

## ABSTRACT

### Program Purpose

Narus Health is a healthcare case management company based in Nashville, TN. Narus' mission is to reduce the physical, psychological, and logistical burdens of disease by providing patient advocacy, care coordination, skilled clinician oversight, and advanced analytics. Going into my practicum, my goals were to learn about a new and flourishing field of the healthcare industry while building skills in data management, analysis, and visualization.

### Structure

This practicum was completed over a 6-month period at Narus Health's primary office located in Nashville, TN.

### Outcomes

I gained valuable skills in data management and coding (PostgreSQL), data visualization (Tableau), and practical application of my academic experience with statistics. Throughout my experience at Narus, I worked on a variety of projects; I often used my new data management and visualization skills to produce external status reports for clients as well as reports for internal use. My final project was a return on investment evaluation of the effect that Narus' service has on the medical costs of enrolled patients. Using statistical skills learned in the MPH program (constructed an interrupted time series regression model using our claims data), I was able to demonstrate a positive ROI for our clients.

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## NARUS HEALTH

### Rising Cost of Healthcare

Although many rising expenses are justifiable, there are also significant areas of healthcare that would benefit from positive intervention. (Siloing of care, confusing benefits structures, pricing opacity, etc.)

### Care Coordination

The complicated process of healthcare leaves patients vulnerable, frustrated, and passive consumers of one of their most significant expenses. Narus Health uses the below tools to maximize our impact on our patients.



Continuous Data Analytics



Benefit Optimization



Collaborative Care



Community Resource Database

Throughout my practicum, I reported to Narus' director of data analytics and chief operating officer. In the early stages of my internship, I was responsible for producing a number of client-facing reports summarizing Narus' performance and patient engagement. My goals for this experience were to gain healthcare experience in a startup environment, diversify my skillset, and produce meaningful work for Narus.

When I started at Narus, my planned projects were largely research-based: evaluating the value of insurance benefits versus the medical issues in a client's workforce, finding risk factors for opioid abuse, et cetera. Although I have been involved in the above-stated research projects during my internship, I have largely transitioned to a more tangible, functional role.

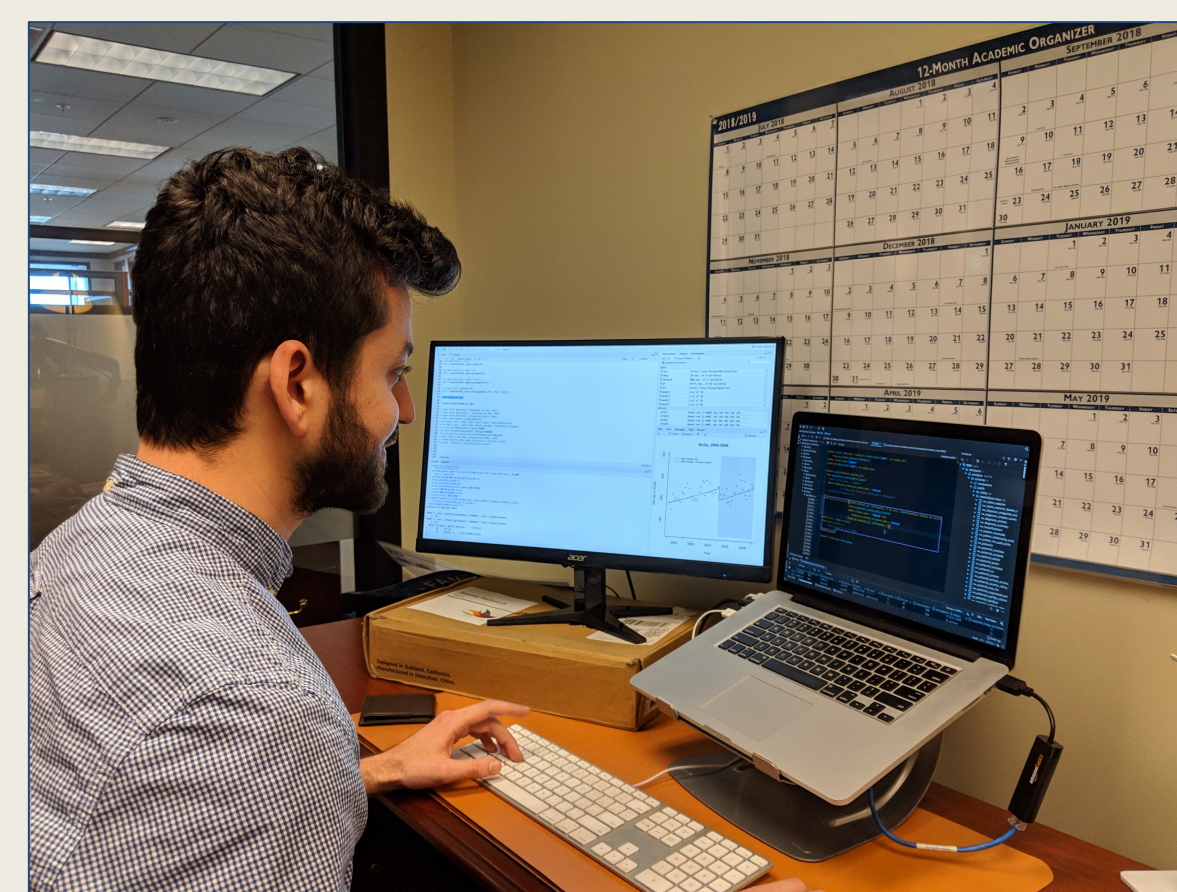
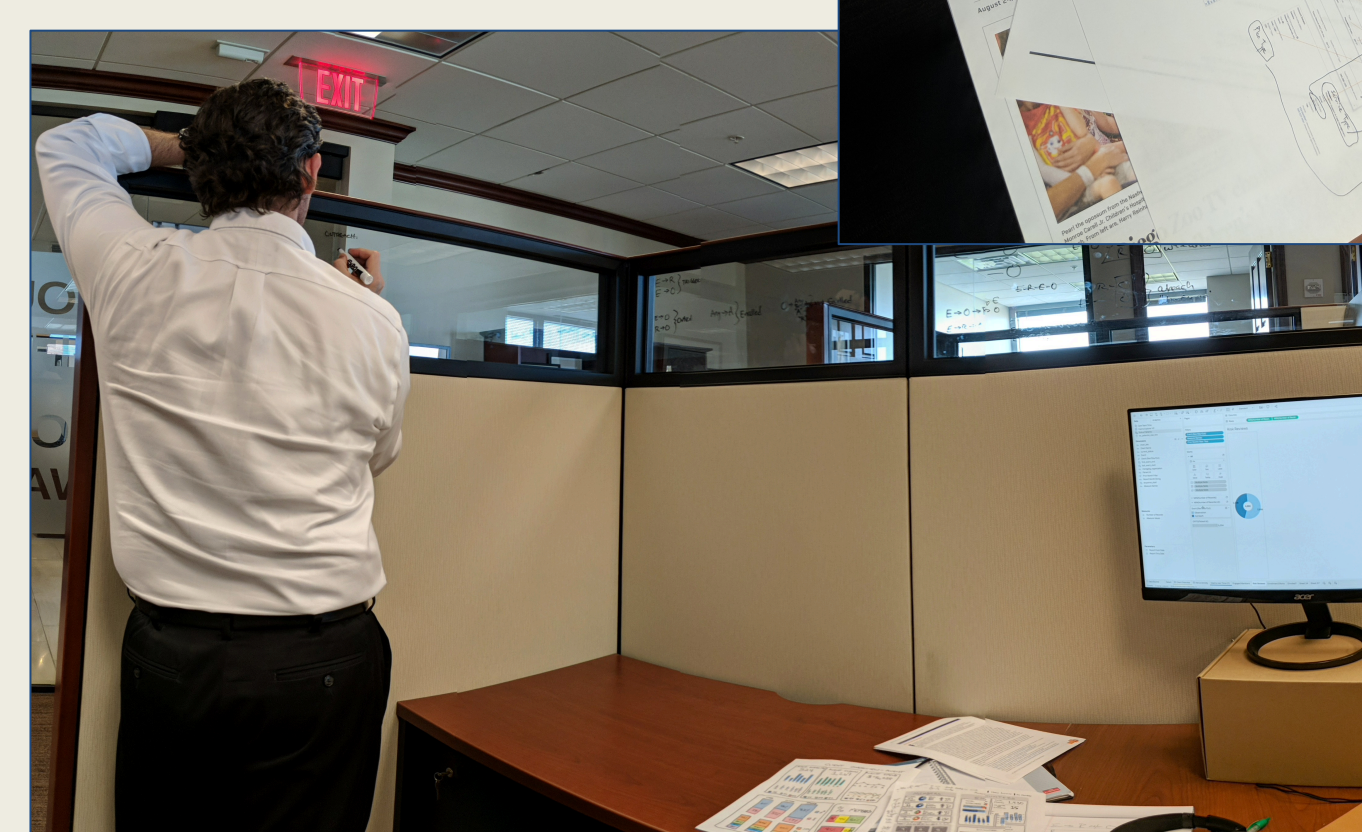
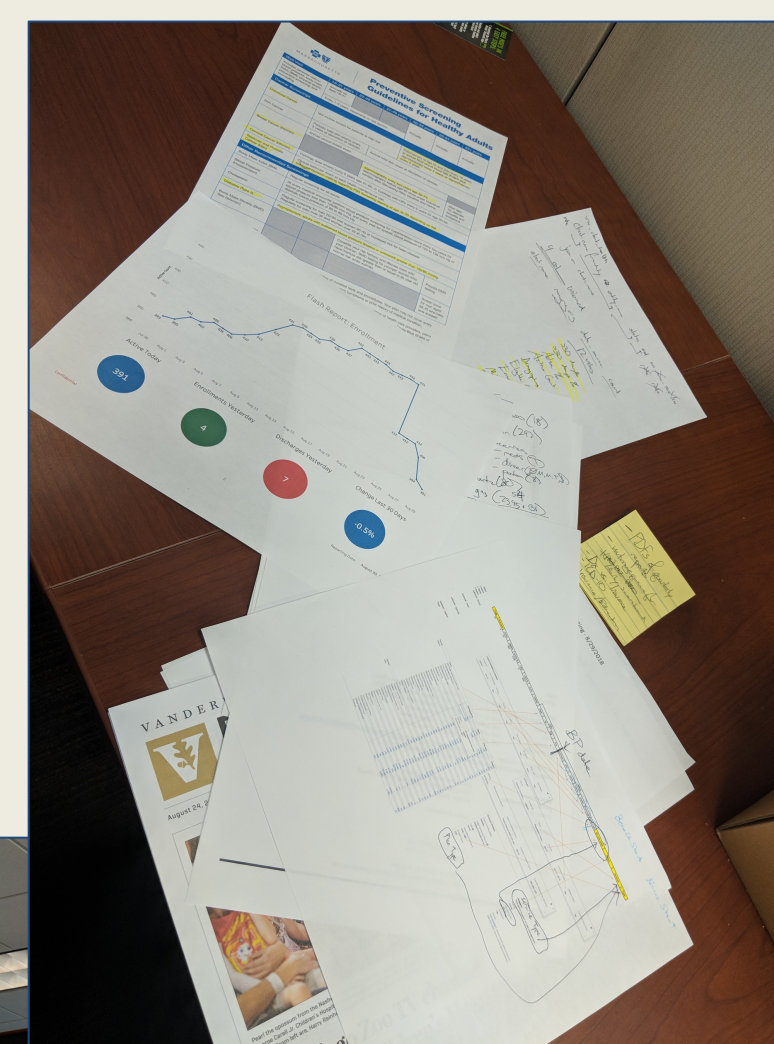


Figure 1. Using Datagrip and R Studio to build the regression model



Figures 2 & 3. Workshoping metrics for an external client report

## PRACTICUM RESPONSIBILITIES

### Data Analytics

- Evaluation of the ability to predict future costs of a population based based on past claims and demographic characteristics

### Client Reporting

- Visualized statistics describing a client's service utilization, financial return, and other metrics

### Process Automation

- Streamlined various time-intensive processes to allow care team to reduce wasted time and refocus on more valuable tasks

### Data Maintenance

- Contributed to upkeep of Narus' data warehouse and workflow using PostgreSQL and Jira software

## RESULTS

My final project was a return on investment (ROI) evaluation of the effect that Narus' service has on the medical costs of patients that we have successfully enrolled in our services. Using statistical skills learned in the MPH program, I have been able to tentatively demonstrate a positive ROI for our clients – this was a valuable contribution to Narus' business. I constructed an interrupted time series regression model using patients' claims data and demographics. A visualization of this model is visible below in Chart 1.

In addition to these hard skills, I learned about the inner workings of how a successful startup functions in its early stages. Working in a small, collaborative team gave me unprecedented access to experts in analytics, palliative care, leadership, and all aspects of business. I believe that I succeeded in accomplishing all of the goals that were set out at the beginning of my internship: learning new skills, producing value for the company, and gaining a new type of work experience.

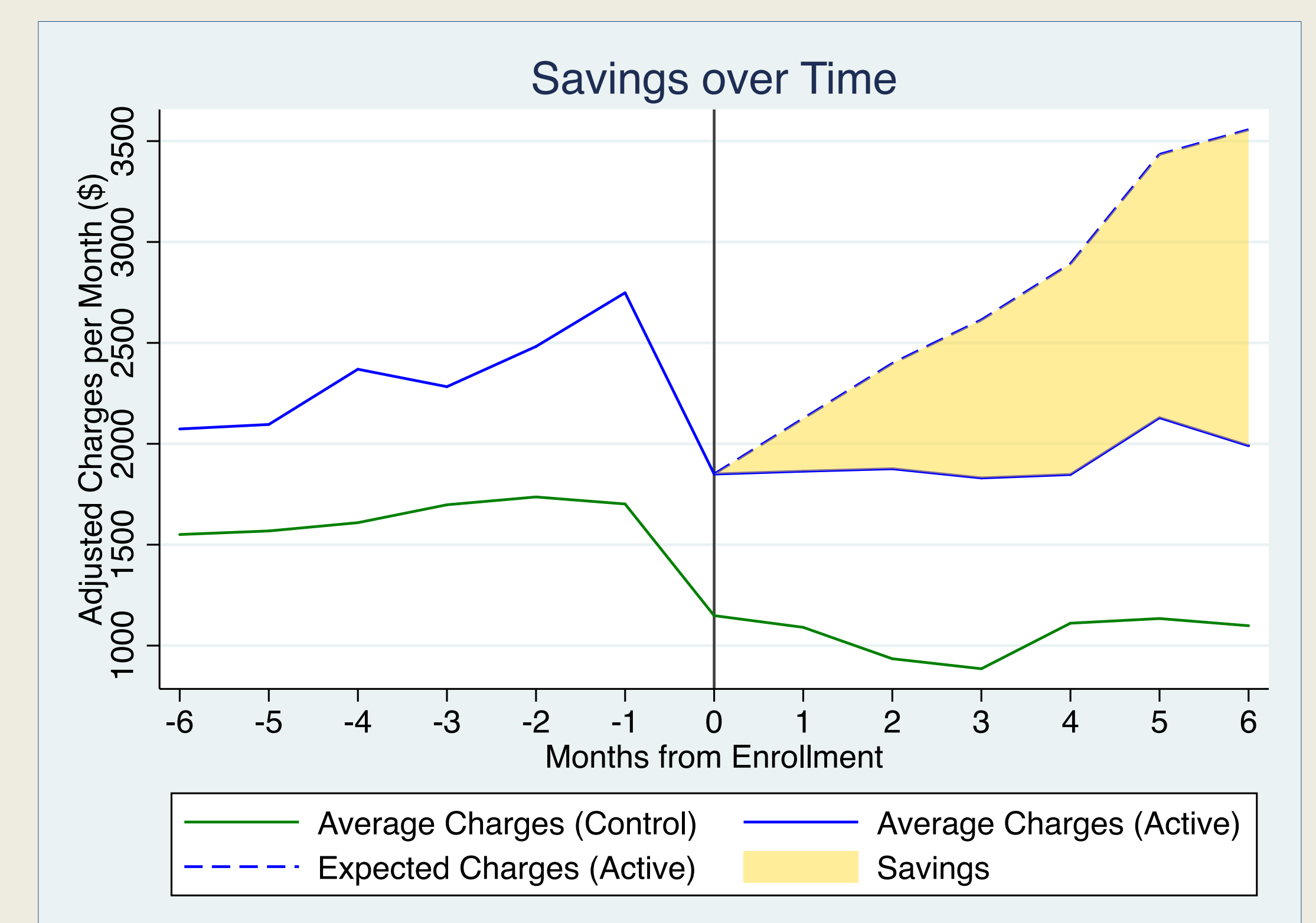


Chart 1. Graphical representation of our ROI model