Using Today’s Data to Predict Tomorrow’s Risk

A Deep Dive into Patient-level Predictive Analytics

jvion
Learning Objectives

By the end of today’s session, you will be able to:

• Define the major predictive analytic strategies
• Assess predictive analytic solutions and anticipated returns
• List the key actions needed to drive leadership engagement and support
Why Do We Care about Predictive Analytics?

5% of the population

50% of the resources

20% of the population

80% of the resources
Why Do We Care about Predictive Analytics?

• Video placeholder
The Hard Dollar Truth

Hip Replacement + Pressure Ulcer = 13 day stay $3K/LOS $39,000

Hip Replacement – No Pressure Ulcer – Patient Goes Home = 10 day stay $5K/LOS $50,000

New Patient – Elective Surgery (3 day stay; $7K/LOS) = Total for 13 Days $50,000 $21,000 $71,000
Let’s Define Predictive Analytics

- Accuracy
  - High
  - Low

- Variables
  - Few
  - Many (1,000s)

- Rules-based
- Statistics
- Machine learning
The State of Predictive Analytic Adoption

How many providers are using advanced predictive modeling?

- No: 85%
- Yes: 15%

Who are the facilities that said “yes?”

- Academic Medical Centers: 15%
- Hospital/Multi-hospital: 85%

What do these facilities look like?

- Academic Medical Centers
- Hospital/Multi-hospital

Number of Beds:
- 251-500
- 50-100
- 101-250
- 251-500
- 500+
The State of Predictive Analytic Adoption

How are providers applying advanced predictive modeling?

- 92% are using it to predict patient risk or illness
- 8% are using it to support other organizational goals

What kinds of solutions are these providers using?

- Home-grown Solution 18%
- Vendor Solution 82%

Of those who aren’t using advanced predictive modeling, would they consider it?

- No 4%
- Yes/Unsafe 96%
Making Predictive Analytics Work in The Real World

- Effective
- Accurate
- Usable
- Flexible
Building a Predictive Analytics Business Case

- What are our biggest clinical risks?
- What are our biggest financial risks?
- How can our solution enable the overall organizational strategy?
- What impact will the solution have on IT?
- What business resources are required to enable the solution?
- Is this solution proven in the field?

- What is our clinical ROI?
- What is our financial ROI?
- What does our ROI look like near and long term?

- How do we account for barriers to intervention effectiveness?
- What are the requirements for the solution to work in our current environment?
- What are the high cost, high value areas that we can impact?
- Where are non-invasive interventions most helpful?
- Where will we have the highest levels of adoption?
- What barriers exist to intervention effectiveness?
- What are the requirements for the solution to work in our current environment?
- How can we leverage our solution to gain market eminence?
The Impact of Intervention Effectiveness

Influenced by:

• Intervention cost of each disease
• Current capacity and cost of additional capacity to perform prevention (case managers, etc.)
• Revenue loss when prevention occurs (if you have no issues filling beds, this should be balanced with incremental revenue when prevention causes beds to turn quicker)
• Slowness to adapt change
On-the-ground Predictions: Readmissions Example

7:00 AM
Morning Care Manager Meeting
Review patient risk report

7:30 AM
Case managers deploy to stations to see patients

8:00 AM
Case managers meet with nurses and doctors to discuss high-risk patients

Discharge:
Case managers consult with patients and deliver specific plans based on intervention effectiveness
Applying Predictions for Population Health

- Provide Individual-level Predictions
- Deliver Insight into The Best Interventions
- Determine the Likelihood of Engagement
- Account for Gaps in Data
- Provide Actionable Insights
Getting Your People Engaged

Clinical staff adoption is critical to success. A solution has to:

- Easily fit into the clinical workflow
- Demonstrate immediate accuracy and effectiveness
- Be proven and hold up to scrutiny
- Be easy to use and understand
- Be accepted by peers
## Is My Organization Ready?

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Technology</th>
<th>Leadership</th>
<th>Clinical Staff</th>
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<tbody>
<tr>
<td>• Alignment to value-based and at-risk models</td>
<td>• Understanding of predictive analytic applications</td>
<td>• Presence of a physician champion</td>
<td>• Established network of peer groups that enable adoption of new solutions</td>
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<tr>
<td>• Established goals focused on quality and population health outcomes</td>
<td>• IT support for adoption</td>
<td>• C-suite alignment across all functions</td>
<td>• Understanding of clinical predictive analytic application</td>
</tr>
<tr>
<td>• Appointment of a CMIO/CHIO</td>
<td></td>
<td>• Established goals that can be enabled through predictive analytics</td>
<td>• Understanding of how clinical predictive analytics fit into the workflow</td>
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What Are My Next Steps?

1. Establish organizational goals that are aligned to new value and quality standards.
2. Ensure IT education on predictive analytic solutions and potential impact (EDW, SAAS, etc.).
3. Select champions and determine expected ROI from solution across target diseases and conditions.
4. Communicate expected ROI and develop a strategy for integration of predictive analytics into workflow.
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Q&A