"Do not go where the path may lead; go instead where there is no path and leave a trail." - Ralph Waldo Emerson

- Hospitals are steeped in tradition of creating new clinical pathways
- There is no clear path of achieving sound financial results under reform
- The traditional methods for sustaining hospital margins, managing costs, and quality are no longer completely valid
- Significant new data is needed to evaluate a course of action for future success
What is Business Intelligence?

• **Business intelligence (def’n)** - *Business intelligence (BI) is a broad category of applications and technologies for gathering, storing, analyzing, and providing access to data to help users make better business decisions.*

• Gives you the ability to transform clinical, financial, and operational data into discrete but somewhat meaningful actionable information.

**INSIGHT**   **ACTION**

What is Enterprise BI?

• Enterprise Business Intelligence is able to create integrated reports from disparate databases to see a complete/meaningful picture of the business enterprise. In healthcare, that may include:
  – EHR data
  – Billing data
  – Scheduling data
  – HR costs and allocations
  – Purchasing costs and assignment to services
  – Other meaningful sources of data
Enterprise Business Intelligence Framework

1. Acquire raw data
2. Organize, define and integrate data
3. Analyze and act

- Financial
- Operational
- Clinical

Data Warehouse

Actionable information and Trend Analysis
Financial Analysis
Performance Analysis
Regulatory Reporting


Providers' Perceptions: Business Intelligence and Analytics in Healthcare
2/1/2012
Sponsored by: Billions Health Data and Porter Research

Current Market Trends

As Healthcare Costs Rise, Providers Must Control Operational Costs through Access to Data

Rising Healthcare Costs Are Pinching Provider Margins Under Pressure
- U.S. healthcare costs are highest in the developed world
- Costs are expected to rise at 6.7% per year vs. 4.1% for GDP
- Provider/hospital margins are under increased pressure

Providers Must Focus on Costs That are Under Their Control
- Many of the cost drivers of healthcare costs are out of the direct control of providers
- However, operational costs in HR, Finance, and Supply Chain which account for 72% of total costs are under a provider’s direct control and represent a significant source of near term value

Provider Profits Are Being Eroded
- 70% of hospitals report a decline in overall financial health
- 43% of hospitals expect losses in the first quarter, up from 36% for the same period last year
- Weakening of credit measures across all major ratios is impacting trend ratings and provider’s ability to access the cash markets

Source: [Data 2011 Presentation]
Priority of Business Intelligence/Analytics

- Almost three-quarters (71%) of providers ranked business intelligence/analytics as a high priority initiative (importance of a 4 or 5) within their organizations.

Benefits of BI Technology

- Improved Quality and Outcomes: 90%
- Improved Cost Effectiveness (planning, forecasting, budgeting): 86%
- Improved Operational Process Efficiency: 86%
- Increased Compliance for Quality Reporting Measures: 83%
- Improved Patient Safety: 83%
- Increased Compliance with Regulatory Requirements: 70%
- Providing Actionable Information to Executive Team: 78%
- Monitor and Share Key Business Performance Metrics - Internal and External: 78%
- Manage and Measure Internal Performance: 78%

Data represent rating of "4" or "5" on a scale of 1 (Not at all Significant) to 5 (Of Significant Benefit).
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Current State of BI Deployments

- Two trends emerged in the study—
  - One that was project-focused, where BI technology was deployed either as a part of “solution initiatives” or on a “project-by-project basis for data warehousing.”
  - Second, facilities have “standardized on several core BI vendors” and many are “decentralized and deployed at the department level” (i.e., Quality, Finance, etc.)

- Are deployed as part of other technology/solution initiatives: 42%
- Are being rolled out on a project-by-project basis (i.e., data warehouse rollouts): 36%
- Are standardized on as few BI/Analytics vendors as possible (i.e., core vendors for different areas): 29%
- Are decentralized and deployed throughout the departments: 25%
- Are being consolidated/moving to a single enterprise platform: 19%

Moving Towards - Enterprise BI Strategy

- Organizations are moving towards an enterprise BI/analytics strategy.
  - Half (47%) of our providers have been moving towards an enterprise BI/analytics strategy in place 24 months or less.
  - A quarter (23%) are planning to develop an enterprise strategy.

- Less than 12 Months: 24%
- Between 12 and 24 Months: 23%
- Between 24 and 36 Months: 9%
- Greater than 36 Months: 9%
- Plan to Develop an Enterprise BI Strategy: 23%
- No Plans to Develop an Enterprise BI Strategy: 3%
The Need for Better Data

- Key challenge is managing data chaos

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<th>Meaningful Use</th>
<th>Value Based Purchasing</th>
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Source: HFMA Revenue Cycle Strategist/Thomson Reuters Action DI database / PNC Healthcare Advisory Services
Payment Cuts in Healthcare Reform

- Nearly $200 billion in upcoming Medicare reimbursement cuts over 10 years.
- Combined, payment cuts to hospitals could amount to 15% of total inpatient Medicare reimbursement.
- Independent Payment Advisory Board to recommend cost reductions starting in 2020.

Source: PNC Healthcare Advisory Services - 2011

Potential Opportunities for Cost Savings in US Healthcare Industry from use of BI

Source: http://bi-insight.systechusa.com/tag/bi/
New Initiatives Demanding Enterprise BI

- Development of ACOs and other emerging payment methodologies
- Meaningful Use
- Quality and Outcomes Measurements
- The bottom line of less reimbursements for future services – you need to know every “heart beat” of your organization and how they work together
  - *Your father’s BI will not help you here …*

Key Components of BI

- **Dashboards**
  - Enterprise View
  - Focused View
  - Drill Down
  - Drill Through
  - Trends
  - Alerts
  - Subscription and Role Based

- **Ad-Hoc Analysis**
  - Used to answer questions raised by dashboards
  - Creates SQL Query
  - Uses data from all databases
  - Discover what you did not know

- **Data Model**
  - Avoid Cubes
  - Ability to accept data from multiple databases
  - Easily defined metadata
  - Needs linkage of data
Data Integration and Data Definitions

• This is the real challenge
  – Customer or vendor must provide metadata definitions but vendors like PNC will guide process (you are not alone)
  – Data integration is handled by populating an enterprise database and helping develop new workflow/data capture approaches to link data

Key Hurdles in Healthcare BI

• Capital
• Limited IT and Administrative resources
  – ICD10 & 5010
  – ACOs
  – Pay for Performance
  – Meaningful Use
  – Volume vs. Value
  – Clinical Quality and Outcomes Measures
  – Assimilating Employed Physicians
Ways to beat hurdles in BI

• Hosted/SaaS solution by Trusted Organization
  – No Capital through subscription/hosted models
  – Assure integrity of off-site Data Security
  – Low IT involvement is expected
  – Look for available Dashboards Library (fast tracking startup)
  – Look for available talented analysts and report writers
  – Quick ROI – opportunities identified early
    • Look for access to experienced/successful project engineers

ROI Quotes for BI

• “Last year’s IDC study, "The Financial Impact of Business Analytics," reinforces that organizations who implemented analytic applications have realized returns ranging from 17 percent to more than 2,000 percent with a median return on investment (ROI) of 112 percent.”
• “Industry studies have repeatedly demonstrated that business intelligence (BI) initiatives are among the IT investments that yield the highest returns.” (Information Management)
Wow Report Samples / Talking points

- Hospital & Physician Revenue cycle pathway and KPIs
- Denial pattern analysis highlighting changes in payer behavior and/or contract deviance
- Clinical performance data linked to meaningful use and quality metrics
- Scorecards that compare actual performance to external and internal benchmarks associated with performance alerts

Found on web ...

- Sample KPIs are all over the web
  - Good start for ideas but highlight snapshot limitations
    - Data has to be put in context
    - Data needs to be able to “morph” into different views and drill through to raw data
    - Data needs to be further researched through adhoc capabilities
    - Data needs targets/benchmarks along with alerts
One nice list

- From http://blog.maia-intelligence.com/
  - Accounts Payable
  - Accounts receivable
  - Accrued expenses
  - Budget variance analysis
  - Capital expenditure growth rate
  - Cash collected vs. target
  - Cash on hand
  - Current asset turnover
  - Current ratio
  - Customer plan migration
  - Operating margin

KPI snapshots

- Percent of capital expenses
- Percent of cash flow to total debt
- Percent of cash flow to total liabilities
- Percent of charitable revenue
- Percent of debt to capitalization
- Percent of out-patient revenue
- Average occupation time of hospital bed
Quality Performance and Safety KPI

- Compliance
  - Average Length of stay for patients
  - Medication errors
  - Number of emergency room visits
  - Number of hospitalizations
  - Number of patients admitted to ED
  - Number of patients admitted to hospitals
  - Number of patients referred outside network
  - Number of patients with infections

Quality Performance and Safety KPI

- Number of physicians’ visits
- Patient satisfaction
- Refills
- Severity of attacks
- Utilization rate
- Wait Time
Claims KPI

- Amount of reimbursements
- Average length of stay
- Average paid per admission
- Benefits paid as percent of allowable
- Co-pay
- Inpatient paid per employee
- Inpatient paid per member

Claims KPI

- Percent of first-time accurate claims
- Percent of fraudulent claims
- Percent paid out-of-network
- Plan comparison
- Prescription utilization
- Time spent on claim review
Clinical Data KPIs

- Clinical outcomes
- Cost and clinical data
- Disease management
- Investment in research programs
- Number of procedures vs. benchmark
- Patient safety and staffing
- Performance reporting
- Population risk
- Resource consumption vs. benchmark

Patient Care KPIs

- Days to next appointment
- Dispatch request and monitoring
- Interventions provided
- Patient wait time in admissions
- Patient wait time in pharmacy
- Service complaints
- Service level agreement (SLA) reporting
- Timeliness of services
**KPIs and Dashboards**

- Need basic set for industry benchmarking
- Need custom set for local needs
- Must be meaningful and allow quick assessment of appropriate responses to address issues
- Must generate trust from the end users

**Ad Hoc Reporting**

- Usually created from questions raised from Dashboards and Scorecards
  - Can become future dashboards
- Often provides the data for project ROI
- Used to monitor specific projects or short term objectives
- Ultimate tool to build trust
Summary

- Future Business needs require robust enterprise analytics
- Look for easy to use products that provide the data most meaningful to you
- Not necessary to incur capital costs and protracted implementation times
- Scare analyst resources may invite you to look for a partner over just a vendor
- If outsourcing, be sure data is in the most secure/affordable environment