Epidemic Lab

How does an epidemic spread?

Some people are carriers of disease. These carriers show either no symptoms associated with that disease or only mild symptoms. At some point they may eventually get sick, but the danger to others is that a carrier may not be recognized as having the disease. They carry the virus inside them, however, and may spread it to people they contact. This is one reason why some viruses, like AIDS, can be spread so quickly. Some people just don’t know they have it.

In this lab, one of you will be the original carrier of a “disease.” It’s perfectly harmless if handled properly. You will carry it in a cup rather than in your body. That would get a little messy. The original carrier will make contact with three students who will then make contact with others. All the students will then be tested to see who has become infected.

Procedure

1. When you are instructed, come to the front of the room and obtain a cup from your teacher. One of you is now “infected,” but we have no idea who that person is. PLEASE DO NOT DO ANYTHING TO THE STUFF IN THE CUP JUST YET!!

2. With your cup in hand, mingle around the classroom when asked to do so by your teacher.

3. a. Choose someone at random and empty the contents of your cup into the other person’s cup.
   b. Then return half of the solution back to your cup
   c. Record the name of the person you exchanged solution with on this sheet.

4. Repeat step 3 two more times.

5. Carefully record the names of the people your exchanged with on the sheet on the overhead and return to your seat with your solution.

6. When asked to do so, come to the front of the class and get a couple drops of phenol red placed in your cup. If it turns red, you are infected. If it doesn’t, no sweat!
How does an epidemic spread?

Who did you exchange with?

1. _______________________________________
2. _______________________________________
3. _______________________________________

Did you find out that you were infected, or not infected? (Circle one)

Questions to answer …

1. What would be the greatest number of individuals that could test positive after three rounds of contact?

2. What would be the smallest number of individuals that could test positive after three rounds of contact?

3. What would be the greatest number of individuals that could test positive if we had done four rounds?

4. How many rounds of contact would it take for everyone in the class to be infected?

5. Reflecting on this activity, how can a disease like AIDS spread so fast?
Epidemic Lab Teacher Instructions

Materials:
3 or 4 ounce disposable cups (1 per student)
water
1 mole NaOH
phenolphthalein (indicator fluid)

Activity:
1. Half fill enough cups with water for every student minus one. If you don’t have an even number of students you should participate but you may want to keep an eye on the infected cup so that you don’t get infected. This avoids awkward comments from student.
2. Half fill the last cup with the HCL
3. Instruct the students to choose a partner but NOT to exchange fluids until you have made sure that everyone has a NEW partner each time.
4. Instruct the student to exchange fluids by pouring the liquid back and forth between the two cups and leaving both students with ½ the fluid.
5. Repeat two more times.
6. Place one or two drops of indicator fluid in each student’s cup. It will turn bright pink if they are infected.

Discussion:
7. Discuss why it is important for medical professionals to trace back to the first person who started the infection.
8. Have all of the infected students stand and the non-infected students sit.
9. Ask the infected students to look around and if they exchanged with anyone is not standing, they should sit down.
10. If there are more than two standing then you must work through who was with who first.
11. You will only be able to trace back to the first two infected but hopefully you were paying attention to who picked up the infected cup because the students always want to know absolutely who’s the “culprit”.