Team Name: LHW-LAB

Team Members: Haleigh Cavalier, Lizbeth Gomez, Will Simmons

Research Question: Is there an association between bisphenols or related synthetic organic chemicals and thyroid-related conditions?

Hypotheses:

1. Confirming other researcher’s findings in our dataset: Exposure to bisphenol A, measured in urine concentrations, is associated with increased prevalence of clinical and self-report indicators of thyroid dysfunction.
2. Exposure to Bisphenol F and Bisphenol S, assessed individually, is similarly associated with increased prevalence of clinical and self-report indicators of thyroid dysfunction.
3. Exposure to multiple synthetic organic chemicals (mixtures) is associated with increased prevalence of clinical and self-report indicators of thyroid dysfunction.
4. Obesity status modifies the association between exposure to synthetic organic chemicals and thyroid dysfunction.

Data Source: Continuous NHANES - Years 2011-12, 2013-14, 2015-16

Questions for Marianthi and Sebastian:

* Is it an issue to include multiple years of NHANES data into one analysis
* We want to make sure that we will have enough (3) different viable methods for analysis of this data. We were thinking of doing BKMR for mixture analysis, and potentially non-linear, quantile regression -- do you have any other suggestions for methods or reasons why the suggested ones would not be appropriate? Mediation? PCA?
* We wanted to include all potential hypotheses that we were thinking about so far, but are wondering if it is too much? Should we limit it? Do you have recommendations?