24,000,000
I’m Not Sure We All Agree…
<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage Distribution</th>
<th>1 (Most Important)</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6 (Least Important)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Plan defining major tasks associated with the implementation of our program.</td>
<td>50%</td>
<td>20%</td>
<td>15%</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Communications Plan for Executive, Strategic, Tactical and Operational program levels.</td>
<td>50%</td>
<td>20%</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Operating Model of Roles designed to fit into your organization’s culture.</td>
<td>60%</td>
<td>15%</td>
<td>10%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Business Case for Data Governance as offered by the Business Areas of your company.</td>
<td>50%</td>
<td>20%</td>
<td>15%</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Designation of Resources charged with defining and developing your program.</td>
<td>50%</td>
<td>20%</td>
<td>15%</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Management’s Support, Sponsorship and Understanding of Data Governance</td>
<td>90%</td>
<td>5%</td>
<td>10%</td>
<td>10%</td>
<td>5%</td>
<td>0%</td>
<td></td>
</tr>
</tbody>
</table>
Does anyone in healthcare question...

the critical importance of data to enable better health at a lower cost?

that data quality matters when it comes to decision making?

that data has implicit value, just like facilities, people, products, and supplies?
The Triple Aim of Data Governance

1. Ensuring Data **Quality**
   - Data Quality = Completeness × Validity

2. Building Data **Literacy**
   - Hiring and training to become a data-driven organization

3. Maximizing Data **Utilization**
   - Pushing the data-driven agenda to quality improvement, cost reduction, enhanced experience, and population risk reduction

Activity

Select Players

- Player A - Blindfolded
- Player B - Hands tied
- Player C - 1 hand behind back
- Player D - Wooden dowel

Materials

Extra Large

Large

Medium

Small

Player A

Player B

Player C

Player D
Activity

Game Set Up

- Dump washers onto table
- Blindfold player A
- Tie player B’s hands
- Give wooden dowel to player D

How to win

Stack all 40 washers as quickly and neatly as possible
Learning Objectives

- Articulate the benefits of a pragmatic data governance program
- Articulate the elements of a data governance program
- Introduced to key tools and resources to begin a data governance program
Data Governance: Why and What
What’s the Problem?

• We’re data rich but information and knowledge poor!
  • We’re not managing data as a valuable asset
  • No clear source of truth
  • Garbage in, garbage out

“CEOs should be spending as much of their IT budgets on getting data out of systems and using it as they do on getting data into systems.”

Ralph Kimball, an original architect of data warehousing
Round 2

Find as many numbers sequentially, from 1 to 50, in 20 seconds.

On your mark…
Get set…
GO!
Round 3

Find as many numbers sequentially, from 1 to 50, in 20 seconds.

On your mark…

Get set…

GO!
Says Oxford Dictionary

Data:

The quantities, characters, or symbols on which operations are performed by a computer, being stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media.

Govern:

Control, influence, or regulate (a person, action, or course of events)
Says Oxford Dictionary

Data:
The quantities, characters, or symbols on which operations are performed by a computer, being stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media.

Govern:
Control, influence, or regulate (a person, action, or course of events)
"Data Governance is a system of decision rights and accountabilities for information-related processes...."

Data governance for the sake of data governance?
Health Catalyst’s Definition

The **people, processes, & technology** orchestrated to **maximize the value of data** to the organization.
The Triple Aim of Data Governance

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Principles of Data Quality

• Clean data as close to its birth place as possible

• Quality is co-owned by technical and business
  • Data stewardship must be clear and owned by business

• Don’t let perfect get in the way of good enough

• It's OK to have multiple definitions
Once Upon a Time…

Left Ventricular Ejection Fraction

Hypertension documentation
Balance Quality, Literacy, and Utilization with Privacy and Security

- Time-Bound Access
- Overlapping Security and Governance Leadership
- Audited Access
- Emphasis on Data Value

Balance Quality, Literacy, and Utilization with Privacy and Security

- Time-Bound Access
- Overlapping Security and Governance Leadership
- Audited Access
- Emphasis on Data Value
Security AND Governance

Information Security Committee
Constantly pulling for greater data protection

Data Governance Committee
Constantly pulling for broader data access
The Triple Aim of Data Governance

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Agile Round 1 – The Waterfall

1 minute to describe
- Only the clinician can talk
- The Architect cannot look at the drawing (no mind reading)
- The Architect can’t start drawing

1 minute to draw
- Only the clinician can talk
- The Clinician can only watch – no talking
Agile Round 2 – Interactive

2 minutes to describe and draw interactively

- The Architect still cannot look at the drawing (still no mind reading capabilities)
- You can interact as much as you want
- You can erase and redraw
Principles of Data Literacy

- Increase number and sophistication of knowledge workers
- Establish a robust education and training program for knowledge workers and work group leaders
- Establish a culture of data-driven decisions
  - Ask, “What does the data say?”
- Make data visible
Good data governance promotes a culture of data literacy and data-driven decision making.

Focus on the Triple Aim of Data Governance
Data Literacy
Typical Current State

- Knowledge workers = clinical knowledge AND access to tools and data
- Large backlogs of analytic/report requests
Data Literacy
Desired Future State

Increase number of knowledge workers by doing the following:
• Expand data access
• Simplify data structures
• Continue use of naming standards
• Provide better tools

Promote shift in culture by rewarding *process knowledge discovery* rather than punishing outliers
Key Functions to Consider…

**DATA CAPTURE**
- Acquire key data elements
- Assure data quality
- Integrate data capture into operational workflow

**DATA ANALYSIS**
- Interpret data
- Discover new information in the data
- Evaluate data quality

**DATA PROVISIONING**
- Move data into the data warehouse
- Build visualizations for use by clinicians
- Generate external reports (e.g., CMS)

Knowledge Managers (data quality, stewardship and interpretation)
Application Administrators (optimize of source systems)

Data Architects (infrastructure, visualization, analysis, reporting)

Subject Matter Expert
Data Capture
Data Provisioning
Data Analysis
## Data: A Corporate Asset

<table>
<thead>
<tr>
<th>Corporate Governance</th>
<th>Asset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance Committee</td>
<td>$$</td>
</tr>
<tr>
<td>Human Resources</td>
<td>People</td>
</tr>
<tr>
<td>Facilities Committee</td>
<td>Brick &amp; mortar</td>
</tr>
<tr>
<td>Marketing</td>
<td>Brand</td>
</tr>
<tr>
<td>Data Governance Committee</td>
<td>Data</td>
</tr>
</tbody>
</table>
Primary Care Physicians want data

- “Where’s the data?”

“We need more Kates”

- Data mature organizations have 10s or 100s (depending on size of organization)
“I told you I wasn’t a hunter gather. I’m an analyst!”
The Triple Aim of Data Governance

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Principles of Data Utilization

• Treat data utilization as a “small business”
• Error on the side of MORE access
• One tool will NOT rule them all
  • Ad hoc, canned reports, analytical apps (e.g., dashboards)
• Form an Analytics User Group
Keys to Analytic Success

The Data Governance function should be a driving force in all three...

- **Mindset**: Building a “data driven” culture
- **Skillset**: Actively growing data literacy among employees
- **Toolset**: Choose the right tool(s) to support analytics and data governance
Democratize the Data...
Once Upon a Time…

“Treat analytics like a small business”
Question

How would you rate data governance effectiveness in your organization?

- 5 – Very effective
- 4
- 3
- 2
- 1 - Ineffective
Data Governance
More about the What/Why
### Healthcare Analytics Adoption Model

© Sanders, Protti, Burton, 2013

<table>
<thead>
<tr>
<th>Level</th>
<th>Technology Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 8</td>
<td>Personalized Medicine &amp; Prescriptive Analytics</td>
<td>Tailoring patient care based on population outcomes and genomic data. Fee-for-quality rewards health maintenance.</td>
</tr>
<tr>
<td>Level 7</td>
<td>Clinical Risk Intervention &amp; Predictive Analytics</td>
<td>Organizational processes for intervention are supported with predictive risk models. Fee-for-quality includes fixed per capita payment.</td>
</tr>
<tr>
<td>Level 6</td>
<td>Population Health Management &amp; Suggestive Analytics</td>
<td>Tailoring patient care based on population metrics. Fee-for-quality includes bundled per case payment.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Automated External Reporting</td>
<td>Efficient, consistent production of reports &amp; adaptability to changing requirements.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Automated Internal Reporting</td>
<td>Efficient, consistent production of reports &amp; widespread availability in the organization.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Standardized Vocabulary &amp; Patient Registries</td>
<td>Relating and organizing the core data content.</td>
</tr>
<tr>
<td>Level 1</td>
<td>Enterprise Data Warehouse</td>
<td>Collecting and integrating the core data content.</td>
</tr>
<tr>
<td>Level 0</td>
<td>Fragmented Point Solutions</td>
<td>Inefficient, inconsistent versions of the truth. Cumbersome internal and external reporting.</td>
</tr>
</tbody>
</table>
What Data Are We Governing?

1. Billing data
2. Lab data
3. Imaging data
4. Inpatient EMR data
5. Outpatient EMR data
6. Claims Data
7. HIE Data
8. **Detailed cost accounting**
9. Bedside monitoring data
10. External pharmacy data
11. Familial data
12. Home monitoring data
13. **Patient reported outcomes data**
14. Long term care facility data
15. Genomic data
16. Real-time 7x24 biometric monitoring for all patients in the ACO

Not currently being addressed by vendors
Business Owners Are the Primary Data Stewards

Reinforce the (global) data-governance principles.

Enable a two-way communication for data governance practices:

- Receive and promote best practices from the Data Governance Committee (DGC) and data-steward community to the front lines.
- Refine these and other practices and report enhancements, innovations, and pitfalls back up to the DGC and data-steward community.

“Those who know the data best should help govern.”
The Data Governance Layers

- Executive & Board Leadership
- Data Governance Committee
- Data Stewards
- IT
- Data Sources

Happy Data Analyst
Who is the Data Governance Committee?

- **QI/Analytics Leader**: Representing the analytics customers
- **IT Leader**: The systems and data technologist
- **Medical and Ops Leader**: The clinical data owners
- **Finance Leader**: The financial, revenue and expense data owner
- **EHR/Health IT Leader**: The clinical data technologist
Establish These Principles, Early

In principle, how are you going to minimize the reporting and analytic overlap?

Avoid turf battles and leverage the strengths of each system.
Data Governance in the Organization

ACCESSIBILITY & BUDGETING TEAM (Annual Planning)
- Budgeting for licenses, new BI tools, manage vendor contracts related to data capture, quality, and exploitation

DATA STEWARDS (clinical, financial, & operational)
- Access, security, auditing, quality, and domain knowledge per subject area

Guidance Teams
- Supporting outcomes improvement work SMEs and data stewards permanently assigned to Guidance Teams

Content and Analytics Team
- Nonclinical data stewardship
- Clinical data stewardship

Nonclinical data stewardship
- Clinical data stewardship
Tactical Data Governance: How?
Principles of Data Governance

• Quality, literacy, and utilization AND privacy and security

• Data are a corporate asset

• Business owners are the primary data stewards

• Govern data to the least extent necessary

• Govern no data until it is time

• Data governance should be consistent, but not fanatical
Keys to Analytic Success

The Data Governance function should be a driving force in all three...

- **Mindset**: Building a “data driven” culture
- **Skillset**: Actively growing data literacy among employees
- **Toolset**: Choose the right tool(s) to support analytics and data governance
Data Governance Should Be Consistent, but Not Fanatical
Govern As Little and As Late As Responsible

Some Criteria:

- Are the data elements **pervasive** and **persistent**?
- Is their standardization and consistency **urgent**?
- Is the local organization ready to support governance here?

“Govern no data until it is time.”

- Dale Sanders, Senior Vice President, Health Catalyst
Data Governance Cultures

CULTURES IN DATA GOVERNANCE

- Authoritarian
- Tribal
- Democratic
Qualities of Fragmented Governance

Not enough data governance

- Completely decentralized, uncoordinated data analysis resources
- Inconsistent analytic results
- Poor data quality
- No mechanism to address data quality problems
- Inability to respond to new use cases and requirements
Qualities of Authoritarian Governance

Too much data governance

- Unhappy data analysts... and their customers
- Everything takes too long
  - Loading new data
  - Making changes to data models to support new use cases
  - Getting access to data
  - Resolving data quality problems
  - Developing new reports and analyses
Qualities of Democratic Governance

Centralized decision making

- Elected or appointed, centralized representatives
- Majority rules

Decentralized decision making

- Direct voting and participation, locally
- Everyone is expected to participate in developing shared values, rules, and laws; then abide by them and act accordingly
Question

What best describes the current state of affairs for data governance in your organization?

- Authoritarian
- Democratic
- Fragmented
What Does It Look Like?

“Goldilocks” (just-right) data governance

- Pragmatic processes to resolve data quality issues exist that involve all stakeholders in the data chain.
- Mechanisms are in place to develop approaches to new data use cases.
- Sensitive data are protected but unconstrained exploration of the EDW is encouraged and supported.
- Regular successes from leveraging the data are achieved.
- A data-driven culture evolves in the organization and becomes the standard for decision making.
Common Pitfalls

Wandering: Lacking direction and experience

- “We know we need data governance, but we don’t know how to go about it.”

Technical Overkill: An overly passionate and inexperienced IT person leads the committee

- Can’t see the forest for the trees.
- Encourages micromanagement; for example, she may ask executives on the Data Governance Committee (DGC) to define naming conventions and data types for a database column and other details protection.
Common Pitfalls Continued

Politics: Members of the DGC are passive aggressive, narrowly motivated, data poseurs

- They pretend to be data driven but make it difficult to access data appropriately.
- They get territorial about “their” data.
- Their attitude may be “that person isn’t smart enough to use my data properly.”

Red Tape: Committee members are not governors of the data, they are bureaucrats

- They impose red-tape processes for accessing data.
- They confuse data governance with data protection.
Poll Question

Your organization’s biggest risks to the success of the Data Governance Committee?

- Wandering
- Technical Overkill
- Politics
- Red Tape
- Other
Okay. Now, how do we get started?
Phases of Data Governance

Phase 1: Data driven culture
Phase 2: Data access
Phase 3: Data stewardship
Phase 4: Data quality
Phase 5: Data utilization
Phase 6: Data acquisition
# Data Governance Roadmap

## Short Term
- Fill key roles (i.e. Data Stewards)
- Select a family of measures, program, or KPIs to build governance processes
- Define data strategy, standards and processes

## Mid Term
- Establish a Data Quality Response plan
- Establish a prioritization system for data and information requests
- Align work groups with leadership accountability

## Long Term
- Ongoing policy implementation
  - Validation
  - Proactive quality audits
  - Data Steward audit reports
  - Time bound access
A Few Lessons Learned…

• Establish a common language
• Clearly define boundaries
• Don’t try to “boil the ocean” – Focus on the core data elements
• Democratize Data Quality – within guardrails
• Don’t wait for data to be perfect to expose
• Robust data governance and operations governance overlap
• Be patient. This is a marathon, not a sprint
In Conclusion

Practice democratic data governance
- Find the balance between central and decentralized governance
- Federal vs. States’ rights is a good metaphor

The Triple Aim of Data Governance
- Data Quality, Data Literacy, and Data Utilization

Analytics gives data governance something to govern
- Start within your current scope of influence and data, then grow from there