2019 ERM Symposium

How Predictive Analytics is Changing ERM: New Opportunities and New Challenges
Health

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Agenda

1. Definition of Predictive Analytics

2. Business Problem Criteria

3. Predictive Analytics and ERM in Healthcare

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Definition

"Predictive analytics encompasses a variety of statistical techniques from data mining, predictive modeling, and machine learning, that analyze current and historical facts to make predictions about future or otherwise unknown events."

How is this different from what we do today?
- New techniques
- Fewer Assumptions*
- Less Time

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Definition

"Predictive analytics encompasses a variety of statistical techniques from data mining, predictive modeling, and machine learning, that analyze current and historical facts to make predictions about future or otherwise unknown events."

How can this be applied to ERM?
- Identifying Risks
- Measuring Risks
- Mitigating Risks

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Business Problems Criteria

When is PA appropriate for a business problem?

1. Clearly defined problem
2. Lots of useful data
3. Prediction will drive action
4. PA is the best option

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1. Clearly defined problem
2. Lots of useful data
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4. PA is the best option

ERM Case 1: The patient management area would like to flag members at high risk for an ER visit or a hospital readmission in order to manage the risk of an avoidable large claim. You have extensive claims and enrollment data. **Is this a viable PA problem?**

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Business Problems Criteria

ERM Case 2: Your company is worried about reputation risk, but they're not quite sure how to measure it. The CRO suggests predictive analytics to identify drivers of reputation. You have customer service structured and unstructured data, social media data, news articles by date. **Is this a viable PA problem?**

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Predictive Analytics in Health ERM

What has been done?

2016 study, University of Texas Southwestern

If the following were present during the hospital stay, the patient had a significantly higher readmission risk:

- *C. difficile* infection
- Vital sign instability upon discharge
- Longer length of stay

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Predictive Analytics in Health ERM

What has been done?

2017 study, University of Pennsylvania

Identified patients on track for severe sepsis or septic shock 12 hours before the onset of the condition.

A separate initiative at Huntsville Hospital in Alabama combined predictive analytics and clinical decision support (CDS) tools to reduce sepsis mortality by more than half.

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Predictive Analytics in Health ERM

What has been done?

➢ Tracking utilization patterns

➢ Reduce likelihood of a data breach

➢ Predict a patient response to a therapy

➢ Diagnostic aids for physicians

➢ Fraud detection

➢ Personalized Marketing and Customer Segmentation

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Predictive Analytics in Health ERM

What could be done? *Operational Risk*

Identify
- ➢ Identify contributing factors to a data breach.

Measure
- ➢ Measure the likelihood of data breach daily or weekly, based on identified drivers. Provide real time updates to management.

Mitigate
- ➢ Real-time flags in the system, and additional authentication required for high-risk data transactions.

Predictive Analytics in Health ERM

What could be done? *Financial Risk*

Identify
- ➢ Identify conditions most likely to appear before a flu season begins. What conditions predict a more severe flu season?

Measure
- ➢ Predict the start of flu season and its severity.

Mitigate
- ➢ Set claim reserves accordingly. Send warnings to members, providers and employees.

Predictive Analytics in Health ERM

A Note about Ethics

➢ Don't use data in an unlawful or discriminatory way

➢ Think about the optics

➢ Opt-In choice for members

➢ HIPAA concerns

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