|---|---|---|
| Systems and work processes are designed to avoid errors at the source | 22% | 54% | 10% | 3% | 11% |
| Formalized error reporting and correction processes are in place for electronic health records | 30% | 43% | 12% | 3% | 12% |
| Quality issues identified through data reporting and analytics are traced back to their source | 26% | 47% | 11% | 3% | 13% |
| The impact of system upgrades on information quality is formally assessed | 24% | 44% | 14% | 5% | 13% |
| Desired attributes of information quality are explicit and understood | 20% | 46% | 18% | 4% | 12% |
| Rates of master person index (MPI) accuracy have improved in the past 3 years | 27% | 33% | 11% | 3% | 26% |

*68% agree that impact of system upgrades on quality Is assessed*

*Note: Only 66% agree that desired attributes of information quality are explicit & understood*

*Note: the lowest "agree" rates relate to MPI accuracy, important finding given the patient safety & quality of care aspects w/ patient identity errors. Also note that 26% did not know whether accuracy rates had improved in last 3 yrs.*

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# Quality Controls and Quality Measures

| | Strongly Agree | Mostly Agree | Mostly Disagree | Strongly Disagree | Don't Know |
|---|---|---|---|---|---|
| Documentation requirements are defined through policy and practices | 43% | 42% | 8% | 2% | 5% |
| Downtime continuity plans have been established | 41% | 39% | 8% | 3% | 9% |
| Electronic health information policies and practices apply to all operations | 38% | 42% | 11% | 2% | 7% |
| Data definitions and content management are based on standards | 36% | 44% | 9% | 2% | 9% |
| Software testing includes data quality | 33% | 42% | 11% | 3% | 11% |
| Practices for amendments and corrections are uniform | 31% | 44% | 13% | 4% | 8% |
| Metrics and improvement protocols have been defined for data quality | 23% | 42% | 16% | 4% | 15% |

75% agree that practices for amendments and corrections are uniform

Only 65% agree that measures and protocols for improving Data quality have been defined, And 15% Don't Know

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# Recommended Actions

1. Overall, IG programs are less prevalent and less mature in healthcare organizations than is warranted, given the importance of information.

2. Most organizations have not yet developed a comprehensive strategy for information governance.

3. The information governance framework and its foundational components call for strengthening and expansion.

4. Information lifecycle management practices related to core functions require improvement.

20+ Recs in Whitepaper

*Cohasset Associates | AHIMA 2014 "Information Governance in Healthcare – A Call to Adopt Information Governance Practices".* http://www.ahima.org/IGwhitepaper.

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# Information Governance in Healthcare
# AHIMA - First Benchmarking Survey

*"… survey results are undeniable. IG is a strategic imperative: regulatory compliance, safe delivery of quality care, cost control, responding to changing reimbursement systems and evolving delivery models, are top goals for healthcare organizations. All are highly dependent on trustworthy information. These organizational goals are advanced through the adoption of information governance practices; the absence of IG will impede their achievement."*

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# AHIMA:
# Leading IG for Healthcare

## Information Governance:

# AHIMA:
# Leading IG for Healthcare

# AHIMA:
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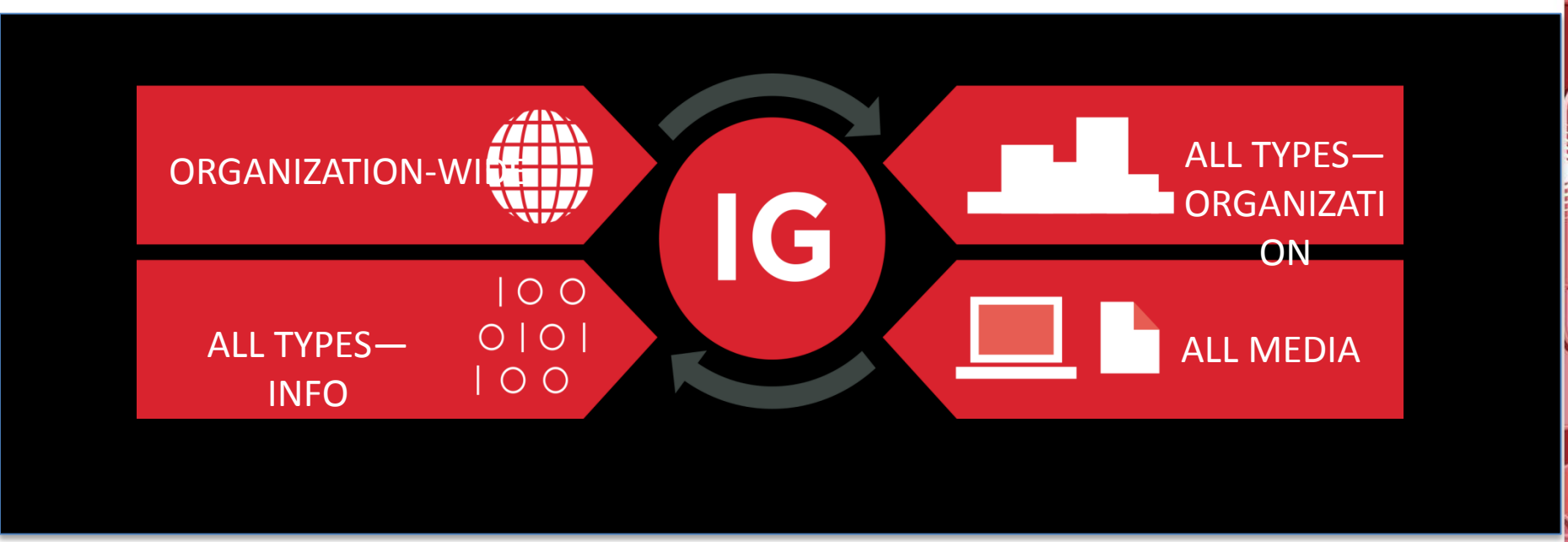

# IG Framework

# AHIMA - Leading the Adoption of Information Governance in Healthcare

- *Pilots*
- *Survey(s) & White Paper(s)*
- *Engage Work Groups & Advisors*
- *Refine Principles, Maturity Model*
- *Develop Assessment Tool*
- *Develop Benchmarking*
- *Refine and Build Resources*
- *Continuously Improve IG for Healthcare*

# AHIMA: Leading Information Governance for Healthcare

Ahima.org
IG@ahima.org

#IGNow

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CIVHC

CENTER FOR IMPROVING
VALUE IN HEALTH CARE

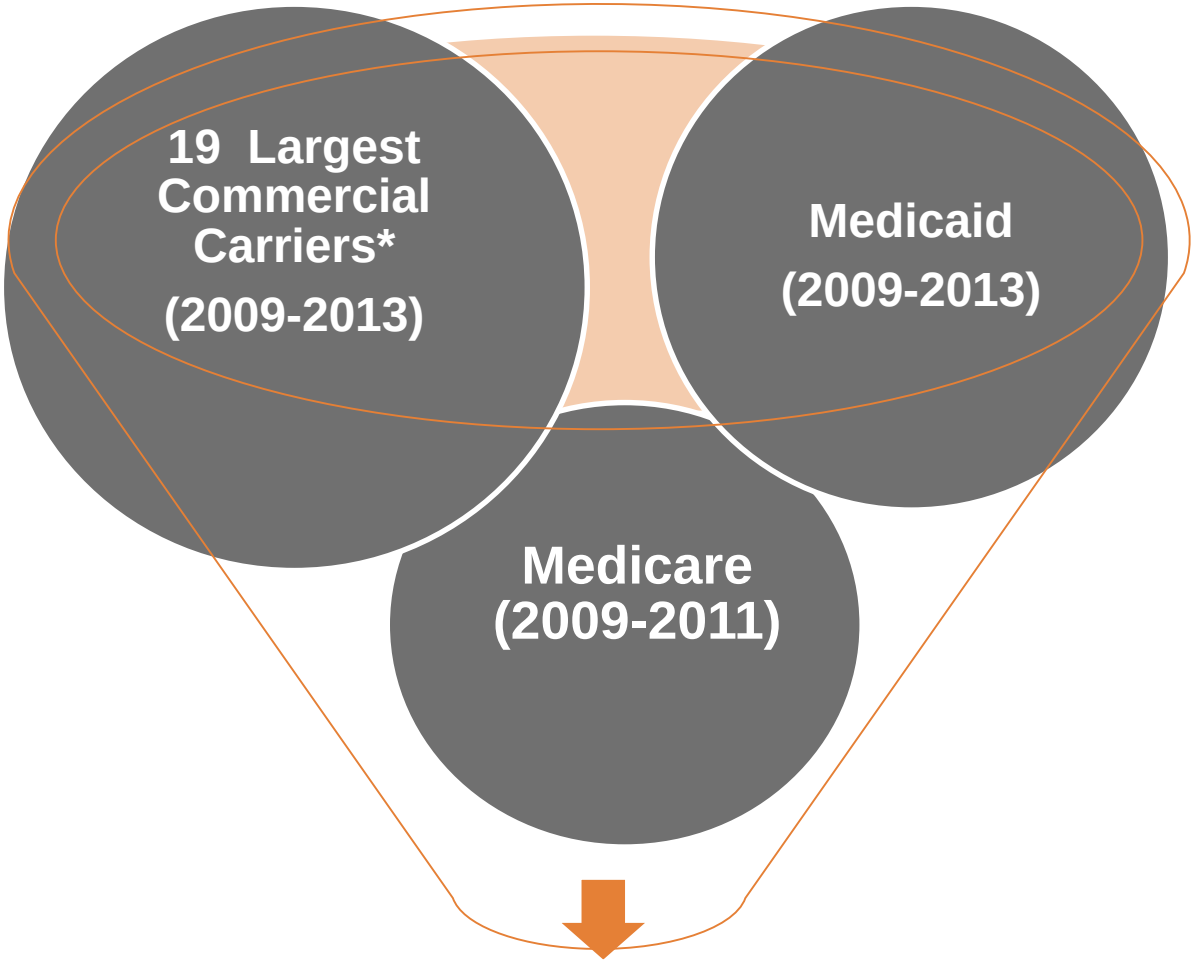
# The Colorado APCD

# NAHDO Conference

## From Data to Database
## October 8th, 2014

# How Data Supports CIVHC

# APCD Database as of Today




**Claims for over 3.5 million unique individuals representing over 40% of insured Coloradans**

*Includes claims for large group fully-insured and individual lives. Cost data not yet available for fully capitated plans.

# Positive Impact of CO APCD Public Reporting

- www.comedprice.org/cohealthdata.org has had over 24,000 visitors since launch
- Over 40 articles/publications have referenced or used the CO APCD data
- Communities, health systems are actively using the data to track trends/identify opportunities
- Total Cost of Care reports being utilized to inform health insurance exchange rate conversations

# Non-Public APCD Data Release Value

- Market share benchmarking
  - I/P and O/P market share analysis by HRR
  - Price/quality variation by DRG and CPT4/ICD9
- De-identified data set
  - To help with a comparative cost study for Hemophilia treatments and support activities around those treatments
- Limited data sets
  - Colorado Hospital Association leveraged APCD to align models that promote improved population health outcomes using Episodes of care
- Fully identified data sets
  - Identify care outcome improvement opportunities by combining medical claims with EMR data for approximately 100,000 Medicaid patients over a four year period.

## Find Prices for Medical Services

Search for comprehensive prices for select hospital-based services.

**Step 1** Service | Step 2 Location | Step 3 Insurance

*Your selected search criteria will appear here.*

### Select a Medical Service

What type of service are you searching for?

Maternity Care

Cesarean Birth

What's this?

Next

## Find Costs and Utilization by Geography

Search for health care costs and utilization of services by county and ZIP Code 3.

Choose one of the most viewed selections.

- (•) Total Cost of Care (TCC)
- ( ) TCC Compared to Expected (C2E)
- ( ) Percent Generic Scripts
- ( ) 30 Day All Cause Readmissions (per population)
- ( ) ER Visits
- ( ) Diabetes Prevalence
- ( ) Asthma Prevalence
- ( ) Illness Burden

**Total Cost of Care**

represents the total dollars paid for all health care services received by an individual such as hospital, clinic, physician visits, and prescription costs. Amounts paid by both the insurer and by the individual in the form of copays, deductibles and other cost sharing mechanisms are included. The results are displayed as a total dollars per person for the year. The rate represents the population living in that geography, not where the services were received.

View Map | View Report

View all Maps or Reports

## Search Criteria

Cesarean Birth; Denver (80202); Private Insurance

Search Again

### Cesarean Birth

**Note that Saint Joseph Hospital and Good Samaritan prices for private insurance are lower in part due to a high percentage of Kaiser patients which only reflect hospital payments.** Additional bills for the provider and other services are not included. To view non-Kaiser prices at these hospitals, sel... Show More

## Search Results

Display Facilities within 10 miles | Hospital Quality | Patient Perspective | Display as: Table | Map

Show 10 entries | Search by Name:

| Type | Provider | Distance | Estimated Price | Patient Complexity |
|---|---|---|---|---|
| Facility | Exempla Saint Joseph Hospital | 2 mi. | $9,273 | Medium |
| Facility | Presbyterian/St. Luke's Medical Center | 2 mi. | $14,242 | Medium |
| Facility | Denver Health | 2 mi. | ** | ** |
| Facility | Rose Medical Center | 4 mi. | $15,015 | Medium |
| Facility | Exempla Lutheran Medical Center | 5 mi. | $13,254 | Medium |
| Facility | Porter Adventist Hospital | 6 mi. | ** | ** |
| Facility | St. Anthony North Hospital | 7 mi. | ** | ** |
| Facility | Swedish Medical Center | 7 mi. | *** | *** |
| Facility | St. Anthony Hospital | 7 mi. | ** | ** |
| Facility | North Suburban Medical Center | 8 mi. | $14,992 | Medium |

# Value Creation for Colorado Stakeholders

- **Market share analysis** for inpatient and outpatient procedures benchmarked against your peers
- **Rates/1000 of specific procedures** benchmarked against your peers.
- Identify within network practice treatment patterns and **"leakage" or out migration analysis**
- Analysis of **referral patterns and provider performance**
- **Alternative payment analysis**
  - Reference-based pricing
  - Market analysis of Episodes of Care/Bundles
  - Palliative Care plan development
- **Care Transitions**
  - Readmissions to non-source hospitals

# Contact Information

- Tracey Campbell, Director of APCD

  tcampbell@civhc.org
- Matt Thompson, CO APCD Account Manager

  mthompson@civhc.org
- Join our APCD email list (www.cohealthdata.org home page)
- Follow CIVHC on social media:

  @CIVHC_News

  Facebook.com/CIVHC

  LinkedIn (linkedin.com/company/2096991)

Health Solutions

*Experience Matters*

# CTG Data Analytics Tools Presentation for NAHDO

*Joseph A. Eberle*

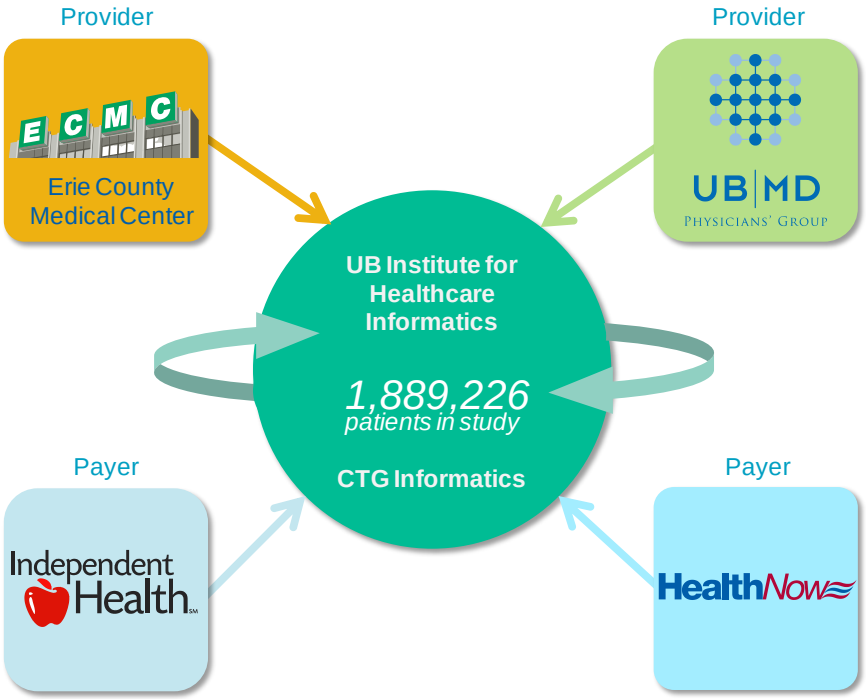
*joseph.eberle@ctg.com*

# Data Project: Integration of disparate Data Sets

Goals :

- Identify opportunities for improvements in care and cost efficiencies in treatment of chronic diseases and their related co-morbidities

- 76.1 million claim records in total
- 132.5 million lab observation results
- 151.9 million diagnosis codes reported
- 179.9 million procedure codes reported
- 64.5 million medication claims
- 1.9 million patients with average of 5 years of data

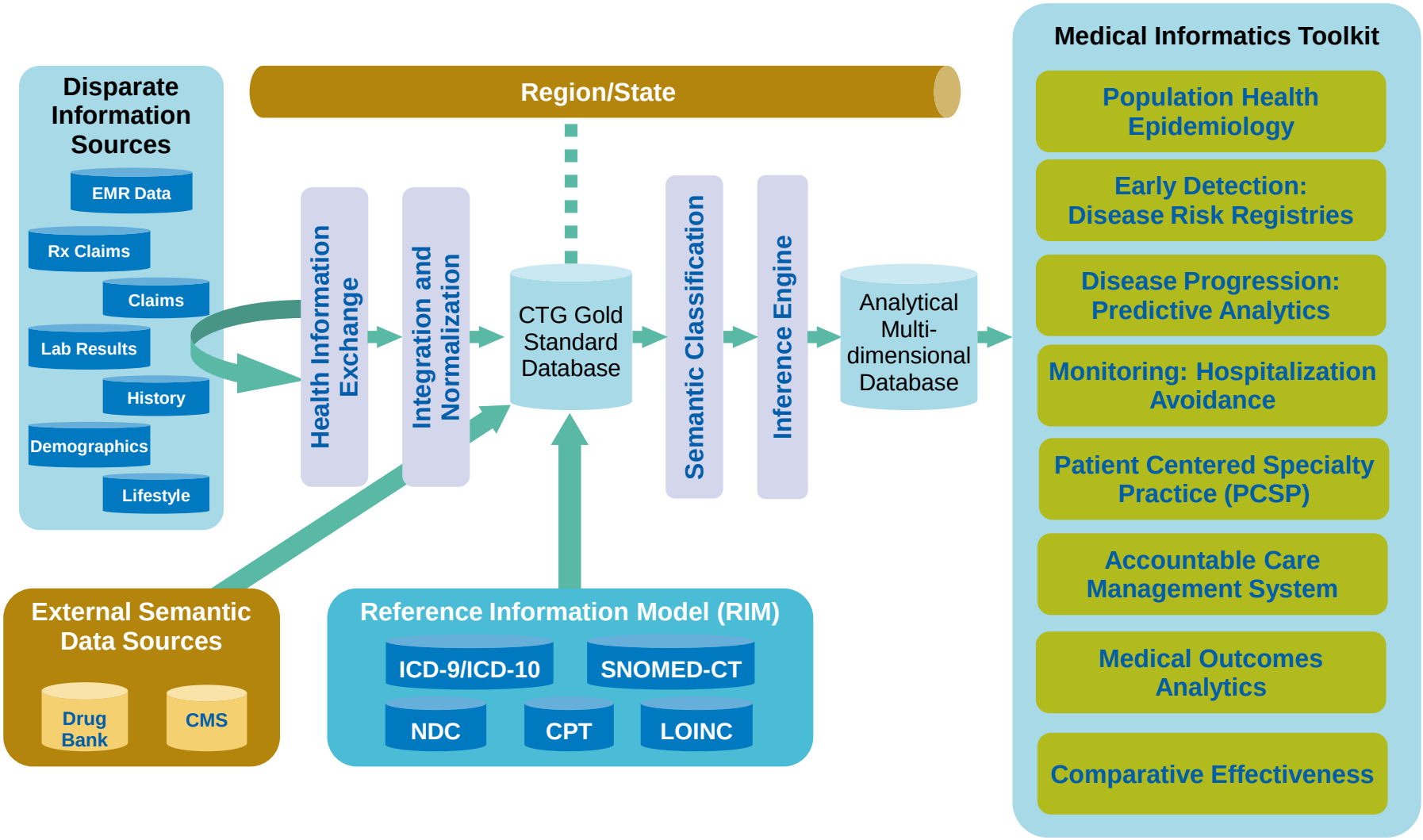





** Note: This includes data from four distinct sources. Data from separate sources is not combined. Patients in one data set cannot be identified and matched in another, so these aggregate totals include duplicate patients, procedures, medications, etc.*

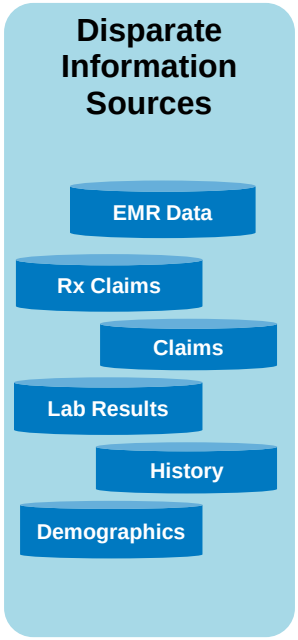
*CTG's Medical Informatics Suite:*

# Architecture



*CTG's Medical Informatics Suite:*

# Disparate Data Source Approach

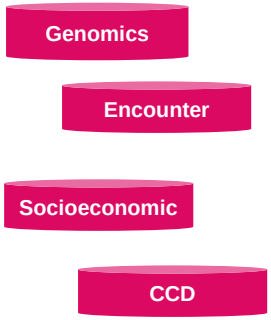



Health Care data is horrible:

1. Gaps
2. Inaccurate
3. Inconsistent
4. Insufficient to the complexity needed

Use an autonomous but integrated approach because you cannot count on what data sources are available

Use claims as the basis and foundation but each data source has its own unique value – and value must be given back to data providers




Architect now for an unprecedented flood of BIG data:

1. Telemedicine – Fit bits, embedded chips, etc.
2. Socioeconomic data
3. More Clinical data (CCD)
4. Genomics data

# No Data Left Behind Policy

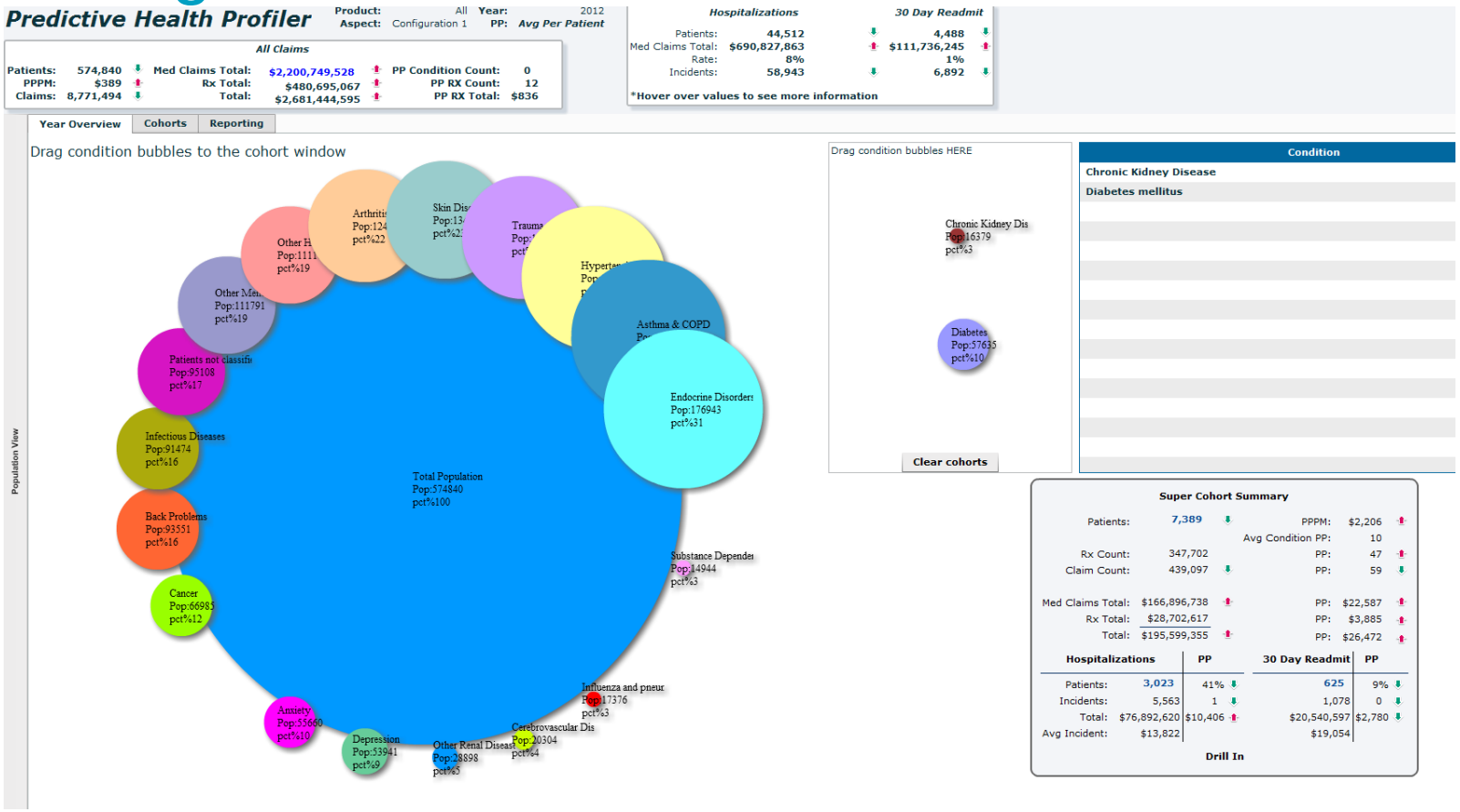
We had two choices we could either reject the bad data or embrace it.

We recognized that large amounts of the data was inconsistent and non-conformant to industry standards.

Even if a data set is not interpretable we pass it to the point of decision or to the point of care.

In this way we feel we are good stewards of the data and try to represent the patients condition in the most comprehensive manner possible.

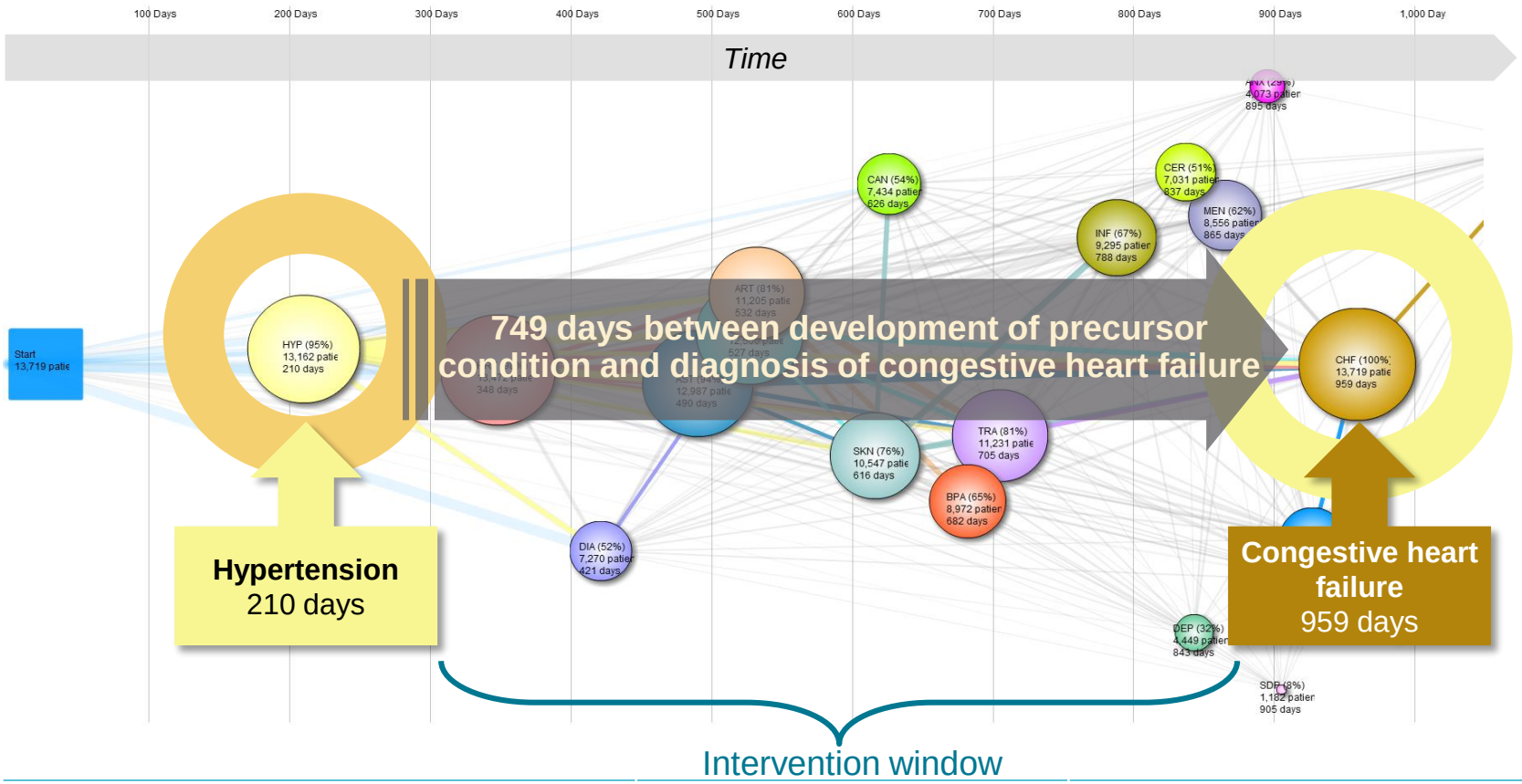
# Using MOAT to Measure Outcomes




- Epidemiology – cohorts based upon CMS Clinical Classification systems of major disease
- Identifies where major cost trends are and where to focus to fix them
- Expensive people are highly complex with multiple conditions

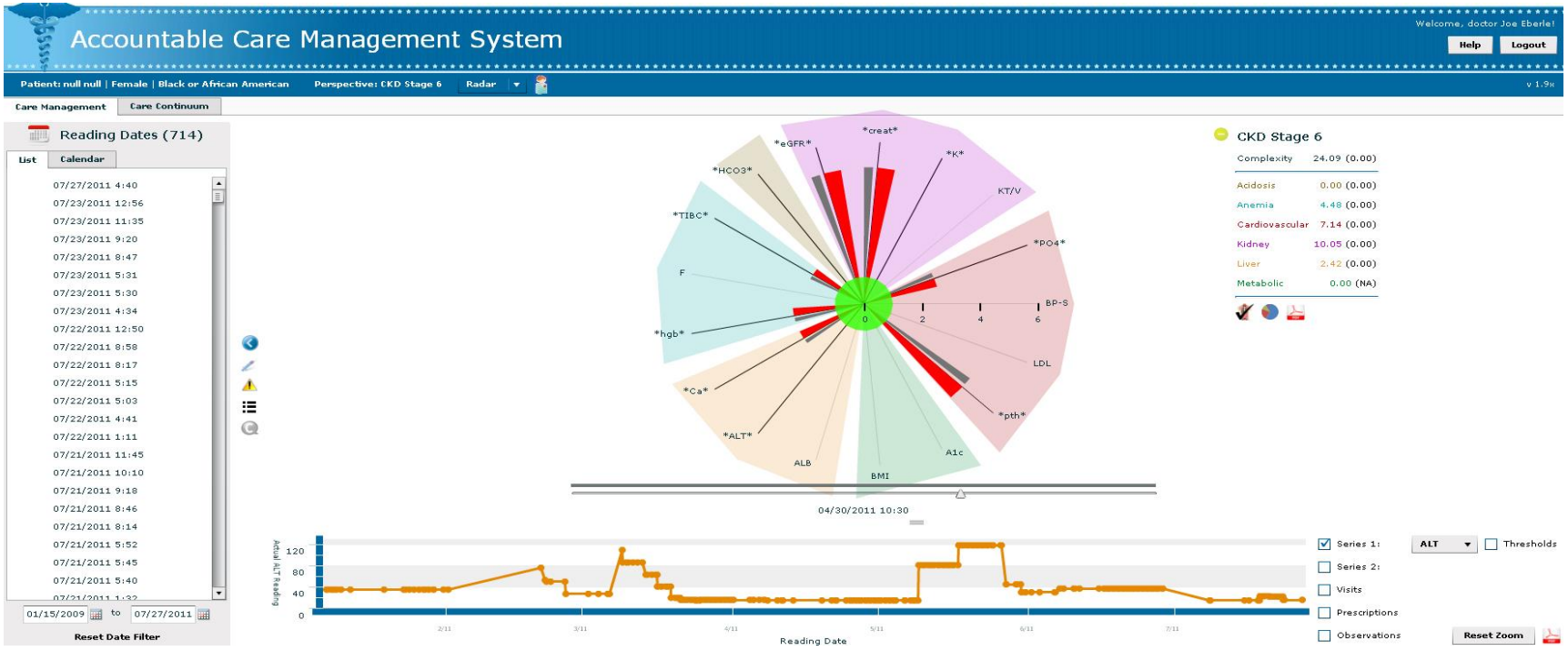
# The complexity requires a comprehensive data set

- Shows timing of initial diagnosis of condition, in relation to other initial diagnoses
- Reveals common precursor events and hidden pathways
- Having a comprehensive longitudinal view is essential to early detection

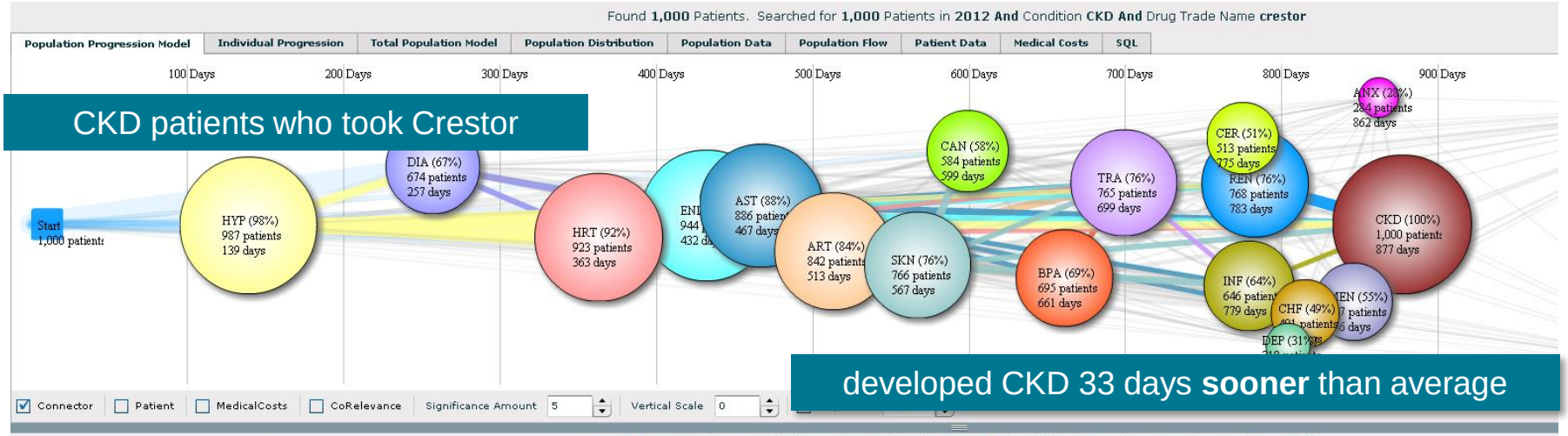


# ACMS: a PCSP Dashboard View

- Tracks patient throughout entire continuum of care, records how a patient responds to therapy over time
- Helps plan next steps or alert on acute conditions
- Displays critical patient data on one screen
- Users can expand or limit data being presented with a few mouse clicks



# Comparative Effectiveness Research



# Lessons Learned

- The data is going to be awful – accept it and embrace it and design for it
- No data left behind – any piece of evidence can be helpful
- Focus on a comprehensive security approach for PHI data and lock it down from the very beginning.
- Leave data sources in disparate formats while allowing them to be integrated into a comprehensive view.
- Utilize a RIM to help maintain consistency in an ever changing world of codes
- Involve a medical oversight committee early and include doctors, nurses, social workers, case managers
- Involve the patients early and include patient centeredness and true patient outcomes
- Think BIG – know what you can do with this amazing data !!!!