

## Lab: “Who got us all sick?”

Communicable diseases are caused by pathogens and can be transmitted from one person to another. You can become infected by a pathogen in several ways, including by drinking contaminated water, eating contaminated foods, receiving contaminated blood, and inhaling infectious aerosols (which are droplets from coughs or sneezes). In this lab you will simulate the transmission of a communicable disease.

### Objectives:

- Simulate the transmission of a disease
- Determine the original carrier of the disease

Based on these objectives, write a question you would like to explore about disease transmission.

### Procedure Part A: Simulate Disease transmission

1. You will be given a dropper bottle of an unknown solution. When your teacher says to begin, transfer 3 dropperfuls of your solution to a clean test tube.
2. Choose a partner for Round 1 and write the name of your partner in Data Table 1.
3. Pour the contents of one of your test tubes into the other test tube. Then pour half of the solution back into the first test tube. You and your partner now share any pathogens either of you might have.
4. Select a new partner for Round 2 and write the name of your partner in Data Table 1. Repeat Step #3.
5. Select a new partner for Round 3 and write the name of your partner in Data Table 1. Repeat Step #3.
6. Add one dropperful of indophenol indicator to your test tube. “Infected” solutions will stay colorless or turn light pink. “Uninfected” solutions will turn blue. Record the results of your test.

## Procedure Part B: Trace the Disease Source

1. If you are infected, write your name and the name of your partner in each round on the board. Mark your infected partners. Record all of your class's data in Data Table 2.
2. To trace the source of the infection, cross out the names of the uninfected partners in Round 1. There should be only 2 names left. One is the name of the original disease carrier. To find out who got everyone else sick, place a sample from his or her dropper bottle in a clean test tube, and test it with indophenol indicator.
3. To show the disease transmission route, make a diagram similar to Chart 1. Show the original disease carrier and the people each disease carrier infected.

## Analysis and Conclusions:

1. After Round 3, how many people were "infected"? Express this number as a percentage of your class.
2. What do you think the clear fluids each student started with represent? Explain why.
3. Can someone who does not show any symptoms of a disease transmit the disease? Explain.
4. Write a new question about disease transmission that could be explored with further investigation.



Data Table 1:

| Round Number | Partner's Name |
|--------------|----------------|
|              |                |
|              |                |
|              |                |

