Disease Detectives
Answer Key

Total Possible Points: 185
1. Which of the following would reduce random error? (5 points)
   a. Increasing sample size
   b. Reducing sample size
   c. Increasing variability in the measurement
   d. Reducing variability in the measurement
   e. Both a and c
   f. Both a and d

2. Which of the following describes a “mixing of effects” in a study or survey? (5 points)
   a. Conflating
   b. Confounding
   c. Random error
   d. Random selection

3. Describe the difference between morbidity and mortality (10 points)
   Morbidity refers to the state of being diseased or unhealthy within a population. Mortality is the term used for the number of people who died within a population.

4. Describe the difference between precision and accuracy (10 points)
   Precision refers to the degree to which there is variation in a measurement. Accuracy refers to the degree to which the measurement is correct.
5. The portion of the incidence of a disease in the exposed that is due to the exposure is: (5 points)
   a. Cohort group
   b. Relative risk
   c. Attributable risk
   d. Benefit group

6. On December 1st, a survey taken at your high school shows that 50 students have the flu. Another survey is taken on December 15th, showing that 75 students have the flu. If there are a total of 2000 students at your high school, what is the prevalence of the flu at the end of the time period? What is the incidence of the flu at the end of the time period? (20 points)

   Prevalence = .0375 or 3.75%
   Incidence = .0125 or 1.25%

7. In a case-control study, which statistic would you use to measure association? (5 Points)

   Odds Ratio

8. Which type of prevention involves early detection of existing diseases and includes screening? (5 points)

   Secondary Prevention

9. What are the three components of the epidemiological triad? (15 points)

   Agent, Host, Environment
10. What is one foodborne bacteria that can grow at refrigerator temperatures? (5 points)

Either *Listeria monocytogenes* or *Yersinia enterocolitica*

11. Which of the following characteristics in food can NOT prevent bacterial growth? (5 points)
   a. High salt
   b. High sugar
   c. High acid
   d. High fiber

12. According to the CDC, what is the safe minimum internal temperature in Fahrenheit that chicken should be cooked to? (10 points)

   Accept answers between 160 and 170

13. Which statistic is determined by taking the incidence in the exposed and dividing it by the incidence in the nonexposed? (5 points)

   Relative Risk

14. What kind of pathogen is Hepatitis caused by? (5 points)

   Virus

15. What kind of pathogen is salmonella? (5 Points)

   Bacteria
16. The CDC estimates that approximately _______ illnesses occur due to Salmonella every year in the US (5 points)
a. 1.2 million
b. 1200
c. 120,000
d. 12,000

17. An infection caused by Salmonella is called: (5 Points)

Salmonellosis

18. List the 6 components of the chain of transmission (30 points)

Infectious agent
Reservoir
Portal of Exit
Mode of Transmission
Portal of Entry
Susceptible Host

19. On an epicurve, which type of graph has a series of peaks over multiple incubation periods? (5 points)
a. Propagated
b. Continuous common source
c. Point source
d. Epidemic

20. Which type of study is useful for studying a rare disease? (5 points)
a. Ecological
b. Cohort
c. Case-control
21. A recent study reported that not eating fish increases the risk for stroke. Based on the following table showing the results of this study, calculate the Relative Risk. What does the relative risk mean in regards to the relationship between not eating fish and stroke, as compared to those who eat fish daily? *(20 points total – 10 for RR value and 10 for explanation)*

### Eating Fish and Stroke

<table>
<thead>
<tr>
<th>Eating Fish</th>
<th>Cases of Stroke</th>
<th>Noncases of Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>82 (a)</td>
<td>1,549 (b)</td>
</tr>
<tr>
<td>Almost daily</td>
<td>23 (c)</td>
<td>779 (d)</td>
</tr>
</tbody>
</table>

**Relative Risk = 1.75**

Those who never eat fish **have 1.75 times as much risk for stroke as those who eat fish almost daily.**

**Or**

Those who never eat fish **are 1.75 times more likely to have a stroke than those who eat fish almost daily.**