Using Data for Value Driven Care

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Mayo Clinic
Rochester, MN
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- Clinic locations Rochester, MN, Jacksonville, FL and Scottsdale/Phoenix, AZ
- Midwest regional Mayo Clinic Health System
- Expanding Affiliated Care Network
- Approx. 60,000 employees
- 125,000 hospital admissions
- 2 EHR vendors, 3 versions, multiple integrated departmental systems
Information and Knowledge Management

Office of Information and Knowledge Management

Information Management and Analytics

Knowledge and Delivery Center

Information Management
Practice Analytics

Knowledge Management
Clinical Decision Support

Applied Clinical Informatics
Information Management

• Data governance
  • Converging EHR, data conversion, historical data, standards for retrieval, exchange

• Data platform
  • Warehouse of clinical data, plus enrichment, natural language processing, analytics, Big Data. Allows for differentiation, innovation

• Health Information Exchange (HIE)
Data as a Service

Application Layer

Apps  Mobile  Discovery

Services Layer

Unified Data Platform  EHR

EHR
Enterprise Analytics

• Cost
• Revenue estimates
• Management reporting
• Desire for timely updates, e.g. monthly
• Professional performance
• Supply chain
• Population health
Enhanced Analytics Capabilities

Descriptive
- Static & Interactive Reports
- Ad Hoc Queries

Diagnostic
- Dashboards, Scorecards, KPIs
- Ad Hoc Analytics/Discussion

Predictive
- Forecasting/Extrapolation
- Mining/Predictive Modeling

Prescriptive
- Decision Optimization

Business Value
Science of healthcare delivery

- Cardiovascular: catheter ablation, Left ventricular assist devices, risks of stroke and bleeding, newer anticoagulants
- Surgery: role of obesity, metabolic syndrome, procedure duration, length of stay variability
- Utilization: extent of laboratory testing, discharge planning, emergency department use
- Therapy: new agents Hepatitis C, chemotherapeutic agents, biologics
Knowledge Management

- Mayo Clinic knowledge as an asset
  - Knowledge Content Management System
- Mayo-vetted knowledge at the point of care
  - Ask Mayo Expert
  - Care Process Models
Knowledge Delivery

• Clinical decision support rules
• Enterprise vetting, e.g.
  • Pharmacogenomics
  • Preventive services
  • CHF
  • Lab utilization
  • Blood products
  • Pain assessment, fall risk
Applied Clinical Informatics

- Usability, provider “efficiency”
- Workflow, process, technology
- Testing methods of individualized knowledge delivery
“Right Time” Data in CHF

**Problem List**
- Heart Failure
- Edema
- Arrhythmia

**Echo Report**
- Ejection Fraction

**Clinical Note**
- Diagnosis
- Current History
- Quality of Life
- Findings

**Medications**
- Ace Inhibitors
- Digoxin
- B-Blockers

**CVI**
- History of MI
- Medications
- Smoking Status

**Labs**
- CPK
- Troponin
- Potassium

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**Patient: Suggest appropriate Heart Failure Education**

**Physician: Next best step for patient’s therapy and treatment**

**Researcher: Find all patients with Heart Failure for my study**

**Administrator: How many Heart Failure admissions**

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**Big Data contextualizes information to user needs**