**Statistical Design Consulting**

**SEMESTER REPORT**

**Spring 2025**

**Client:** Dr. Patrick Kiel  **File Number:** 25-027

**Department:** Pharmacy **Major Prof:** Dr. Michael Preston

**Consultant:** Sumeeth Guda **Initial Meeting Date:** 03/04/25

**Meeting Attendees:** Patrick Kiel, Sumeeth Guda, Dr. Michael Preston, Dr. Chong Gu

**Statement of Problem:** **:** To see if drug targeted therapy improves time-to-treatment discontinuation (TTD) and overall survival (OS) in patients with advanced NSCLC (Non-Small Cell Lung Cancer) compared to carboplatin-based chemotherapy

**Goal of This Project:** PhD Dissertation / Journal Publication

**Background:**

The client is a PhD Student in the pharmacy department who needs help with the analysis of their data for a journal publication with respect to chemotherapy. They have 2 goals which they are investigating. The first would be to see if drug targeted therapy improves time-to-treatment discontinuation (TTD) and overall survival (OS) in patients with advanced NSCLC (Non-Small Cell Lung Cancer) compared to carboplatin-based chemotherapy. Additionally, their second goal is to see if Patients with higher socioeconomic status (e.g., college education, higher income, or employment) have more access to biomarker testing and targeted therapies compared to those receiving conventional carboplatin-based chemotherapy. All of the data has been collected and is presented within an NIH database which the client isn’t able to share with the SCS. But overall, they needed help with their analysis methods, since they have missing data, and they need help analyzing the data. Additionally, they want to do model selection and want to know the best approach of either backward, forward, or stepwise regression are variable selection methods used for multiple linear regression.

**Progress During Current Semester:**

Throughout this semester Sumeeth gave clarification to Patrick for both model selection and forest plot analysis. Sumeeth showed Patrick how to use ANOVA and AIC to compare two models and gave his advice on how to interpret a forest plot. Overall, the help was limited this semester since the data couldn’t be viewed. However, Sumeeth clarified that any interpretation Patrick makes needs to have a consistent baseline, there can be no missing values in the baseline year otherwise any interpretations Patrick makes won’t have any meaningful interpretations. The client indicated that he would continue working with the SCS during the summer semester.

**Current Status: Continuing.**