

# **Leveraging Data to Create Value in Healthcare**

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# **Learning Objectives**

- Why an enterprise data foundation is necessary to become a data-driven organization
- Critical to the success of enterprise data analytics
  - A business driven approach
  - Senior leadership engagement
  - Enterprise healthcare data platform
  - Enterprise data management process
  - Hybrid analytics organization

# St. Luke's University Health Network (SLUHN)

A committed data-driven organization



65,000+ Annual Admissions



14.000 +Employees The region's second largest employer.

1.400 Physicians & Providers Representing more than 100 specialties, 96% board-certified

250.000+ Annual Emergency **Room Visits** 

- Non-profit, fully integrated & nationally recognized health network
- 10 hospitals, 300+ outpatient sites in PA and NJ
- **Repeated IBM Watson's (Truven) Top 100 Hospitals** designation
- HIMSS Stage 7, Multi-year Most Wired recipient
- **CMS 5 Star designation**





St. Luke's is a success story in managing by data.

# Healthcare **IT** News

# St. Luke's tackles value-based care with data warehouse and specialized analytics

http://www.healthcareitnews.com/news/st-lukes-tacklesvalue-based-care-data-warehouse-and-specializedanalytics



#### 2017 Analytics 50 Award Recipient:

http://www.lebow.drexel.edu/faculty-andresearch/centers/business-analytics-solutionscenter/analytics-50/honorees/st-luke-s-university-healthnetwork

# Omni-HealthData St. Luke's Success Story:

https://www.omnihealthdata.com/success-stories/st-lukesuniversity-health-network

## **Food for Thought**

Data needs to become a core healthcare competency

"As much as 30% of the entire world's stored data is generated in the health care industry ... the new value pathways that such data could enable have been estimated by McKinsey to be worth more than \$300 billion annually in reduced costs alone.

However,... the health care industry does not currently appreciate the inherent value of these data, which can only be fully harnessed through better data analytics...

If appropriate investments in data science are not made inhouse, then hospitals and health systems will run the risk of becoming reliant on outsiders....to inform decisions and drive innovation."

> May 2017, Marco D. Huesch, MBBS, PhD & Timothy J. Mosher, MD, Using It or Losing It? The Case for Data Scientists Inside Healthcare, New England Journal of Medicine, https://catalyst.nejm.org/case-data-scientists-inside-health-care/



- EHRs and EDWs both represent advanced technology, each developed to do different things with some overlap
- EDWs integrate and optimize data from many sources, including EHRs
- Leading organizations use both to stay on the cutting edge

#### Benefits of an Enterprise Data Warehouse

- Optimized Data Integration
- Optimized Analytical Modeling
- Efficiency/Agility
- Scalability





## **Current State Reality Check**

Data Scientist or Data Janitor





# In Data Science, 80% of time spent prepare data, 20% of time spent complain about need for prepare data.





- There was no <u>"network-wide" single source of truth</u>
- We needed a patient-centered data repository to support clinical integration.
- We knew managing data as an asset was a strategic advantage
- End-users wanted better, easy to use <u>self-service tools</u>





#### Leverage data to create value

- 1. Understand population needs
- 2. Identify people who need care and get them into the system
- 3. Deliver consistent high quality care
- 4. Know where and why patients use services
- 5. Increase compliance with care recommendations
- 6. Reduce waste and inefficiency
- 7. Increase revenue & market share
- 8. Allocate resources to match market needs
- 9. Succeed under emerging payment models



Program Governance: Stakeholder engagement is key





**18 Month Implementation** 

Agile business driven approach:

#### **Implementation Waves Driven by Business Priorities**

Milestones				м	1		P	/12			N	13		N	/14		N	15	N	Л6
Program Management & Value Capture	Initiate PMO process	itiate Milestone 1 PMO Value Capture rocess Plan			Milestone 2 Value Capture Plan				Milestone 3 Value Capture Plan			Milestone 4 Value Capture Plan			Milestone 5 Value Capture Plan			M6 Value Capture Plan		
Data Governance		• Add • Initi • Sup	iress Pi iate Da port M	riority P ta Stew aster D	Project vardsh vata M	ts (e.g. iip Wo lanage	. Physic rking Gi ment	ian Lis roups	ts)	:			i		1			1	1	
EDW Infrastructure		Set i enviror	up iment	Monitor Performance, Expand Capacity																
EDW Data Integration			Load Allsc Phys Cost	Load STAR, Allscripts, IDX, Physician & Cost Data			Initiate Master Data Management			Load Quality, Health Plan Claims & Epic Encounter Data		Load Payroll & Employee Health Data		Load Epic Lab, Pharmacy, Orders, Scheduling, ED & OR Data		Load Data (TBD)				
Analytics Rollout			Implement Self-Service Tools			Implement Milestone 2 InfoApps			2 Implement 2 Milestone 3 InfoApps			Implement Milestone 4 InfoApps		Implement Milestone 5 InfoApps			M6 InfoApps			
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Insights Enterprise Data Platform

St. Luke's data foundation

**Build Market Share** 



St. Luke's University Health Network



# Data Value Chain

#### How the sausage is made

Access Many Data Sources **Integrate** Cleanse, Link & Harmonize

Enrich Enhance data <u>for analysis</u>

**Model** Algorithms & Frameworks

**Use** Right process, time & place

Value

# Examples

- Address Cleansing
- Harmonized Reference Codes
- Cohort Code Maps
- Data Quality Checks
- Benchmarks
- Geo-location coding
- Golden Records (MDM)
- Classifications

- Medical Terminology
- Organization Structures
- Episode Grouping
- Risk Adjustment
- Metrics Library
- Provider Attribution
- Predictive Models
- BI Applications

# **Master Data Management Process**

Creating golden records for patients, providers, payors & more.



 Data Stewardship

 Engaging stakeholders with a vested interest in good data

"Golden Record"	Source Systems								
The actual record that will be referred to during reporting									
360 Viewer Remediation Data Dictionary Administration		PRIMARY/super_a (Data Sup	ervisor, group.grp 1, System A	dministrator) Logout 🧿 -					
OMNLPATIENT Patient Masters - Q Advanced Search -									
Home ) UEMID : 4   Name : Emily S. Biers-Knustson   DOB : 10/10/1975   SSN : 670-11-1555				Details 360					
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O Demographics				<u></u>					
First Name Emily	Emily	Emily	Emily	Emily					
Middle Name Sophia	Sophia	Sophia	Sophia	Sophia					
Last Name Biers-Knutson	Biers-Knutson	Biers-Knutson	Biers-Knutson	Biers-Knutson					
Full Name Emily S. Biers-Knustson	Emily S. Biers-Knustson	Emily S. Biers-Knustson	Emily S. Biers-Knustson	Emily S. Biers-Knustson					
Suffix									
Prefix Ms	Ms	Ms	Ms	Ms					
Title Doctor's Assistant	Doctor's Assistant		PHYSICIAN ASSISTANT	PHYSICIAN ASSISTANT					
Date Of Birth 10/10/1975	10/10/1975	10/10/1975	10/10/1975	10/10/1975					
Ssn 670-11-1555	670-11-1555	670-11-1555	670-11-1555	670-11-1555					
Address Line1 24556 Brookwood Hills Rd	24556 Brookwood Hills Rd								
Address Line2									
Address Line3	85			•					



### Goals: increase market share, improve clinical quality & reduce cost



Results: Targeted Patient Outreach Results for one campaign

- Many concurrent campaigns
- Improves patient access to care
- Increases targeted service volume

Total monthly procedure volume pre and post campaign

(example of one campaign, new practices excluded)



FY/Month

# **Results: Performance Improvement Process**

Balanced scorecard approach



#### **Senior Executives**

• President, Administrative Executives, Medical Executives

#### **Support Services**

 Administration, Quality, Finance, Accounting, Billing, Account Receivables

#### Service Line Leadership

• Acute, Outpatient Services, Ambulatory Care

#### **Frontline Management**

• Department Managers, Practice Managers, Supervisors



# **Results: Performance Improvement Process**

Balanced scorecards and quality/utilization apps

#### **Balanced Scorecards**

- Chairman
- Network
- Pay for Performance
- Anesthesia
- Behavioral Health
- Care Management
- Cath Lab
- COPD All Patients
- COPD Medicare ONLY
- Core Measures
- Critical Care
- Critical Care Unit
- Diabetes
- Emergency Medicine
- Estes Surgical
- Gastroenterology

- Heart Vascular
- Infection Control
- Infusion
- LOS Trending
- Neuroscience
- Neurosurgery
- NI Cardiology
- NICU
- Oncology
  - Orthopedic
  - Pain Mgmt
  - Palliative Care
  - PALS
- PALS HF
- PD
- Pediatric

- Pneumonia
- Pressure Injury
- PSI
- Pulmonary
- Quality MSSP
- Radiation
   Oncology
- Radiology
- Safetynet
- SLIM
- SOD
- SPD
- Spine Center
- Stroke Center
- Surgical Services
- Vascular
- Women's

#### **Quality/Utilization Analysis**

- Cardiology
- COPD
- Core Measures
- HACs
- Infections
- Infusion
- Oncology
- Orthopedic
- Outcomes
- Palliative
- PE/DVT
- PSIs
- Sepsis
- Women Children
- Population Quality
- Population Utilization



- 1. Pharmacy deprescribing in patients on unnecessary long-term use
- 2. Increased generic prescribing
- 3. Reduction of preventative screenings not clinically indicated for the elderly population
- 4. Reduction of unnecessary post operative radiology exams
- 5. Reduction of unnecessary surveillance radiology exams
- 6. Reduction of unnecessary laboratory tests in ambulatory care
- 7. Reduction of unnecessary laboratory tests in inpatient care
- 8. Streamlining follow-up visits across specialties
- Reduction of unnecessary surveillance imaging after cancer care
   Reduction in analysis and starts are striking ED. Visite
- 10.Reduction in ambulatory sensitive ED Visits

## **Results: Quality** Low-Cost, High-Quality Leader



2017

STROKE

GET WITH THE GUIDELINES

GOLD PLUS



**Medicare's Highest** 

**Rated Hospital** 

BlueDistinction. Center+ Maternity Care













transforming healthcare through IT

2018 WOMEN'S CHOICE AWARD





St. Luke's University Health Network



NCQA

Compare hospitals at MEDICARE.GOV.







# **Thank You**

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