Health and Transportation

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Context

Description

Our project stems from the ongoing efforts of Moumita Dasgupta and her research on how we can unify the healthcare and transportation systems of the Pioneer Valley to improve patients' experiences, efficiency, and reduce costs. Our work brings to life a pilot study of the most frequented health facilities in the Springfield Area, and aims to show the existing inefficiencies as well the importance of addressing this problem.

The pilot study consisted of interviews with over 100 people and measured a variety of variables such as perceived reliability of transportation and the quantity people are able to pay to get to their appointments.

PROBLEM   **VISION**
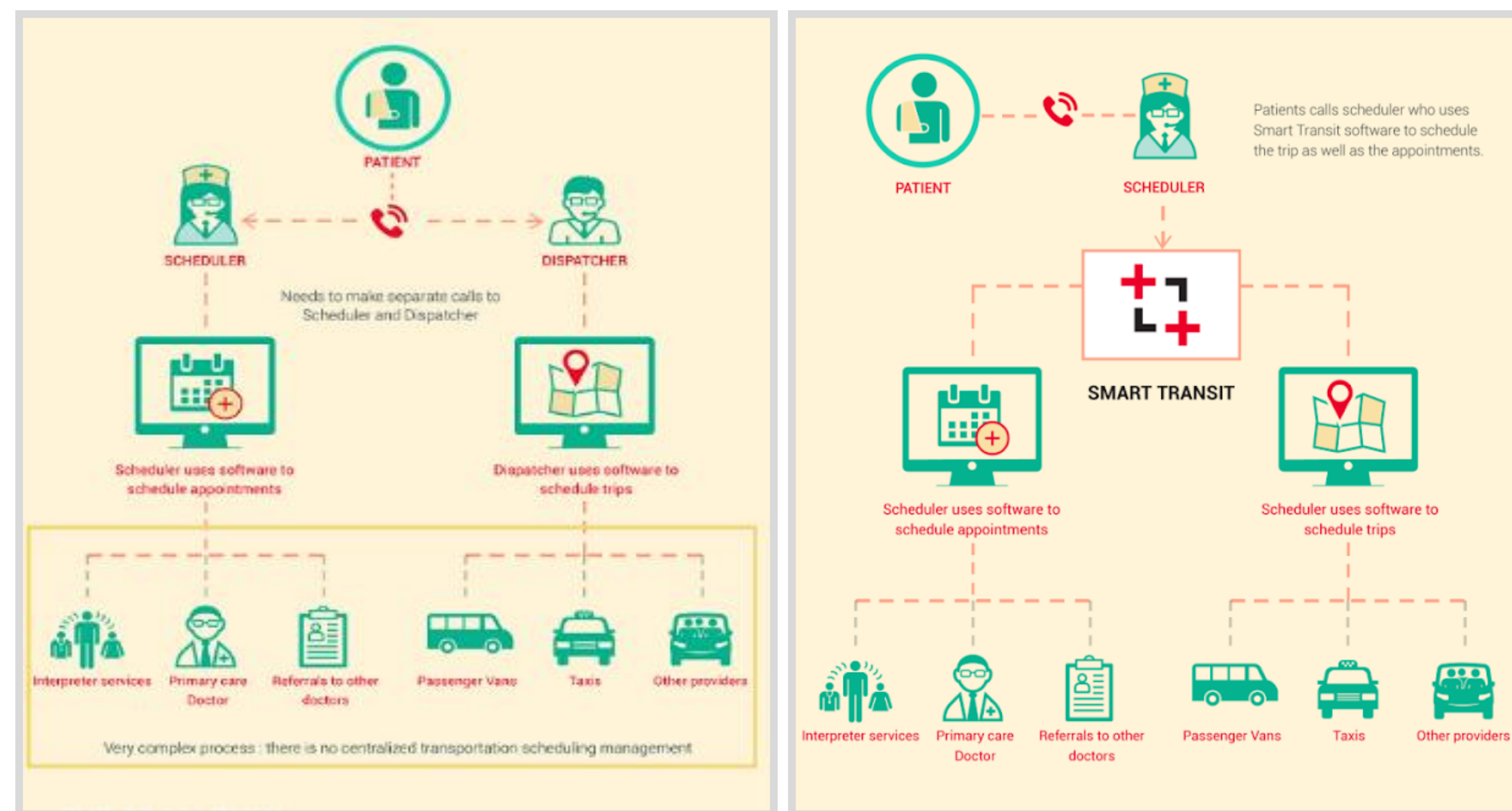
https://www.umass.edu/sphhs/sites/default/files/SmartTransitHealthcare_HealthSummit.pdf

Data Days For Good

Mass Mutual hosts Data Days for Good, a series of events that invites teams from New York Boston and Amherst to work on projects of their choice, with the collective end goal of impacting social good. DDfG2018 was the first to host a team made up by college students. Our team took on an independent project, and with the help of consulting team members Grace Seungin Yoo and Nailong Zhang, built a web app throughout the course of 5 days.

Acknowledgements

Mass Mutual's Data Science Team
Amherst College SURF
Professor Nicholas Horton
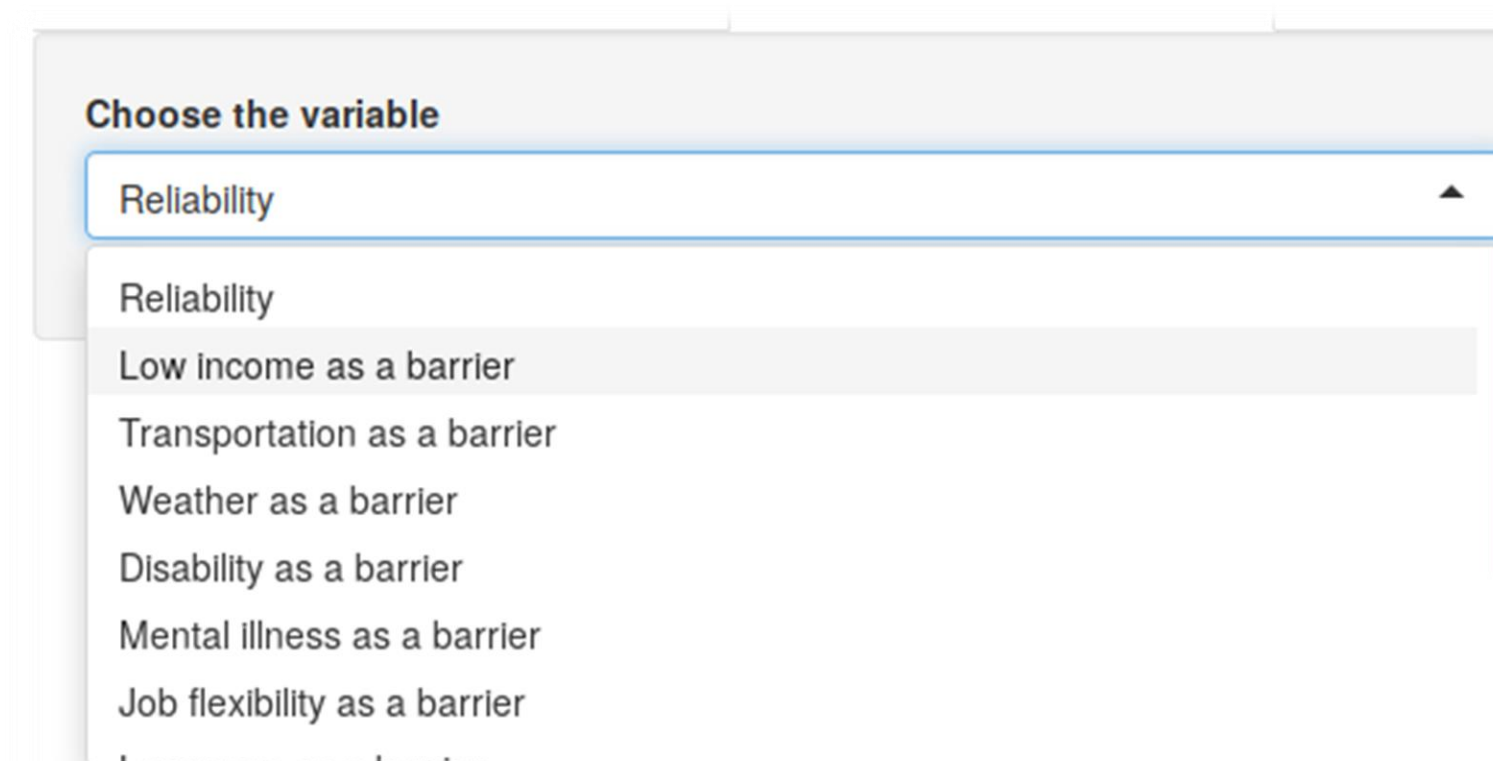Dr. Moumita Dasgupta

Web application

Modern

Our web app is built using the same tools that professional Data Scientists use in the workplace.


Easy to Use

From the start, our application was meant to be easy to use and accessible. Intuitive menus and effective graphs help users identify key insights with ease.


Powerful

Our application has a client-side and a server-side. The communication between the two allows us to form complex visualizations with multiple variables as well as user input. These visualizations are helping us find out more about the health and transportation problem in the Pioneer Valley.
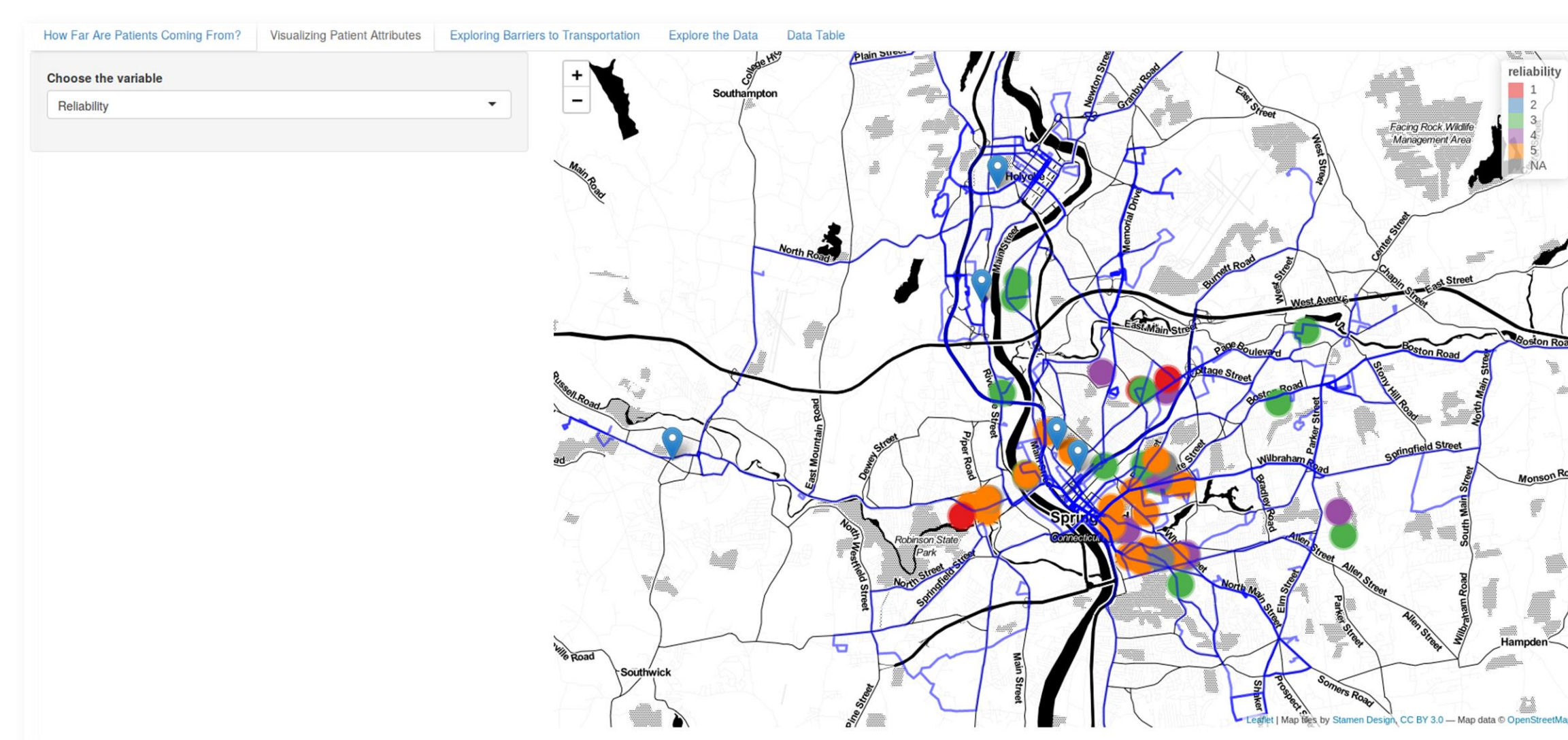

Scalable

Our application incorporates state-wide data from MA hospitals, regional data from Pioneer Valley Transit Authority, as well as individual patient data from the pilot study.

Our visualizations and methods easily scale to larger datasets. One example is the convex hull finder that highlights the smallest polygon that contains all the patients that frequent a hospital the user chooses to display.
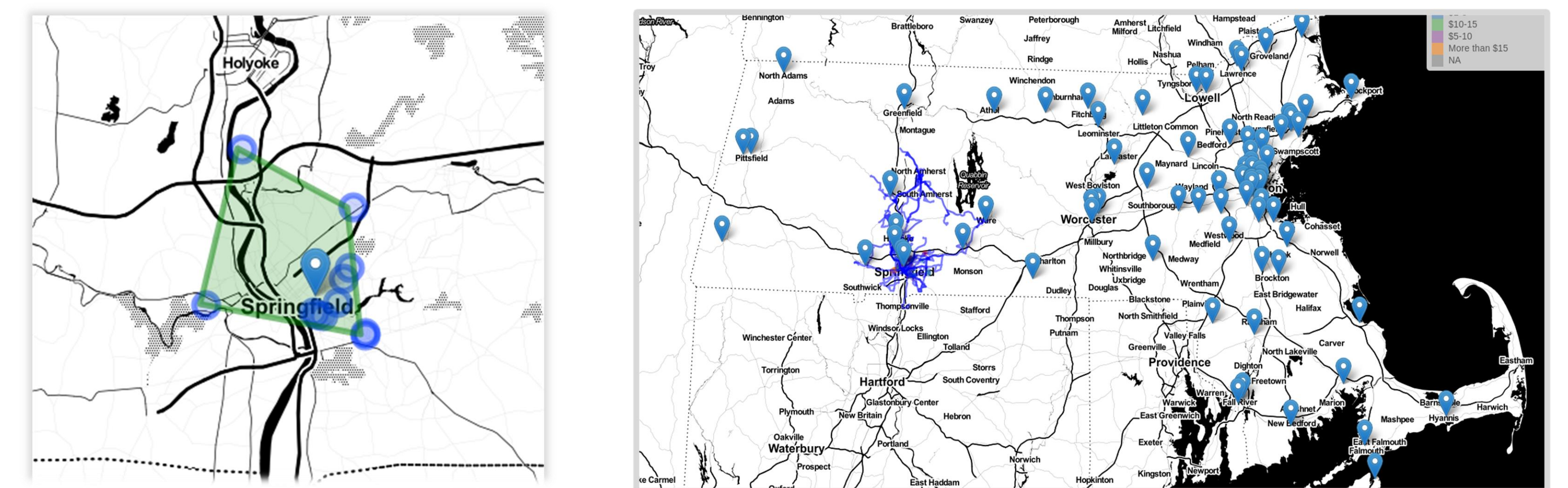
Insightful

Data visualizations like the ones below provide quick exploratory analysis that can help us understand the data from the pilot study. We also included a preliminary dashboard that displays simple and insightful visualizations.
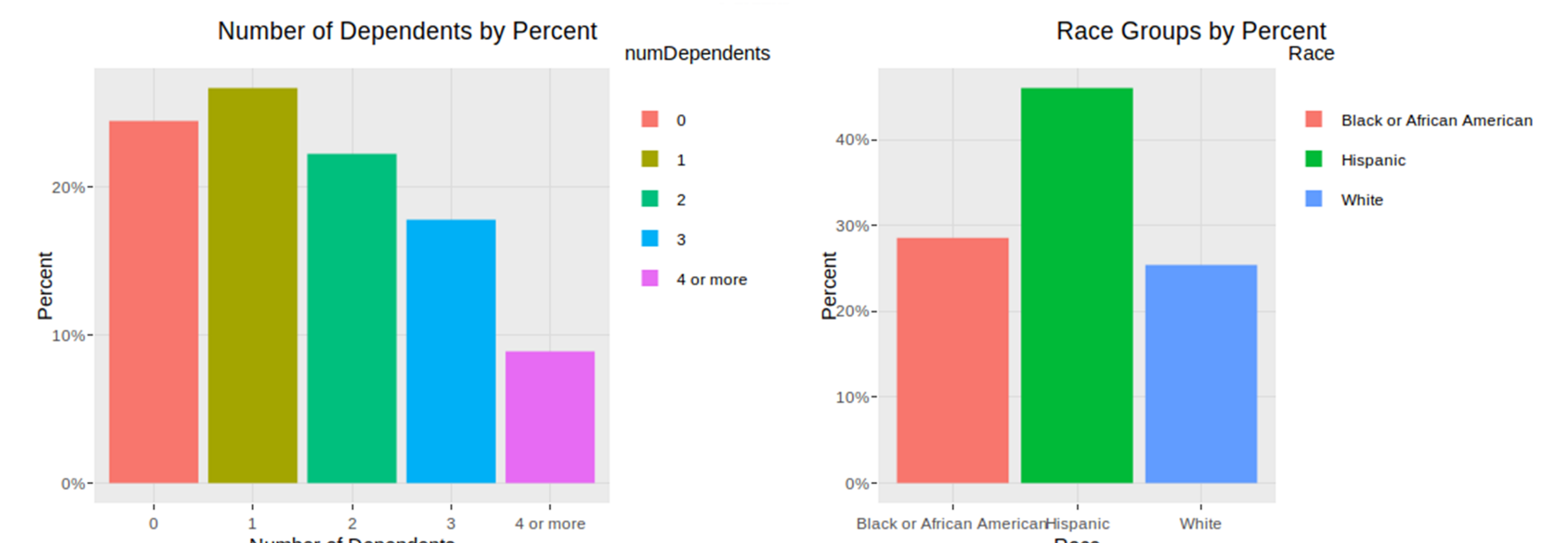
Moving Forward

Our web application clearly showed how it is possible to use modern data science tools to understand the problem of healthcare and transportation.

Next steps for the web application are: 1) Add more sophisticated bivariate and multivariate analyses that exposes more relationships between patient data and their location. 2) Implement better design strategies to convey a clear purpose.

Our web app is hopefully the first of many tools that policymakers will be able to use to recognize key changes to better integrate healthcare and transportation.