**Unit 8: Pathology Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

*Outbreak Lab* **Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**



**Disease Transmission Lab**

**Situation:** You are watching the news and see a story about a virus that is spreading throughout the local community. The virus spreads through the exchange of bodily fluids. You become increasingly worried about your risk of infection and have decided to go to the doctor’s office in order to get tested for the virus.

**Purpose:** To demonstrate that one infected person in a population can, over a period of time, infect a large number of individuals.

**Materials:** Tiny Cups, water, lemon juice, bromothymol blue solution

**Before Testing (Procedure):**

1. You need to obtain your body fluids. In order to do this, I will come round and give you one cup filled with distilled water. This will represent your bodily fluids. However, **ONE** of you will be given a test tube that contains a few drop of Lemon Juice. This represents the virus and so you will already be infected with the disease and have the potential to infect those people you swap bodily fluids with. **You will not know if you already have the disease or not!**
2. Next, you will need to swap bodily fluids with **three** people in your community.
   1. Choose a partner (male or female does not matter)
   2. One of you needs to pour your liquid into the other person’s cup.
   3. Now your fluids have mixed.
   4. Pour half of the liquid back into the empty cup. You should both now have an equal amount of bodily fluids.
   5. Record your partner’s name in the data table below.
   6. You need to do this **FOUR** times **ONLY**!

**Make a Guess (Hypothesis)**

1. How many people do you think will become infected by the end of the lab? Remember, only one person will be infected with the virus in the beginning. \_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| **Trial #** | **Name of Partner** | **Partner’s Cup #** |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

**Time to Get Tested (Analysis/Conclusion)**

1. Now that you have swapped bodily fluids with others, you are at-risk for an infection. You have now decided to go to the doctor.
   1. One at a time, make a doctor’s visit. I can be found in my white lab coat in the area labeled “Doctor Moody.”
   2. I will place a few drops of Bromothymol blue solution in your cup. If yellow, you tested positive (+) for the virus. You must then report to the Quarantine area in the back of the classroom. If blue, you tested negative (-) for the virus. You may return to your seat. Write your test results below:

Test results: \_\_\_\_\_\_\_\_\_\_\_\_\_

* 1. Now, record your name and results on the class data sheet (found on the easel at the front of the room).

**Let’s Track the Virus**

1. Looking at the class data, who was originally infected with the virus? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Summary Questions**

1. In the end, how many people were infected with the virus? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What percentage of population does this represent? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Why would it be important to find out where/who the virus came from? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What preventative measures could have been taken to avoid exposure to the virus? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Bromothymol Blue is an indicator for acid (lemon juice is acidic). Explain what an indicator is and how it works. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Did every person in the room become infected? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. If we did this experiment long enough, would everyone become infected? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. In a real virus infection, not every person in the city comes down with the disease. Explain why this might be. (Hint: think about Typhoid Mary) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What method of disease transmission is not simulated by this activity? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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