DxCG Likelihood of Hospitalization Model Generates Superior Results

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Business Problem I
Current Case Management ID Method

Primarily, find people already in the hospital

Arrange for services to achieve earlier release and to avoid readmission

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Business Problem II
How to Prioritize Cases to Manage

- Traditional Method is to use
  - Prior costs
  - Prior admission
  - Length of stay for a prior admission
- Some DxCG clients use a prospective DCG model in combination with the above traditional approach

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DxCG Developed Likelihood of Hospitalization (LOH) Model to Improve Case Management Outcomes

- Identify individuals at risk of hospitalization and optimize their health status through coordination of care
  - In an effort to prevent avoidable admissions
- Prioritize number of cases based on case management resource capacity
- Identify “actionable” cases
  - Use criteria to include or exclude cases for review and case management

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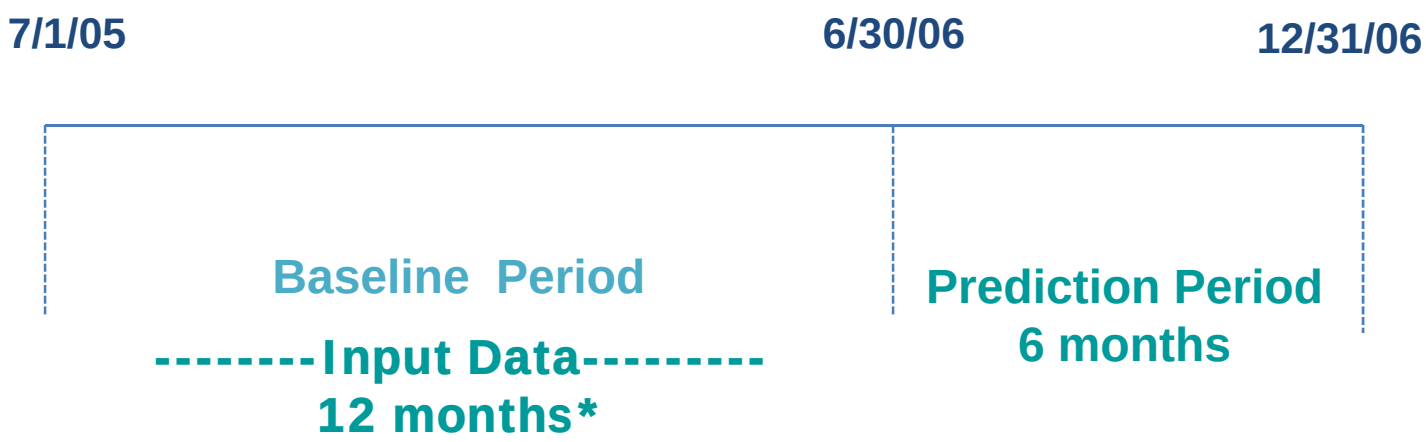
Model Overview

- **The model assigns each person a probability of admission in the next 6 months**
  - Those with the highest risk (e.g., the top 1%) are considered first for case management

A “Real Time” Model



*As it would look on June 30, 2006 with no claims run out

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Working with Model Outputs

- **The model gives a number between 0 and 1 for each person**
  - This is the likelihood of admission in the next 6 months
  - Members can be “rank-ordered” from the lowest to the highest likelihood

Comparing LOH with Other Means of Identification

- Our research indicates that the LOH model has a higher rate of identifying people who are likely to be hospitalized than any one or combination of traditional methods:
  - Prospective DCG model
  - Prior year cost
  - Prior year history of admission with Length of Stay greater than 5 days

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Combined Three Indicators

- In the Kaiser data for CY2005, DxCG
  - Identified the top 1 percent of individuals, ranked by the prospective DCG score
  - Identified the top 1 percent of individuals , ranked by cost in the prior 12 months
  - Merged the two lists, screened on year 1 LOS, and retained individuals with a hospitalization LOS > 5 days

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Top Group Created for Comparison

- Top group using traditional methods
  - Among the group in the top 1 percent, the resulting pool included 2,410 individuals
- We ran the LOH Model on the Kaiser CY 2005 population
  - Compared the top 2,410 individuals by LOH score to similar rank of the combined method

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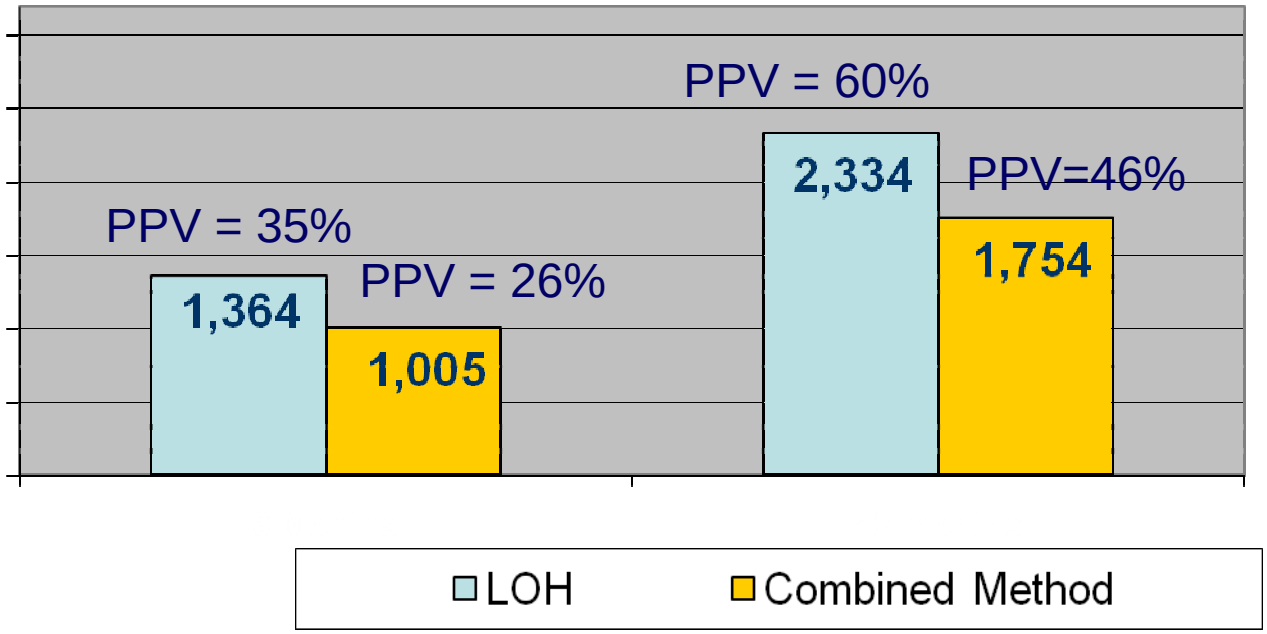
Results for the top group with 2,410 individuals

Over 12 Months, LOH Accurately Predicts 580 More Admissions in Top Group with N = 2,410

LOH has a 9% higher predictive accuracy in the 6 month prediction period and a 14% higher value in the 12 month prediction period



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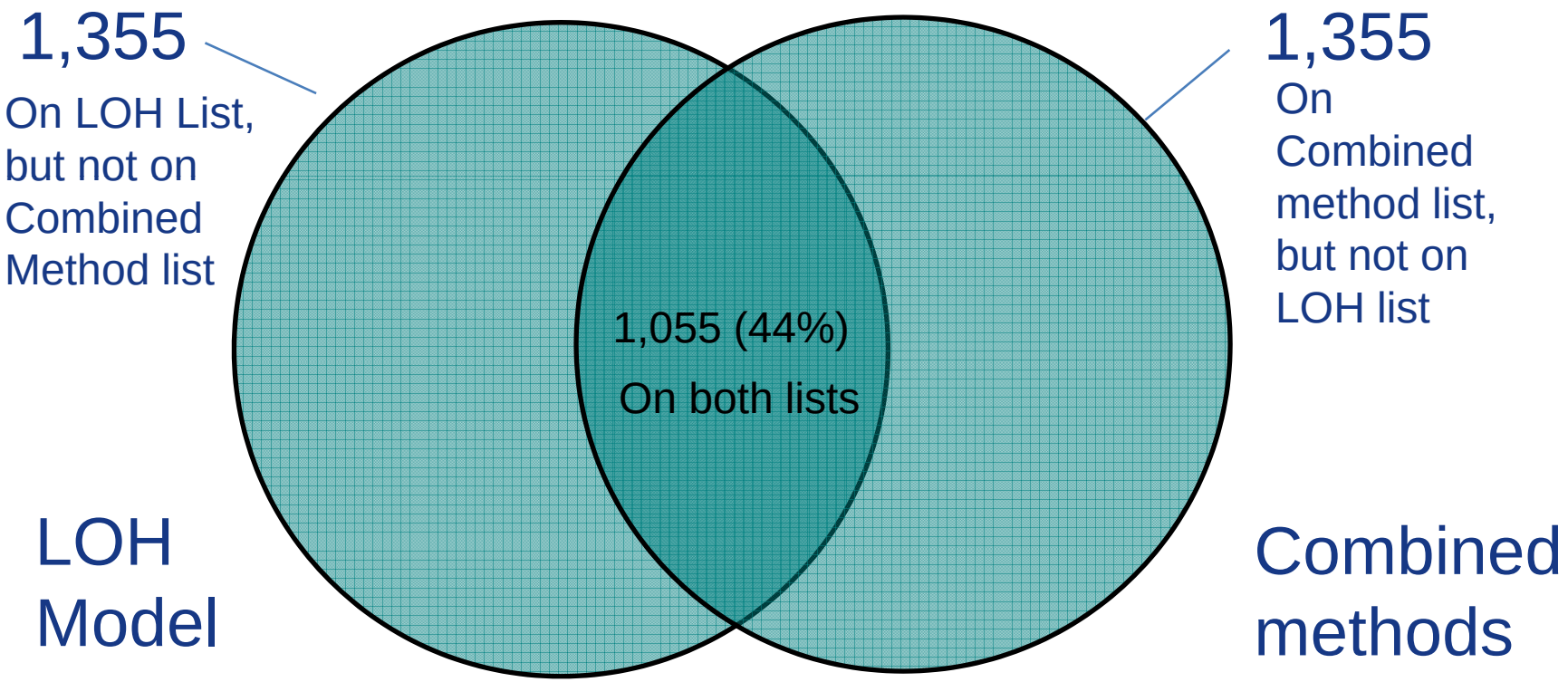
LOH Model Found 1,355 Individuals Not On the List from the Combined Method



N = 2,410

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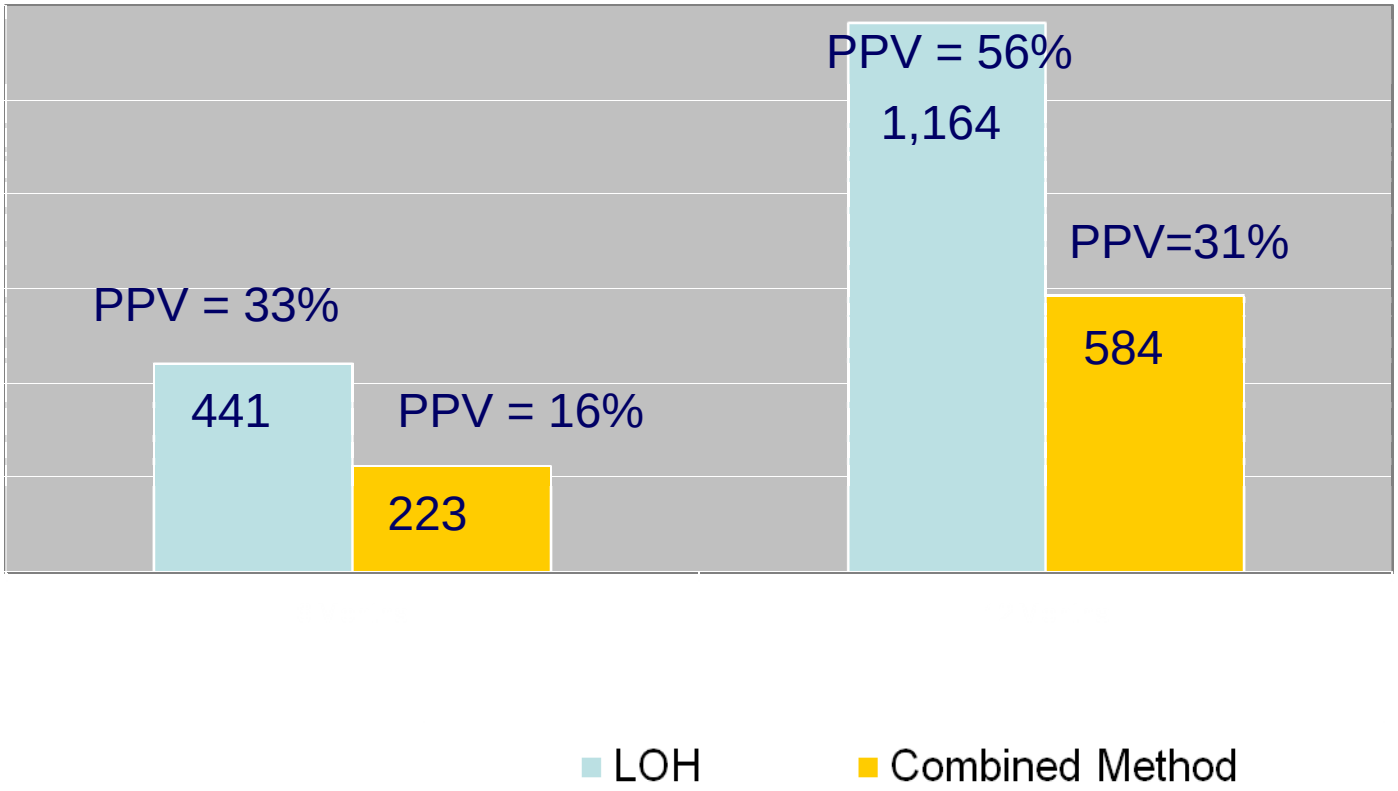
1,355 Individuals on the LOH List That Were Not Identified in the Combined Method are More Likely to Have Future Admissions

LOH has a 17% higher predictive accuracy in the 6 month prediction period and a 25% higher value in the 12 month prediction period



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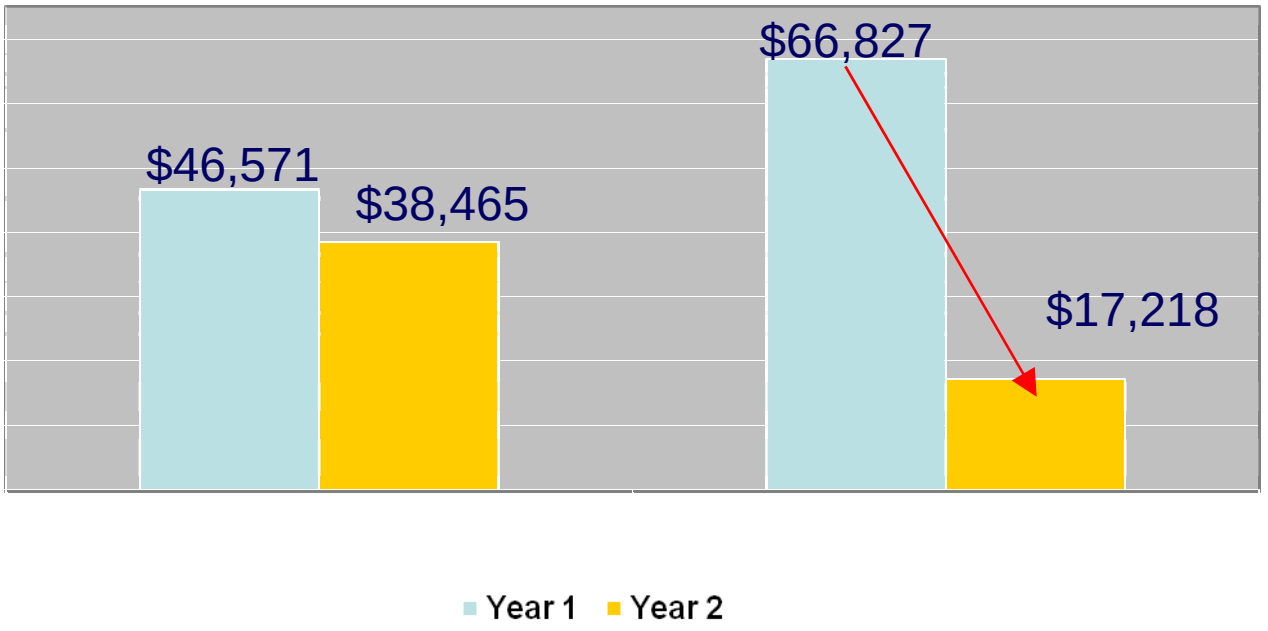
The 1,355 Non Overlapping Members Identified by the Combined Method Illustrate Regression To The Mean

Costs for the Non Overlapping 1,355 Individuals on the Combined List drop by 74% in Year 2. By contrast, the non overlapping 1,355 Individuals on the LOH List drop by 17% in Year 2



N = 1,355

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The LOH Model Identifies Future High Cost Cases Better than Traditional Methods

- 1,355 non overlapping individuals on the LOH list had total Year 2 costs of more than $52 million
  - Average PMPY is $38,465 as shown on the previous chart

1,355 non overlapping individuals on the Combined method list had total Year 2 costs of $23 million

Average PMPY is $17,218 as shown on the previous chart

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