

Did the Affordable Care Act... Actually Act?

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The Investigation

Our project is analyzing the impact of the Affordable Care Act on low income Americans in 5 New England states (Rhode Island, Massachusetts, Connecticut, New Hampshire, and Vermont).

We are looking at the prevalence of preventative care before and after the ACA was implemented, using the 2011-2014 period as our before baseline and 2015-2018 as after. All of the states within our data set adopted the Medicaid expansion and had no other major changes to healthcare within this time period.

Hypothesis

In New England states, the Affordable Care Act increased low-income residents' access to preventative healthcare using the following metrics to determine success: **health coverage, cost barrier to seeking medical help, self-reported health, and checkup frequency.** For each metric, we tested specific variables from the BRFSS described below.

- **Health Coverage:** persdoc2, hlthpln1
- **Cost Barrier:** medcost, medscost
- **Self-Reported Health:** poorhlth, genhlth
- **Checkup Frequency:** checkup1

Data

Data is taken from the **BRFSS (Behavioral Risk Factor Surveillance System)** database, which is the largest continuously-conducted health survey in the world. There are roughly ~400k people interviewed each year over telephone. We analyzed survey responses from 2011-2018 and filtered for low-income respondents and questions regarding preventative care.

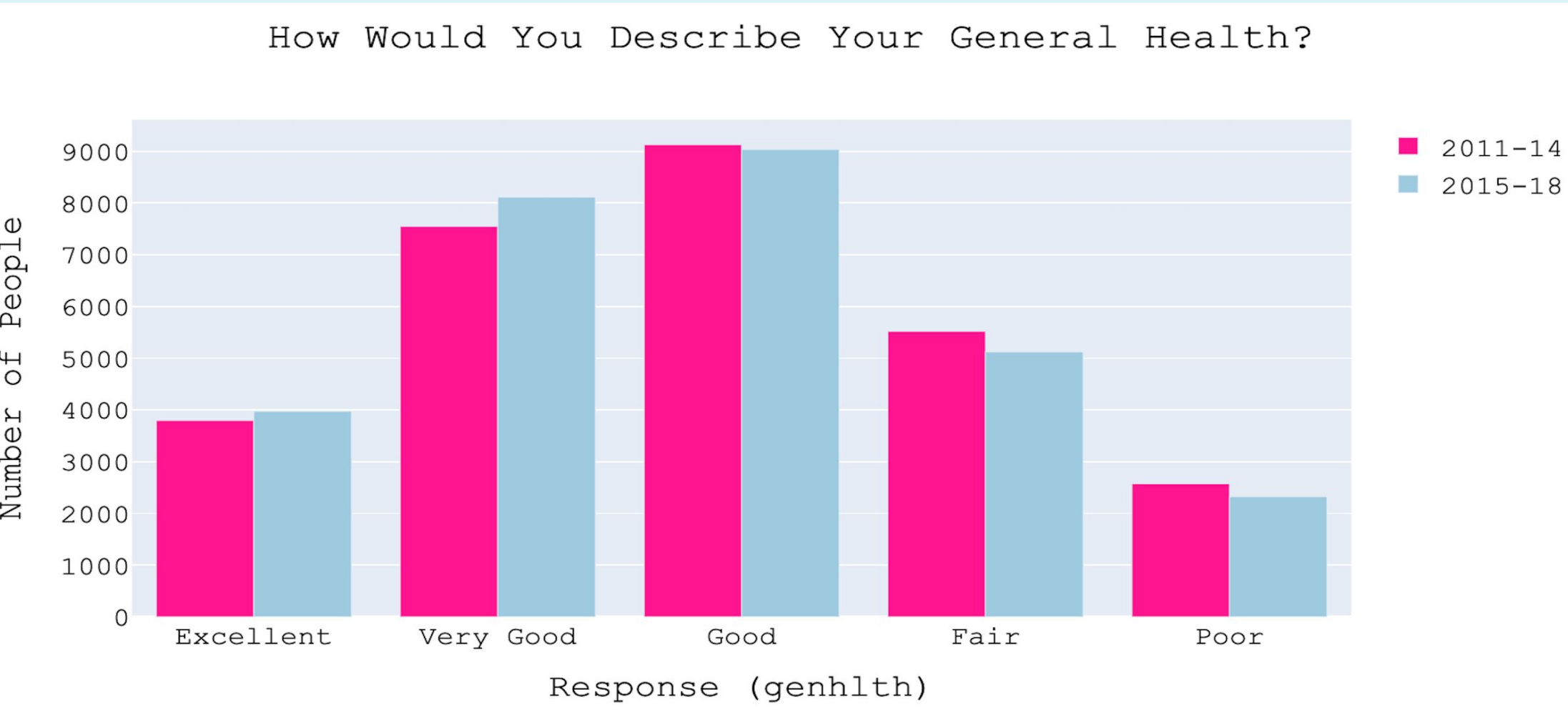
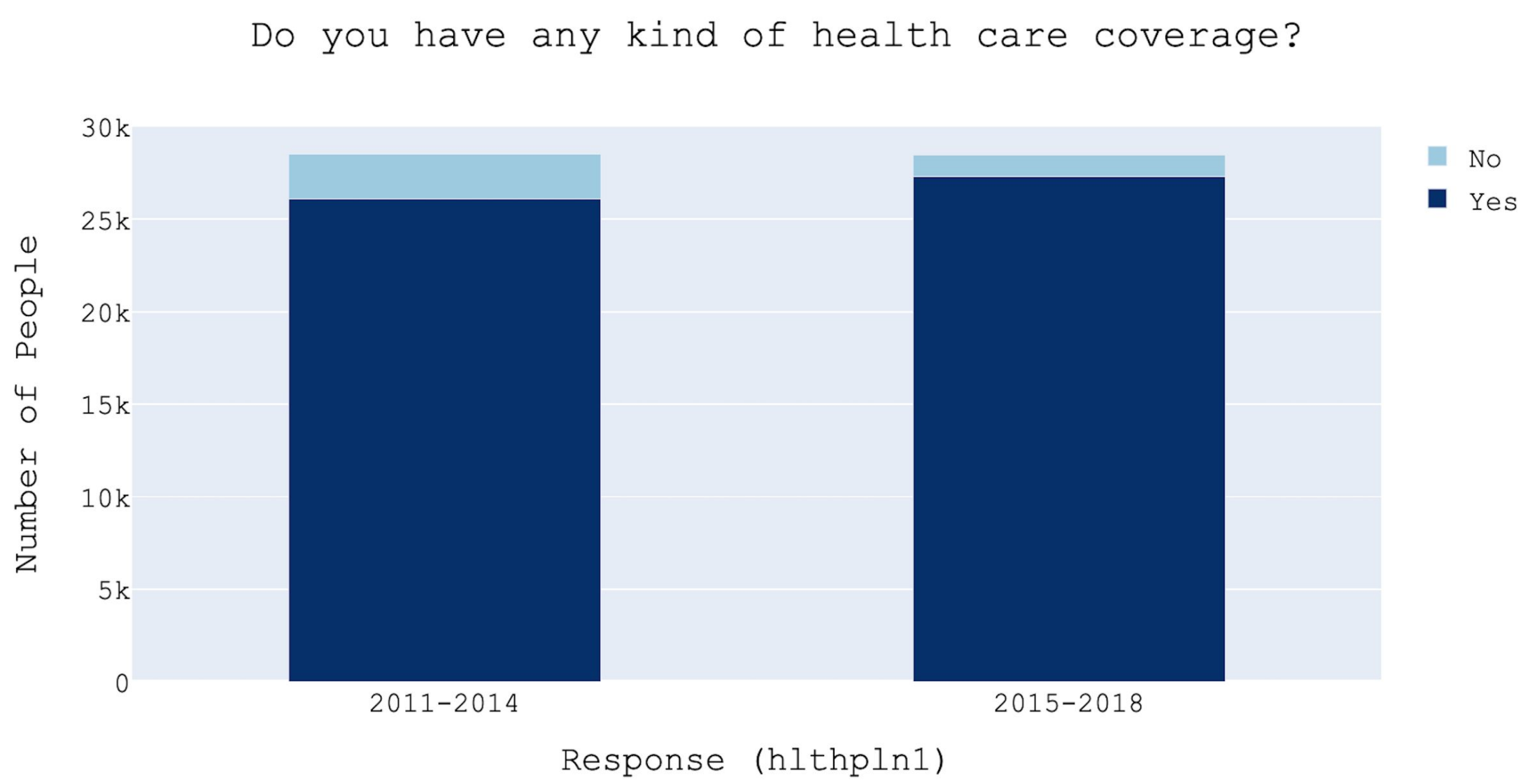
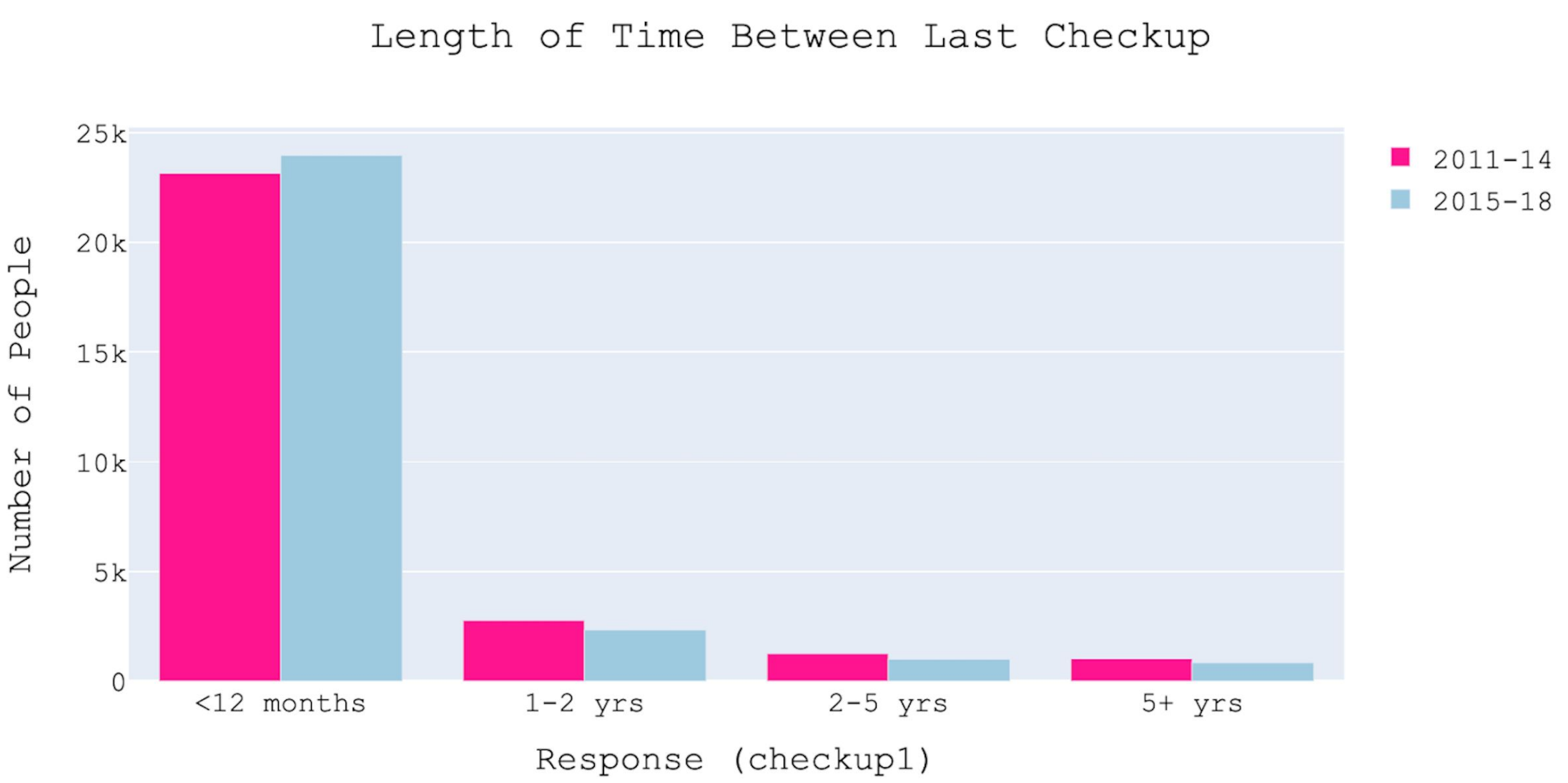
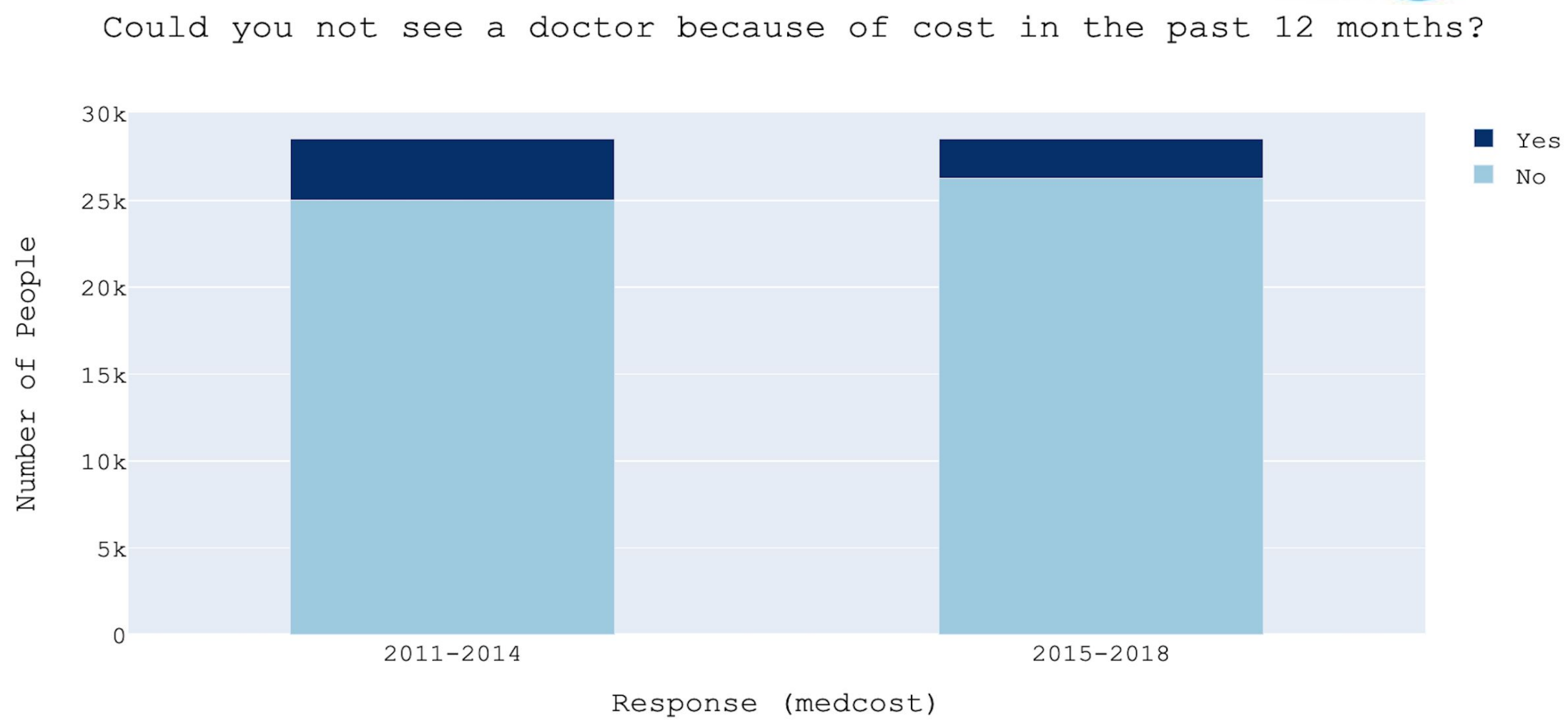
Testing Variables

Variable	Meaning
medcost	Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?
medscost	Was there a time in the past 12 months when you did not take your medication as prescribed because of cost?
hlthpln1	Do you have any kind of health care coverage?
persdoc2	Do you have one person you think of as your personal doctor or health care provider?
checkup1	Length of time between your last checkup?
poorhlth	How many days did your poor physical or mental keep you from doing your usual activities?
genhlth	General health of the participants ("Excellent", "Very Good", "Good", "Fair", or "Poor")

Results and Methodology

To test our metrics of success, we ran 5 **chi-squared tests** on our categorical values (medcost, medscost, checkup1, hlthpln1, and persdoc2) and 2 **two-sample t-tests** on our quantitative variables (poorhlth and genhlth). Results are summarized in table below.

	Chi-Squared Values	Degrees of Freedom	P-value	Significant? (Is p < 0.05?)
medcost	298.3474	1	7.5477e-67	Yes
medscost	2.6580	1	0.10303	No
hlthpln1	426.9376	1	7.54078e-95	Yes
persdoc2	84.8191	1	3.269563e-20	Yes
checkup1	95.25679	3	1.62604e-20	Yes
	T-Values	Degrees of Freedom	P-Value	Significant? (Is p < 0.05?)
poorhlth	-1.55005	14664	0.060575	No
genhlth	-7.416385	57126	6.098692e-14	Yes



Challenges and Limitations

- The data had to be processed to account for different naming conventions between the years
- Certain questions had a large (>90%) proportion of null responses and some questions were not offered in all of the years, which offered some challenges in our analysis.
- Confounding variables with time sensitive data: inflation, cost of living per location, phone availability
- Results are not representative of the entire US

Conclusions

Considering we have tests in each of our 4 categories with $p < .05$, we can reject the null hypothesis that the Affordable Care Act did not change low-income residents' access to healthcare according to our metrics for success. These tests, alongside the distribution graphs, **provide evidence to support our alternate hypothesis that the Affordable Care Act had a statistically significant beneficial effect to low income Americans in the New England area.** Results of this data can inform state health departments, healthcare organizations, and policymakers about the role federal health regulations have on low income Americans. Future work can focus on other US regions or focus on the effect of the Affordable Care Act on racial/ethnic disparities in health insurance coverage.