Using Today's Data to Predict Tomorrow's Risk

A Deep Dive into Patient-level Predictive Analytics
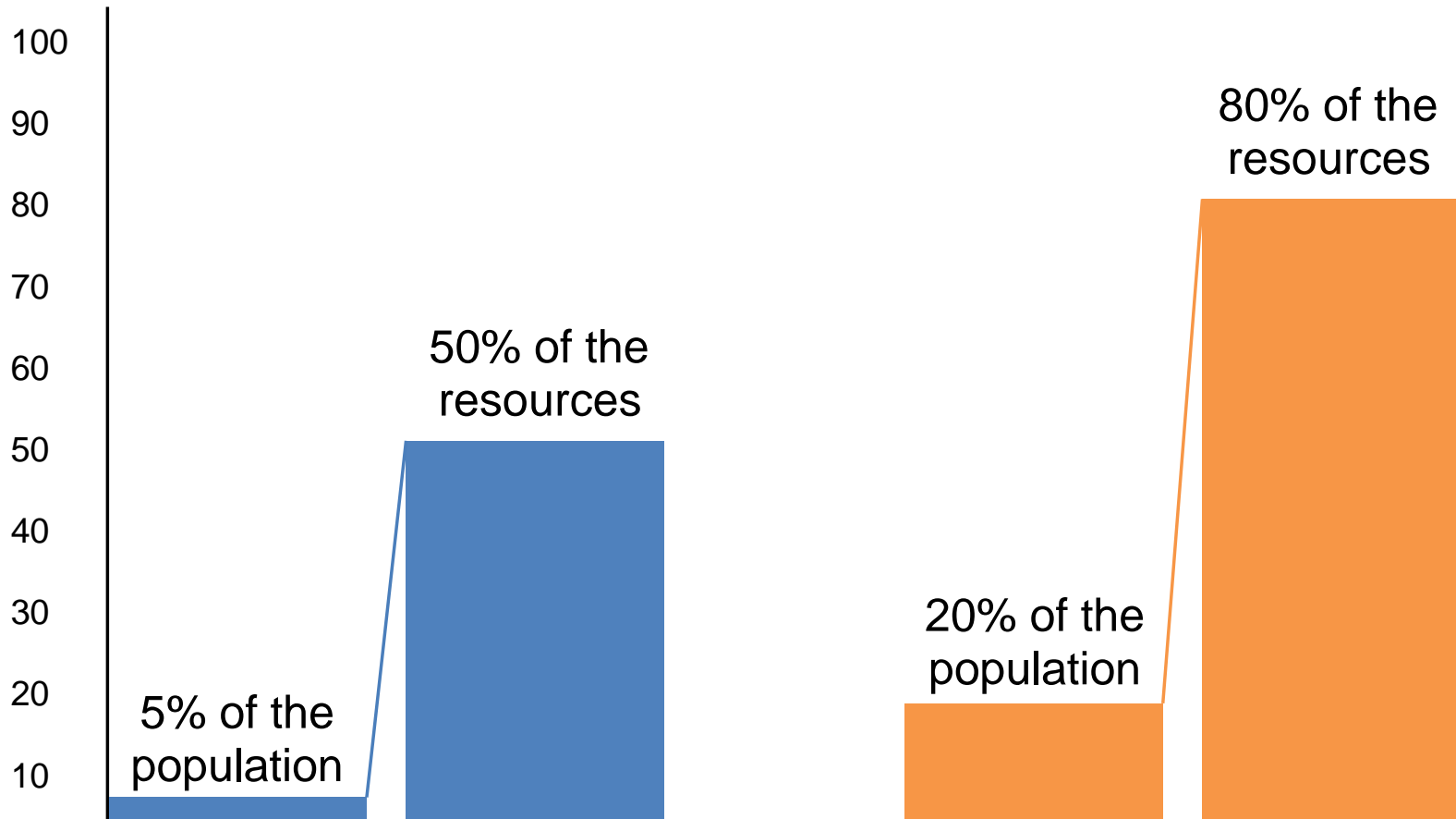
jvion

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
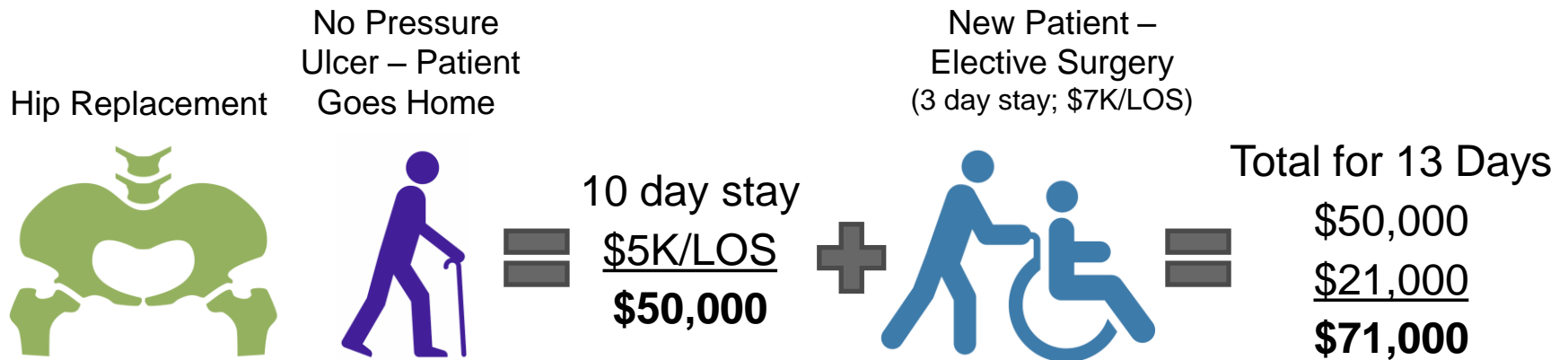- List the key actions needed to drive leadership engagement and support

jvion

Why Do We Care about Predictive Analytics?

Chart showing population vs. resources. Blue bars: "5% of the population" and "50% of the resources". Orange bars: "20% of the population" and "80% of the resources". Y-axis scaled from 10 to 100.

jvion

Why Do We Care about Predictive Analytics?

- Video placeholder

jvion

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**

jvion
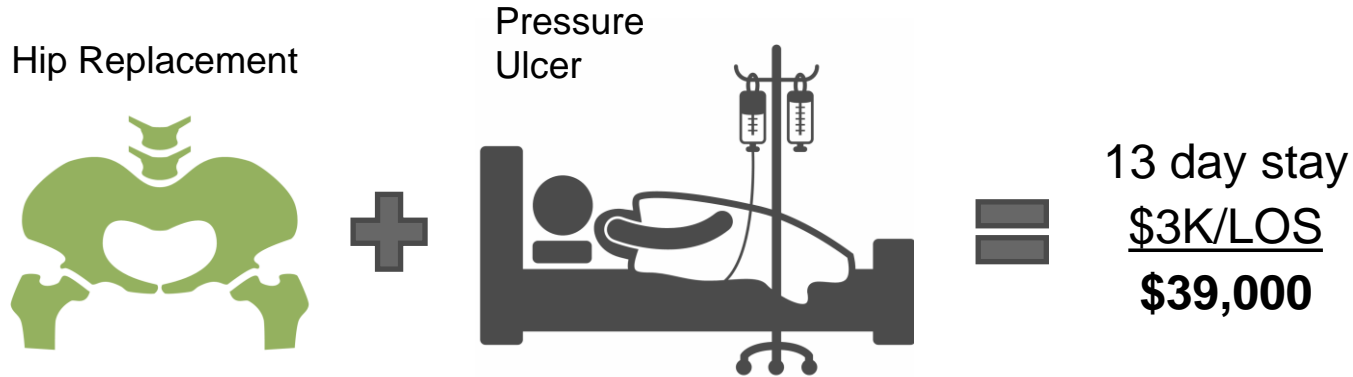
Let's Define Predictive Analytics

Machine learning

Statistics

Rules-based

Accuracy

High

Low

Variables

Few

Many (1,000s)

jvion
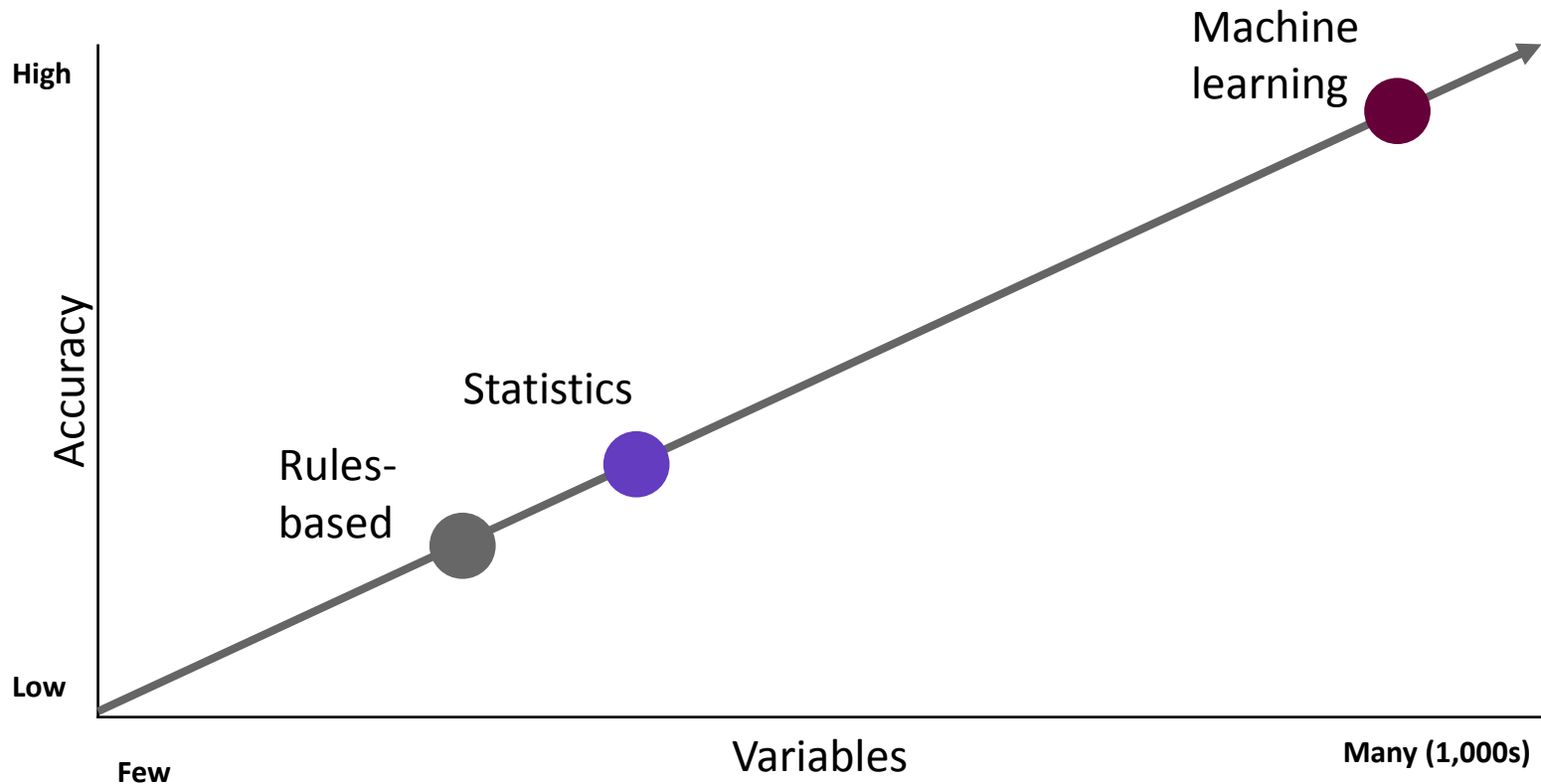
The State of Predictive Analytic Adoption

How many providers are using advanced predictive modeling?

No
85%

Yes
15%
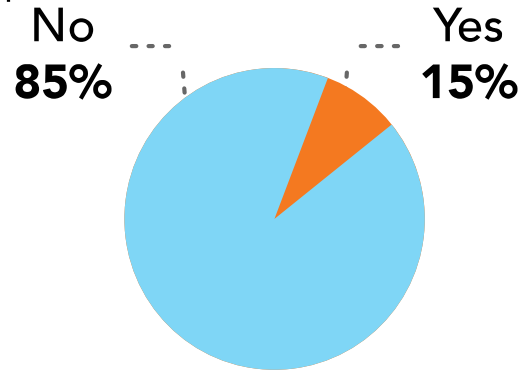
Who are the facilities that said "yes?"

Academic Medical Centers
15%

Hospital/ Multi-hospital
85%
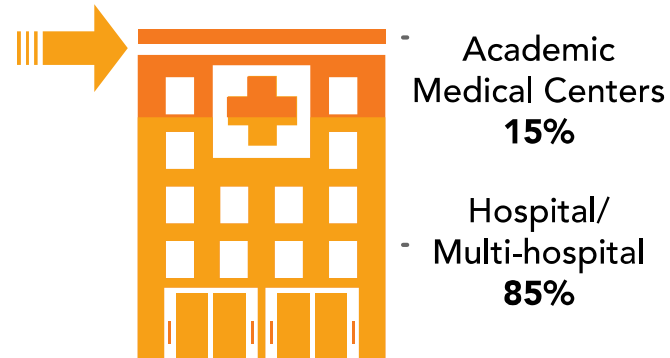
What do these facilities look like?

Academic Medical Centers

Hospital/Multi-hospital

251-500   50-100   101-250   251-500   500+

Number of Beds

jvion
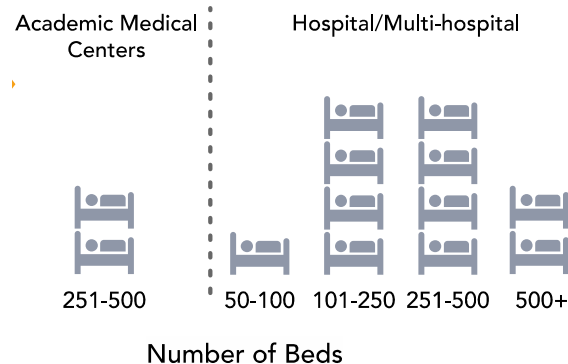
The State of Predictive Analytic Adoption

How are providers applying advanced predictive modeling?

92% are using it to predict patient risk or illness

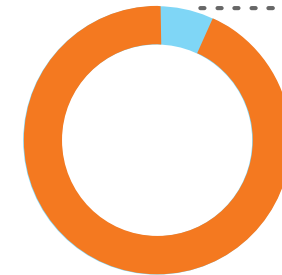**8%** are using it to support other organizational goals

What kinds of solutions are these providers using?

Home-grown Solution **18%**

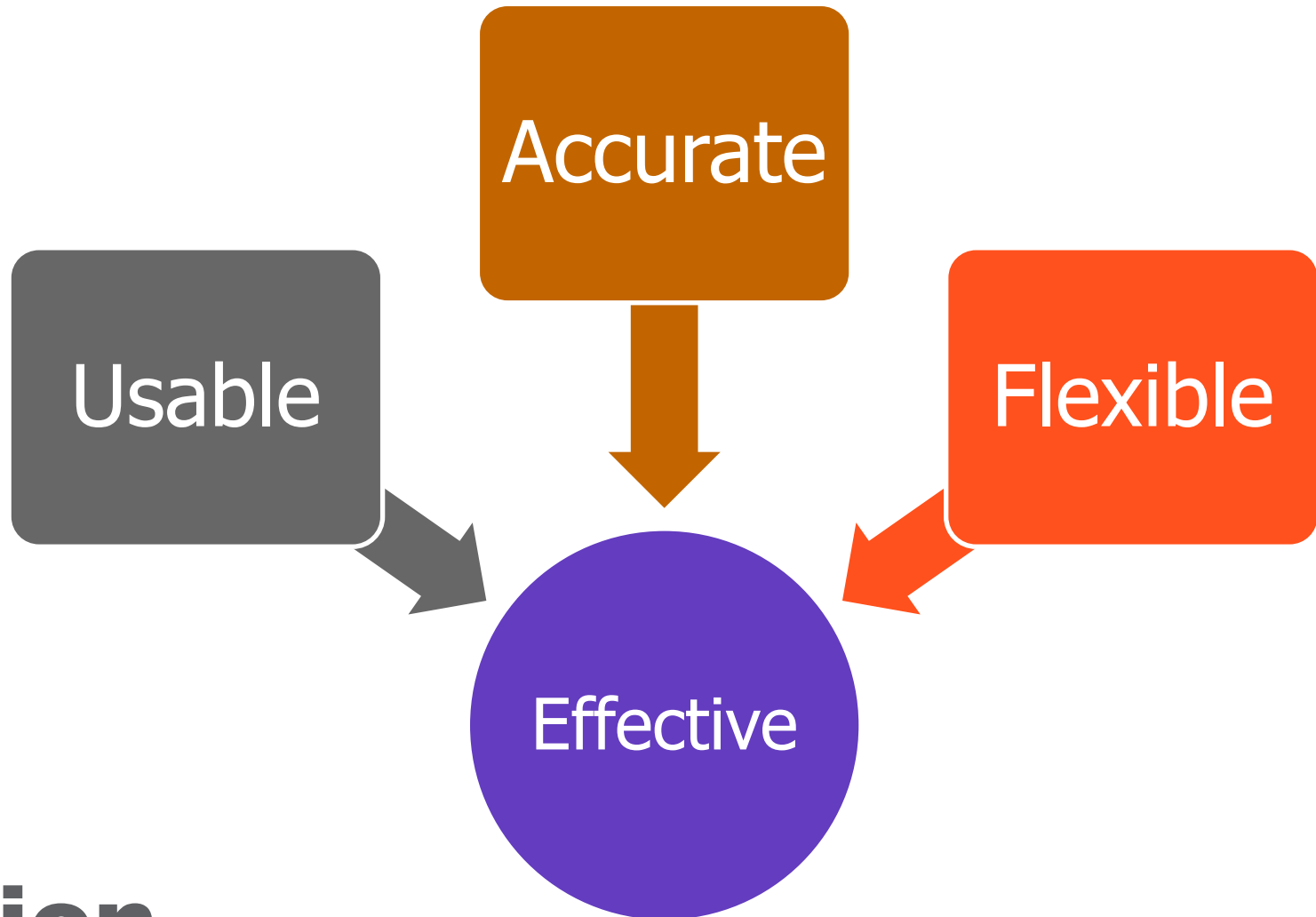Vendor Solution **82%**

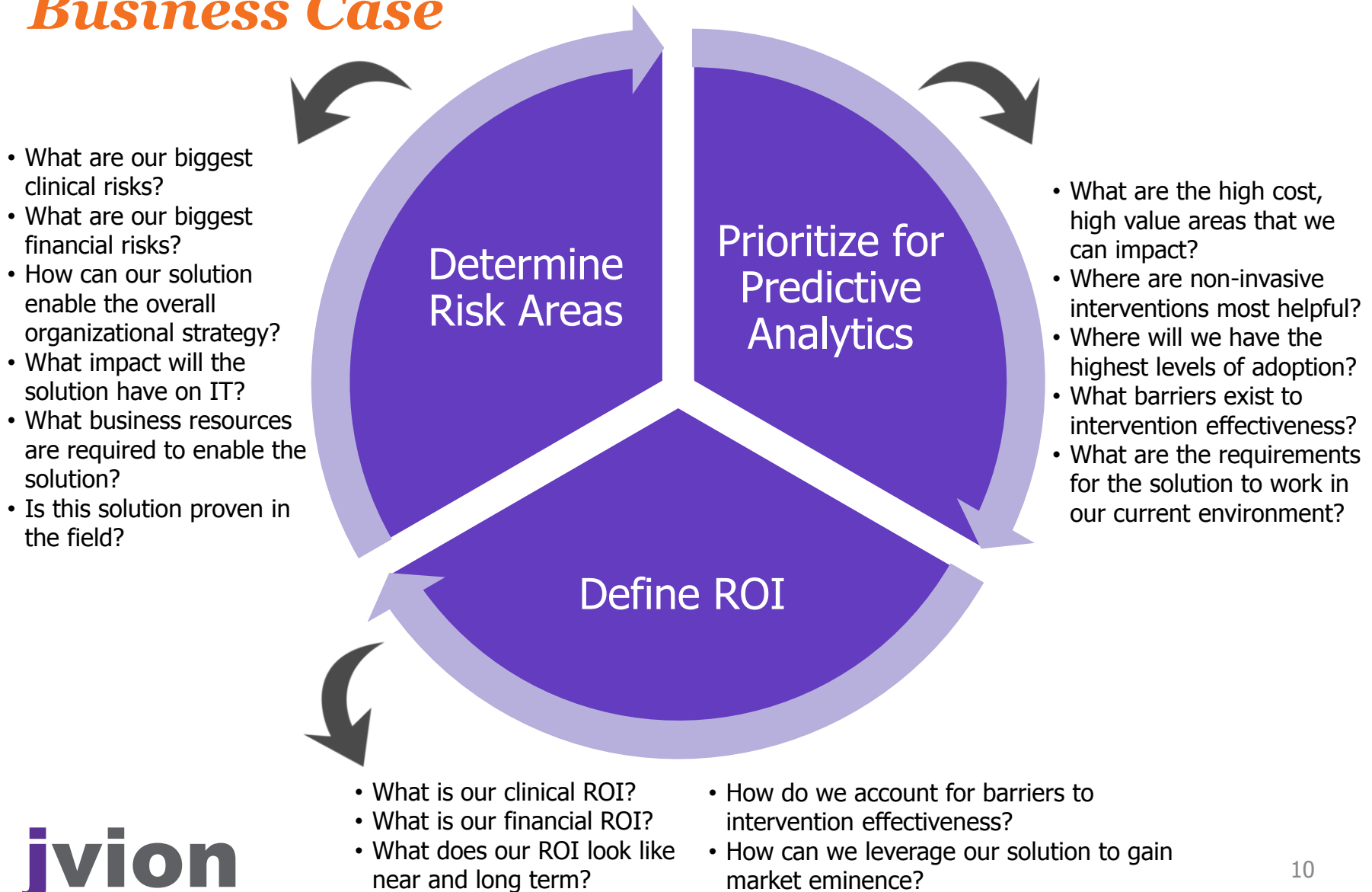## Of those who aren't using advanced predictive modeling, would they consider it?

No **4%**

Yes/ Unsure **96%**

jvion

Making Predictive Analytics Work in The Real World

Accurate

Usable

Flexible

Effective

jvion

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?

Determine Risk Areas

Prioritize for Predictive Analytics

- 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?

Define ROI

- 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?
- How can we leverage our solution to gain market eminence?

jvion

10

The Impact of Intervention Effectiveness

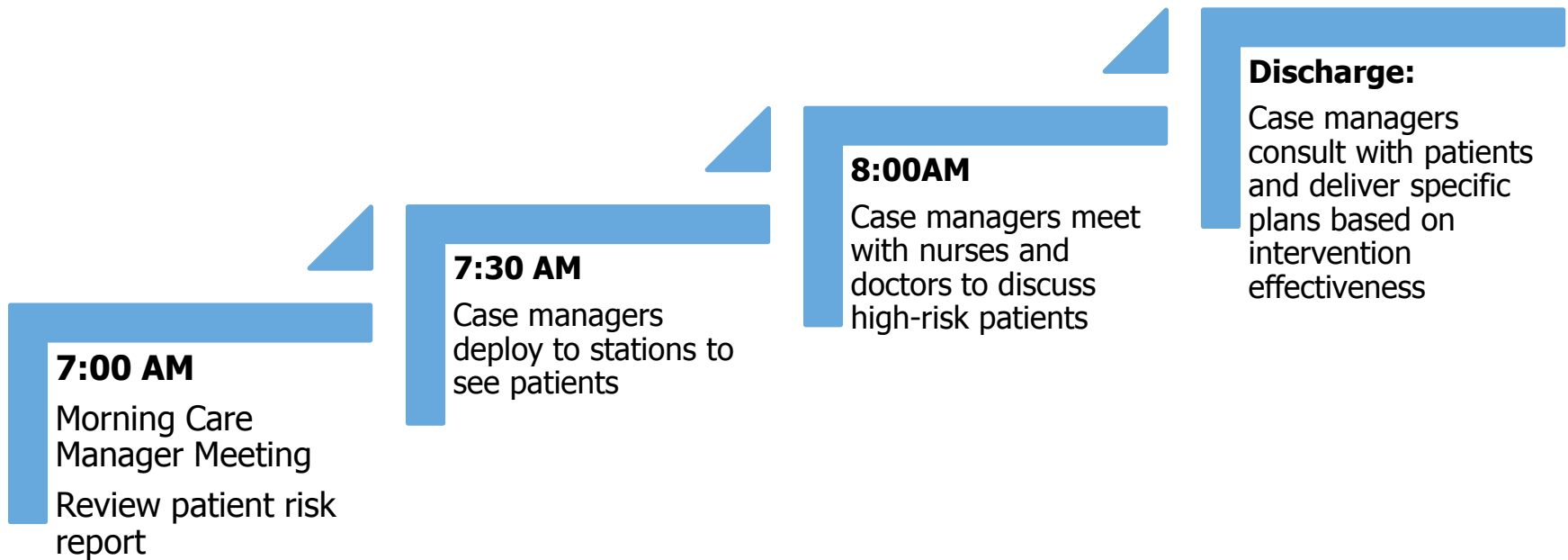Intervention Effectiveness

| 20% | 40% | 60% | Pure Potential (100%) |

Pure potential represents the accuracy of the solution

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

jvion

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

8:00AM

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

jvion

12

Applying Predictions for Population Health

Provide Individual-level Predictions
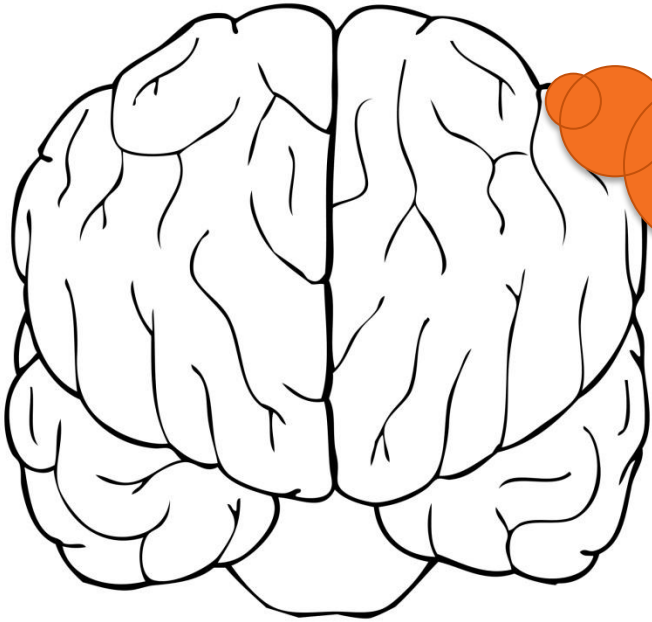
Deliver Insight into The Best Interventions

Determine the Likelihood of Engagement

Account for Gaps in Data

Provide Actionable Insights

jvion

Getting Your People Engaged

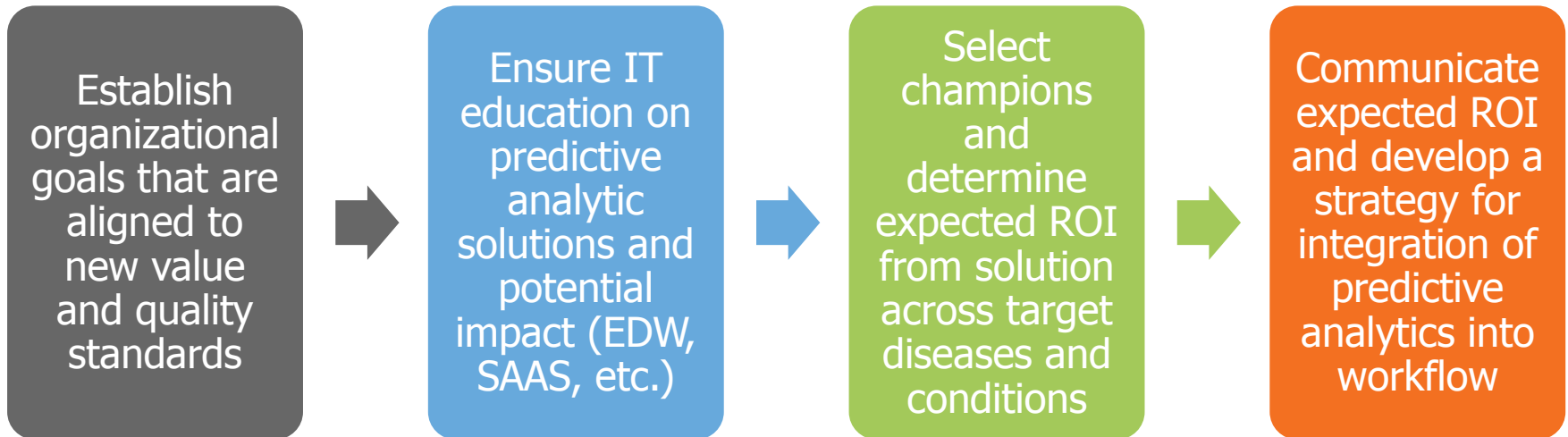Clinical staff adoption is critical to success. A solution has to:

- **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**

jvion

Is My Organization Ready?

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

jvion

15

What Are My Next Steps?

Establish organizational goals that are aligned to new value and quality standards

→

Ensure IT education on predictive analytic solutions and potential impact (EDW, SAAS, etc.)

→

Select champions and determine expected ROI from solution across target diseases and conditions

→

Communicate expected ROI and develop a strategy for integration of predictive analytics into workflow

jvion

Using Today's Data to Predict Tomorrow's Risk

Q&A

jvion