

Class: Grade 11 Biology

Lesson Title: STI Spread

Class Size: 20

Time: 60 mins

The Human Reproductive System: Describe how sexual infections are transmitted and contracted.
Explore safe methods of sexual intercourse.

Learning Objectives:

1. Students will become familiar with methods of contracting and transmitting STIs.
2. Students will become aware of the dangers of drug use, sexual promiscuity, and poor choice of protection can have on unknowing individuals.

Materials:

- HCl (very dilute concentration <1%, 0.05M) or Acetic/Citric Acid (Vinegar/Lemon juice if dilute hydrochloric acid is not available) – 200mL
- Class set of plastic cups (see-through) filled 1/3 full of water
- Acid-base indicator (bromthymol blue preferred: pH <6.8 is yellow, pH 6.8-7.2 is green, pH >7.2 is blue)
- Scenario cards (have a class-set of description cards with roles for each student – these cards will have sexual preferences, practices, and some other details about “their” lifestyle choices) – see list attached below this document
- Sticky nametag cards + Sharpie (students will write their role’s name on their nametag and stick it to themselves)
- Tracking sheets (these sheets will be given to students to track their encounters throughout the stages of the role-play) – see attached document

Preparation beforehand:

- Have the see-through plastic cups filled 1/3 of the way with water (have two cups 1/3 filled with the dilute acid)
 - o Have a tester sample of acid that you intermix with other cups of water beforehand to test (take the cup with acid and pour into a 1/3 filled cup of water, then split the liquid into the two cups, then take the mixture and mix it with another 1/3 filled cup of water the same way, etc.)
 - o Test one of these cups that has been mixed at some point with a trace of the acid, using the acid-base indicator to ensure you get a color change; if no color change is present after 3-4 mixes, you may need a stronger acid
- Have the scenario cards printed to be distributed to students

Introduction:

1. Introduce the topic. Possible prompt questions include:
 - a. What is an STI? How do people contract them/transmit them?
 - b. Can you get all forms of STIs by kissing? Having sex? Sharing food/drinks?
 - c. Are there methods to prevent transmission of STIs?
2. Explain what a kinulation is (broken up into kinesthetic and simulation). Tell them that these are used to help students learn difficult concepts that are otherwise difficult to picture. It allows students to become part of the demonstration, and therefore easier to remember and learn. Ask students if they would like to try one.

STI Spread Kinulation:

1. Give each student a role card.
 - a. Let students know that this has nothing to do about their actual character or sexual preference, it is a completely random assignment to a role that they will act out for the remainder of the activity.
 - b. These cards explain gender, sexual preference, relationship status, drug use, etc.
 - c. Each card will also have a list of encounters for each round (i.e. in the first round perhaps Susie shares a needle with Doug and Jessica, and during the second round has unprotected sex with two people, etc.).
 - d. Students should read through these role cards, and you may wish to have some students read theirs aloud.

- e. If there are extra roles and too few students, set up the roles somewhere in the classroom as participating people that students will need to seek out still (i.e. they will be a face without a body).
2. Each student should write their role name on a sticky tag and attach it to their chest so that other students will be able to identify their role name.
 - a. This will make it a lot easier for students to find other students, while staying in their character role.
3. Give each student one of the cups with liquid in them.
 - a. All participants receive the cups with water except for the ones who are indicated to have the STI in the first place. The students who have the role of the STI carriers will receive a cup with the dilute acid in it. You must give these special cups to these students without telling them they are different or infected (the students will be unknowingly infected).
 - b. Explain to students that these cups represent their characters bodily fluids. Whenever their character has an encounter of bodily fluids (unprotected sex, sharing needles) with another student's character, they must mix fluids; students mix fluids by pouring all of their liquid into the other student's cup, mixing a bit, then proceeding to split the liquid into their two separate cups.
 - c. Each time they encounter a student within a round of transmission, they must swap fluids with this person (even if it is the same person each round, or maybe the same person in round 1 and 3).
4. Give each student a tracking sheet to record all interactions with people during each transmission round.
5. Start the rounds of transmission (giving enough time during each round – 5 minutes or so – for students to meet and swap fluids with the people as indicated on their role card for each round).
 - a. If this is done correctly, by the end of the transmission rounds, students who have come in contact with someone infected by the STI, or who has indirectly been linked to bodily fluids with this person, will have some remnants of the acid in their cup. These remnants of the acid should show up using the acid-base indicator by the "Doctor" later on.
6. After all rounds are completed, discuss with students the different possibilities that they encountered:
 - a. Did anyone have unprotected sex? Share needles? Remain abstinent?
 - b. You may wish to ask a student if they remained faithful to their partner, and then ask their partner if they reciprocated the faithfulness.
7. When you are happy with the discussion, it is time for the lab results.
 - a. You may wish to help the doctor role, or assume the doctor role, and "test" each individual for the STI.
 - b. Have each student come up to the front and have the acid-base indicator dropped into their cup. A Yellow color will indicate a positive STI result (or other color depending on your acid-base indicator). The color may not be very bright, so you should probably have a cup of water with acid-base indicator in it available as a comparison model.
8. After each student has been "tested," you can reveal the student(s) who was initially infected with the STI (you may wish to do this before the testing, it is completely preferential).

Conclusion – Possible wrap-up questions:

1. What have you learned about the spread of STIs?
2. Do you think these types of behaviours exhibited in the rounds actually exist in the real-world?
3. What can you do to prevent the spread?

Disease Spread Character List

Juan – Single male, bi-sexual, non-drug user, practices unprotected sex

- 1) Sit this round out – you are feeling sick
- 2) Have unprotected sex with Craig& Rob
- 3) Have unprotected sex with Michelle

Charissa – Single female, bi-curious, heroin-user, practices un-safe needle use, practices unprotected sex

- 1) Shoot up heroin with Sheri – sharing needles
- 2) Have unprotected sex with Peter& Michelle
- 3) Have unprotected sex with Greg

Liz – single female, lesbian, non-drug-user, practices unprotected sex

- 1) Have unprotected sex with Maggie
- 2) Have unprotected sex with Sheri
- 3) Have unprotected sex with Maria

Jack – Partnered monogamous male (with Craig), gay, non-drug user, practices un-protected sex

- 1) Have unprotected sex with Craig
- 2) Sit out this round (Craig is away)
- 3) Have un-protected sex with Craig

Craig – Partnered polygamous male (cheats on Jack), gay, non-drug user, practices un-protected sex

- 1) Have unprotected sex with Jack
- 2) Have unprotected sex with Rob& Juan
- 3) Have unprotected sex with Jack

Peter – single male, bi-curious, non-drug user, sometimes practices unprotected sex

- 1) Have protected sex with Maria
- 2) Have unprotected sex with Michelle&Charissa
- 3) Have unprotected sex with Dawn& Ian

Monique – partnered monogamous female (with Mark), straight, non-drug user, practices unprotected sex

- 1) Have unprotected sex with Mark
- 2) Have unprotected sex with Mark
- 3) Have unprotected sex with Mark

Mark – partnered monogamous male (with Monique), straight, non-drug user, practices unprotected sex

- 1) Have unprotected sex with Monique
- 2) Have unprotected sex with Monique
- 3) Have unprotected sex with Monique

Devin – partnered monogamous male (with Sheri), straight, non-drug user, practices unprotected sex

- 1) Sit out this round – Sheri is away
- 2) Sit out this round – Sheri is away
- 3) Have unprotected sex with Sheri

Sheri – partnered polygamous female (cheats on Devin), bi-sexual, heroin user, practices unsafe needle use and unprotected sex.

- 1) Shoot up heroin with Charissa – share needles
- 2) Have unprotected sex with Liz
- 3) Have unprotected sex with Devin

Michelle – single female, bi-curious, non-drug user, sometimes practices unprotected sex

- 1) Have protected sex with Ian
- 2) Have unprotected sex with Peter&Charissa
- 3) Have unprotected sex with Juan

Greg – single male, bi-sexual, non-drug user, sometimes practices unprotected sex

- 1) Have protected sex with Dawn
- 2) Have unprotected sex with Brent& Tony
- 3) Have unprotected sex with Charissa

Brent – single male, gay, non-drug user, practices unprotected sex

- 1) Have unprotected sex with Rob
- 2) Have unprotected sex with Tony& Greg
- 3) Have unprotected sex with Rob

Maggie – single female, lesbian, heroin user, practices safe needle use, practices unprotected sex

- 1) Have unprotected sex with Liz
- 2) Shoot up heroin with Dawn – don't share needles with her.
- 3) Have unprotected sex with Starr

Maria – single female, bi-sexual, non-drug user, sometimes practices unprotected sex

- 1) Have protected sex with Peter
- 2) Have protected sex with Ian
- 3) Have unprotected sex with Liz

Dawn – single female, straight, heroin user, practices safe needle use, practices unprotected sex

- 1) Have protected sex with Greg
- 2) Shoot up heroin with Maggie – don't share needles with her. Starr uses your needle after you without you knowing
- 3) Have unprotected sex with Ian& Peter

Ian – single male, bi-curious, non-drug user, sometimes practices unprotected sex

- 1) Have protected sex with Michelle
- 2) Have protected sex with Maria
- 3) Have unprotected sex with Dawn& Peter

John – single male, gay, non-drug user, practices abstinence

- 1) Sit out this round – practicing abstinence
- 2) Sit out this round – practicing abstinence
- 3) Sit out this round – practicing abstinence

Julia – single female, straight, non-drug user, practices abstinence

- 1) Sit out this round – practicing abstinence
- 2) Sit out this round – practicing abstinence
- 3) Sit out this round – practicing abstinence

Starr – partnered polygamous (in an open relationship with Tony), bi-sexual, heroin user, practices unsafe needle use and unprotected sex

- 1) Have unprotected sex with Tony
- 2) Shoot up heroin with Dawn and Maggie (use needle after Dawn without her knowing)
- 3) Have unprotected sex with Maggie

Tony – partnered polygamous (in an open relationship with Starr), bi-sexual, non-drug user, sometimes practices unprotected sex

- 1) Have unprotected sex with Starr
- 2) Have unprotected sex with Brent& Greg
- 3) Sit out this round – you are feeling sick

Rob – single, gay, non-drug user, practices unprotected sex

- 1) Have unprotected sex with Brent
- 2) Have unprotected sex with Craig& Juan
- 3) Have unprotected sex with Brent

Doctor – your job is to test the members of the community for the presence of disease after 3 rounds of interactions

Health Educator – your job is to come up with a campaign to convince people to practice safe needle use and sexual relations.

Timer – your job is to make sure that everyone knows when each round starts and ends

Possible places to start the infection – Charissa, Peter

Instructions: Complete this “tree” to trace back the path of transmission of the disease. Write your name and the names of the three partners that you interacted with. Talk to each of your partners and find out if they had interactions with other people before they interacted with you. Get tested to see if you are infected. If so, try to figure out where the infection started.

