Disease Transmission Tag

Teaching the LifeStraw®: Student

Activities Grade level: 3-5

National Science Content Standards:
A: Science as Inquiry
C: Life Science
F: Science in Personal & Social Perspectives

OBJECTIVE:

In a fun setting, simulate the rapid spread of infection and reinforce the importance of adopting healthy behaviors.

DESCRIPTION:

Students will engage in a game of tag in which one player is designated as the disease source and will "infect" others by tagging them. "Infected" players work together with the tagger until the disease is spread throughout the population. A variation is included to integrate an understanding of different immune responses to exposures. Water-borne diseases such as cholera are no longer as deadly or as common as they were many years ago, thanks to scientists' and public health workers' understanding of disease transmission and the danger of contamination.

MATERIALS:

- Bag of assorted bandanas or colored fabric (clean rags or re-use of old neck ties is great)
- Stopwatch or watch with second hand

PROCEDURE:

Make sure that you have a large open space to play the game. This is a variation on the basic game of tag. One player is initially select to be "it". When that player tags others, those players join him/her being "it". If you only play one round, the last person tagged wins.
To begin, randomly select which player will be "it". Inform the other players that the selected student represents a *cholera germ,* a type of bacteria which causes the *cholera* disease. It is highly contagious and transmitted via human waste to people, generally by drinking infected water. The primary symptoms of *cholera* are severe stomach problems, i.e. diarrhea, vomiting and dehydration. *Cholera* spreads fast and strikes large numbers of people at a time. When this happens, there is a *cholera* epidemic (an outbreak of a disease, affecting many persons at the same time, and spreading from person to person). Cholera hit the world like a punch in the stomach starting in India in 1817, moving through Asia and spreading to Russia and Europe traveling via boat in bilge water and people. The disease spread to Canada and southward to the United States where it sickened New York and other U.S. cities, killing thousands. If there was any good side to these cholera epidemics it was that scientists finally, through tireless disease detective work called epidemiology, began to isolate the cause - contaminated water. (Read

about the English doctor John Snow to learn more!)

In the United States and other developed countries there are laws in place to protect people from contaminated water; filtration is advanced and human waste is disposed of properly, down the toilet! Students can safely experience the rapid spread of disease via unseen germs by playing this fast-paced game of tag.

To start the game, have the "it" player count to 30 while everyone else scatters.

All the players except the one selected as "it" should wear a rag, either dangling from their waistband, pocket, or LOOSELY tied around the wrist. (Teachers might advise children the day before to wear pants to school the following day.) The rag is a "flag" indicating good health. The player who is "it" will chase the other players and try to pull out the rag. (If the rag is tied on the wrist, the player can be tagged physically, and will then hand over the rag.) The players who lose their rags become "infected" and help tag other players. Rags can be discarded in a designated pile. When all players have lost their rags, the first round is over. The last player "infected" is the winner.

EXTENSION:

A single player can be designated as a "doctor." The doctor can "steal" flags from the pile and distribute them to players making them "immune" to the germ. Immune players must then wear two rags, as a sign of their immunity and they can assist the doctor, in stealing (from the pile) and distributing rags. The doctor is NOT immune, however, and if he or she gets caught, he must sit down. The game can continue until the rest of the healthy players are "infected." However, if the "doctor" and the "immune" players outnumber the infected number of players after the designated time, the healthy side wins! A reasonable time limit may be set on each round taking into consideration the class size and dynamics.

REFLECTION:

- Was it easy to stay healthy and remain untagged as the population of germs grew?
- If you were not yet tagged, were you feeling more nervous as the number of germs grew?
- Do you think people in a community where an epidemic or outbreak is occurring might feel nervous too? Any other feelings you as players might have had in common with people in those communities, both sick and healthy?
- What about the doctor, was his or her job "curing" people while risking his/her own infection difficult?
- Talk about where we find germs and how healthy habits can be used to prevent an epidemic from spreading.

Discuss the ways that most germs/pathogens are spread:

- Droplet infection (drops of moisture spread via sneezing or coughing)
- Direct contact (shaking hands, kissing, etc.)
- Contaminated food (includes eating seafood that has been swimming in contaminated water)
- Contaminated water (drinking, washing, farming, etc.)
- Vectors (insects, animals)