# Week 7

Goal: In this assignment, students practice statistical literacy, and read two recent articles from the journal *Pediatrics*. One is a commentary about the other, discussing the difference between clinical significance and statistical significance. Students connect sampling variability, statistical significance, and clinical significance in these papers with their interpretations of the randomized experiment they conducted in weeks 4-5.

## Part 1

This activity is based on the assigned readings for the week. Read both the [Hui et al.](https://pediatrics.aappublications.org/content/143/5/e20183075) (2019) and the [Krist](https://pediatrics.aappublications.org/content/143/5/e20190447) (2019) papers. Use the readings to answer the following questions:

(1) Read the first paragraph of Hui et al. Why do the authors suggest that studying breastfeeding is important?

(2) In their discussion section, Hui et al. state that "Exclusive breastfeeding, but not mixed feeding, in the first 3 months of life was associated with a less atherogenic lipid profile, characterized by lower total cholesterol and LDL-C at ~17.5 years." (p.4). Read Table 3 to find the estimated (adjusted) difference in LDL-C levels at ~17.5 years between the Exclusively Breastfed group and the Always Formula group? Report the 95% confidence interval for the difference as well as the point estimate.

(3) Krist suggests that this difference in LDL-C levels may not be clinically significant. Read Table 3 to find the mean LDL-C level for all participants in the study. Calculate the relative reduction in LCL-C level between the Exclusively Breastfed group and the Always Formula group by dividing the estimated difference by the mean LDL-C level. Report this value. Do you think this is a clinically significant difference? Explain why or why not.

(4) Hui et al. state in their conclusion that "Exclusive breastfeeding in early infancy may be associated with a better lipid profile in late adolescence, suggesting its potential long-term benefits for cardiovascular health, ..." (p.7). Krist argues that having a lower cholesterol level at age 17 doesn't necessarily mean you will have better cardiovascular health later in life. What evidence does Krist give to support this claim?

While Krist argues that the study by Hui et al. was well done from a methodological view, Krist's main argument is that if we are interested in whether or not breastfeeding is associated with improved cardiovascular health in adults (especially those over the age of 55), this study does not help answer that question. Krist summarizes this view in the closing paragraph, stating "It is probably premature for clinicians to include more favorable lipid profiles and potential long-term cardiovascular benefits from breastfeeding." (p.2)

**due Sunday:** Submit your answers in a .docx or .pdf file with your answers and justification.