



## Using Data and Science to Fight the Opioid Epidemic

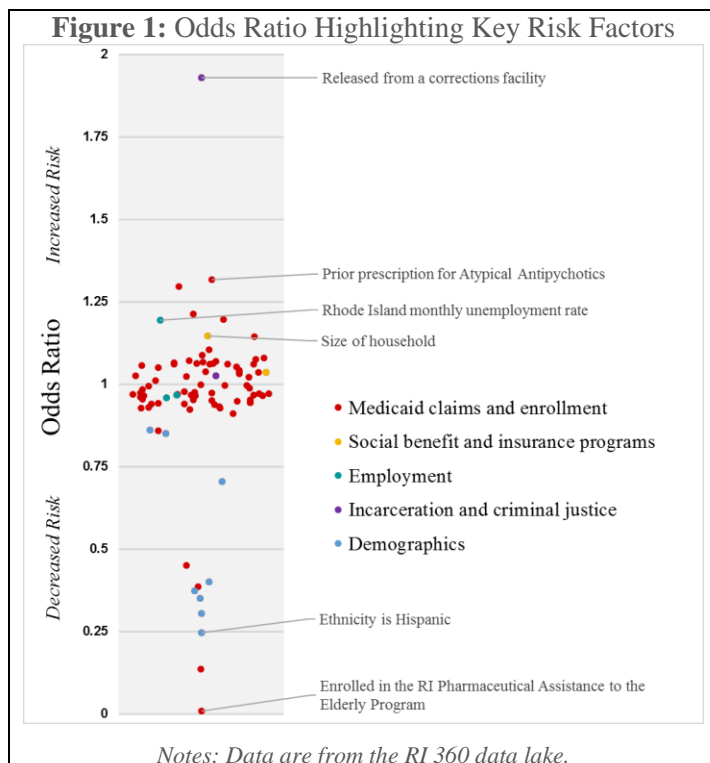
### Overview

RIPL has built a tool **that predicts with 80% accuracy whether an opioid prescription will lead to future opioid dependence, abuse, or poisoning before it is given.**<sup>1</sup> This can help policymakers and providers make better, data-informed decisions when weighing the medical benefits of opioid therapy against the risks.

### Predicting Opioid Outcomes

The opioid epidemic is a national health emergency and one of the leading causes of death for Americans. Up to 80% of those diagnosed with opioid use disorder were introduced to opioids through a legitimate prescription. In addition to treating dependence, we also need policy interventions that consider risk at the point of prescription, to prevent opioid misuse before it ever occurs.

We partnered with Rhode Island to find a low-cost, data-driven way to identify high-risk opioid prescriptions *before* they are given. Using government administrative data and machine learning models, we built a tool that does the following:



1) **Predicts with up to 80% accuracy which individuals will be at risk of opioid dependence, abuse, poisoning and overdose, prior to their first opioid prescription;**

2) Highlights **key life factors and policy interactions that predict dependence, abuse, or poisoning**, which in RI we find to be prior non-opioid prescriptions, medical history, incarceration, and demographics (see Figure 1);

3) **Simulates hypothetical policy changes to understand the tradeoff between risk and fairness**, so that policymakers can understand costs and benefits to specific policy approaches.

Our results deliver an accurate prediction of who will become dependent on opioids, based on data known about them before a prescription is given. This approach can empower policymakers and practitioners with the information they need to evaluate the costs, benefits, and fairness tradeoffs to certain policy

approaches. **They also suggest that using a risk rating to help practitioners guide prescriptions can reduce harm for all, dramatically improving the lives of individuals and families, while also reducing the social and economic burden of the opioid epidemic on American communities.** This low-cost, high-impact model can be built using data that state and county governments already have.