

Part I: Case Studies

Case Study #1

School Name: \_\_\_\_\_

Team #: \_\_\_\_\_



Science Olympiad  
TEST: Disease Detectives

2pts

• large people attending event - similar symptoms @ same time

• sick enough to need medical care

2pts → • investigate to find out if common infectious organisms/toxins caused disease

2pts → prevent further cases from same source & recommend.

2pts → prevention of same problem @ another location/time

2

Step 1: Confirm diagnosis - make certain accurate

② diagnosis - prevent mistake/misdiagnosis

② Data needs & sources: doctor/hospital info

2pts

Step 2: Confirm that outbreak really occurred

- show # of people ↑ than normally expected

② Data needs & sources: # of people attending

② from hotel/organization

2pts

Step 3: Define & identify cases of illness - develop a case definition using data on the symptoms, time, place, common characteristics

1

3. News reports everyone who became ill had eaten brunch or lunch on Wed. @ same hotel that included (chick, beef, veg. & pasta - vegetarians also became ill)

② • 1 or more of the food items was contaminated w/ microorg. or toxin that causes gastroenteritis (newspaper may not have reported all food)

② • Beverage could have been contaminated

③ • Contamination from sick visitor (or exposed elsewhere)

4. The onset of some combination of acute gastrointestinal symptoms (e.g. nausea, vomiting, diarrhea, & cramps) in a person attending the XYZ conference held in Somewhere, Texas, on June 4-6, 1998

- ① Clinical info. - Nausea, diarrhea, vomiting, & fever.
- ② Characteristics -
- ③ Dallas Convention Center, Dallas, TX
- ④ June 6<sup>th</sup>, 2016

5. Wash hands, knives, cutting boards after each handling of uncooked food.

- Wash raw produce before serving / preparing
- Keep prepared produce refrigerated until served
- Keep uncooked meats separate from veg., cooked food & ready to eat food

• Cook raw meat thoroughly

• Cook leftover foods or ready to eat until steaming hot

• Do not allow food workers to work when they are experiencing a gastrointestinal illness

Case Study #2

6. Green salad (NOT sliced chick)

7. ~~Noodles & Black Beans (42% vs 30%)~~  
 Noodles + egg salad

8. 42%

- 9. lettuce slicers had contaminated hands
- Improperly washed lettuce
- Table not cleaned

• serving utensils not cleaned

~~Epidemic~~ Outbreak

Case Study #3

11. 15.3

Case Study #4  
 12. - 14.

	Attack Rate	Odds Ratio	Relative Risk
Turkey	73	30.9	9.12
Dressing	73	6.3	2.4
Peas	73	3.8	3.8
Pumpkin Pie	61	0.91	0.91

15. Turkey (show work?) ↘

16. Turkey, Dressing, Peas

Part II: Matching/ Chronological Problem

- 17. C
- 18. B
- 19. B
- 20. C
- 21. D
- 22. A
- 23. E
- 24. C
- 25. A
- 26. D
- 27. C
- 28. A
- 29. D
- 30. C
- 31. E

32.

- A. 12
- B. 1
- C. 4
- D. 5
- E. 11
- F. 9
- G. 7
- H. 3
- I. 6
- J. 8
- K. 2
- L. 10

33.

Organism	Has a cell wall	Can act as a vector	Can infect the other organisms listed.	Vaccines are available for certain diseases caused by this organism.	A source of food or food production for humans.	Cells are eukaryotic.
Animal		X				X
Fungi	X					X
Protist						X
Bacteria	X		X	X	X	
Virus			X	X		

Match the Disease

- 34. B
- 35. F
- 36. E
- 37. B
- 38. D
- 39. B
- 40. D
- 41. C
- 42. B
- 43. A