

## **Product Set-Up and Completion Summary**

**Dates:** November 6, 2017 - January 2, 2018

**Time:** I spent a total of 15 hours completing my product, through analysis at home and meetings with Dr. Mansour.

**Materials:** The majority of my analysis and calculations were completed utilizing the database sent to me by Dr. Mansour. This database contained patient information, weight loss trends, and various factors both Dr. Mansour and I deemed relevant to analysis. I also did background research over BMI and pancreatic cancer, as well as weight loss trends in pancreatic cancer patients. I also utilized a textbook given to me by Dr. Mansour as well as a medical journal to model my research off of.

**Objective/Purpose:** My objective in completing this original work was to analyze weight loss trends in patients following curative resection for pancreatic cancer, as well as determining the factors that have an impact on increased or decreased weight loss. I wanted to learn about the real world implications of various factors on weight loss, including factors such as age, gender, hospital, type of surgery, and tumor histology. Dr. Mansour and I both felt that it would be important and beneficial for me to look at a real world issue in the field of surgical oncology, especially a problem such as weight loss that affects nearly every patient Dr. Mansour operates on.

**Utilization of Higher-Level Thinking Skills:** Performing calculations required me to be able to analyze the database of clinical information, and in order to draw conclusions from these calculations, I had to synthesize all of the information and extract what I found to be important and what the data showed to be statistically significant. It also was clinical research, using real patient data, which is something incredibly far out of the boundaries of my comfort zone. Although I had done similar research last year as a part of my final product, I consider this original work an extension of that, as it will allow me to extract more meaningful data and produce a more reliable result. It still was beneficial for me to have to draw conclusions from the data and the analysis I performed, although I had done it before, and the new data and tumor histology allowed me to draw new and interesting results.

**Results:** The results of the database and the calculations I performed were actually quite interesting. The only two factors that proved to be statistically significant were gender and preoperative therapy, while none of the other factors presented with a p value below .05, which determines where or not a statistic is deemed statistically significant. On average, women lost around 14.33% of their original body weight, while men on lost approximately 7.86% of their original body weight. Likewise, patients who underwent preoperative chemotherapy lost approximately 11.25% of their original body weight while patients who experienced no preoperative therapy lost only 4.58% of their original body weight, on average.

**Conclusions/Interpretations:** From my final product, I can conclude that not having a feeding tube placed postoperatively and having pancreatic cancer with a primary location in the bile duct are factors that will increase the change in original body weight percentage. This interested me, as the factors that I expected to increase weight loss, such as preoperative chemotherapy and gender, had no statistical significance. Instead, these were the only two factors to prove statistically significant. Although patients without a feeding tube did not lose what is considered to be a significant percentage of their original body weight (10% or greater), it is still significant as I now know that placing a feeding tube postoperatively does have an impact on the amount of weight patients lose. Patients with tumors in the bile duct did lose a significant percentage of their original body weight, on average.

**Application/Meaning:** The application of my final product is actually quite realistic. Weight loss is an issue that affects the majority of surgical patients, especially those with cancer and those undergoing curative resection for pancreatic cancer. Knowing now that patients without a feeding tube and patients who have tumors in the bile duct are more likely to lose weight, doctors and surgical oncologists can put preoperative plans in motion to utilize either a feeding tube or additional supplements to curb dramatic weight loss. Preventing a weight loss of 10% or more of the original body weight can also, according to various studies I read while completing my research, increase the 5 year survival rate for patients. This is particularly relevant for patients with tumors in their bile duct, as they lost, on average, nearly 14% of their original body weight. Surgeons operating on patients with a tumor of the bile duct should anticipate increased weight

loss, and can plan to place a feeding tube or utilize additional supplements to best control dramatic weight loss.