



Infection Prevention and Control (IPC): Sexually Transmitted Infections (STIs)

A classroom-based activity demonstrates how easily STIs can be transmitted. Using chlamydia as an example, this lesson helps students to understand an individuals' susceptibility to STIs and the potential severity of its consequences.

Curriculum Links

Science

- Working scientifically

PSHE/RSHE

- Health and prevention
- Intimate and sexual relationships
- Sexual Health

English

- Reading
- Writing

Key Words

Chlamydia, Condom, Contraception, Safe sex, Sexually Transmitted Infections (STI)

Learning Outcomes

All students will:

- Understand that infection can be spread easily through sexual contact.
- Understand what students can do to protect themselves against STIs.
- Know that not everyone with an STI has symptoms.
- Understand how easily infections like chlamydia can spread among young people.

Most students will:

- Understand that non-barrier forms of contraception do not protect against STI.
- Begin to explore effective communication about condom use.

Resources Required

Main Activity:

Test tube experiment

Per student

- 3 clean test tubes

- Copy of SW1

Per class

- Test tube rack

- Iodine

- Starch

- Water

- Gloves

- Cling film or cotton balls

Activity 2: Safer sex: risks, communication and information

Per student

- Post-it notes

- Pens/pencils

Per class

- 4 A3 sheets of paper

Extension Activity:

If Chlamydia could talk

Per student

- Copy of SH1

Extension Activity: STI Quiz

Per group

- Copy of SW2

Advance Preparation

Section A

- Half-fill a test-tube with milk – one per student
- Replace one of the student's test tubes with starch

Section B

- Half-fill a second set of test tubes with milk
- Replace one of the test tubes with starch

Section C

- Fill 4 test tubes with milk
- Place cotton plugs or cling film over the top of 2 of the test tubes
- Fill an extra test-tube with starch

Health and Safety

For safe microbiological practices in the classroom consult CLEAPPS www.cleapps.org.uk

@ Weblink

e-bug.eu/eng/KS3/lesson/STIs

SH1 - If Chlamydia Could Talk

If Chlamydia Could Talk

I'm sorry Sarah but I'm not to blame. **You picked me up** when you had sex with that guy two weeks ago at that party. Remember? You'd fancied him for ages and **didn't use a condom**. I'm very grateful indeed. Little did you know then that you had been infected with me, chlamydia! I'm **silent** but don't confuse that for **weak** because I'm nothing of the sort.

Hi! Yes that's right, here I am. **Passed on to** you through **bacteria** in Mark's **semen** and as long as I keep quiet, it's easier for me to make myself **at home in your body**. Mark's semen stayed in your body after sex allowing me to **start spreading myself around**. Because you're young it's particularly easy for me to infect your body. Like I said, I'm very good at keeping quiet. So good in fact that I'll be with you 24 hours a day and you'll have no idea.

Although some do sadly become aware that I'm there, most don't, allowing me to **linger for months**, even years **undetected** and let's be honest, I **prefer it that way**. I can cause the most **damage** then you see. In the beginning I **live** and start to cause **problems** in the cervix and urethra.

SH1 If Chlamydia Could Talk

SW1 - Spread of STIs Test Tube Experiment Student Recording Sheet

Spread of STIs Experiment: Worksheet

Section A

Consider the order of people who you had a 'sexual encounter' with and whether or not they had the STI:

Sexual encounter	Were they infected?
1	
2	
3	
4	
5	

How many people in the class contracted the infection? _____
Did you contract the infection? _____

Section B

Consider the order of people who you had a 'sexual encounter' with and whether or not they had the STI:

Sexual encounter	Were they infected?

SW1 Spread of STIs Test Tube Experiment Student Recording Sheet

SW2 - STI Quiz

Quiz: Sexually Transmitted Infections

Please tick as many answers as appropriate

How can sexual transmitted infections spread? (3 points)

- Vaginal sex
- Anal sex
- Sexting
- Oral sex

The BEST way to prevent transmission of sexually transmitted infections is: (1 point)

- Contraceptive pill
- Condoms
- Shower after sex
- Monitoring basal body temperature

SW2 STI Quiz



Lesson Plan



☰ Introduction

1. Recap on your sex education ground rules or use the suggested rules provided in the teacher refresher section at the start of the pack.
2. Begin the lesson by explaining to students that there are many ways in which microbes can be transmitted, e.g. touch, sneezing or through contaminated food or drinking water. Highlight that another important route of transmission is through the exchange of bodily fluid, i.e. unprotected sexual intercourse.
3. To prevent students being shy about the topic, ask if they have ever heard of any STIs and if they know what causes them.
4. Explain that STIs are generally transmitted through unprotected sexual contact i.e. not using a condom, although some of the infections can be transmitted in other ways such as shared needles and syringes, or skin to skin contact, or from mother to unborn child and through breast milk. This is because some STIs are carried in the blood and transmission of this bodily fluid can also transmit the infection.
5. **EMPHASISE** that non-barrier forms of contraception, e.g. the contraceptive pill, **DO NOT** protect against STIs.
6. Note that the terms STI (Sexually Transmitted Infection) and STD (Sexually Transmitted Disease) are equivalent terms. An infection is defined as the invasion of the body by a microbe. While an infection can cause symptoms and complications, altering the normal function of the body, it does not depend upon this by definition. A disease, by contrast, causes specific health complications. STI is used as a broader term.

Main Activity: Test Tube Experiment

1 Pass liquid filled test tubes around, one of them will contain starch

2 Mix the fluids from your test tube with 5 other people

3 Find out who has the test tube with starch (STI) by testing everyone with iodine



MS - School of Life Sciences - Experiment - Student Worksheet

Spread of STIs Experiment: Worksheet

Section A
Consider the order of people who you had a 'sexual encounter' with and whether or not you had the STI.

Sexual encounter	Were they infected?
1	
2	
3	
4	
5	

How many people in the class contracted the infection?
Did you contract the infection?

Section B
Consider the order of people who you had a 'sexual encounter' with and whether or not you had the STI.

Sexual encounter	Were they infected?
1	
2	

How many people in the class contracted the infection?
Did you contract the infection?
Why was there a reduction in the number of people who contracted the infection this time?

Section C - Results

Sexual encounter	Colour before	Colour after	Reason for colour change
1			
2			
3			
4			

What does 'turning blue or violet' tell you about?

Can you think of any reasons why some of the people didn't get infected even though they had a sexual encounter with someone who had an STI?



Test tube experiment

This activity is best carried out as a class exercise.

Section A

1. Explain to the students that they will be simulating sexual contact by exchanging milk (representing bodily fluid) between the two test tubes.
2. Pass the test tubes around the class making sure that each student gets a test tube full of fluid. DO NOT let the students know that one of the test tubes contains starch, although the teacher should know who has the test tube.
3. Tell each student that they must exchange fluid by mixing the contents of their test tubes with five other students (for a class smaller than 25 reduce exchanges to three or four). They will write this down later on SW1. Prompt students to mix outside their normal group of friends.

4. When finished, provide students with a copy of SW1. Tell the class that one of them carried fluid which contained a simulated STI. Go around the class testing for the STI by adding a drop of iodine to each test tube. If the fluid turns black that person was infected.

Section B

1. Repeat the activity by reducing the number of times students exchange fluid (have sexual encounters) to one or two. Does the class notice the decrease in the number of infected people?

This experiment reinforces how easily and inconspicuously and STI can spread from person to person.

Section C

1. Choose five people from the class to carry out a demonstration. Show the class which student has the 'infected'

test tube. Provide the other four students with the remaining test tubes, two of which are covered in cling film.

2. Ask the student with the 'infected' tube to have a 'sexual encounter' with each of the five other students in turn.

NOTE Do not mix fluids this time, simply let the infected student drop some of their fluid into the other test tubes using a dropper, the recipient must mix the sample well.

3. Test each of the student samples for an STI using the iodine.
4. Indicate that during these sexual encounters the cling film represented a condom and that these students didn't contract the infection.

Possible discussion points with students after this experiment include:

- a. The ease of transmission:

Discuss with the students how easy the STI was spread from one person to the next. Were they surprised about any of the ways STIs can spread from person to person?

- b. Reducing the risk of infection:

Talk about how far and quickly STIs can spread and how reducing the number of contacts automatically reduces the risk of infection.

- c. Personal responsibility for your own health:

It is important that young people are responsible for and feel empowered to look after their own health, this includes their sexual health. We should avoid discussions around 'blame' of sexual partners.

- d. Difficult conversations:

Imagining a difficult conversation where you have to advise a sexual partner to get checked/treated for an STI - better to prevent infection instead.

Activity 2: Brainstormer: Safer sex, Risks and Communication and Information

1. Put five large sheets of paper up around the room, with the following questions written on each sheet:

- What are the risks of having unprotected sex?
- What does safe sex mean to you?
- How can we communicate with each other to make sex safer?
- How can we become more comfortable talking about safer sex with partners and in general?
- Where can we find trusted sources of information about safer sex?

2. Provide students with post-it notes. Ask students to write their thoughts and suggestions on the post-it notes and then stick their answers onto the relevant sheets.

3. Building on the discussion, depending on how confident the class are, ask students to rehearse some of the skills that will help them to overcome problems they may experience e.g. overcoming embarrassment of buying condoms or resisting pressure to have unprotected sex.



Extension Activities

If *Chlamydia* Could Talk

Explain to students that if a chlamydia infection is not treated it can lead to serious problems for both men and women. In this activity students will understand what happens inside our bodies when a person becomes infected with *Chlamydia trachomatis* - from the bacterium's point of view.

Provide students with a copy of SH1 – 'If *Chlamydia* Could Talk' to read.

Explain that Sarah has been infected with chlamydia and the bacterium *Chlamydia trachomatis* is telling Sarah its story.

Now ask students to work in groups of 2-3 using their knowledge of STIs including chlamydia, to design a visual representation for the school i.e. an infographic, to consolidate their knowledge and educate their peers. Ask students to use government, NHS and UK Health Security Agency websites to add key official statistics (if website access is available).

Guest Speaker

Invite a guest speaker from a local young persons' clinic or a school nurse to give a talk about the free and confidential services available. Write a list of questions you/students would like to ask in advance.

STI Quiz

Provide SW2 to groups of 3 or 4 students. The group with the most points wins. Alternatively the quiz can be completed at the beginning and end of the lesson to measure understanding. Answers are available on the e-bug website.



Discussion

Check for understanding by asking the students the following questions:

Who can contract STIs?

Anyone who has had unprotected sex with someone who has an STI can contract an STI. ANYONE can contract an STI. You only need to have a sexual encounter with an infected person once to contract the infection, and anyone can be infected- they might not know it.

How can we reduce the risk of contracting an STI?

There are several ways to prevent contracting an STI. These include:

- i. Abstinence: The only sure way to prevent contracting an STI is not to have oral, anal or vaginal sexual contact.
- ii. Use condoms: Condoms are the recommended preventative measure; however, condoms only protect the skin they cover, any sores or warts found on the genital region not covered by the condom can still spread to another person's skin.
- iii. Talk to your partner: Talk to your partner about safer sex practices, for example, using a condom. If you have a new partner discuss the option of you both being tested for an STI before committing to a sexual relationship.
- iv. People should get tested and have regular check-ups: When sexually active, especially if you change sexual partners, even if you do not appear to have any symptoms, it is still very important to have regular tests and check-ups to make sure you do not have an infection. Not all STIs show symptoms at first, if at all.

What is an STI?

Sexually Transmitted Infections (STIs) are infections which are mainly passed from one person to another (that is transmitted) during sexual contact. There are at least 25 different STIs with a range of different symptoms. These diseases may be spread through vaginal, anal or oral sex.

What are the symptoms of an STI?

Symptoms of sexually transmitted infections vary, but the most common are soreness, unusual lumps or sores, itching, pain when urinating, bleeding between periods and/or an unusual discharge from the genital region.

Do other forms of contraception, other than the condom, protect against STIs?

NO. The other methods of contraception only protect against pregnancy, they will NOT protect against contracting an STI.

Does everyone who contracts an STI show symptoms?

NO, STIs are a common problem because many people are infected without realising it. In some cases, women do not realise they have an infection until they show infertility problems in later life.

Where can I go for further advice and be tested?

Ask your school nurse or General Practitioner (GP), or visit a GUM clinic.

Ordering a home testing kit online is now much more widely available.



Spread of STIs Experiment: Worksheet

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Did you contract the infection? _____

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Section C - Results

Sexual encounter	Colour before	Colour after	Reason for colour change
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What does the cling film or cotton balls represent?

Can you think of any reasons why some of the people didn't get infected even though they had a sexual encounter with someone who had an STI?





Quiz: Sexually Transmitted Infections

Please tick as many answers as appropriate

How can sexual transmitted infections spread?
(3 points)

- Vaginal sex
- Anal sex
- Sexting
- Oral sex

The BEST way to prevent transmission of sexually transmitted infections is:
(1 point)

- Contraceptive pill
- Condoms
- Shower after sex
- Monitoring basal body temperature

Who can contract an STI?
(1 point)

- Anyone who has had unprotected sex
- Only single people
- Only older people
- Only men

Which of the following are STIs?
(2 points)

- Chlamydia
- Gonorrhoea
- Influenza
- Malaria

Do sexually transmitted infections have symptoms
(1 point)

- Always
- Never
- It depends on the infection
- Yes, but only in females





If *Chlamydia* Could Talk

I'm sorry Sarah but I'm not to blame. **You picked me up** when you had sex with that guy two weeks ago at that party. Remember? You'd fancied him for ages and **didn't use a condom**. I'm very grateful indeed. Little did you know then that you had been infected with me, chlamydia! **I'm silent** but don't confuse that for **weak** because I'm nothing of the sort.

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Although some do sadly become aware that I'm there, most don't, allowing me to **linger for months**, even years **undetected** and let's be honest, I **prefer it that way**; I can cause the most **damage** then you see. In the beginning I **live** and start to cause **problems** in the cervix and urethra. Once I've entered your body I **multiply massively**. Together we're **strong**, like an **army**, making our way to your **fallopian tubes**, they're our favourite. Yes, that right, an important part of your reproductive system where **babies** are formed. Oh yes, I know you're **not worried** about babies right now, well that's just **perfect for me** because that way I'll have **plenty of time** to get on with my work. I'm really good at **blocking** the tubes at both ends by causing a build up of scar tissue. **The result?** You could experience **painful** inflammation of your fallopian tubes and ovaries, and **struggle** to have children in the **future**.

So now you know the **reality** of living with me **undetected** and untreated. **Another bonus** of you not knowing about me is that the **next time** you have **unprotected sex** you'll **pass me on**. More of me! Isn't that just **great news?**! I can stay a **secret** in men too you know, but sometimes I like to show them I am there every **now and again**. He might find a **nasty discharge** coming from the tip of the penis. **Hi, yes that's me!** I can cause pain too while he's peeing... **OUCH...** Oh and **just for fun**, I can even cause his **testicles to swell up!** To walk around like that feeling so bad... On the other hand, I **may just decide** to **keep quiet** inside him too and then in the **future** he might find he **can't have children either**.

Anyway, must go. I've got important work to be getting on with.....

