

Navigator's Disease Detectives Test!

DISEASE DETECTIVES QUIZ

1. VOCABULARY: For this section, match the definition on the left with the word that it may link to on the right. You may use terms once, more than once, or not at all.
- The systematic collection, analysis, and interpretation of data. (_____)
 - A tsetse fly is a _____ for trypanosoma. (_____)
 - an aggregation of cases over a particular period of time. (_____)
 - the rate of incidence of a disease. (_____)
 - Surveillance _____ is an example of this. (_____)
 - Lactobacillus is an example of this. (_____)
 - the time that lapses between infection and the first appearances of the symptoms of the disease. (_____)
 - the measure of the frequency of death.
 - severity of disease in a host.
 - the study of patterns, causes, effects, and disease conditions in a population.
 - the capacity to cause infection in a host.
 - an organism that depends on another organism.
 - the probability that one will become infected by an illness or injury within a specific period of time.
 - large amount of people affected over a wide geographical swath.
 - capacity of a host to cause disease
- A. Agent
 - B. Bias
 - C. Cluster
 - D. Epidemiology
 - E. Fomite
 - F. Incidence
 - G. Incubation period
 - H. Infectivity
 - I. Mortality
 - J. Morbidity
 - K. Outbreak
 - L. Pandemic
 - M. Parasite
 - N. Pathogenicity
 - O. Prevalence
 - P. Reservoir
 - Q. Risk
 - R. Surveillance
 - S. Vector
 - T. Virulence
 - U. Zoonosis

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- occurrence of a phenomenon over several countries and geographic locale with a large population affected.
- proportion of the host population infected at a given time.
- capacity to cause disease in a host.
- the rate at which new cases of infection arise in a population.
- more cases of a particular disease than expected in a given area, at a given time.
- Rabies in an example of this.
- A hairbrush carrying lice would be an example of this.
- Soil is an example of this.

2. SHORT ANSWER: Answer well!

- List the steps an epidemiologist would take to carry out an investigation of an outbreak.

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- What are the three components of the epidemiological triad?

- Provide two examples of the following agents:
 - Biological—
 - Nutritional—
 - Chemical—
 - Physical—

Unbeknownst to most, the CDC really loves greek yogurt, but is having some doubt regarding its health effects. Recently, they found differences in the amount of beneficial probiotic *e. coli* present in different brands of Greek yogurt. The CDC is hoping to gather a group of individuals in order to demonstrate a potential link between loss of *e. coli* in the gut and its link to colitis. They have gathered a group of 140 men who only ate Chobani without *e. coli* and 180 men who only ingest Fage with *e. coli*. Over the next twenty years, they monitored the subjects' health and obtained the following results: 92 of the Chobani men had developed colitis, while 8 of the Fage men workers had colitis.

a.) Create a two by two contingency table for this information.

b.) What kind of study is this?

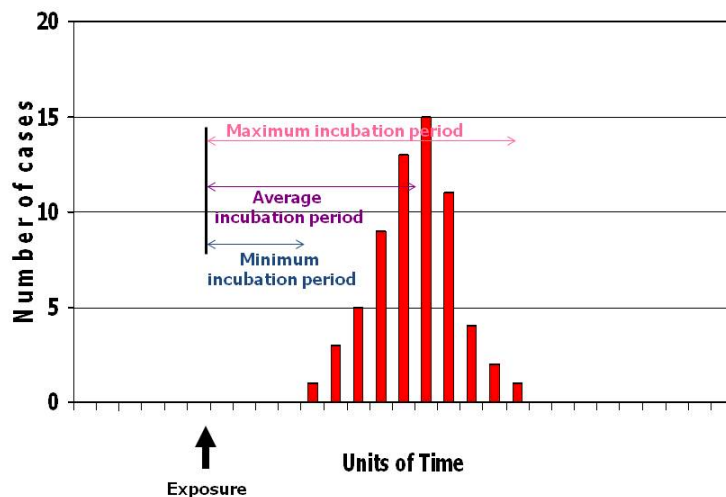
c.*) Tiebreaker: What is colitis? Is it actually caused by what I said it was caused by?

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d.) Name two advantages and disadvantages to this type of study.

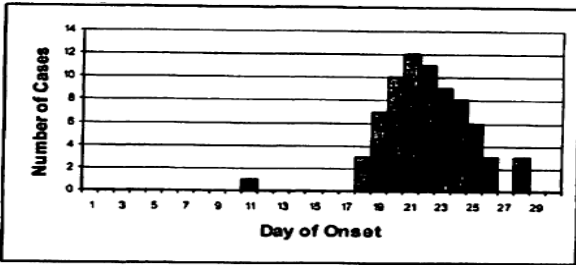
e.) Would you use odds ratio or relative risk to analyze this data? Calculate the value you used and round to the nearest hundredths. Write a sentence to analyze this result.

What do epidemiologists call a graph like the one below?

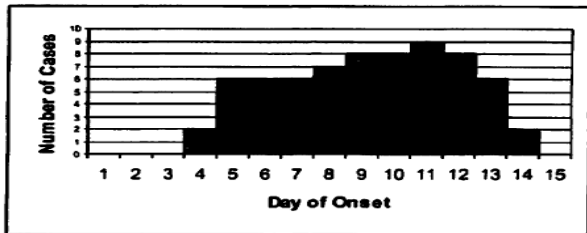


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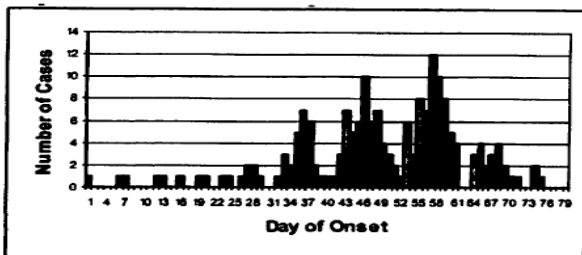
Name the three types of this graph that one can potentially visualize. Write them next to the graphs below.



a. _____



b. _____



c. _____

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An epidemiologist decides to investigate the effects of a severe heat wave that occurred at Chicago from July 10, 2011 to July 20, 2011, during which temperatures often exceeded 40°C. To do this, he visits 10 public and private high schools located in Chicago and 20 others scattered around the state of Illinois. Each student fills out a survey asking them about their living conditions and experiences during those 10 days, any preexisting health conditions, and any changes in health during or following the heat wave.

a.) Define bias

b.) What is one type of bias identified in this study?

c.) How can this study be altered to change its bias?

Define all of Hill's Criteria of Causation and briefly explain what the purpose of Hill's Criteria of Causation is.

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d.) On the assumption that there is no association between exposure to sour cream and symptoms, what would be the expected counts? Create a table with this information.

e.) Calculate the Chi-Square statistic for this test. Show all work for full credit.

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Understanding the biological underpinnings of diseases is important. Determine whether the following diseases are bacterial, viral, fungal, or parasitic in origin. Write the origin next to each disease.

- Influenza
- Aspergillus
- Gonorrhea
- Ascaris
- Tuberculosis
- Toxic Shock Syndrome
- Genital Warts
- Strongyloides
- Chagas disease
- Cholera

Define primary, secondary, and tertiary disease prevention.

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In 2009, a community survey of people who went on the Zipper at the Syosset Carnival for blood pressure was conducted in which residents were asked how many times they had their blood pressure tested in the past year. The answers from the first 20 participants are listed below. In 2014, they did the same thing.

2009: 0, 2, 0, 0, 24, 1, 2, 0, 2, 2, 1, 1, 0, 0, 5, 1, 360, 10, 2, 3

2014: 2, 1, 0, 0, 2, 1, 4, 3, 2, 1, 0, 4, 2, 52, 1, 9, 2, 7, 4, 5

Organize the data into a table of frequency distribution. Find the mean, median, and mode of the data set. You must set the columns for the distribution yourself.