BI and ICD-10: A Surprising Convergence
Presentation by Eric Hodge and Alistair Ross

ICD-10 and BI Relationship

The traditional view...
...And the overlooked convergence

Clinical Reporting
Grants and Research Reporting
Financial Reporting/Analytics
Combining Cost & Disease Data
Exploiting ICD 10 Data With BI
BI and ICD-10: The Perfect “Blendship”

2. Opportunities for improved analytics, performance improvement, and gaining a competitive advantage.
3. Anticipated changes in reimbursement and how we can model the impact to revenue at any given provider.
4. How BI and ICD-10 together can help prepare a provider for new reimbursement models by providing better metrics for costs.

Baseline – ICD-10 – Some Starting Facts
ICD-10 - Some Facts

- ICD-10 – Introduces a vast range of new data and new ways of stratifying codes and procedures
  - 17,000 ICD-9 to 140,000 ICD-10 Codes
  - Longer field code positions require significant IT** rework
  - Laterality, specificity and other health data
  - 10/2014 is less then 17 months away...the clock is ticking
  - Traditional documentation and reporting will not meet the information demand
  - Impact of ICD-10 data is far reaching across the organization, impacting people, process, and technology

The Footprint Of ICD-10 Is Huge

ICD-10 codes may originate with you – but they wind up across many organizations and platforms, many of which affect quality indicators and reimbursement.
### Illustration of improved ICD-10 Specificity – Finger Artery vs. Thoracic Artery

<table>
<thead>
<tr>
<th>Patient</th>
<th>ICD-9 Code</th>
<th>ICD-10 Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient A lacerates the digital artery on the right index finger which requires suture repair</td>
<td>39.31 Suture of Artery</td>
<td>03QD0ZZ Repair right hand artery, open approach</td>
</tr>
<tr>
<td>Patient B is stabbed in the chest lacerating the thoracic aorta requiring an open chest procedure to suture the aorta</td>
<td>39.31 Suture of Artery</td>
<td>02QW0ZZ Repair Thoracic Aorta, open approach</td>
</tr>
</tbody>
</table>

The additional information in the ICD-10 codes are VERY important to finance.

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### Baseline – Business Intelligence– Some Starting Facts

*GET ALL THE INFORMATION YOU CAN, WE'LL THINK OF A USE FOR IT LATER.*
What Is Business Intelligence?

BI is much more than “operational reporting”. At Encore we define it as:

“The orchestration of people, process, data and technology to enable purposeful analysis and reporting, driving discovery and pattern recognition, and predicting key future events”

In its simplest form, BI is about:
• Acquiring electronic data
• Aggregating data
• Presenting and analyzing information

Convergence with Business Intelligence as needs to be a partnership, between IT, Business and Clinical

Integrated Health Intelligence

ICD-10 Data Is Pervasive Across Each Of These Domains
Health Intelligence Journey

ICD-10 Enabling Hotspots:
- Quality Measurement
- Public Health Disease Reporting
- Deeper Research - Data mining
- Payment Analytics
- Reimbursement

BI - Requires an Environment, Tools, People...

Data Sources
- Clinical Applications
- Operational Applications
- Finance Applications
- External Data Sources

Data Integration
- Clinical & Financial Store
- HIE
- Data Mart Financial Data
- Data Mart Operational Data
- History

BI – Presentation Layer
- Comprehensive Analysis
- Ad hoc Analysis
- Predictive Analytics
- What-if Modeling
- Research Mobility Alerts
- HIE

Information Consumers
- Clinical Staff
- Administration
- Operations
- Patients
- Others as Required
BI Is Going To Be Valuable In Two Ways...

1. Leverage to Support ICD-10 Implementation Itself
   - Create BI dashboards to analysis and report the progress of the ICD Mapping (Crosswalk)
   - Use BI tools to assist with financial forecasting and modeling—“estimators on revenue impact”—to help drive investment planning

2. Drive Value from Information in the Post ICD-10 World
   - **Costs per Procedure**: Regional hospital pulling costs for top codes to prepare for Value-Based contracting
   - **Outcomes per Diagnosis**: Cancer clinic identified combinations that are most likely to predict re-admission
   - **Expenditures per Diagnosis**: Large health system managing risk by looking at distribution of payments for certain diagnoses

Jump Forward To 2014

We will all be in the same boat day on 1, but some organizations will clearly be “more ready than others.”

- Leveraging a Competitive Advantage
- Avoiding Potential Reimbursement Risk
- Anticipating Revenue Change
- Responding to New Economic Models

Where will your organization be in 2014? Will you have the right BI tools to take advantage of this new data?
## Competitive Advantage with ICD-10

### Improvements in Outcomes

<table>
<thead>
<tr>
<th>Easier to track issues like dependencies, patient-compliance, locations in body</th>
<th>Oncology Clinic – Case Managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>More granular information can pinpoint areas for financial improvement</td>
<td>Children’s Hospital – Improve mitigation for complications, readmits</td>
</tr>
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### Financial Efficiency

| ACOs, reporting organizations, and large healthcare systems will be better able to use each other's data | ACO Pilots – More accurate costing |

### Better Collaboration

| Derived from using analytics for performance improvement and integration of data “beyond” the walls of the EHR | CDC Trials – Identifying Causes of Outbreaks |

### Additional Advantages

**Potential Reimbursement Risk: $13,241**

<table>
<thead>
<tr>
<th>Diagnoses</th>
<th>DRG 237</th>
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</thead>
<tbody>
<tr>
<td>4412 – Thoracic Aortic Aneurysm</td>
<td>Major cardiovascular procedure with Major Complications/Comorbidities (MCC) or thoracic aorta aneurysm repair.</td>
</tr>
<tr>
<td>4019 – Hypertension NOS (Not Otherwise Specified)</td>
<td>$30,445</td>
</tr>
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<table>
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<tr>
<th>Procedure</th>
<th></th>
</tr>
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<td>3973 – Endovascular implantation of graft in thoracic aorta</td>
<td></td>
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<tr>
<th>Diagnoses</th>
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</thead>
<tbody>
<tr>
<td>I712 – Thoracic aortic aneurysm, without rupture</td>
<td>Major cardiovascular procedure with MCC or thoracic aorta aneurysm repair.</td>
</tr>
<tr>
<td>I10 – Essential hypertension</td>
<td>$30,445</td>
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**ICD-9-CM**

**ICD-10-CM/PCS**
Benefits of Predicting the Revenue Change

Identifying changes in reimbursement will help forward-looking organizations predict cash flow changes.

And will help those very forward-looking organizations prepare for cost-based models and risk-based contracting.

Cost Data – Used To Negotiate Contracts Better

Using ICD-10, providers can model the cost of patient non-compliance, severity of illness, and complicating conditions.

Better cost segmentation of patient populations can lead to less risky reimbursement contracts.
Better Cost Data Will Lead to...

- Capitated plans....
- Fee-for-value contracts....
- Risk sharing....
- Collaborative models....
- Patient Centered Medical Home....

Changing Economic Models

Projected Acute Provider Model Evolution

% of systems with Fee for Value components in operating model*

Each organization will travel a different path based on:

- Payer Mix
- Financial status
- Degree of physician alignment/ownership
- For profit/not-for-profit
- Regional competition and collaboration
- Organizational culture
- Other unique organizational factors

* Oliver Wyman: A View from Healthcare’s Front Lines FFS to FFV, 2012
Collaborative Models Will Benefit from More Details in Codes

**ACOs**
- More efficient exchange of data between collaborators
- Better aggregate metrics and results

**HIEs**
- More standard and efficient source for universal data
- Better data-mining for clinical and cost information

Let’s Look at Ways To Closer Align BI and ICD-10 Teams....
ICD-10 Implementation Plans often fail to adequately emphasize the importance of BI/Analytics and how much work will be involved to get ready:

- Information/Data
- People
- Process
- Technology

Let's look at some next steps...

Impacts to Data Planning

Cautions

- ICD-10 codes are not well-correlated to ICD-9 codes in many cases; accurate crosswalks have been difficult to develop [using crosswalks alone will reduce revenues]
- Not all payers and third parties will be able to handle ICD-10 codes. Dual processing may be needed
- Historical comparisons combining ICD-9 and ICD-19 data is difficult
- ICD-10 impacts many applications – Secondary systems can be easily forgotten
- Do you have the right security policies and controls in place with new datasets?

Recommendations

- Create a BI and Data Integration data strategy
- Start on the new analytical and reporting requirements
- Determine how existing reporting will be impacted by ICD-10 changes
- Assess ICD-10 knowledge and awareness in your IT/BI Organization
- Develop a plan to implement new groupers and DRG analysis
- Create a plan for remediation of the DW, Data Marts and other systems to ensure historical data is managed
- Develop a data security and compliance plan
Impacts to Technology Planning

Cautions
- How will your BI environment handle the new fields? Extending BI data models requires time and planning
- Interfaces and WAN links need to be included in validation and testing
- Do you have the tools to track data lineage and “open up data, reports?”

Recommendations
- Optimize your IT strategy and governance structure to support these changes, perhaps with Master Data Management technologies
- Review your current BI Tools landscape. You may need new tools to support the new analytics you want to perform
- Develop a data quality plan to ensure accuracy and integrity
- Launch sandbox and safe analytics environments for users to play with and test the data
- Gain commitments and timelines from vendors related to BI upgrades

Impacts to Process Planning

Cautions
- Data governance is an area that needs special focus; adding and maintaining 140,000 new codes has to be managed
- Key process changes will occur for Physicians and Clinicians during documentation
- There is no guarantee that processes will be optimized the first time they are implemented

Recommendations
- Review your abstraction processes as the key to not just clinical but also financial success.
- Plan for continuous process improvement function for analytics and data management
- Involve all parts of the organization in change enablement, including physicians, clinicians, billers, and coders
- Review your cost accounting processes as they will begin to differentiate successful providers from those who lose money
Impacts to People Planning

Cautions

- Do you have the right skills in the organization to support the implementation?
- Do you understand the required investment in training and retaining?
- ICD-10 coders will be difficult to come by at first

Recommendations

- Review the skills mix in your current ICD-10 program and develop training plans right away
- Develop plans to retain coders who are adept at ICD-10
- Form a multi-disciplinary team; including data analysts and data modelers, clinicians, finance
- New skills will be needed in cost-accounting, contracting, and auditing
- Compliance’s role may shift away from RAC-type concerns to standardization for collaborative efforts like ACOs
- Find ICD-10 resources early or train your own

ICD-10 and BI Domains

- Data Model Management
- Data Definitions & Meta Data Management
- IT Governance
- Compliance/ Audit Reporting
- New Report & Analytics Development
- Impact Analysis DW and Downstream Systems
- Build High Touch Communications Within Teams
- Data Quality Process Improvement
- Leverage Prototyping
- Organization Awareness
- Data Remediation Planning
- Nominate Data Stewards To Manage Codes
Closing Points

Business Intelligence

- Integrated clinical environment
- Improved use of analytics and predictive modeling
- Impact for BI is huge
- BI is a vehicle for clinical and financial PI

ICD-10

- HIM
- Billing
- Coding
- Physician Documentation
- IS
- Financial Analytics
- Clinical Informatics
- Quality Metrics that affect reimbursement

Fee For Value