Putting the Building Blocks in Place for Effective Predictive Analytics at a Healthcare Organization

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Agenda

• Background and Key Objectives
• Setting the Foundation for Data and Analytics Transformation
• Lessons Learned Across Governance, Value Discovery, Information Management, EDW, Analytics Organization, and Change Management
• Value Realization
• Setting Expectations for the Future
Learning Objectives

• Recognize the changing data and analytics requirements faced by healthcare providers with health plans

• Analyze a new seven-step data and analytics operating model

• Appraise the integration challenges a data and analytics transformation represents in a joint payer/provider organization

• Evaluate experience-based recommendations for staging a successful data and analytics transformation in a complex digital environment

• Assess the benefits an end-to-end data and analytics transformation can deliver
Presbyterian Healthcare Services had made several strategic technology investments
• Facets - Health plan operations (e.g. claims processing)
• Cactus - Provider credentialing
• Epic – EMR

Proliferation of data and new applications
• Clinical encounters, physician profiles, membership data, claims, cost accounting, etc.
• Data rich, information poor: Lots of data without any actionable information

Strategic need to differentiate
• Budgeted care, outcome-driven clinical excellence, other industries more advanced in data and analytics
• PHS needed to optimize the electronic data and information it was capturing

The solution? A data and analytics strategy that would achieve the Triple Aim and serve a philosophy of One Presbyterian
What is the Vision for Analytics at PHS?

**Macro View:**

<table>
<thead>
<tr>
<th>Enterprise Focus</th>
<th>Leadership Driven</th>
<th>Analytics Culture</th>
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<tbody>
<tr>
<td>Comprehensive analytics approach</td>
<td>Data and Analytics Board Analytics Program Steering Committee Spoke Steering Committees</td>
<td>Promote analyst collaboration via Communities of Practice (CoP)</td>
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**Analytical Talent**

Develop top notch analytical skills in house

**Experimentation**

Create a “test-and-learn” culture by leveraging data

**Long Term Vision**

Commit to competing on analytics for the long haul
What is the Vision for Analytics at PHS?

Micro View:

- **Reporting ➔ Analysis ➔ Analytics**
  - Data to Insights

- **Ad-hoc ➔ Strategic Standard Deliverables**
  - 80/20 to 20/80

- **Data and Report ➔ Collaborative Problem Solving**
  - Partnership

- **Reactive ➔ Proactive**
  - Data Driven Culture

- **Operationalization of Analytics**
  - Leverage insights in operations/workflow

- **ETL ➔ Insights**
  - Efficiency and Work-Life Balance
The “7-fold Path”: A Unique Data and Analytics Operating Model to Guide the Way

- Governance & Sponsorship
  - Value Discovery and Design
  - Information Management
  - Data Warehousing & Architecture
  - Analytics Organization
  - Value Realization

- Change Management

- Management Process
- Core Processes
- Support Process
**Step 1: Governance and Sponsorship - 2015**

**Assuring Stewardship**

<table>
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<tr>
<th>30 milestones set for 2015</th>
<th>Tied directly to performance incentives</th>
<th>90% compliance rate needed for incentive payout</th>
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Milestones included:

- Forming a Board Committee for Data and Analytics
- Embedded Operational Leadership into Analytics Program Steering Committee
- Forming New Strategic Partnerships to Advance Analytic Capabilities

**SUCCESS!**

PHS reached 100% of its 30 individual milestones for 2015

**THE INSIDE SCOOP**

- Enhanced milestones – process vs. outcomes based
- Governance committees are helpful for decision making, but accountability needs to have a single leader
- Need “skin in the game” from operational leadership

**WHAT’S NEXT?**

Changing the milestone framework to Foundational, Efficiency, and Applied milestones
Step 1: Governance and Sponsorship - 2016

Sustaining Stewardship

70 milestones set for 2016

Tied indirectly to performance incentives

Value creation as an organizational focus

Milestones included:

- Board Committee serving as a balance between advisory and governance committee
- Operational Leadership guiding development and delivery of value creation opportunities
- Continue forming New Strategic Partnerships to Advance Analytic Capabilities

SUCCESS!

PHS reached 21/21 milestones for Q1 of 2016 while accomplishing 15/21 milestones for Q2 of 2016

THE INSIDE SCOOP

- Continual review and revision of the milestones is critical to keep up with the changing priorities of the enterprise
- Coordination among work streams is pivotal for analytics success
- Focused and sustainable efforts to engage business stakeholders is essential

WHAT’S NEXT?

Ensure continuous alignment of Analytics Organization milestones to PHS strategic milestones
Step 2: Value Discovery and Design - 2015
A Strategy Anchored in Value

Polled business unit leaders to identify:
• Key business problems
• How analytics can drive the most value for customers and the enterprise

SUCCESS!

THE INSIDE SCOOP
• Focus on incremental and discrete value over broad-sweeping opportunities (e.g. analytics to improve patient activation instead of analytics to improve population health)
• Look for opportunities to leverage existing analytical platforms or cloud solutions to minimize investment while increasing speed-to-value

WHAT’S NEXT?
Continued emphasis on execution and outcome measurement

$300M in identified value
“Quick win” savings
Step 2: Value Discovery and Design - 2016
A Strategy Anchored in Execution

172 Value Creation Opportunities (VCOs) requirements identified
Completed mapping those requirements against various Business Intelligence (BI) tools

SUCCESS!

4 VCOs + 4 organization spokes
172 Enterprise level Business Requirements
65% quick wins + 12% innovation + 13% Under review

THE INSIDE SCOOP
• Clear and Distinct separation of high level business requirements vs. detailed/granular business requirements
• Consider following Crawl-Walk-Run approach as it relates to capability ramp-up

WHAT’S NEXT?
Striking balance between Descriptive reporting/analytics vs. Prescriptive + Predictive analytics
Step 3: Information Management (IM) - 2015
Getting the Infrastructure Right

Analytics prioritization helped define tools, reports, metrics and data that would need to be governed

SUCCESS!
IM governance infrastructure operationalized; optimized investments in analytics tools; integration in support of One Presbyterian; improved completeness and consistency of UCI

THE INSIDE SCOOP
• Transition individual contributor role to full department
• Crawl, walk, and run approach preferred
• Move from homegrown tools to industry standard technology
• Include operational leadership in IM Governance Council

WHAT’S NEXT?
• Implementing data documentation and data quality tools
• Applying metrics governance for the first set of analytics prioritized on the data and analytics roadmap

$3.5 - $6.5M savings through portfolio management
Set up an IM organization
Implemented technology in support of IM governance
Improved Unique Customer Identifier (UCI) data quality
Step 3: Information Management (IM) - 2016
Delivering the Value

SUCCESS!
- Foundational built to value realization
- Addressed scalability and sustainability aspect of infrastructure
- Tools as well as P&P to support data driven culture in place

THE INSIDE SCOOP
- Domain prioritization is the key
- Design a pilot prior to proceeding for enterprise level scalability
- IM governance is an overarching entity and not a stand alone function for maintaining data consistence across the board

WHAT’S NEXT?
Leverage IM governance to support democratization of data, which in turn encourages data literacy across the organization and thus promotes data-driven culture for decision-making
Step 4: Enterprise Data Warehouse - 2015
Emphasis on Integration

Building a technical infrastructure that helps deliver the One Presbyterian vision

SUCCESS!
• Build of new data warehouse underway
• Data loaded in alignment with value creation opportunities

THE INSIDE SCOOP
• Ensure a master data management solution is part of the EDW implementation to minimize “garbage in, garbage out”
• Ensure appropriate level of detailed business requirements before loading the EDW

WHAT’S NEXT?
• Integrating data from high priority source systems into the integrated payer/provider data model
• Identifying bolt-on analytic platforms that align with the data model and roadmap

Cross-enterprise integrated analytics
• For hospitals, clinics, health plans
• Access control

Leveraging tools already in place at PHS
Filling gaps with single-source vendor

Tool suite supporting:
• Data services/data repository
• Data management
• Data discovery
• Analytics
• Information delivery

New integrated data model
Supports needs across PHS delivery system and health plan

Leveraging tools already in place at PHS
Filling gaps with single-source vendor
How to Get to Useable Data for Short Term Value Creation?

Building Blocks and Optimal Path to get us there while simultaneously Delivering the Value

Timeline

Where we are (2016)

Building Blocks

Building Structures

2017-18

2018-19

What will it look like (2019 and On)
Step 4: Enterprise Data Warehouse - 2016
Use Case Driven Built

Value driven data warehouse built

Transition from Atomic data model to Dimensional data model

Use case driven dimensional data model implementation approach to derive value

Rationalize primary data sources and business intelligence tools

Design and implement instantaneous data sharing logic and rules – e.g., Access privileges

SUCCESS!
• Data source prioritization complete
• Data loaded in alignment with Use Case prioritization

THE INSIDE SCOOP
• Leverage Use Case driven data load approach to populate EDW
• Synergize the coexistence of triad (i.e., EDW, EMR and BI tools)

WHAT’S NEXT?
• Integrating data from high priority source systems into the integrated payer/provider data model
• Identifying bolt-on analytic platforms that align with the data model and roadmap
Step 5: Analytics Organization - 2015
Putting PHS on the Map as a Data & Analytics Leader

- Embraced a data-driven decision culture
- Established an organization and leadership structure that supports analytics talent and development

SUCCESS!
Transitioned 25% of staff into the Analytics Organization; expanded data access and outcomes for staff; increased transparency in career development

THE INSIDE SCOOP
- Commit to a decision and over-communicate the intent and rationale for shifting structure
- Know your talent and involve them in the design and transition to the new structure
- Be patient and sensitive to perceived changes in control

WHAT’S NEXT?
In 2016, PHS will be focused on growing the existing and attracting new talent

Implemented a hub-and-spoke org model
Leveraged “Analytics Champions”
Outlined an analytics job family with multiple career tracks

New VP of Data and Analytics plus Hub-and-Spoke leadership
New roles to serve descriptive, prescriptive, and predictive analytic projects
Step 5: Analytics Organization - 2016
Establishing PHS on the Map as a Data & Analytics Leader

• Refine organizational and leadership structure to support analytics talent and development

SUCCESS!
• Completed transition of analytical talent
• CoP operational promoting interaction and providing a forum for analytical talent
• DM model finalized

THE INSIDE SCOOP
• Focus on Change Management efforts
• Define and track CoP accountability for successful integration of knowledge within organization
• Transition Management Team (TMT) feedback is critical

WHAT’S NEXT?
In 2016-17, PHS will be focused on development of knowledge centers
Step 6: Change Management (CM) - 2015
Fostering Socialization and Engagement

Ensuring ongoing communication, socialization, and engagement

SUCCESS!
- Applying interventions based on change readiness survey
- Adoption satisfaction score of 4 out of 5

THE INSIDE SCOOP
- Communication through various channels is the key
- Underscore the importance of change management in various data and analytics work streams
- Ensure appropriate resourcing for change management staff
- Unwavering leadership support around data-driven culture

WHAT’S NEXT?
- Continue interventions
- Embedding change management into operations based on analytical insights

- Change management executive sponsors
- Change management workgroup
- Multi-year change management, training & communication plan
- Intervention toolkit
- Custom communication vehicles
- Involved learning center, marketing & communication, Change management consultant, and HR resources
Step 6: Change Management (CM) - 2016
Fostering Adoption

Ensuring continual and targeted Socialization, Engagement, and Adoption (SEA)

SUCCESS!
• Onboarding Experience
• Training experience

THE INSIDE SCOOP
• Socialization, adoption and engagement plan as it relates to BI tools, IM governance and EDW to be developed early on but to be executed just in time
• CM is a continuous process vs. a one-time event

WHAT’S NEXT?
• Develop and implement knowledge centers
• Promote and support data driven culture

Conduct CM workshop quarterly to assist the transition
Evolution from Onboarding checklist to Onboarding experience
Socialization, adoption and engagement plan for IMG, EDW and BI tools
Targeted training and enablement AO resources
Developed value tracking dashboard
Step 7: Value Realization – 2015/2016
Seeing is Believing

PHS has recognized tangible benefits: Financial, organizational, infrastructural

- $4M - $6M in identified savings through overpayment and predictive analytics
- Improved UCI completeness to 99.4% and consistency to 97.4% across core EMR and claims platforms
- $3.5 - $6.5M in identified savings through portfolio maximization
- Integrated payer/provider data model
- Enhanced palliative care predictive modeling with AUC of .946
- Decreased turn-around time in physician gaps in care dashboard from 1 week to 30 minutes
Analytics to Achieve the Triple Aim

Presbyterian Healthcare Services’ Data and Analytics Program Delivers Broad Benefits

• Technical foundation that is a single source of truth
• Analytics supporting better health, cost leadership and exceptional experience
• Information that is managed as an asset across delivery system, medical group and health plan
• Talent model that drives innovation, integration and engagement across the enterprise and for the patients and communities PHS serves
• Leveraging the principles of change management

Looking Ahead

• Focusing on accelerating value and growing analytic talent, which includes:
  o Leveraging cloud solutions - Enables “quick wins”
  o Setting up R&D Informatics, Integrated Informatics, and Tool & Solution Development teams for the Hub-and-Spoke Analytics Organization
  o Focus on prototyping, predictive modeling, and point-of-care decision making
• Maintaining a disciplined process of data integration into the EDW
• Ensures data integrity and upholds a single source of truth