Sharp HealthCare

• Not-for-profit serving 3.2 million residents of San Diego County

• Grew from one hospital in 1955 to an integrated health care delivery system
  — 7 Hospitals, 2 Medical Groups, Health Plan
  — Centralized system support services
  — Largest health care system in San Diego with highest market share
  — Significant commitment to managing risk

• Largest private employer in San Diego
  — 18,000 employees, 2,600 affiliated physicians, 3,000 volunteers
Sharp HealthCare Strategic Priorities

- Sustain *strong financial performance*
- Achieve *top decile results*
- Leverage *integrated delivery system structure*
- Advance *capacity, throughput, and innovation*
Sharp IT Strategic Priorities

- **Sustain** *strong organizational and technology compliance*
- **Achieve** *top decile results through strong core clinical and financial systems*
- **Leverage** *advanced technologies to support population health and integrated delivery system*
- **Advance** *growth and capacity through innovative technology*
Leverage advanced technologies to support population health and integrated delivery system

• Implement population health solutions
• Evolve advanced analytics and big data
• Implement enterprise data management and governance program
• Implement new technology to support Sharp Health Plan

Leverage advanced technologies to support ...
If you torture the data long enough, it will confess to anything.

Ronald Coase
WHAT I HOPE YOU WILL LEARN FROM TODAY

- The current lens to look at the importance of analytics in the modern world.
- Sharp’s journey and background in data analytics to date.
- Sharp’s Data Analytics strategy and program targets.
- Understand future analytic capabilities under review and interest to Sharp.
Worldwide Spending on Data and Analytics

2022

- Master Data Management Products/Data Integration Tools & Data Quality Tools: $9.8 B
- Analytics & Business Intelligence: $27.5 B
- Database Management Systems: $68.7 B
- Total D&A Software: $104.1 B
Sharp’s Data Warehouse journey began in the late 1990’s. It started from a burgeoning need to support revenue cycle, managed care, and medical groups and grew organically based on continuously expanding business needs.

- Implemented IBM Cognos (Merlin) in mid 2000’s.
- Informatica Data Management in late 2000’s.
- Vice President Role created and transitioned from Clinical Effectiveness in 2014.
- Data Governance program initiated in 2015.
- Tableau and Alteryx added for modern Data Visualizations and Integration in 2016/17.
- New Vice President of Enterprise Analytics in 2018.
- Currently over 500 Sharp users of EDW resources across all service lines and business units.
VISION
Knowing the Role of Analytics at the Heart of a Digital Health System

A Modern Health System is a business that exploits data and analytics. In fact, it is at the center of Patients, Vendor Partnership, Connected Things and Employees.
ANALYTIC DOMAIN(S) SUMMARY

Technology Plan
- Data Virtualization
- Logical Data Warehouse

Structural Design
- Data Market Place
- Analytic Hub

Impact on the Business
- Data Literacy Campaign
- Vision of Self Service & Alignment

Deliverables
- Success Metrics
- Capabilities and “As-A-Service” Offerings
ARCHITECTURE MODELED ON INDUSTRY BEST PRACTICE
NOW OVERLAY SHARP’S ASSETS ON THAT MODEL
Apache Nifi came from the NSA "NiagaraFiles" software and is now licensed by Cloudera.

It is apart of the HADOOP ecosystem.

NiFi is a Java program that runs within a Java virtual machine running on the server it is hosted over.

Sharp plans to leverage is for streaming HL7 and API based messaged into NOSQL storage repositories.
Data virtualization integrates data from disparate sources without replicating the data, to create a single "virtual" data layer that delivers unified data services to support multiple applications and users. The result is faster access to all data, with less replication and cost.
KEY CHANGE 3: A DATA MARKETPLACE WITH DENODO
KEY CHANGE 4: INTRODUCING AN ANALYTIC HUB

- A single point of access to analytics.
- An Analytics Hub simplifies access to analytics across multiple heterogeneous environments. The solution recommends the best analytics to fit personalized needs and grants users with actionable insights without compromising agility.
KEY CHANGE 5: EMBRACING HOSTED SERVICES
KEY CHANGE 6: CROWDSOURCING A METADATA PLATFORM
KEY CHANGE 7: ENTERPRISE ANALYTIC INVENTORY

- One stop shop in the Hub and Collibra for the following:
  - Report(s)
  - Dashboards/Self-Service
  - Data Definitions
  - Interfaces
  - APIs
  - Policy and Procedures around Data
  - Data Leaving Sharp
  - External Data Coming into Sharp
  - Data Sources
  - Data Marketplace Storefronts
KEY CHANGE 8: MASTER DATA MANAGEMENT
KEY CHANGE 9: SERVER CENTRIC DATA PREPARATION

Self-Service Data Analytics for Everyone

- Scale Alteryx to improve decision making and competitiveness
- Prep and Blend Data
- Publish analytic apps to the cloud
- Empower everyone to make data driven decisions
- Share
  - Create, publish and share applications and APIs
- Schedule
  - Schedule and automate jobs with ease
- Govern
  - Administer, manage and control data access

Desktop

Server
KEY CHANGE 10: AN INSTITUTIONAL FOCUS ON DATA LITERACY
FUTURE DEVELOPMENT
Develop and Guide New Analytic Capabilities

Future Targets

a) Conversational Analytics
b) Advanced Geospatial and Location Intelligence
c) Augmented Data Discovery
d) Data Science as a Service (AI and ML)
e) Predictive Modeling
f) Analytics around a Patient
g) Genomic Integration
QUESTIONS?