Data Driven Decisions

Identifying, Managing, and Communicating Data
Scott Nelson – Health Informatics Data Analyst at PACE-RI
About PACE-RI

- Founded in 2005
- Serve entire state* (1.1M)
- 338 participants @ 3 locations
- 120 staff
- $25M in revenue
- State agency relationship = favorable
Objectives

• Participants will be able to identify sources of data and decide on the best practices for managing them.

• Participants will be able to develop their own data comic.

• Participants will be able to determine if they need a data dashboard and recognize the different paths to developing one.
What Does It Mean to be “Data-Driven”?

Data-driven decision making is simply the process of making organizational decisions based on actual data, instead of intuition or observations alone.
Becoming Data Driven and Creating Data Projects

• Define What You are Looking to Achieve
• Assemble a Team to Meet the Goal
• Identify Data
• Manage, Clean, and Organize Data
• Present and Distribute Insights
Define What You are Looking to Achieve

• At PACE Organization of Rhode Island our goal was to develop a reliable system for collecting, managing and displaying data.

• We decided this system needed to:
  • Ensure data was accurate and valid
  • Embed data collection and management into the organization workflow
  • Continuously be updated with new data
  • Be easily accessed by managers
Reasons to Build a Dashboard

Data Access and Transparency

Improved Decision Making

Accountability
Should You Build a Dashboard?

- If one or all these reasons sound beneficial to your organization - it’s time to build a dashboard!
Assemble a Team to Meet the Goal

- One person cannot sort through all your data by themselves.
- PACE-RI formed the Lead by Data Committee consisting of managers and staff from all departments.
Defining the Team’s Goals

- **Lead by Data Goals**
  - Identify the value of data based upon its key purposes to the Organization.
  - Identify the sources of data as well as who owns it and how we access it.
  - Develop specific maps for departments, committees and other projects in terms of standards and a process for managing data.
  - Creation of a system and policies for delivering an organization-wide master dashboard.
Identifying Data

• Your organization is already collecting a lot of data.
• Some of the data sources we identified:
  • Electronic Health Record
  • HR Software
  • Financial & Accounting Software
  • Team members collecting data in their own grids
Identifying Data

• Organizing all the data you have can be overwhelming.
• This can end up being a barrier for many organizations and can result in data being collected, but never analyzed.

When this happens, you are missing out on key insights that can empower everyone in the organization.
Organizing Data

• There is no easy way to do this!
  • Instead of trying to tackle all your data at once, start by identifying the data most useful to your end goal.

• The committee completed an iterative process to identify all data points related to our goal.

Our initial grid had over 70 data points. That’s too many!
Organizing Data (an example of a data point)

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Data Point</th>
<th>Comments/Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment/Disenrollment</td>
<td>Number of Enrollments</td>
<td>Marketing Report, HPMS Reportable</td>
</tr>
</tbody>
</table>
Where is the Data?

• Once we identified all the data points, we added the source of each data point to the spreadsheet.

• Where does this data come from?
  • The EHR
  • An outside source
  • Someone’s excel grid
  • An email chain
### Where is the Data? (an example of a data point)

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Data Point</th>
<th>Comments/Other</th>
<th>Source of Data to Date</th>
<th>Owner</th>
<th>Disseminator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment/Disenrollment</td>
<td>Number of Enrollments</td>
<td>Marketing Report, HPMS Reportable</td>
<td>Cognify</td>
<td>VP Intake/Enrollment</td>
<td>VP Intake/Enrollment</td>
</tr>
</tbody>
</table>
Is All the Data Useful?

• Cut down the list to only the indicators you’ve determined will help you achieve your goal:
  • Does the data make us smarter and more informed?
  • Is the data readily available?
  • Does the data aid in decision making? Does it tell you if you’re doing a good job?

We ended with 35 data points, a vast improvement from where we started!
Is All the Data Useful? (an example of a data point)

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Data Point</th>
<th>Comments/Other</th>
<th>Source of Data</th>
<th>Owner</th>
<th>Disseminator</th>
<th>Value/Purpose</th>
<th>On Dashboard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment/Disenrollment</td>
<td>Number of Enrollments</td>
<td>Marketing Report, HPMS Reportable</td>
<td>Cognify</td>
<td>VP Intake/Enroll</td>
<td>VP Intake/Enroll</td>
<td>Financial Decisions/Budget, Staffing, Growth Progress</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Managing the Data

• Is your data stored in a place that is most useful to you?
  • Could some of the information captured in private or shared excel files be better captured in the EHR or other software?

• Most data points were being captured in our EHR. However:

  There is no way for the EHR to interface directly with the dashboard.
Working Around the EHR

- We decided to download the data using the available EHR reports and store the data in our own SQL database.

This allowed the dashboard display to read our EHR data in a consistent manner.

*There a lot of different ways to do this and it could depend on the technical skill of the person managing your data and the end goal of your project.*
Design the Dashboard

• Get feedback from all stakeholders (users)
  • How should the data should be displayed?
  • What format would be most useful?
• Check back often during the design process.
Present and Distribute the Insights – the Dashboard

• The dashboard was built using:
  • SQL
  • python,
  • dash

• The dashboard is hosted on an internal server, making it accessible only inside our network and with a username/password.

• Reasons for choosing this method;
  • Cost Effective (uses open source languages and packages)
  • Complete Customization
  • Personal comfort with the programming language
Other Dashboard Options

• Excel Spreadsheets
  • Ensure someone is responsible for updating the information.
  • Create charts and summarization tables in the files.

• Available Software
  • Looker
  • Tableau
  • Microsoft PowerBI
PACE-RI Dashboard

Average Age: 76.15
Average PACE Yrs: 4.08
Attending DC: 260
% Non-English: 36.83
% Non-White: 49.62
% Dual: 90.54

Acuity: WIP
% Dementia Dx: 41.69
% BH Dx: 69.05
Pneumo Vac.: 88
Flu Vac.: 92

Race/Ethnicity by Quarter
- Caucasian/White
- African American/Black
- Hispanic or Latino

Map of Pts
Pts by Town
Dashboard Use

- Has allowed managers to seek out answers to questions without waiting for a response from the data analyst.
- Surveillance indictors are updated more often and easier to access.
- Provides insight on data points staff has not previously considered.
A dashboard will not and should not cover everything!

- You will need other ways to share relevant data with staff.
  - The implementation of most data projects follow very similar workflows.

- We wanted a better way to share the updates and results from our Quality Committee.

  Our solution? A Quality Data Comic!
The initial idea for this comic came from our CEO. To bring that vision to fruition, we needed to bring together story telling, data visualization, and art direction.

Our Team:

- Data Analyst
- Quality & Regulatory Specialist
- Marketing Project Lead
The team with the guidance of our CEO and Chief of Marketing & Development decided on the quality studies to highlight for our staff:

- Falls Surveillance
- Employee Retention
- Animal Like Robot Pets
- Social Determinants
Get Creative

• For each comic, we wanted to create characters that represent each discipline in our organization.

• Some of our characters:
  • Dr DoGood
  • Digit the Data Dog
  • Rubber Rehabilitator
  • The Transporter
  • Power Nurse
  • Captain Creativity
Present and Distribute the Insights – the Data Comic

• The comic is distributed every six weeks in our weekly newsletter - Guess What.

• So far, each comic has introduced a new character, each working on their own unique QI initiative.

As we continue to introduce characters, we will begin tying them together to best represent the interdisciplinary approach with which PACE solves problems.
Data Comics – Avoidable Pain Related ER Visits
Data Comics – Transportation Grievances
Data Comics – Falls Surveillance

Rubber Rehabilitator

Physical Therapist by Day
And Rubber Rehabilitator by Night, Our Hero Stretches Her Mind and Body to Tackle Tough Problems!

By being proactive and remaining vigilant, our heroes can identify new participants with a high fall risk at the time of enrollment.

Falls per 100 Participants

Rubber Rehabilitator is poised to be an amazing addition to the interdisciplinary team. We don’t need to stretch ourselves thinner anymore!

Thanks to Rubber Rehabilitator and the rest of our super interdisciplinary Pace Team, we have seen:
- 85% falls per 100 participants;
- Getting closer to our goal of 10 falls per 1000!
- 70% of our participants did not fall at all this quarter;
- A drop of fall-related injuries and ER visits.
• After the dashboard and data comic had been available for review, we solicited feedback from staff.
  • Meetings with managers were scheduled for input on the dashboard.
  • The data analyst also checks the usage logs to look at actual usage.
  • For the data comic we plan to implement a survey to measure how the staff views the comic and if they are finding it useful.
Reiterate Through the Process!

• The original dashboard was useful but did not provide a way for managers to quickly glance at important indicators.
  • This feedback allowed the data analyst to better consider the use of the dashboard and consider better methods of displaying key indicators.
Review

- Define What You are Looking to Achieve
  - Create a system to allow managers to easily access accurate data that can be used to make informed decisions.
  - Create a method for distributing Quality Improvement information to staff in an engaging and understandable way.

- Assemble a Team to Meet the Goal
  - Who decides what data is useful for decision making? Who will design, build, and maintain the dashboard?
  - Who will provide the data for the comic? Who is best suited to explain quality initiatives? Who can create compelling art and stories?

- Identify Data Sources
  - What data points are useful for making decisions?
  - What quality initiative will be most impactful in comic form?

- Manage, Clean, and Organize Data
  - Who collects the data? Who is responsible for pulling the data? Where does the data live?
  - Who is collecting the information for the comic? Who is responsible for creating and distributing the comic?

- Present and Distribute Insights
  - How will the dashboard be accessible and who has access?
  - How and when is the comic distributed?
Questions and Comments

Scott Nelson
Health Informatics Data Analyst
snelson@pace-ri.org