**Instructions**

Outbreak Investigation

On February 7, 2018, a nurse employed at the Flinn Corporation noticed an increase in the number of employees who were sick. She was concerned that there may be a*Salmonella* outbreak at the company. She has interviewed each of the employees at the corporation. She has taken samples and sent them out for testing but has not received the results. She asks you, the local epidemiologist, to investigate to see if an outbreak exists and if so what the source of the outbreak is. You follow the Center for Disease Control and Prevention's steps in outbreak investigation (<https://www.cdc.gov/csels/dsepd/ss1978/lesson6/section1.html>) and report your findings to her. Please note that we will not address all outbreak investigation steps in this assignment.

Use the attached Excel worksheet to produce graphs and statistics to answer the questions below. Submit your report as a Word doc and include figures and tables you generate. The report should be easy to follow and interpret and should be written as an academic paper in proper APA formatting.  Please see the grading rubric for additional details on the paper, such as the length for the body of the paper.

1. Look at the Excel Spreadsheet attached. There are 3 worksheets (see tabs on bottom of page - "Nurse's Interview", "Epi Curve", "Retrospective Cohort Study"). The first sheet "Nurse's Interview" has a line list of employees who work at Flinn Corporation. This sheet represents the data the nurse has collected from those employees in an interview. Do you think that an outbreak exists? Why would you recommend to further investigate? Discuss your reasoning. (Step 2: Establish outbreak)

2. Research salmonellosis using academic sources. Are the symptoms that the ill employees exhibit consistent with salmonellosis? Provide a brief summary (1-2 paragraphs) of the disease and discuss the chain of infection for this disease. Use in-text citations in proper APA format and include all sources in your reference section. (Step 3: Verify diagnosis)

3. Identify the percentage of ill employees with each symptom. For example, 1 out of 12 ill employees had blood in stool (Bs) = 8.3%. (Step 4: Working case definition)

4. Conduct descriptive epidemiology (Step 6). Describe the characteristics of the ill employees to determine trends and risk factors.

a. Person - Calculate the percentage of ill employees that are male/female. Determine the mean age of the ill employees.

b. Place - What percentage of ill employees ate at the cafeteria? What percentage of well employees ate at the cafeteria?

c. Time - Using the data collected in the Nurse's Interview, fill in the column "# of cases" in the "Epi Curve" worksheet. Use 0 if there are no cases. As you fill in the data, the graph will automatically generate. Choose an appropriate title for the graph. Copy and paste graph into your report. What type of epidemic curve is it ? (Hint: read <https://www.cdc.gov/csels/dsepd/ss1978/lesson6/section2.html#step6>)

5. Based on the information you have gathered, you have developed an hypothesis that there is a food being served at the cafeteria that is causing the employees to become ill. You need to further test this hypothesis by conducting a retrospective cohort study (Step 8). Use the worksheet "Retrospective Cohort Study" to calculate attack rates and risk ratios. The first food item Baked Chicken is done for you. You can also consult <https://www.cdc.gov/csels/dsepd/ss1978/lesson6/section2.html#step8> for help. Report the Risk ratio for each food item. Based on risk ratios, which is food is most likely to be the source of the illness? Explain.

6. Based on your findings, what would you recommend for prevention and control measures? Apply food safety principles from academic sources to discuss further prevention of Salmonella outbreaks in the cafeteria. (Step 11) Use in-text citations and include sources in reference section.

7. Include a properly formatted reference section in APA format that includes at least 3 academic sources (popular sources should not be used).