# TEACHER'S NOTES

HOW WOULD YOU FEEL?

## OVERVIEW

**Aimed at key stage 4 pupils.**

**In this activity, the class will discuss wider issues associated with Sickle Cell Anaemia**

## LEARNING OBJECTIVES

- To empathise with teenagers affected by Sickle Cell Anaemia
- To understand how bone marrow transplants can be used to treat Sickle Cell Anaemia

## CURRICULUM LINKS

- KS4: To consider how and why decisions about science and technology are made, including those that raise ethical issues, and about the social, economic and environmental effects of such decisions
- KS4: The ways in which organisms function are related to the genes in their cells
- KS4: Human health is affected by a range of environmental and inherited factors, by the use and misuse of drugs and by medical treatments

## YOU WILL NEED

- Student worksheets

## Activity

- Watch the film **Pamela's Story**
- Use the two scenarios in the worksheet to stimulate classroom discussion.
- This could lead to a longer investigation into stem cell transplants.

### Discussion 1: Privacy V Raising awareness

This is a personal choice. It would be influenced by:

- - how supportive your family, doctors, wider community are
- - how confident you would feel about speaking to the media
- - how passionately you felt the public needed to know more about Sickle Cell Anaemia

In the past, patients with this condition have been given little sympathy from medical teams.

It is an unusual medical condition, as there are no visible signs of illness, but people can be feeling agonising pain. It was brave of Pamela and her family to invite the film crew to their home to describe their experiences and how difficult it can be.

## Activity

continued

### Discussion 2: Bone marrow transplant

This treatment is generally only offered to children, rather than adults. Medical teams want to complete the operation before significant organ damage has occurred.

Patients have to consider the risks carefully:

- there is an approximately five per cent risk of death from this procedure
- there is an 85% chance of success

All patients should have a chance to discuss this procedure with their doctor, but the decision about whether the risks outweigh the benefits depends on several factors (including the severity of the condition they experience).

## FURTHER information

Extra background information about Sickle Cell Anaemia and various treatments is available on NHS Choices website:
**http://www.nhs.uk/Conditions/Sickle-cell-anaemia/Pages/Treatment.aspx**
2009 news story on bone marrow transplants:
**http://www.bionews.org.uk/page_52129.asp**

# How would you feel?

PUPIL WORKSHEET

## Sickle Cell Anaemia

**Sickle Cell Anaemia** is an inherited blood disorder. You have heard Pamela describe how it affects her life and the intense pain it causes.

The red blood cells in people with Sickle Cell Anaemia are sometimes an abnormal shape (banana-shaped). These abnormal red blood cells can get stuck in small blood vessels, such as capillaries. This stops blood reaching some parts of the body. The tissues and organs that do not receive a normal blood flow are damaged and this can cause severe pain.

## Treatment

A **bone marrow transplant** can sometimes be used to cure Sickle Cell Anaemia. This has worked successfully, but is a very risky procedure.

Red blood cells are made in the bone marrow. It is possible to transplant bone marrow from a healthy donor to a patient with Sickle Cell Anaemia. Transplants offer a possible cure by providing new tissue from which to make normal red blood cells. A bone marrow transplant is usually only possible if the donation is provided by a brother or sister, who has the right bone marrow type and does not have Sickle Cell Anaemia. Unfortunately, only 10% of people with Sickle Cell Anaemia are able to find a suitable donor.

Bone marrow transplants involve destroying all of the patient's own bone marrow using chemotherapy, radiation, or a combination of the two. After the treatment, patients must take powerful drugs to prevent their own immune system from attacking the donor blood stem cells.

**Discuss the following statements in small groups:**

**How would you feel about telling people about your condition? Which of the following statements would apply to you?**

IF I HAD SICKLE CELL ANAEMIA...

- I would tell close friends and family about it
- I would tell everyone at my school about it to help them understand
- I would not want other people to know about it
- I would be happy to make a short film to describe the condition and the impact it has on my life

**How would you feel about a bone marrow transplant? Which of the following statements would apply to you?**

IF I HAD SICKLE CELL ANAEMIA...

- I would be scared about the risks and would wait until it is safer
- I would never want to go through that procedure
- I would definitely want to have a bone marrow transplant as a long term treatment for the condition

**Explain the reasons for your decision**