The Management of Clinical Information in an Integrated Delivery System

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Agenda
- A Little Banner History
- A Better Strategy
- I/T Application Vision
- Care Transformation Strategy
- Critical Success Factors, Challenges, Areas of Concern, Unanticipated Benefits
- Operational Reliability Challenge

A Little Banner History

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Banner I/T: 1999

- Merger of 2 Organizations: Samaritan + Lutheran
- No Common Technology Vision or Strategy
- Separate/Uncoordinated I/T & BioMedical Functions
- Multiple Data Centers
- Minimal Network Capacity
- Unreliable Operations - Excessive Down Time
- Non-Enterprise, Non-Standard Applications
- Few Clinical Applications
- Ineffective Project Management
- Poor Capital Prioritization/Allocation Strategy

Banner Health Today

- 23 Acute Care Hospitals
- 250,000 Admissions
- Banner Medical Group
- 650 Physicians
- 2,000,000 Clinic Visits
- Behavioral Hospital
- Home Care Services
- Outpatient Surgery
- $5B Revenue
- 70% from AZ
- 37,000 Employees

Banner's 2020 Vision

- Industry Leadership
- Innovation
- Growth
- Performance
- Turnaround
- LEAD IT
- CHANGE IT
- GROW IT
- DO IT
- FIX IT
Challenges & A Better Strategy For Deploying Clinical Technology

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Challenges in Healthcare

- Reducing inappropiate variation in clinical practices and outcomes
- Distributing best clinical practices across a large complex enterprise
- Applying the latest and best knowledge to clinical care in all settings
- Providing real-time decision support at the point-of-care
- Effectively addressing the broad continuum of care as an Accountable Care Organization

The Planets Line Up – circa 2000

- Social/Political Environment
  IOM Report, Leapfrog Group, California Legislation, etc...
- HealthCare Organizational Culture & Leadership
  The “Enterprise View” is becoming common
- Drive for Clinical Quality
  Evidence-based Medicine, Visibility of Information, Real Time Decision Support
- Modern Hospital Design
  “Hospital of the Future”
- Financial “Engines”
  Running at Full Speed in HealthCare
- Clinical Information Technology Matures
  Cerner “Millennium”, Biomedical/Information Technology Integration, Integrated Suites of Applications, Rules Engines, Reliable Wireless Devices...
Sports Metaphor...

Guiding Principles

- **Think Enterprise**
  - Operate as a Single System
- **Deploy Superior Technology**
  - that Adds Value
- **Provide Exceptional Customer Service**

Key Strategies

- Integrated Suites of Applications
- Common Operational Environment
- Enterprise-Wide Network Infrastructure
- Enterprise End User Computing Strategy
- Balanced Technology Investment
- Information Access
- Leveraged Partnerships
Care Transformation Strategy

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Care Transformation

Culture

Evidence-Based Best Practices

Rapid Cycle Work Redesign

Technology

Expectations for Work Redesign

- Design the “franchise model” for Care Transformation
- Incorporate “best practices” into our design
- Reduce “inappropriate variation” in patient care
- Achieve and track targeted quality, service and financial benefits
- High degree of process and implementation standardization (80/20 rule)
- Meet or exceed aggressive timeline for work redesign and BEMC go live
- Widespread participation and buy in across Banner
- Supported by Banner leadership to resolve issues and remove obstacles
- “Faster, Smarter, Better, Together”
Transformation is the Key!

Benefits Realization Study Results:

<table>
<thead>
<tr>
<th>Area of Study</th>
<th>Effect (Δ%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Length of Stay (ALOS) Reduction</td>
<td>- 7.1%</td>
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<tr>
<td>Overtime Reduction</td>
<td>- 5.3%</td>
</tr>
<tr>
<td>Pharmacy Cost Reduction</td>
<td>- 17.8%</td>
</tr>
<tr>
<td>Forms Elimination</td>
<td>- 41.6%</td>
</tr>
<tr>
<td>Document Storage Cost Reduction</td>
<td>- 95.6%</td>
</tr>
<tr>
<td>Adverse Drug Event (ADE) Reduction</td>
<td>- 84.3%</td>
</tr>
<tr>
<td>Medication-Related Claims Avoidance</td>
<td>- 71.8%</td>
</tr>
<tr>
<td>Days in A/R Reduction</td>
<td>- 2.2%</td>
</tr>
<tr>
<td>Nursing Staff Turnover</td>
<td>- 15.8%</td>
</tr>
<tr>
<td>Reduced ED Left Without Treatment (LWOTs)</td>
<td>- 1.8%</td>
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</tbody>
</table>

Technology Critical Success Factors, Challenges, & Unanticipated Benefits

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Critical Success factors

- Vision & Commitment
  - Broad, clear, shared, enterprise-wide understanding & acceptance
  - Key words: Care Transformation; Franchise Model; Foundation; ACO, etc.

- Project Scope
  - Precise, Specific: What’s In, and What’s Out!

- Costs & Benefits
  - All-in costs: software, hardware, support, staffing, training, both IT & facilities
  - Identify all expected benefits & strive to realize them

- Project Plan & Project Management
  - Simple, formal, concise plan; reviewed often with a formal change process
  - Intense project management & oversight processes with senior participation

- Issues Management
  - List every issue, assign responsibility, work & resolve issues, report status

- Scheduling
  - Consensus-based, minimum changes, formal project control

Challenges

- Training
  - There is a Large and Varied Population to be Trained
  - Training is Required for Both Systems and Processes
  - Clinical Applications are Complex

- Support
  - Fast, Effective End User Support at all Levels
  - Both From a Central Call Center and At-The-Elbow
  - Effective SuperUsers are Essential

- Operational Reliability
  - Operational Reliability is KING!
  - IT is Becoming a Clinical Department

Areas of Concern

- Last Resort Backup Process ("Air Bag")
  - Typical Backup/Recovery Not Adequate – Minimal Solution

- Medical Records Publishing ("Paper EHR")
  - Speed, Format, Readability
  - Legal & Transfer-Out Requirements

- Difficult to Extract Data Efficiently from EHR

- Poor Access to EHR by Untrained Outsiders
  - Lawyers, Consultants, Nursing Homes, Hospice, etc.

- Ease of Use Issues - Human Interface
  - Touch Screen Model (ie: Restaurants, Garmin, iPhone)
Unanticipated Benefits

- Improvements in Recruiting & Retention
  - Physicians, Nurses, and All Other Clinicians
  - Ability for Employees to Transfer within the Enterprise
  - Centralized, Remote Hosted Training for Clinicians
  - Enterprise Simulation Center
- Ability to Support Smaller Remote Facilities
  - Franchise Model Brings Lower Costs and Standardization
- Ability to Deploy to New Facilities Quickly
  - Franchise Model – With Appropriate Extensions
- Ability to Expand into New Facility Types
  - Children’s Hospital
  - Cancer Hospital

Operational Reliability Challenge

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Backup / Failover Strategy

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Probability of Failure</th>
<th>Mitigation Strategy</th>
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</thead>
<tbody>
<tr>
<td>Regional Failure</td>
<td>Extremely Unlikely</td>
<td>Remote Data Center</td>
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<tr>
<td>- Earthquake</td>
<td></td>
<td></td>
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<tr>
<td>- Hurricane</td>
<td></td>
<td></td>
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<tr>
<td>- Flood</td>
<td></td>
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</tr>
<tr>
<td>Local Failure</td>
<td>Low, but Plausible</td>
<td>Local Backup Data Center</td>
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<tr>
<td>- Building Fire</td>
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<tr>
<td>- Biological Hazard</td>
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<tr>
<td>- Exploitation</td>
<td></td>
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<tr>
<td>- Civil Unrest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal Failure</td>
<td>Highly Probable</td>
<td>Redundant On-Site Equipment</td>
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<tr>
<td>- Computer Failure</td>
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<td>- Software Failure</td>
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<tr>
<td>- Data Storage Failure</td>
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<tr>
<td>- Employee Sabotage</td>
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<tr>
<td></td>
<td>Disaster Recovery</td>
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<td>Business Continuity</td>
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</table>
Thank You!

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