Our aims are to

1) determine clinically important factors on point of care ultrasound that may assist clinicians in determining progression of simple acute appendicitis diagnosed in children seen in an emergency department;

2) identify enabling and deterring factors for doing serial POCUS.

1.      Demographics: age, gender, weight, height of the patients  
- Visualization or summary statistics if we are just going to explore the dataset  
- For purposes below, we can include those demo factors into the corresponding models.

2.      Stages of the acute appendicitis found on the second ultrasound (US) compared to the surgical pathology findings  
  
- Confusion matrix (Sequential Staging v.s. Surg Path Findings)

3.      Changes in the stages of the acute appendicitis between the first (US1) and second US (US2)

a.      Did the administration of antibiotics make a difference?

- Mixed Effect Model with ordinary variable adjusted by other factors  
- Wilcoxon signed ranks test   
- Simple Logistic regression (decrease or not) adjusted by demographics

4.      Time it takes to perform the POCUS

a.      By Radiology (RADUS)

b.      By pediatric emergency medicine team (POCUS)

- Two sample T test for simple comparison

- MLR adjusted by demographics

Note: We might need to consider about the cohort effect.

5.      Receptivity of the POCUS by the performers

a.      Did the performers find this easy to do?

b.      Did the patients tolerate the diagnostic test (POCUS) well?

- Visualization and Summary Statistics