

Rutgers School of Public Health

Newark Campus

Biostatistical Computing

BIST 0535J031 Spring 2024

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ANALYZING AN OUTBREAK OSWEGO COUNTY USING SAS

It's your first day on your new job at the State Health Board. You've just returned from lunch and your new boss say's the following:

"We're analyzing a small, local outbreak and I need you to do some basic quantitative analysis using SAS version 9.3 or 9.4. On August 1, 2011, Blue Cross Blue Shield of NJ, a medical health insurer, sponsored a 1 day outdoor picnic. About 70 people attended. It was held at a local park, which has picnic grounds, as well as a small lake and petting zoo. Everyone residing in the area was invited. The event began at 10 am, and ended promptly at 5 pm. Food and non-alcoholic beverages were served during those times. Food preparation began several hours prior to the start of the event.

A few days after the event, I received a call from a local doctor, who indicated that in the previous day or two, he had treated several people, all of whom had complained of fatigue, diarrhea, slight nausea, and dizziness. The doctor also indicated that upon asking what they had eaten during the preceding week, all but one had indicated that they had eaten at the Blue Cross Blue Shield picnic.

I received a similar call around the same time from an emergency room doctor at the local hospital, who also reported having treated several people with non-life-threatening symptoms, including fatigue, diarrhea, and nausea. He too, indicated that most, if not all of these patients had reported having attended the Blue Cross Blue Shield picnic.

In response, our office created an outbreak questionnaire for use in interviewing picnic attendees. We gave the questionnaire to our graduate school intern, who went out into the field on August 5, 2011 and interviewed picnic attendees. Subsequently, having completed the interviews, the intern took all of the interview data, put it in line listing form, and put it on an a file called OSWEGOCASESTUDY.XLS

Import the data into SAS and answer the following questions.

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- a. How many total subjects are there? **75 subjects.**
- b. How many variables are there? **23 variables.**
- c. How many of these variables are foods? **14 variables are related to food.**
- d. Is there any missing data? (Yes or No) **Yes, there is some missing data.**

variable illness status is coded as follows: **1 = Ill and 0 = Not Ill.**

- e. How many subjects (frequency and percent) got ill? **46 (61.3%) of the subjects got ill.**
- f. How many subjects (frequency and percent) did not get ill? **29 (38.7%) of the subjects did not get ill.**
- g. How many female subjects reported getting ill? **30 (68.2%) of female subjects reported getting ill.**
- h. How many female subjects reported not getting ill? **14 (31.8%) of female subjects reported not getting ill.**
- i. How many male subjects reported getting ill? **16 (51.6%) of male subjects reported getting ill.**
- j. How many male subjects reported not getting ill? **15 (48.4%) of male subjects reported not getting ill.**

Generate measures of central tendency/descriptive statistics for variable age. Based on the output, answer the following questions:

- k. What was the mean age of people attending the outing? **The mean age of people attending the outing is 36.81.**
- l. What was the age of the youngest subject? **The youngest subject was 3 years old.**
- m. What was the age of the oldest subject? **The oldest subject was 77 years old.**
- n. What was the median age of picnic attendees? **The median age of picnic attendees is 36.**

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o. Fill in the chart. Which food is the most likely vehicle of infection?

Food Item Served	Number who ate specified foods				Number who did not eat specified foods				Attack Rate Ratio
	Ill	Not Ill	Total	Percent Ill (Attack Rate)	Ill	Not Ill	Total	Percent Ill (Attack Rate)	
Baked ham	29	17	46	63%	17	12	29	58.6%	1.08
Spinach	26	17	43	60.5%	20	12	32	62.5%	0.97
Mashed Potato	23	14	37	62.2%	23	14	37	62.2%	1
Jello	16	7	23	69.6%	30	22	52	57.7%	1.21
Rolls	21	16	37	56.8%	25	13	38	65.8%	0.86
Brown bread	18	9	27	66.7%	28	20	48	58.3%	1.14
Milk	2	2	4	50%	44	27	71	62%	0.81
Coffee	19	12	31	61.3%	27	17	44	61.4%	1
Water	13	11	24	54.2%	33	18	51	64.7%	0.84
Cakes	27	13	40	67.5%	18	16	35	54.3%	1.24
Ice cream – Vanilla	43	11	54	79.6%	3	18	21	14.3%	5.6
Ice cream – Chocolate	25	22	47	53.2%	20	7	27	74.1%	0.72

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Fruit salad	4	2	6	66.7%	42	27	69	60.9%	1.1
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Vanilla ice cream may be responsible for the outbreak since patients who ate vanilla ice cream are 5.6 times more likely to get ill than those who did not consume it.