Proposal for Extending Research Immersion

[NAME]

1. Describe why you were unable to meet your aim(s)/goal(s)?

**Current Project**

Overall, my desire to extend my research immersion does not stem from being unable to meet my original two aims, but from discovering new signals during the course of my analysis that I would like to follow up on.

My first aim was to validate the findings in the published literature that X given to X population influences patient outcomes. I accomplished this goal by showing higher doses X are associated with significantly increased death due to infection, while lower doses X are associated with significantly more severe disease. While these are not novel findings, this is the largest study to date examining outcomes of X dose, particularly with regards to severity of X disease/population. Many patient clinics and hospitals have been gradually decreasing the dose of X over time; however, our findings demonstrate that lower doses come with the price of severe X disease and increased morbidity.

My second aim was create a multivariate model to study the factors that interact with X dose to influence outcomes. Currently, X is dosed per weight of the patient (ie, mg/kg). This aim was considerably more time consuming, largely because it reached beyond the concrete statistical knowledge of myself of my mentor. Fortunately, we have fantastic statistical support through the department of biostatistics. In two weeks, my mentor and I are meeting with the Director for Quantitative Sciences who is an expert at translating mathematical results into scientific prose. After this meeting, I will begin writing the manuscript based on this project. Unfortunately, this meeting will fall outside of my research immersion. One of my goals for extending my research immersion is to have time to develop this manuscript and follow-up on any interesting findings or insights that become apparent as we better understand our results.

**New Directions**

During the course of my initial data analysis, I realized that the [patient protocols] appeared to significantly influence outcomes. Although I discovered this using my X data set, this finding was independent of X dose. Further analysis revealed that patients with X who received Y regimens had better overall survival than patients who did not (Figure 1). In prior studies, Y regimens have been associated with low toxicity and favorable survival [1], and were demonstrated in a Phase II trial to be safe and effective [2]. To date, however, there are no studies examining the long-term outcomes of X regimens compared to Z regimens.

![FIGURE 1 here.](image)

Given that this was a new discovery, I did not have enough time to follow this exciting trail. In my data set, I only had 13 patients who received Y regimens. While this was still enough for a significant signal, to fully tease out causes of death and perform multi-variant analysis, I would need more patients. Recently I submitted a second IRB to be able to analyze all Vanderbilt [patient population], which should increase our power. We also collaborating with Dr. X at the VA and developing an IRB to look at VA patients as well. My goal is for both of these IRBs to be accepted by the time I start my additional research month so I can hit the ground running.
2. Describe the activities you will be engaged in during your additional month(s)? What will you be working on that requires an additional month(s)?

My first goal for my additional research month is to create a manuscript based on the results from my X analysis. After meeting with the Director for Quantitative Sciences, this should be fairly straightforward.

My second goal, and honestly the driving factor for wanting to extend my immersion, is to follow up on my preliminary results regarding Y regimens. By the time I start my additional month, I hope to have access to both Vanderbilt and VA patient data. My first task will be to gather data on these patients and determine the regimen they received as well as some basic outcome variables, including date of death, cause of death, date of relapse, and development of X disease. Much of this data should be accessible through pre-existing databases, which my IRBs requested access to. However, some of the data collection will require manually reviewing patient charts.

After I have my data set, I plan to first analyze overall survival for patients who received Z regimens versus Y containing regimens. I will also perform univariate and multivariate analysis to see if any other factors and affecting overall survival. In addition, I will examine other outcome measures, such as development of relapse, time to relapse, and development and severity of X disease.

Should we continue to see a signal between Z versus Y containing regimens, my mentor and I plan to propose this data to the [centralized data bank] to do a comparison and an in X clinical trial using national and international data.

3. Please include evidence from your mentor supporting this extension (such as an email)
   email was included by requestor

4. Please include evidence from your area director supporting this extension (such as an email)
   email was included by requestor