Predictive Health Care

Using Decision Science to Tailor Patient Care at Mercy Virtual

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The Challenge

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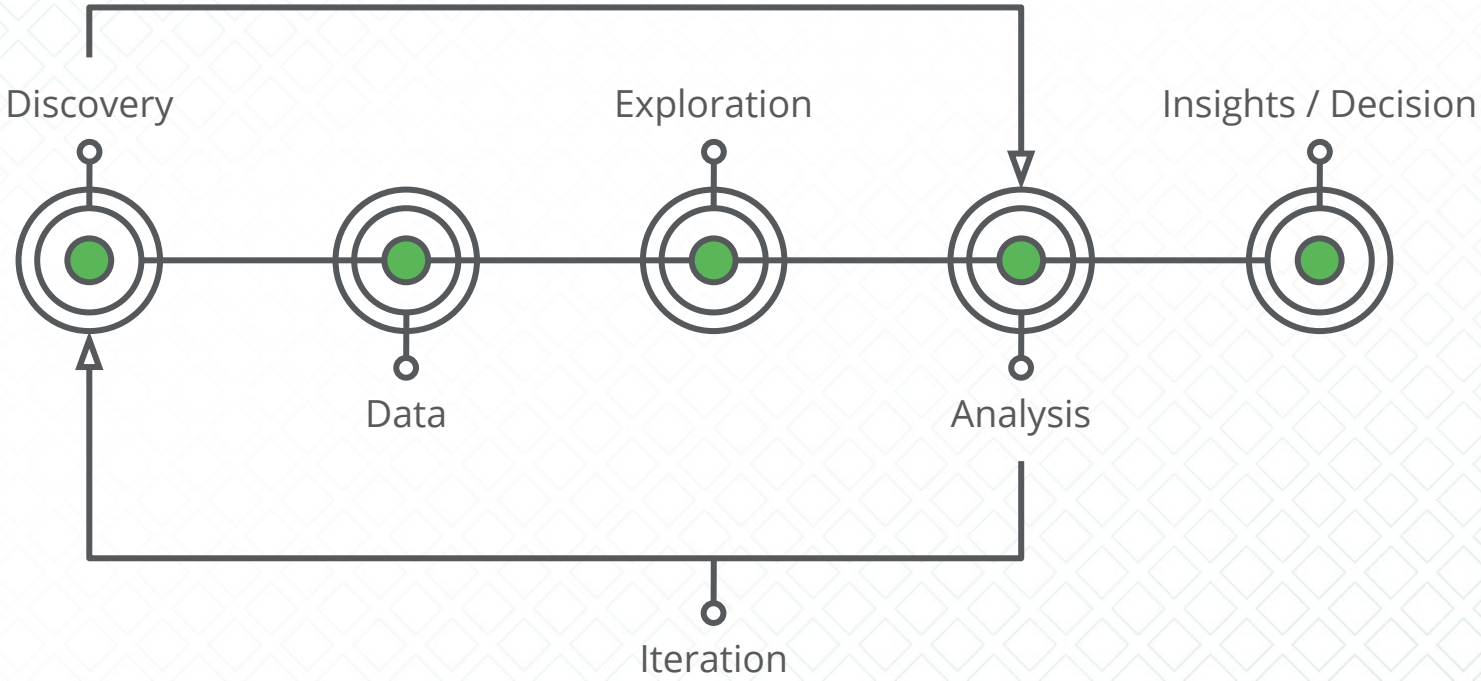
How We Tackled The Challenge



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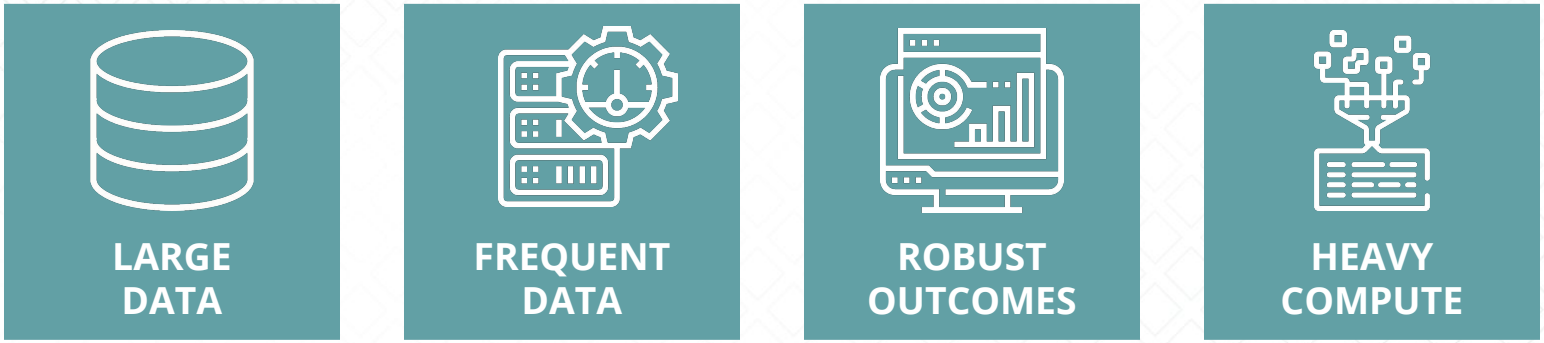
What Does It Mean To Out-Science The Problem?

- Data Science projects using ML and AI require:



- ***Out-Science***

  verb | To execute a Machine Learning project where at least one fundamental requirement is not met.

- Out-Science ≠ Bad Result

Out-Science The Problem: Why We Should Care

1. **Machine Learning Algorithms will produce a result**
   - Even if one doesn't or shouldn't exist

2. **Machine Learning Algorithms are often "black boxes"**
   - Reasoning behind a decision or result cannot be explained
   - Bad decisions cannot be foreseen

3. **Machine Learning Algorithm results are often difficult to recreate**
   - Another analysis of similar data could produce a different outcome

Out-Sciencing The Problem With Mercy

FUNDAMENTAL REQUIREMENTS:

- ☒ Large enough data -- Population is too small
- ☑ Frequent enough data -- Daily/weekly patient contact
- ☒ Robust outcomes -- Hospitalizations were sparse
- ☑ Heavy enough computing -- Access to Google Cloud Platform

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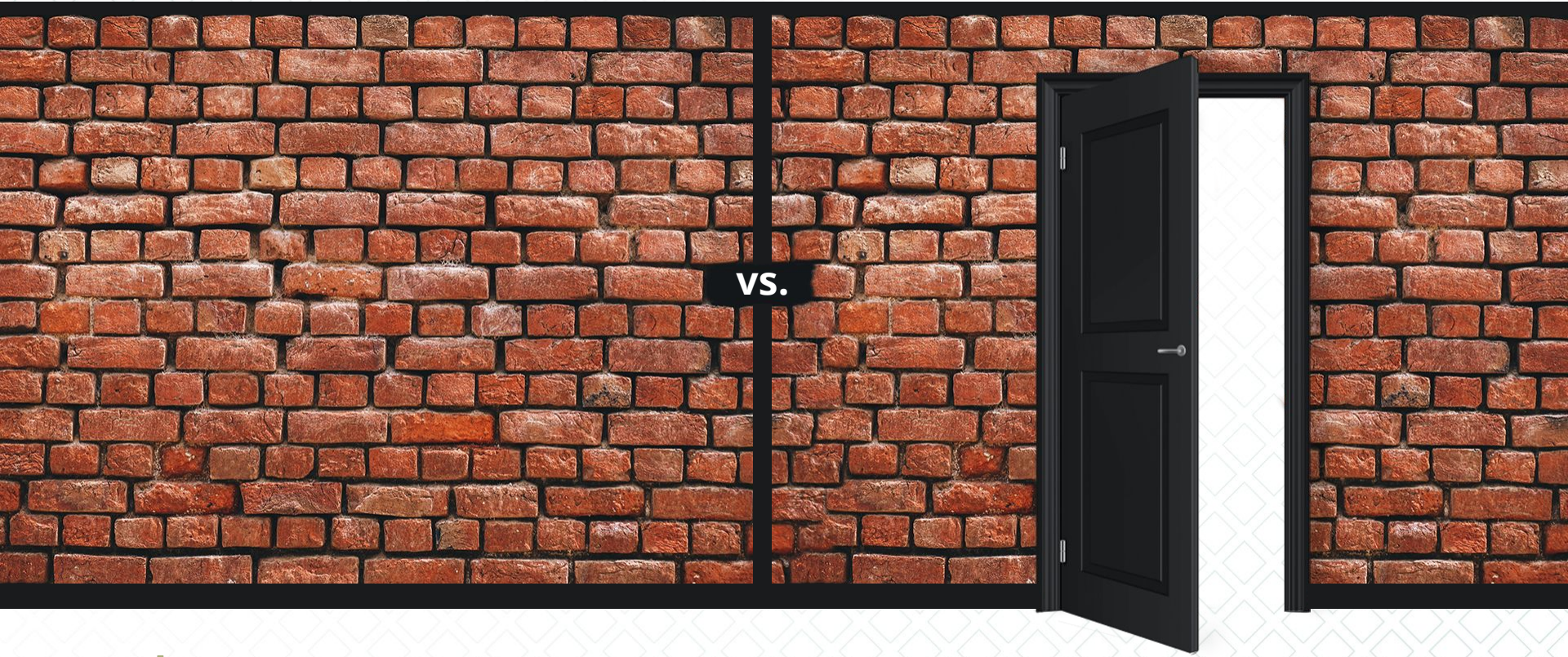
Difference Between Brick Wall & Opportunity



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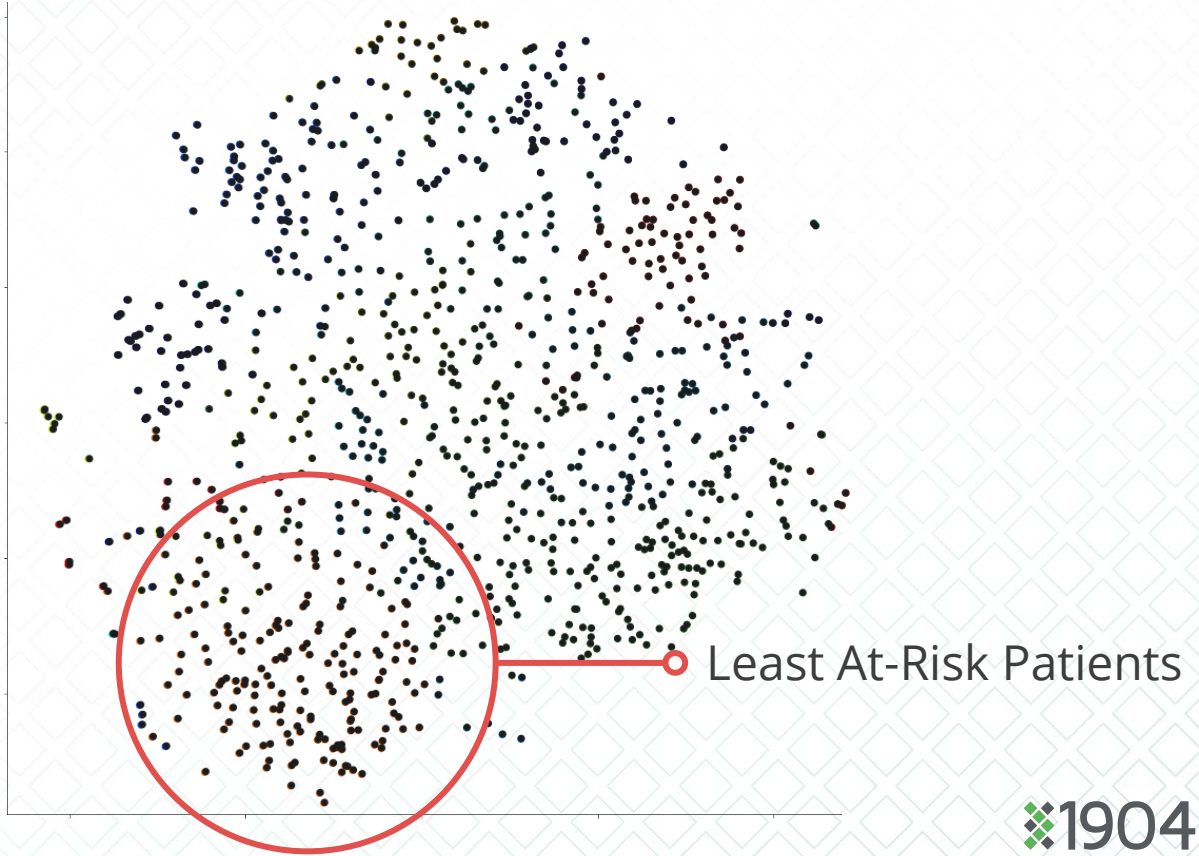
Mercy Virtual - Opportunity

Patient Segmentation



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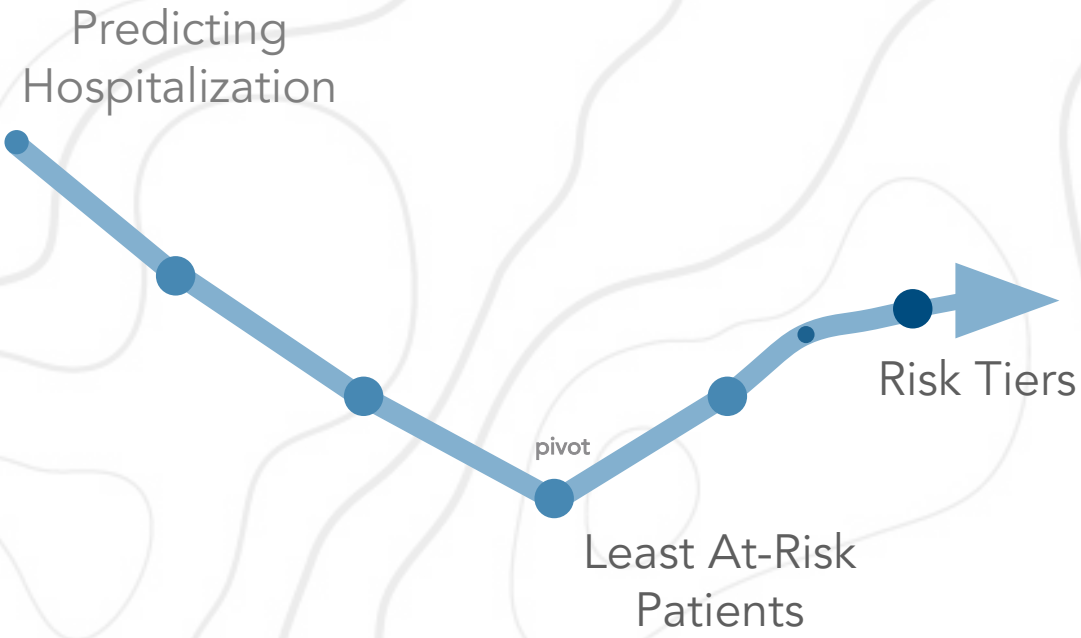

Deployable Model
&
Actionable Insights

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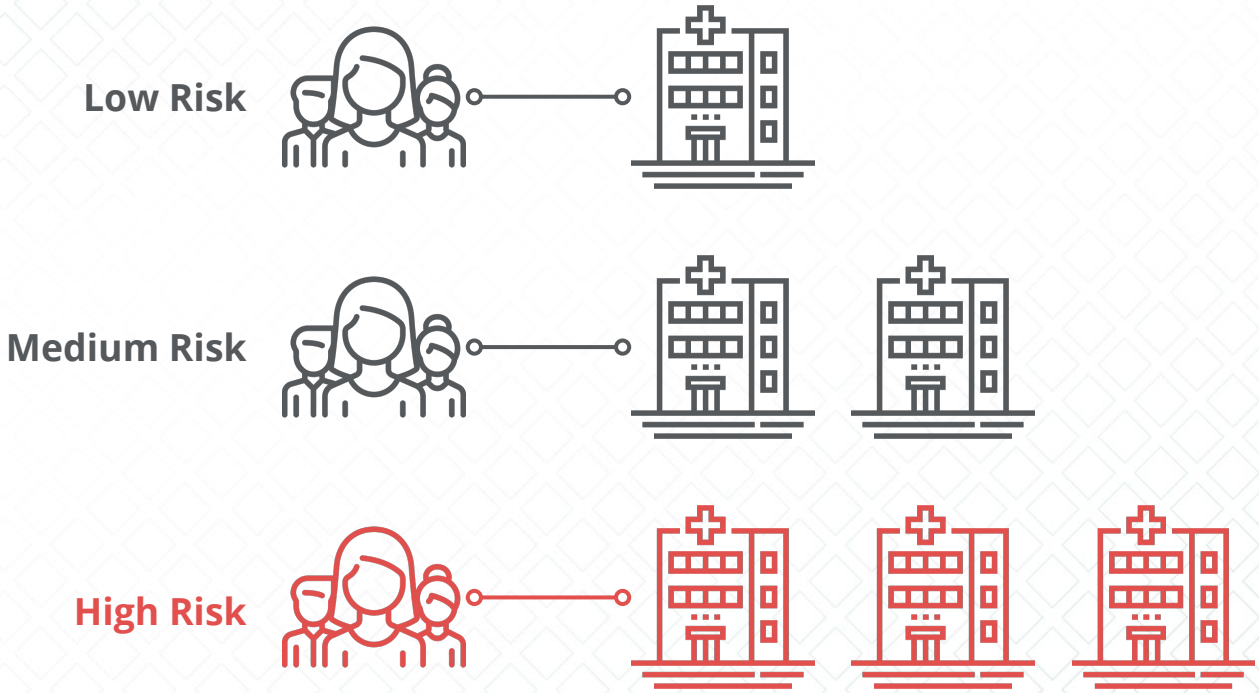
Where We Go From Here



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The Journey to Predictive Health Care

- **The Road is Not Always Straight**

- **There is Value In the Journey**
  - **Throughout the process, you are building a decision science capability**

QUESTIONS?

- For more information on the 1904Labs 5-Step Decision Science Process: www.1904labs.com
- For one hour of Decision Science consulting, reach out to: bfischer@1904labs.com
- For more information on Mercy Virtual, reach out to: Mark.Bennetts@mercy.net