

Disease Detectives- Division C Answer Key

Basic Disease Questions (3 points each)

For questions for multiple answers, it is an all or nothing sort of deal for grading.

- 1) a
- 2) a
- 3) d
- 4) b
- 5) a
- 6) a, b, c
- 7) a ,b,c,d
- 8) b
- 9) c
- 10) a
- 11) c
- 12) a
- 13) a,b,c,d
- 14) b
- 15) A,b,c,d

Basic Epidemiology Vocab (Match Vocab to Definition)

(2 point each)

- 16) g
- 17) m
- 18) o
- 19) v
- 20) n
- 21) a
- 22) k
- 23) p
- 24) r
- 25) d
- 26) e
- 27) w
- 28) b
- 29) s
- 30) c
- 31) t
- 32) i

- 33) u
- 34) h
- 35) l
- 36) j
- 37) x
- 38) f
- 39) q
- 40) Y

Application of Epidemiology in Real Life Situations - Part I

(36 points)

41) 1 point for Case-control; 1 point explanation.

42) 2 points.

Contingency	Disease	No Disease
Pastries	36	4
No Pastries	7	53

43) $(a*d)/(b*c) = (36*53)/(4*7) = 68.14285714$

1 point for odds ratio equation. 2 points for correct values inputted into odds ratio equation. 1 point for correct answer

44) If answer is reasonable then give 3 points.

45) 1 point for chi-square equation. 2 points for right setup. 3 points for right answer.

$$X^2 = (o-e)^2/e$$

Null: Consumption of pastries does not affect the occurrence of disease within groups.

Expected disease in pastry group: 20

Observed disease in pastry group: 36

Expected disease in No Pastry group: 30

Observed disease in no pastry group: 7

$$X^2 = (36-20)^2/20 + (7-30)^2/30$$

$$=30.433333333$$

Rejects null because 30.4333333 is greater than crit value of 3.841.

46)

	Disease	No Disease
Fresh Produce	6	52
No Fresh Produce	37	5

$$47) (a*d)/(b*c) = (6*5)/(52*37) = 0.0155925156$$

1 point for odds ratio equation. 2 points for correct values inputted into odds ratio equation. 1 point for correct answer

48) Reasonable answer = give 3 points.

49) 1 point for chi-square equation. 2 points for right setup. 3 points for right answer. 4 points for final reasoning

$$X^2 = (o-e)^2/e$$

Null: Consumption of pastries does not affect the occurrence of disease within groups.

Expected disease in fresh produce group: 29

Observed disease in fresh produce group: 6

Expected disease in No fresh produce group: 21

Observed disease in no fresh produce group: 37

$$X^2 = (6-29)^2/29 + (37-21)^2/21$$

$$=30.4218555$$

Rejects null because 30.4218555 is greater than crit value of 3.841.

Suggests that produce may reduce the presence of disease instead of heightening it.

50) Staphylococcal food poisoning; Staphylococcus Aureus; 2 points disease 2 points organism

51) Bacterial 2 points

Application of Epidemiology in Real Life Situations - Part II (11 pts)

13. What would be an ideal control for the case-control study described in this situation? (2)

A well adult from the patient's community who were matched by geographic location.

14. How might salmonellae be introduced into the peanut butter in the first place? (3)

Reasonable answers including: Peanuts can become contaminated with salmonellae during growth, harvest, or storage, and the organisms are able to survive high temperatures. Animals in the production plant, salmonellae brought into the plant on containers or humans from the outside environment, or other ingredients used to make peanut butter can also contaminate peanut butter.

15. What is a serotype? (2)

A strain of a microorganism group that shares a common set of antigens

16. What are three steps you can take to prevent salmonella? (3)

1 point for each of any three reasonable answers including but not limited to: Cook poultry thoroughly, wash hands after handling raw meat/reptiles/birds, Avoid contact between reptiles and infants/immunocompromised persons, be careful with foods prepared for infants/elderly/immunocompromised

17. Is salmonella a communicable disease? (1)

Yes