Birthweight Prediction

Modeling the relationship between maternal attributes, behaviors and birthweight

# Executive Summary:

It is an unfortunate yet accepted fact that babies born at a “low” birthweight tend to have complications not only postpartum, but also potentially throughout life. Early on from breathing, digestive and immune system issues, to later on in life in the form of diabetes, heart disease, and high blood pressure – these all cause a lifetime of challenges and can influence an individual’s quality of life (March of Dimes, 2018). Therefore, understanding the potential factors that lead to low birthweight is important from multiple perspectives. The first, and objectively the most important, is the mother’s – knowing and understanding the risk factors that lead to low birthweight may provide guidance and potentially alter behavior to lessen the risk of having a baby born with low birthweight. Secondly, from a health care provider perspective, these factors can provide educational opportunities for expecting mothers but also allow for the planning of NICU resources postpartum. Finally, from a public health perspective, the understanding of these factors can guide further areas of research into the subject and help determine how to allocate resources.

In this study, we attempt to model birthweight (measured in kg) using eight (8) different variables, which can be classified as either as behaviorally related (smoker, weight, etc.) or demographically related (age, race, etc.). We wish to model the outcome as either “low” birthweight (i.e. <2.5kg) or “not low” birthweight (>2.5kg), which is known as a binary response.

References:

March of Dimes. (2018, March). *Low Birthweight*. <https://www.marchofdimes.org/complications/low-birthweight.aspx>