B - Disease Detectives - Pearl City Invitational - 12-12-2020

As a reminder you may not leave this tab of the test.

1. (1.00 pts) Select the most accurate definition of Zoonosis.

- A) A disease that originates in animals
- B) A disease that is capable of transmission from humans to animals
- C) A disease that is capable of transmission from animals to humans
- D) A disease that originates in the wild

2. (1.00 pts) A disease affects a small population over the course of a few years in a consistent area. What is this called?

- A) Endemic
- B) Epidemic
- C) Outbreak
- D) Small-Scale Outbreak

3. (1.00 pts) What is the most common disease survey?

- A) Cohort
- B) Case-Control
- C) Cross-Sectional
- D) Experimental (Trial)

4. (1.00 pts) A disease is capable of transmission via paper. What is the paper called?

- A) Infectant
- B) Vector
- C) Intermediate
- D) Fomite

5. (1.00 pts) Which of these is not part of Hill's Criteria of Casuality?

- A) Weakness
- B) Strength
- C) Biological Gradients
- D) Analogy
- E) Coherence

6. (1.00 pts) What is an example of selection bias?

- A) Selection of participants via volunteering
- B) A company selects participants
- C) Participants are gathered and cast into a pool, from which are randomly taken from
- D) A participant does not remember what they ate due to a large selection of time

7. (1.00 pts) What are the Characteristics of a Causative Agent?

(Mark **ALL** correct answers)

- [x] A) Virulence
- [x] B) Pathogenicity
- [ ] C) Incidence
- [x] D) Infectivity
- [ ] E) Severity

8. (1.00 pts) What does BSL stand for and what is it's range?

- A) Biosafety Level (1-4)
- B) Biosafety Level (0-4)
- C) Border Selection Levels (0-4)
- D) Border Selection Levels (1-4)

9. (1.00 pts) What is ecological fallacy?

- A) The assumption that the standard applies to all
- B) The assumption that one applies to all
- C) The assumption that the environment always plays a factor
- D) The assumption that the environment almost never plays a factor

10. (18.00 pts) Provide 2 examples of each of the steps of the stages in the chain of infection. Provide one disease that the example may be associated with.

Sample Answer:

(Step of the Chain):

- Item A (Disease X)

- Item B (Disease Y)

Expected Answer:

11. (4.00 pts) Name two diseases that have totally been eradicated via vaccine.

Expected Answer:

12. (4.00 pts)
Give an example of a scenario in which disease eradication was necessary but was not possible. Include a general timeframe for which this disease was most relevant. (That's not COVID-19 lol)

Expected Answer:

13. (2.00 pts) For the previous answer, how did the disease phase out or go away if there was no means of eradication?

Expected Answer:

14. (5.00 pts) Describe a scenario in which a Cross-Sectional study would be used/preferred over a Cohort study and explain why.

Expected Answer:

15. (1.00 pts) Public Health measures are easier to implement than uniform Clinical Health measures.

(●) True ( ) False

16. (1.00 pts) The following is a public health measure: Smoking is banned at the beach due to pollution

( ) True (●) False

17. (1.00 pts)
The following is an example of clinical health: A number of healthcare workers are diagnosed with HIV following specific blood tests formulated on their individual blood types.

(●) True ( ) False

18. (1.00 pts) The following is an example of public health: An epilepsy warning is placed at the beginning of a movie.

(●) True ( ) False

In 1980, ovarian cancer ranked as the fourth leading cause of cancer mortality among women in the United States. An estimated 18,000 new cases and more than 11,000 attributable deaths occurred among American women that year. Several studies had noted an increased risk of ovarian cancer among women of low parity, suggesting that pregnancy exerts a protective effect. By preventing pregnancy, oral contraceptives (OCs) might be expected to increase the risk of ovarian cancer. On the other hand, by simulating pregnancy through suppression of pituitary gonadotropin release and inhibition of ovulation, OCs might be expected to protect against the subsequent development of ovarian cancer. Because by 1980 OCs had been used by more than 40 million women in the United States, the public health impact of an association in either direction could be substantia To study the relationship between oral contraceptive use and ovarian cancer (as well as breast and endometrial cancer), CDC initiated a case-control study – the Cancer and Steroi Hormone (CASH) Study in 1980. Case-patients were enrolled through eight regional cancer registries participating in the Surveillance, Epidemiology, and End Results (SEER) program of the National Cancer Institute.

19. (4.00 pts) Name two biases that could come into play from this study. Provide specific scenarios of how they can affect the validity of this study.

Expected Answer:

20. (2.00 pts) If the population of females in the US is roughly 140,000,000, what is the mortality rate of Ovarian Cancer in **Scientific Notation**

Expected Answer: 0.00007857

21. (6.00 pts) Ovarian cancer is the fourth leading cause of cancer amongst mortality among woman. Name the other 3. (Tiebreaker)

Expected Answer:

22. (2.00 pts) Provide an explanation as to why OCs may cause cancer.

Expected Answer:

The study design included several features to minimize selection and information bias. Ascertainment bias of disease status) a type of selection bias) was minimized by attempting to enroll as cases all women ages 20-54 years with newly diagnosed, histologically confirmed, primary ovarian cancer who resided in one of the eight geographic areas covered by the cancer registries. Controls were women ages 20-54 years selected randomly using telephone numbers from the same geographic areas. Because 93% of U.S. households had telephones, virtually all women residing in the same areas as the cases were eligible to be controls. (Interestingly, all the women enrolled with ovarian cancer had telephones.) To minimize interviewer bias, CDC investigators conducted group sessions to train interviewers in the administration of the pretested standard questionnaire. The same interviewers

and questionnaires were used for both cases and controls. Neither cases nor controls were told of the specific a priori hypotheses to be tested by the study. Recall bias of oral contraceptive exposure was minimized by showing participants a book with photographs of all OC preparations ever marketed in the United States and by using a calendar to relat contraceptive and reproductive histories to other life events. The primary purpose of the CASH study was to measure and test the association between OC use and three types of reproductive cancer) breast cancer, endometrial cancer, and ovarian cancer. Enrollment of subjects into the study began in December 1980. During the first 10 months of the study 179 women with ovarian cancer were enrolled, as well as larger numbers of women with endometrial or breast cancer. During the same period, 1,872 controls were enrolled to equa the number of subjects with breast cancer. The same control group was used for the ovarian cancer analysis; however, the investigators excluded 226 women with no ovaries at the time of interview and four controls whose OC use was unknown, leaving 1,642 women to serve as controls. The distribution of exposure to OCs among cases and controls is shown in Table 1.

Table 1. Ever-use of oral contraceptives among ovarian cancer cases and controls, Cancer and Steroid Hormone Study, 1980-1981

		CASE-CONTROL STATUS		
		Case	Control	Total
USE OF OCs	Ever	a = 93	b = 959	H_1 = 1052
	Never	c = 86	d = 683	H_0 = 769
	Total	V_1 = 179	V_0 = 1642	T = 1821

23. (3.00 pts) Is it possible to calculate the risk from what we know? If so, calculate it. If not, explain what else we would need.

Expected Answer:

24. (4.00 pts)
It is obvious that you use Odds Ratios and Relative Risk calculations with different studies, but why? What advantage does using Odds Ratio or Relative Risk hold in studies?

Expected Answer:

25. (6.00 pts)
Can you calculate the attack rate with the given information? If so, compare it with the mortality rate and estimate the survival rate for Ovarian Cancer. If not, explain what else needs to be given and elaborate on why an attack rate requires it.

Expected Answer:

26. (4.00 pts) What is confounding bias? Why is age a confounding variable in this case?

Expected Answer:

n the analysis of use of oral contraceptives and ovarian cancer, age was related both to OC use and to case-control status. (OC users were younger than never-users; case-patients were younger than controls.) Therefore, the investigators decided to stratify the data by age and calculate stratum-specific and, if appropriate, summary statistics of the stratified data. The Mantel-Haenszel (MH) procedure is a popular method for calculating a summary odds ratio and test of significance for stratified data.

27. (2.00 pts) What is the point of stratifying data?

Expected Answer:

28. (2.00 pts) Define Effect Modification. What do you look for?

Expected Answer:

Table 2. Ever-use of oral contraceptives and risk of ovarian cancer, stratified by age, Cancer and Steroid Hormone Study, 1980-1981

Ages 20-39 years

	Case	Control	Total	
Ever user	46	285	H_1 = 331	OR = 0.69 Expected(a) = 48.73 MH variance = 6.66
Never user	12	51	H_0 = 63	MH Chi = -1.06
Total	V_1 = 58	V_0 = 336	T = 394	95% CLs = 0.34, 1.38

Ages 40-49 years

	Case	Control	Total	
Ever user	30	463	H_1 = 493	OR = ____ Expected(a) = ____ MH variance = 13.39
Never user	30	301	H_0 = 331	MH Chi = ____
Total	V_1 = 60	V_0 = 764	T = 824	95% CLs = 0.38, 1.10

Ages 50-54 years

	Case	Control	Total	
Ever user	17	211	H_1 = 228	OR = 0.61 Expected(a) = 23.06 MH variance = 12.91
Never user	44	331	H_0 = 375	MH Chi = -1.69
Total	V_1 = 61	V_0 = 542	T = 603	95% CLs = 0.34, 1.08

29. (2.00 pts) Effect Modification is present.

○ True ◉ False

30. (6.00 pts) Calculate the appropriate risk measure for each age group. Neglecting to show work will result in a deduction of points.

Expected Answer: Ages 20-39 (46x51) / (285x51) = 2,346/14,535 = .16 Ages 40-49 (30x301) / (463x30) = 9,030/13,890 = .65 Ages 50-54 (17x331) / (211x44) = 5,627/9,284 = .61

31. (4.00 pts) If an Effect Modifier is present, is age an example of one? If an Effect Modifier is present, why isn't age an example of one?

Expected Answer:

32. (4.00 pts) Provide 2 examples of methods to eliminate confounding bias.

Expected Answer:

In the introduction to this case study, pregnancy was described as apparently protective against ovarian cancer. The investigators were interested in seeing whether the association between OC use and ovarian cancer differed for women of different parity. Table 3 shows parity-specific data.

Table 3. Ever-use of oral contraceptives and risk of ovarian cancer, by parity*, CASH Study, 1980-1981

Parity	Use of OCs	# Case-patients	# Controls	Age-adjusted odds ratios (95% confidence intervals)
0	Ever user	20	67	0.3 (0.1-0.8)
	Never user	25	80	
1-2	Ever user	42	369	0.8 (0.4-1.5)
	Never user	26	199	
≥3	Ever user	30	520	0.7 (0.4-1.2)
	Never user	35	400	

* Excludes seven controls (four never-users and three ever-users) and one case (ever-user) with unknown parity.

33. (4.00 pts) Is Effect Modification present in table 3? How can you tell?

Expected Answer:

34. (4.00 pts) Odds Ratios are used in this table. Is this the correct risk rate? If so, why? If not, why not?

Expected Answer:

35. (4.00 pts) Based on the results and rates that you've calculated, do OC's have a negative, positive, or no effect on ovarian cancer?

Expected Answer:

36. (4.00 pts) This study is faulty. Provide one reason why this study may not be applicable.

Expected Answer:

37. (7.00 pts) What is public health surveillance? Name 3 types of surveillance and explain them.

Expected Answer:

38. (4.00 pts)
In the case of a well-known pandemic, one such like COVID-19, is surveillance necessary? If yes, what type of surveillance should be used as to not overreach and overuse resources? If not, where should the resources be directed instead?

Expected Answer:

39. (4.00 pts) COVID-19 is transmissible via droplet transmission, which can travel via sneezes or coughs. Explain why this is different than airborne transmission.

Expected Answer:

40. (1.00 pts) What attributes signify and represent good surveillance?

Expected Answer:

On April 19, 1940, the local health officer in the village of Lycoming, Oswego County, New York, reported the occurrence of an outbreak of acute gastrointestinal illness to the District Health Officer in Syracuse. Dr. A. M. Rubin, epidemiologist-in-training, was assigned to conduct an investigation. When Dr. Rubin arrived in the field, he learned from the health officer that all persons known to be ill had attended a church supper held on the previous evening, April 18. Family members who did not attend the church supper did not become ill. Accordingly, Dr. Rubin focused the investigation on the supper. He completed Interviews with 75 of the 80 persons known to have attended, collecting information abou the occurrence and time of onset of symptoms, and foods consumed. Of the 75 persons interviewed, 46 persons reported gastrointestinal illness.

41. (1.00 pts) This is an epidemic.

○ True ◉ False

42. (10.00 pts) List and explain the steps of an outbreak investigation.

Expected Answer:

43. (4.00 pts) Recently, the number of steps was changed for the steps to an outbreak investigation. What benefit do these new steps have and what is now more accounted for

Expected Answer:

44. (2.00 pts) What is the difference between a fomite and a vehicle? Is there a difference?

Expected Answer:

The onset of illness in all cases was acute, characterized chiefly by nausea, vomiting, diarrhea, and abdominal pain. None of the ill persons reported having an elevated temperature all recovered within 24 to 30 hours. Approximately 20% of the ill persons visited physicians. No fecal specimens were obtained for bacteriologic examination.

45. (2.00 pts) Based on the symptoms, we can assume this virus is:

- A) Airborne
- B) Vector-Borne
- C) Foodborne
- D) Dropletborne

46. (2.00 pts) What information should be collected from church-goers?

Expected Answer:

47. (5.00 pts) Would a line list be beneficial or is it not worth it to create with this many participants? Elaborate.

Expected Answer:

The supper was held in the basement of the village church. Foods were contributed by numerous members of the congregation. The supper began at 6:00 p.m. and continued until 11:00 p.m. Food was spread out on a table and consumed over a period of several hours. Data regarding onset of illness and food eaten or water drunk by each of the 75 persons interviewed are provided in the attached line listing. The approximate time of eating supper was collected for only about half the persons who had gastrointestinal illness.

ID	AGE	SEX	TIME OF MEAL	ILL	DATE OF ONSET	TIME OF ONSET	Baked ham	Spinach	Mashed potatoes	Cabbage salad	Jello	Rolls	Brown bread	Milk	Coffee	Water	Cakes	Van ice cream	Choc ice cream	Fruit salad
1	11	M	unk	N			N	N	N	N	N	N	N	N	N	N	N	N	Y	N
2	52	F	8:00 PM	Y	4/19	12:30 AM	Y	Y	Y	N	N	Y	N	N	Y	N	N	Y	N	N
3	65	M	6:30 PM	Y	4/19	12:30 AM	Y	Y	Y	Y	N	N	N	N	Y	N	N	Y	Y	N
4	59	F	6:30 PM	Y	4/19	12:30 AM	Y	Y	N	N	N	N	N	N	Y	N	Y	Y	Y	N
5	13	F	unk	N			N	N	N	N	N	N	N	N	N	N	N	N	Y	N
6	63	F	7:30 PM	Y	4/18	10:30 PM	Y	Y	N	Y	Y	N	N	N	N	Y	N	Y	N	N
7	70	M	7:30 PM	Y	4/18	10:30 PM	Y	Y	Y	N	Y	Y	N	Y	Y	N	Y	N	N	N
8	40	F	7:30 PM	Y	4/19	2:00 AM	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N
9	15	F	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	N	Y	N	Y	N
10	33	F	7:00 PM	Y	4/18	11:00 PM	Y	Y	Y	N	N	Y	Y	N	N	N	Y	N	Y	N
11	65	M	unk	N			Y	Y	Y	N	Y	Y	N	N	N	N	Y	N	N	
12	38	F	unk	N			Y	Y	Y	N	N	Y	N	N	Y	N	N	Y	Y	Y
13	62	F	unk	N			Y	N	Y	Y	Y	Y	Y	N	N	Y	N	N	N	N
14	10	M	7:30 PM	Y	4/19	2:00 AM	N	N	N	N	N	N	N	N	N	N	N	Y	Y	N
15	25	M	unk	N			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
16	32	F	unk	Y	4/19	10:30 AM	Y	Y	N	N	N	Y	N	N	Y	N	Y	Y	Y	N
17	62	F	unk	Y	4/19	12:30 AM	N	N	N	N	N	N	N	N	N	N	Y	N	N	N
18	36	M	unk	Y	4/18	10:15 PM	Y	Y	N	Y	N	Y	Y	N	N	N	N	Y	N	N
19	11	M	unk	N			Y	Y	?	Y	N	Y	N	N	N	Y	N	N	Y	N
20	33	F	unk	Y	4/18	10:00 PM	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	N
21	13	F	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	Y	Y	N	N	
22	7	M	unk	Y	4/18	11:00 PM	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N
23	64	M	unk	N			N	N	N	N	N	N	N	N	N	N	Y	N	N	N
24	3	M	unk	Y	4/18	9:45 PM	N	Y	Y	N	N	Y	N	N	N	Y	Y	Y	N	N
25	65	F	unk	N			Y	Y	Y	Y	Y	N	Y	N	Y	N	Y	Y	Y	N
26	59	F	unk	Y	4/18	9:45 PM	N	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	N	N
27	15	F	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N
28	62	M	unk	N			Y	Y	N	Y	N	Y	Y	N	Y	Y	Y	N	Y	N
29	37	F	unk	Y	4/18	11:00 PM	Y	Y	Y	N	Y	Y	Y	N	Y	Y	N	N	Y	N
30	17	M	10:00 PM	N			N	N	N	N	N	N	N	N	N	Y	Y	Y	N	
31	35	M	unk	Y	4/18	9:00 PM	Y	Y	Y	N	Y	Y	Y	N	Y	N	Y	Y	N	Y
32	15	M	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	N	Y	Y	N	N
33	50	F	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	N	Y	N	N	N
34	40	M	unk	N			Y	Y	N	N	N	Y	Y	N	Y	Y	Y	N	Y	Y
35	35	F	unk	N			Y	Y	Y	N	N	Y	Y	N	Y	Y	N	N	Y	N
36	35	F	unk	Y	4/18	9:15 PM	Y	Y	Y	Y	N	Y	Y	N	Y	N	N	Y	N	N
37	36	M	unk	N			Y	N	Y	Y	N	Y	Y	N	Y	N	N	N	Y	N
38	57	F	unk	Y	4/18	11:30 PM	Y	Y	N	Y	Y	Y	Y	N	Y	N	Y	Y	Y	N
39	16	F	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	Y	N	Y	N	N
40	68	M	unk	Y	4/18	9:30 PM	Y	N	Y	Y	N	N	Y	N	Y	N	N	Y	N	N
41	54	F	unk	N			Y	Y	Y	N	N	Y	N	N	Y	N	Y	N	Y	N
42	77	M	unk	Y	4/19	2:30 AM	N	N	N	N	N	N	N	N	N	N	Y	N	Y	
43	72	F	unk	Y	4/19	2:00 AM	Y	Y	N	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N
44	58	M	unk	Y	4/18	9:30 PM	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	?	Y
45	20	M	10:00 PM	N			N	N	N	N	N	N	N	N	N	Y	Y	Y	N	
46	17	M	unk	N			Y	Y	Y	N	N	Y	N	N	N	Y	N	Y	Y	N
47	62	F	unk	Y	4/19	12:30 AM	Y	Y	N	N	N	Y	N	N	N	Y	N	Y	N	N
48	20	F	7:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	N	Y	N	N	
49	52	F	unk	Y	4/18	10:30 PM	Y	Y	Y	Y	N	Y	N	N	N	Y	N	N	Y	N
50	9	F	unk	N			N	N	N	N	N	N	N	N	N	N	Y	N	Y	N
51	50	M	unk	N			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N
52	8	M	11:00 AM	Y	4/18	3:00 PM	N	N	N	N	N	N	N	N	N	N	Y	Y	N	
53	35	F	unk	N			N	N	N	N	N	N	N	N	N	N	Y	Y	N	
54	48	F	unk	Y	4/19	12:00 AM*	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N
55	25	M	unk	Y	4/18	11:00 PM	Y	N	Y	N	N	Y	Y	N	N	Y	Y	Y	Y	N
56	11	F	unk	N			N	N	N	N	N	N	N	N	N	N	N	Y	N	N
57	74	M	unk	Y	4/18	10:30 PM	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	N	N
58	12	F	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N
59	44	F	7:30 PM	Y	4/19	2:30 AM	Y	Y	Y	N	N	Y	N	N	N	Y	Y	N	Y	N
60	53	F	7:30 PM	Y	4/18	11:30 PM	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y	N
61	37	M	unk	N			N	N	N	N	N	N	N	N	N	N	N	Y	N	
62	24	F	unk	N			Y	Y	Y	N	N	Y	N	N	Y	N	N	N	N	N
63	69	F	unk	N			N	Y	Y	N	Y	N	N	Y	Y	Y	N	Y	N	N
64	7	M	unk	N			Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	N	Y	N
65	17	F	10:00 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N
66	8	F	unk	Y	4/19	12:30 AM	Y	N	Y	Y	Y	N	N	N	N	N	Y	Y	Y	N
67	11	F	7:30 PM	N			Y	Y	Y	Y	N	Y	N	N	N	Y	Y	N	N	N
68	17	M	7:30 PM	N			Y	Y	Y	Y	N	Y	N	N	Y	N	Y	Y	N	N
69	36	F	unk	N			N	N	N	N	N	N	N	N	N	N	N	Y	N	N
70	21	F	unk	Y	4/19	12:30 AM	Y	N	N	Y	Y	N	N	N	N	N	Y	Y	Y	N
71	60	M	7:30 PM	Y	4/19	1:00 AM	N	N	N	N	N	N	N	N	N	Y	Y	N	N	
72	18	F	7:30 PM	Y	4/19	12:00 AM*	Y	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	N
73	14	F	10:00 PM	N			N	N	N	N	N	N	N	N	N	N	Y	Y	N	N
74	52	M	unk	Y	4/19	2:15 AM	Y	N	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N
75	45	F	unk	Y	4/18	11:00 PM	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	N	Y

48. (2.00 pts) Do cases exist outside of the timeframe given? What is a possible explanation for their existence?

Expected Answer:

49. (2.00 pts) Give an approximation of the incubation period given the line listing's times.

Expected Answer:

50. (2.00 pts) Find the range of the incubation periods.

Expected Answer:

51. (2.00 pts) Does there seem to be an affiliation with the virus and gender?

Expected Answer:

52. (4.00 pts) Calculate the attack rate for Cabbage Salad.

Expected Answer:

53. (4.00 pts) Calculate the attack rate for Water.

Expected Answer:

54. (4.00 pts) Calculate the attack rate for Fruit Salad.

Expected Answer:

55. (4.00 pts) Calculate the attack rate of Chocolate Ice Cream.

Expected Answer:

56. (6.00 pts) Of those asked for the attack rate, which seems to be the most plausible cause of the virus? Which seems to be the least plausible cause?

Expected Answer:

57. (4.00 pts) Given what you know now, give an explanation for how the outbreak may have occurred.

Expected Answer:

58. (4.00 pts) Name a virus that is found in the afflicted food and can be the culprit in this outbreak given the incubation time and symptoms? (Tiebreaker)

Expected Answer:

59. (4.00 pts) Sufficient herd immunity is achieved at what % of immunity?

- A) 50
- B) 70
- C) 80
- D) 95

60. (2.00 pts) What does ACIP stand for and what agency is it under?

Expected Answer:

61. (6.00 pts) Describe a means of primary, secondary, and tertiary prevention for diabetes.

Expected Answer:

Thank you and good luck!