

Lesson 2: PSHE/Citizenship

This lesson is primarily a PSHE lesson which uses drama techniques.

Aim

To explore and understand the implications of inherited genetic disorders and preimplantation genetic diagnosis.

Objectives

- To create dramatic representations of situations in which bad/good news is broken.
- To understand the personal and social implications of inherited genetic disorders.
- To understand the pros and cons of preimplantation genetic diagnosis.

National Curriculum links

CITIZENSHIP/PSHE: KS4 AO2, AO3
ENGLISH (Drama): KS4 AO1,AO2

Materials

Large empty classroom/Drama studio
White board. Marker pen.

Activities

1. In the play, Tracey has to tell her family that she has Huntington's Disease, a late-onset hereditary disease. Ask the students to read the extract of the play on PSHE Information Sheet in groups of 4, then have one group of students read it aloud to the class.
2. Ask students to discuss the following questions in their groups:
 - What are the family's reactions to Tracey's news?
 - What are the similarities and differences between their responses?
 - How could the characters have reacted differently?
3. Ask the students to identify other situations in the play in which good or bad news is broken. These may be 'seen' or 'un-seen' scenes, eg:
 - Cassie telling River that she's pregnant
 - Cassie's conversation with the police
 - Tracey breaking the news of River's death to Phee

Ask the group to feed back to the class.

Then, in pairs, students choose one of the situations and create an improvised role-play. Give the students 5 minutes to work on their improvisations and then ask some of the pairs to perform to the class.

Ask the students to read the section on preimplantation genetic diagnosis (PGD) on the PSHE Information Sheet. In pairs, they should write a short definition of PGD of no more than 100 words. Each pair feeds back to the class.

Ask the students to think about River and Cassie's decision to go through PGD. In their pairs, they should list all the arguments *for* and all the arguments *against* doing PGD before trying to have a child. They should then role-play a short scene between Cassie and River, discussing their intentions.

Note: If short on time, activity 5 can be set as homework, and the role-plays performed in the following lesson.

Further information on Huntington's disease is available on the information sheet attached to the Science Lesson included in these resources, or at www.hda.org.uk

PSHE Information Sheet

1. Extract from Nobody Lives Forever

TRACEY I've got Huntington's Disease.

BEAT

CASSIE (GASPS)

PHEE What's Huntington's Disease?

CASSIE (NEAR TEARS) Oh Tracey.

TRACEY Yeah.

PHEE What is it?

RIV Mum?

TRACEY Its, em, a neurodegenerative disease. You get gradual deterioration of nerve cells in certain areas of the brain. It causes, em, physical changes and mental and emotional problems.

PHEE You're going to die aren't you?

TRACEY Well, em, it's gradual. So you won't be getting rid of me just yet.

PHEE You're not going to die?

TRACEY Not yet.

PHEE So what's the problem?

TRACEY I'll . . . get ill Phee. I'll need looking after.

PHEE So what's new?

CASSIE PUTS HER ARMS ROUND TRACEY

RIV (TO TRACEY) How bad are you going to get?

TRACEY Very bad.

RIV How quickly?

TRACEY Not so quickly, that's one of the good things.

RIV What are the symptoms?

TRACEY Well, I'll, give you some information, there's a website. The thing is though, there's something else I have tell you.

RIV Go on.

TRACEY It's, em, it's (TOO QUIET) hereditary.

PHEE It's what?

TRACEY It's hereditary darling.

BEAT

RIV Right.

TRACEY My real parents, one of them must have had it.

PHEE Oh My God.

TRACEY I would have known, you see, if I hadn't been adopted.

PHEE Oh My God, I've got it too!

TRACEY Well, no, not necessarily. You both have a 50/50 chance of not having it.

PHEE Oh great, yeah, 50/50, *brilliant* odds.

RIV Shut up Phee.

PHEE Thanks so much Mum.

RIV PHEE!

PHEE What? First she tells me she's gonna get ill and I'll have to look after her, now she tells me I'm probably going to get ill too, and, judging from Cassie's reaction, very blo ody ill indeed! That's really wonderful news mother. Thanks so very, very much!

PHEE RUNS OFF. SILENCE.

RIV Selfish little cow.

TRACEY She's just upset, that's all.

BEAT. NO ONE KNOWS WHAT TO SAY

RIV So, what's the treatment? Chemo? Steroids?

TRACEY There is no treatment River.

RIV Nothing?

TRACEY Well, I'll be able to take anti-depressants when the, em, mental and emotional stuff gets worse, and I think maybe medication for the involuntary movements, and sleeping tablets and stuff.

RIV No cure.

TRACEY No cure.

RIVER STARTS BACKING OUT OF THE ROOM

RIV I, em, I'm just going out, OK.

CASSIE River!

TRACEY Let him go.

RIV I just need to, go out on the bike for a bit, Ok.

2. Preimplantation Genetic Diagnosis

In medicine and clinical genetics, preimplantation genetic diagnosis (PGD, also known as Embryo Screening) refers to procedures that are performed on embryos prior to implantation. PGD is considered an alternative to prenatal diagnosis. Its main advantage is that it avoids selective pregnancy termination (abortion) as the method makes it highly likely that the baby will be free of the disease under consideration.

PGD is closely related to assisted reproductive technology, and requires in vitro fertilization (IVF) to obtain oocytes or embryos for evaluation.

The term preimplantation genetic screening (PGS) is used to denote procedures that do not look for a specific disease but use PGD techniques to identify embryos at risk. They may have a genetic condition that could lead to disease.

Indications

Currently, the main group of people indicated for PGD consists of couples with a high risk of transmitting an inherited condition. PGD helps these couples identify embryos carrying a genetic disease or a chromosome abnormality, thus avoiding the difficult choice of abortion. In addition, there are infertile couples who carry an inherited condition and who opt for PGD as it can be easily combined with their IVF treatment.

PGD is available for a large number of disorders. The most frequently diagnosed are cystic fibrosis, Beta-thalassemia, sickle cell disease and spinal muscular atrophy type 1. The most common dominant diseases are myotonic dystrophy, Huntington's disease and Charcot-Marie-Tooth disease.

A problematic case is the non-disclosure PGD for Huntington's disease. It is applied when patients do not wish to know their carrier status but want to ensure that they have offspring free of the disease. This procedure can place practitioners in questionable ethical situations, e.g. when no healthy, unaffected embryos are available for transfer and a mock transfer has to be carried out so that the patient does not suspect that he/she is a carrier. The ESHRE ethics task force currently recommends using exclusion testing instead. Through exclusion testing, the parental and grandparental origin of the chromosomes can be established. This way, only embryos are replaced that do not contain the chromosome derived from the affected grandparent, avoiding the need to detect the mutation itself.

Ethical issues

PGD has raised ethical issues. The technique can be used to determine the gender of the embryo, and thus can be used to select embryos of one gender in preference of the other in the context of "family balancing". It may be possible to make other "social selection" choices in the future. While controversial, this approach is less destructive than fetal | deselection during the pregnancy.

Costs are substantial and NHS coverage is not always available. Thus PGD widens the gap between people who can afford the procedure versus a majority of patients who may benefit but cannot afford the service.

PGD has the potential to screen for genetic issues unrelated to medical necessity. The prospect of a "designer baby" is closely related to the PGD technique.

By relying on the result of one cell from the multi-cell embryo, it is assumed that this cell is representative of the remainder of the embryo. This may not be the case. On occasion, PGD may result in a false negative result leading to the acceptance of an abnormal embryo, or in a false positive result leading to the de-selection of a normal embryo.