Breaking Down Barriers with Master Data Management and Data Governance

Session #249, March 8th, 2018  1:00 PM – 2:00 PM
Kim Jackson, Vice President, Strategy, Products and Governance, Providence St. Joseph Health
Conflict of Interest

Kim Jackson
Has no real or apparent conflicts of interest to report.
Agenda

• Providence St Joseph Health Overview
• Creating Funding for Data Governance and Master Data Management
• Presenting a Clear ROI to Support Funding for Data Governance and Master Data Management
• Challenges facing successful program
Learning Objectives

• Define the stages of a master data management and data governance program

• Illustrate key uses cases and metrics to prove hard ROI for engagement and funding

• Evaluate some of the challenges and barriers encountered throughout the data governance process
About us

50 HOSPITALS
829 CLINICS
90 NON-ACUTE SERVICES
111k CAREGIVERS
38k NURSES
20k PHYSICIANS
2 HEALTH PLANS
1.9m COVERED LIVES
$1.6b COMMUNITY BENEFIT
Data Governance Mission

Developing TRUST in data to run a business that is consistent, timely and integrated

- Increase TRUST in the data
- Create a culture of healthy data
- Establish a foundation for future information-based initiatives and innovations
- Enhance data quality
- Encouraging more, not less, data access
- Campaign for data literacy
- Master key data domains
- Resolving analytic priorities
- Establishing standards for master reference data
Holistic Approach

Process and Technology Without People
Alienation and Turnover
Underutilized Systems

People and Process Without Technology
Frustration and Inefficiency
High Cost of Operation

People and Technology Without Process
Automated Chaos and Confusion
Poor Service Delivered
# Establish enterprise process, policy and technology architecture to manage business-critical data quality

- Establish a value based roadmap aligned with Analytic Governance Council strategy

## Data Quality Management

<table>
<thead>
<tr>
<th>People</th>
<th>Technology</th>
<th>People</th>
<th>People</th>
<th>People</th>
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</thead>
<tbody>
<tr>
<td>Process</td>
<td>Support internal and external data synchronization</td>
<td>Process Technology</td>
<td>Process Technology</td>
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<tr>
<td></td>
<td>Leverage industry data governance best practice to manage data quality</td>
<td>Establish data quality standards across the organization</td>
<td>Utilize technology to improve manage data quality</td>
<td>Ensure data is created as close to the source as possible</td>
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## On-going Process

1. **Collaborate**
2. **Standardize Data**
3. **Manage Data Quality**
4. **Measure, Monitor & Fix**
5. **Automate Process**
Create Funding for Data Governance and Master Data Management

- Call for Action
- Voice of the Customer
- Vision and Goals
- Highlight pain points
- Road map
- Determine Real ROI

Funded Program
Data governance is a set of processes that ensures that important data assets are formally managed throughout the enterprise.

Need for more timely, accessible, consistent, high quality information for:
- Improving reimbursement, cost efficiency
- Improving quality of care and patient safety (e.g., reduce readmissions)
- Support at-risk payment models/ACO participation

Business Case:
- Support strategic Initiatives—foundational IS component to support Portals, Big Data/Population Health, EMR Regional efforts, HIE
- Reduce time spent extracting, merging, validating, and cleaning data and refocus those FTEs on analyzing and using data
- Improve timeliness and quality of information for strategic & operational decision making and performance improvement

In Scope:
- Identify data governance needs (e.g., data quality, master data management, metadata management) to support Information Sophistication initiatives
- Inpatient, Ambulatory, Home Health, Community Health Ministries
- Propose tactical recommendations and implementation roadmap

Out of Scope:
- IT Governance; Implementation (this will be a subsequent phase)
### Key Themes

<table>
<thead>
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<th>Significant barriers to accessing information</th>
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<tbody>
<tr>
<td>Lack of data integration—need to access multiple systems</td>
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<tr>
<td>Significant manual effort required to get needed data</td>
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<tr>
<td>Lack of trust in the data</td>
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<tr>
<td>Need for more timely data</td>
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<tr>
<td>Need for standardization</td>
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<tr>
<td>Lack of accountability</td>
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<tr>
<td>Difficult to turn data into actionable information</td>
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</table>

**Representative Quotes**

- **Voice of the Customer**
  - You question the validity of the data because of the inconsistencies
  - We still aren’t getting the right information to the right person at the right time for care decisions and care delivery
  - If you don’t run it, you don’t believe it
  - We spend about 59 minutes in a meeting talking about why the data is different and only 1 minute on what to do about it
  - I need some real-time tools that are accessible to clinical users
  - So many systems, so much disparate data
  - There are no true owner for data and measures
  - Timeliness is a disaster
  - People have to get over ‘that’s the way we have always done it’ and ‘we are special’
  - There is recognition of a need [to be data-driven], but no tools
  - To make change happen, everyone needs to understand data, not just the data people

- **Call for Action**
  - … getting data is time consuming
  - I ask [X] to pull the data for me

- **Funded Program**
  - Highlig highlights pain points
  - Road map
  - Determine Real ROI

- **Vision and Goals**
  - Determ determine Real ROI

**Himss18** The leading health information and systems event
### Vision

Establish processes that **ensure data assets are effectively managed across** the enterprise

Develop **standards, policies, processes**, guidelines, framework and technology for **management, use, distribution and protection** of enterprise data and **compliance** with standards and policies

**Standardize** and oversee how **data** is processed, prioritized, and continually verified

### Goals

Provide data that is:
- **Consistent** – One enterprise-wide definition
- **Accurate** – Correctly represents underlying process
- **Timely** – Available to authorized users when needed
- **Accessible** – Easy to find, understand and use
- **Actionable** – Relevant to business decisions

Provide **knowledge**, skills, and tools to **enable data-driven decision making** at multiple levels of the organization

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Establish a foundation for Analytic Services and future information-based initiatives and innovations
**Pain Points**

Projects Analytics Team listed as too completed but could say ‘Yes’ to if they had Governance tools

<table>
<thead>
<tr>
<th>EIM Module</th>
<th>Tasks Supported/Benefits</th>
<th>Example</th>
</tr>
</thead>
</table>
| **Data Integration**   | • Shorten development/testing of extract/integration programs so DW and other teams can spend less time developing, more time analyzing  
                        • EIM is for Batch/ as HL7 is to Clinical                                                                                                                                                                           | PICIS Integration to NHSN Integration to EPSI and other 3PA Systems                                |
| **Master Data Management** | • Integrate med staff and community provider data from IP & Amb credentialing systems, MEDITECH instances, Allscripts, and Allscripts Home Health and publish a ‘golden record’ to Portal and Explorys  
                        • Integrate list of payors/payor types across contracting, MEDITECH instances, IDX, and Allscripts Home Health | Managing IPC’s is manual process where an Excel list is sent to Each Org, HH, IDX, ETC. hoping they will be integrated. |
| **Data Quality**        | • Publish a dashboard of data quality metrics to proactively identify and resolve problems  
                        • Setup business rules to identify when # of encounters changes by X% at any location and alert the data steward of the potential issue                                                                 | 1) CPT, POA, Complication Rates, - Providers DOC?  
                                                                                           2) Admission Types, Charge Cost Ratio’s – Staff Complete Charges?  
                                                                                           3) Reduction in RAD Reports – Interface Breaks                                                            |
## Pain Points

Projects Analytics Team listed as too completed but could say ‘Yes’ to if they had Governance tools.

<table>
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<tr>
<th>EIM Module</th>
<th>Tasks Supported/Benefits</th>
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</tr>
</thead>
</table>
| Metadata Management         | • Provide a glossary to business users with metric/field definitions and lineage showing the source  
• Do an impact analysis of downstream impact to Amalga and reports of changes to a MEDITECH field before making the change | Measures: Readmit, CPOE, MU, Central Line Days, NHSN, Pressure Ulcer Progression, Census, Surgical Procedures, Algorithms: LACE, Adjusted Pt Days  
DIAG Groups: CHF, SEPSIS, AIM, Chief Complaint, Surgery pt, Obs Pts |
| Terminology/Ontology Services | • Translation of ICD9 to ICD10 codes to plan for the transition and for retrospective reporting of trends after the change over  
• Translation between LOINC, SNOMED, CPT, ICD codes for regulatory & quality reporting | Glucose tests, Critical Care Day, Lactose, Antibiotics, pressure ulcers, Social Risk Factors, Positive Culture, OR Charges. OBS ADMIT Order |
Most Common Road Map

- Prioritize Reporting Demand
- Master Data
- Data Glossary/Skills Assessment
- Oversight Committee for Reporting
- KPI standardization

ROI Driven Road Map

- Master Data
- Expand Reach
- Prioritize Domains
- KPI Standardization/Data Glossary
- MDM/Reference Data
- Data Literacy
- Oversight Committee for Analytics
Road Map

**Phase 0: FY13-14**
- Interviews
- *strategy
- *tool set selection
- *Defined requirements for first two projects
- *Proposed org structure and process
- *Documented current state information architecture
- *Data Literacy

**Phase 1: FY15**
- *Focused pilots (JIT involvement of business)
- **Narrow scope Provider/EMPI**
- *Technical infrastructure
- *Lean exec oversight – IT/ Strategy Owner
- *Global codes in EDW’s
- *Data Literacy

**Phase 2: FY16**
- *Operational rollout
- *Streamline Global codes (Reference Data)
- *Broader scope within same data domains, downstream consumption
- *Business assumes data stewardship
- *Slightly broader exec oversight – IT and Data Owners
- *Data Literacy

**Phase 3: Mature**
- *DG is part of business operations
- **Reference Data across all analytics/Reporting
- *Additional data domains and problems
- *Mature DG organization (with Analytics Governing Council, Data Standards workgroup)
- *Data Literacy
- **Data Glossary

Define Scope, strategy, fund

Scope of data problems to be solved is narrow; DG can’t be solely a “complaint forum”

As scope is broadened, exec oversight required to make prioritization decisions and to enforce accountability

Data governance becomes embedded into operational processes
Analytics 30 Program: Domain Training and Documentation

• 2X per month 30 Min Education Webinars

• Each Analyst required to complete 4 year - part of Performance Review
  – Documentation
  – Engagement with Knowledge worker community
  – Increased Adoption
  – Expanding Knowledge Base
  – Career Growth (Speaking, Data Literary, and story telling)

Various subjects (100 + to date)
Lens of the Consumer (Domain Solution Lists)
Data Domains & Data use
Complicated Report Review (Bundle compliance)

New Solution Review
  New Data Source, Dashboards
Special topics:
  Upgrades, ICD 10, MU, etc.
Report Request Process

Report Request
• “I would like a report of Sepsis patients and timeliness Admit Orders”

Spec Design
• What do you mean by Sepsis
• What Orders do you want to include

Report Build
• Hard code sepsis ICD – 10 codes
• Hard Code Admit Order codes
Report Request Process

Report Request
- “I would like a report of Sepsis patients and timeliness Admit Orders”

Spec Design
- What do you mean by Sepsis
- What Orders do you want to include

Report Build
- Hard code sepsis ICD – 10 codes
- Hard Code Admit Order codes

Why do we ask the end user to define Data Cohorts
Most users
- Don’t know the answer
- Don’t want to review 1000’s of codes to determine their version
- They are looking for our expertise
Report Request Process

**Report Request**
- “I would like a report of Sepsis patients and timeliness Admit Orders”

**Spec Design**
- Review Standards

**Report Build**
- Reference standard Sepsis Cohort
- Reference Standard Order set

Start with Standard Data Cohorts
This can start from current know best practice
- National and state standards Code Sets
- Commonly used definitions used by local knowledge workers
- Create visibility and transition ownership of definition to business

Goal: create trust, reduce variation, speed delivery
Measure: number Analytics solutions using referenced standards

Reference Data Can be created without Data Governance tools
- Started with adding Fields in EDW with .net web page for data owners to map new data values
- Later move reference data to Data Governance Platform and send to downstream applications

❖ More important to expand adoption and reach vs which platform is used
Identify the “Call for Action/ ROI”

<table>
<thead>
<tr>
<th>Clean Up: Clean up $100 per Account</th>
<th>$ Delayed/Denied Claims</th>
<th>TAT: Duplicate/Delayed Tests</th>
<th>Clinical: Medical Errors</th>
</tr>
</thead>
</table>
| • 1.2 M – ETA 36 weeks to clean up Duplicates, Linkages and Wrong SSN | • 6.4 Million in Accrual to place unknown payments | • 19% of Accounts are orphaned  
• 2% have Orders  
• 31% are completed  
• ~7.5M / ~250K/year | • Metric TBD  
• Overlays can result in procedures on wrong patient  
• Missed allergies can cause medication reaction |

**Registration Process**
- Missing Core Patient Identifiers
- Wrong Patient Identified
- Prior Visit Selected

**Downstream Impact**
- Clinical: Medical Errors
- TAT: Duplicate/Delayed Tests
- $ Delayed/Denied Claims
- Cost: $100 /Account Decreased Trust

**TAT: Duplicate/Delayed Tests**
- ETA 36 weeks to clean up Duplicates, Linkages and Wrong SSN
- 6.4 Million in Accrual to place unknown payments
- 19% of Accounts are orphaned
- 2% have Orders
- 31% are completed
- ~7.5M / ~250K/year
Pt Identity – Close the loop
Data Quality Scorecard & Operational Dashboard

Goal: Improve patient outcomes, increase patient safety

Measure of Success: reducing the number of potential overlays and duplicates created by Registration Staff.
Accomplishment
Patient Identity - inputs
Accomplishment – Patient Identity

- eMPI currently integrated with 18+ sources across ministries with 10 million records
- Enterprise rollout of Duplicate dashboard to HIM, PAS and other critical business areas
- 86% decrease in duplicates, Stable duplicate reduction over last 2 years
- Enterprise policies implemented
- Consensus reached on duplicate reduction 10%
- Goal is to reach industry best in class < 1%

**Average clean-up cost per duplicate account is $100 !!!**
### Provider the “Call for Action/ ROI”

<table>
<thead>
<tr>
<th>Clean Up: Duplicates Decreased Trust in Data</th>
<th>Compliance: Failure to Sign Orders</th>
<th>Workflow: Orders and Results go to wrong MD</th>
<th>Attribution: Wrong MD Attached to Pt (Quality and Break the Glass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>21% of providers have at least one error</td>
<td>10% H&amp;P not Signed</td>
<td>.9% MD’s had 1.3% orders &gt; 2600 in 6 months</td>
<td>&gt;2700 monthly visits with invalid Attending MD</td>
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</tbody>
</table>

#### Credentialing / Dictionary
- Missing Core MD Identifiers
- Wrong MD Identified
- Duplicate MD Accounts

#### Downstream Impact
- Attribution: Wrong MD Attached to Pt (Quality and Break the Glass)
- Workflow: Orders and Results go to wrong MD
- Compliance: Failure to Sign Orders
- Clean Up! Duplicates Decreased Trust in Data
### Provider Data Quality Error Volumes

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Provider Quality Score

### BVT Score

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<td>0.66%</td>
<td>0.79%</td>
<td>0.20%</td>
<td>6.10%</td>
<td>12.86%</td>
<td>78.94%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Others</td>
<td>3.16%</td>
<td>1.69%</td>
<td>4.85%</td>
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### GR Score

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</tbody>
</table>

### Best Version of Truth (BVT) Score

- If at least one attribute value passes DQ test, it gets 100% score for that attribute. Not required to have all attribute values to pass to get 100% score.

### Golden Record (GR) Score

- All attributes and every value needs to be passed to attain (100%) attribute score.
KPI Standardization

• Standard Metrics
  – One piece: screening …
  – One piece: ACO population …
  – One piece: age group …
  – Remove: diagnosis …
  – Remove: hospice patients …
  = Cancer Screening Metric

• Prepackage Standard Metrics
  – Operating Commitments
  – MSSP

Prior work in Reference Data enables/Jump starts KPI Standardization
Common Pit Falls

Starting too early:
- Knowledge worker staff spend value time entering data definitions that are rarely looked at

Expanding too fast:
- When staff enter too much Meta data manually, knowledge worker staff get fatigue and disengage when adoption is low by high

Heavily dependent on Manual Data Entry:
- Work effect for reference data, is not sustainable

ROI Approach

Create window to reference data.
- A view of reference data, allows users gain understanding of Cohorts and does not create additional work. By ensuring that reference data is used in operational reporting System Build changes will be sure to be incorporated

Document Strategic and broadly used KPI’s
- that have been standardized only

Workflow
- Ensure tool is linked to analytics solutions

Automate Report inventory list/ elements and audit logs.
- Most reporting platforms have Metadata feeds that allow report search functions.
Accountability and Customer Responsibilities

Tools
Goal: Create methods to determine customer Buy-in
Measure of Success: Reduction in # reports run 5 of less times

Search Tool - Allows users and Tech team to determine
- Use of analytics
- Availability – Menus
- Meta Data – Fields, Formula’s, Limited lineage

On our Intranet: By User, By Analytic, Last run date
- Adding more all the time/ Programmed vs user maintained

Before any new request is completed complete search for current content, usage

Adoption: Reporting and Analytics
15% are never used
40% are used 5 or less times
myHiway.....for a unified experience
## Data Governance Overview and Functional Description

### OVERSIGHT
- **Senior-level group that can prioritize across DG projects**
  - Analytics Governance Council
  - New Exec Sponsor to come from Business. DGC to serve as forum for escalation.

### OWN
- **Has overall accountability for data in his or her subject area**
  - Data Owners
  - Accountable for data quality, adherence to standards, and access to information

### CONSULT
- **Knowledgeable and respected in business domain**
  - Data Steward/Business Liaison
  - Originally reports to DGM; could eventually report to business
  - Focus group or collaborative
  - Form network of data, application, and analytics stewards
  - Work groups: pilots
  - Subgroups formed as needed.
  - Work groups: Policy, Standards, etc.
  - Analytics Stewards know the rules surrounding consumption; Application Stewards understand the source systems
  - Application Stewards
  - Analytics Stewards

### DATA SUPPORT
- **Policy and process support and technical work required to support data governance objectives**
  - Data Governance Manager/EIM IT team
  - Dedicated team of analysts and developers using Informatica tools

---
Data Governance - EIM Program

DG steering committee and collaborative owners

Data Domain Owners + Data Advisors

Analytics Governing Council

Data Governance IT support team

Collaborative | Patient
DATA OWNER: HIM/RCS

- Policy work group
- Standards work group
- Analytics work group
- Data Stewards
- Application Stewards
- Analytics Stewards

Collaborative | Provider
DATA OWNER: CMIO

- Policy work group
- Standards work group
- Analytics work group
- Data Stewards
- Application Stewards
- Analytics Stewards

Collaborative | Payer
DATA OWNER: VP RCS

- Policy work group
- Standards work group
- Analytics work group
- Data Stewards
- Application Stewards
- Analytics Stewards

Collaborative | Reference Data
DATA OWNER: Manager KPI

- Policy work group
- Standards work group
- Analytics work group
- Data Stewards
- Application Stewards
- Analytics Stewards

DG | MDM | ETL | Metadata | Policy
Analytics Governing Council Charter

• Partner with all analytics teams across the enterprise to prioritize and align analytics initiatives with strategic and operational priorities
  - Guide decisions on the Analytics Portfolio (projects and solutions)
  - Prioritize initiatives for the Analytics Roadmap
  - Scope: analytics initiatives with cross-disciplinary uses and/or cross-regional scope and/or that support PSJH strategic and operational goals
    - Initial focus: initiatives requiring HI &/or CCPH resources
• Consult on and provide direction for key analytics initiatives
  - Provide visibility into analytics initiatives across the organization – what is available, status of in-flight initiatives
  - Connect resources from various initiatives when there are opportunities for collaboration or efficiencies
  - Provide an escalation point for concerns for Resource contention
  - Advise on addressing organizational barriers to position initiatives for success

• Provide direction and oversight of a comprehensive Information Governance Program
  - Pending merger, guide data & analytics strategy and structure
  - Advocate for data quality and use of capabilities in the analytics information management portfolio
  - Oversight of Data Standards Workgroup (DSW), tasked with definition of data owners, information lifecycle management
  - Oversight of the Master and Reference Data Management & Data Quality Management
  - Connect analytics with DSW for support on enterprise data standards work including dissemination/adoption of established enterprise data standards
  - Provide Updates on current and Expansion of Master data Management programs

• Communicate with peers and staff about data and analytics
  • Communicate AGC’s Charter and Progress to various Governance bodies
• Define and track metrics of success (KPIs) for this Council
Lessons Learned

MDM
- Access to Source system was hard to get. Provider Credentialing
- Education in business terms took time and Various methods
- Gap between Executive leadership goals and commitment vs Middle Management tactical priorities varied from large to small
- SME’s were missing in payor domain in particular

Governance
- Keep information at forefront for all front line areas (registration Med Staff office).
- Continual education required all Data Stewards and front line staff
- Keep involved key stakeholders and checking in for any perceived issues. Track continual adoption and effectiveness.
- This is not a one time effort, this is ongoing operations

KPI Standardization
- Metric governance requires resilience
- Leadership support for resistant staff
- Sleuth skills to find community requirements and remove duplicate processes
- Usage and Catalog made a huge difference in leadership support
Questions

Kim Jackson | Vice President, Strategy, Products and Governance

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kim.jackson@stjoe.org