



Rhode Island's Medicaid expenses are the second highest in the US. How can we lower costs and improve care?

Goal

A key finding from Governor Gina Raimondo's Working Group on Reinventing Medicaid is that Rhode Island could "potentially save \$90 million annually by preventing non-emergency visits to emergency rooms," including \$18 million on non-emergency, emergency department (ED) claims. How can we uncover the drivers of preventable ED claims to propose policy innovations that lower costs and improve health?

Assessment

Nationally, Medicaid spending has risen substantially, from \$263 to \$429 billion - an increase of 63% - while enrollees have increased by 50%. Additionally, the percentage of ED claims grew from a steady 10-15% in the first decade of this century to 30% in 2014. Rhode Island ranks second in the country in Medicaid costs per enrollee, with expenditures that are 60% higher than the national average.

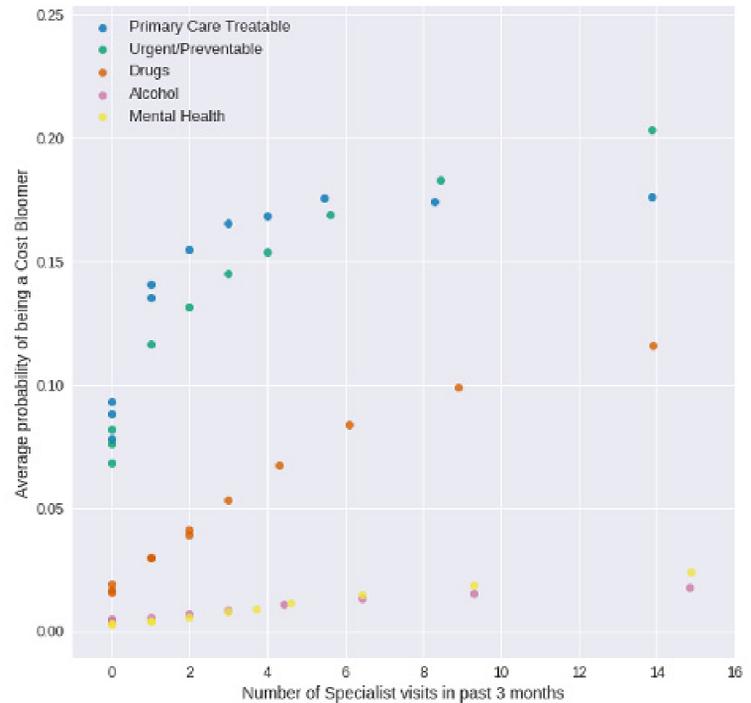
To assess what policies could be most effective in reducing avoidable ED costs, RIPL needs a predictive model of preventable ED visits.

First, we used industry standard classifications to group preventable claims into five categories: those stemming from alcohol-related, drug-related, mental health related, urgent-but-preventable or primary-care-treatable health events. Then, we used machine-learning algorithms and RIPL's Panorama database to predict "Cost Bloomers" - Medicaid enrollees who moved from being in the bottom 50% of preventable ED expenditures to the top 10% in the following year in each of these five categories.

Results

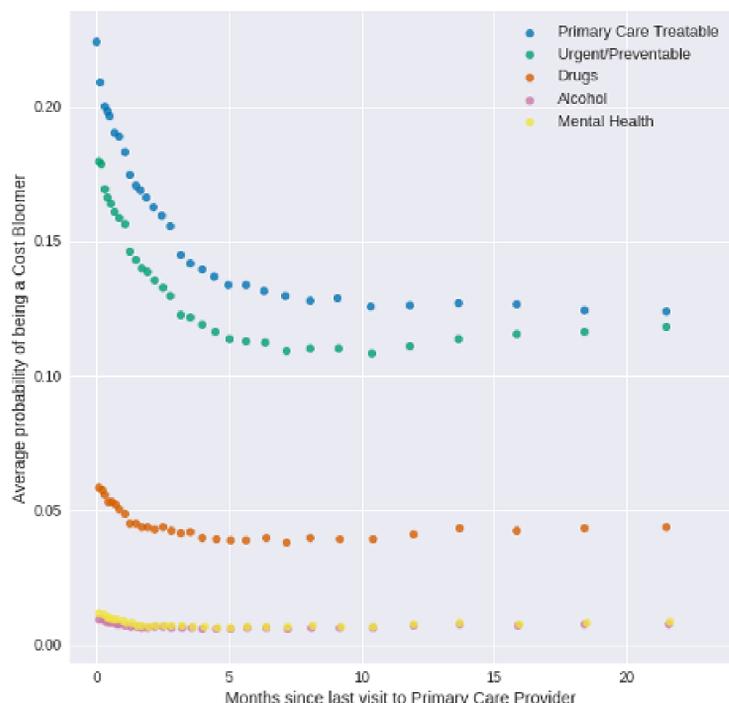
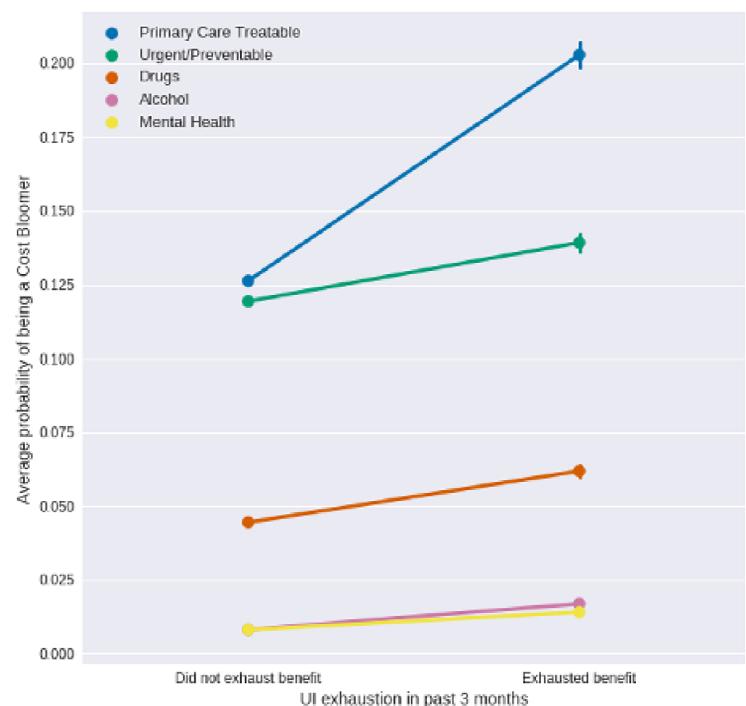
What are the key predictors of Cost Bloomers in each category?

Preventable ED costs are strongly predicted by recent primary care visits, suggesting that lack of connection to non-ED health care is not a primary driver of many preventable ED costs. In particular, the number of months since the last primary care visit is the most predictive factor for primary-care-treatable and urgent-but-preventable Cost Bloomers, but not for the other three categories of claims. Similarly, preventable costs are predicted by recent visits to specialists, which is the next most predictive factor for primary-care-treatable and urgent-but-preventable Cost Bloomers.



This suggests that policy innovation might focus on understanding how current doctors can offer services in place of ED visits.

Finally, we examined which social policy factors are predictive of cost blooming. We find that benefit exhaustion is often associated with increased probability of cost blooming. This suggests that innovative policy outreach could be accomplished through government benefit programs, such as Unemployment Insurance and Temporary Disability Insurance, right before benefit exhaustion.



Conclusions and Next Steps

Machine learning is a powerful tool when combined with ideal data to solve real world problems. By uncovering key predictors across a panoply of government programs and patient characteristics, we can make laser-focused policy recommendations based on facts. Next steps are to further tune the predictive model, and work with ED experts at the Departments of Health and Labor and Training to, based on these findings, design and test ways to lower Medicaid cost while better serving Rhode Islanders' health care needs.