

## Guidance for teachers

### Kidney quiz – what do you know?

---

#### Downloads

---

- Presentation
  - Slide 6 – transplant information
  - Slide 7 – haemodialysis information
  - Slide 8 – peritoneal dialysis information
- Activity sheet – Kidney quiz
- Activity sheet – Kidney quiz answers

#### Running the activity

---

The quiz could be used as a starter exercise or set as homework or revision after work on the kidney. It could be extended by the addition of questions tailored to match the details of your specification.

When students have done the quiz you could give them the answer sheet or discuss the answers as a group.

#### Differentiation

---

#### Suggestions for students who may appreciate additional challenge

Students could be given the quiz questions without the multiple choice answers and they could also look at the websites listed (see web links) to find the answers to additional questions on the kidneys.

## Living with kidney failure – the options

---

### Downloads

---

- Presentation
  - slide 1 – stimulus slide (optional)
  - slide 2 – ways of dealing with kidney failure
  - slide 3 – haemodialysis facts
  - slide 4 – peritoneal dialysis facts
  - slide 5 – transplant facts
- Information sheet – Dealing with kidney failure
- Activity sheet A – Dealing with kidney failure
- Activity sheet B – Dealing with kidney failure (simplified version)
- Activity sheet – Which is best?
- Information cards: transplant, haemodialysis, peritoneal dialysis

### Running the activity

---

This is a two-part activity.

#### Part 1

This activity could be started by showing Presentation slide 1 and asking the students the question on this stimulus slide. The answer is that you need one kidney and if this fails you will die without treatment. The students then investigate the three ways of dealing with kidney failure. This can be done by using one or more of the following suggestions:

- discussion of the Presentation slides 2–5 which briefly outline the main features of each treatment method
- giving the students 'Information sheet – Dealing with kidney failure' and 'Activity sheet – Dealing with kidney failure' or
- using 'Activity sheet A or B – Dealing with kidney failure' and asking students to answer the questions from Internet sites such as:

[www.kidneypatientguide.org.uk/site/treatment.php](http://www.kidneypatientguide.org.uk/site/treatment.php)

[www.kidney.org.uk/Medical-Info/kidney-basics/index.html](http://www.kidney.org.uk/Medical-Info/kidney-basics/index.html)

#### Part 2

Put the students into groups of three or four to complete 'Activity sheet – Which is the best?' using the information cards on transplants, haemodialysis and peritoneal dialysis. Set a time limit of about 10 minutes for this.

Note: The information on the cards is the same as that on Presentation slides 6, 7 and 8.

#### Plenary

As a homework or instead of completing the activity sheet you could ask students to write a newspaper article, letter or email explaining the possible treatment options and advantages and disadvantages of them to someone who has been told that they have kidney failure.

## Differentiation

---

### Suggestions for students who may appreciate additional challenge

These students could be asked to find the answers for 'Activity sheet – Dealing with kidney failure' from the suggested Internet sites.

### Suggestions for students who would benefit from additional support

'Activity sheet B – Dealing with kidney failure (simplified version)' is provided as an alternative. 'Activity sheet – Which is best?' could be completed as a class using PowerPoint slides.

## Who gets the transplant?

---

### Downloads

---

- PowerPoint presentation
  - slide 9 – who should get a kidney?
  - slide 10 – making decisions
  - slide 11 – criteria for making decisions
  - slide 12 – who should get a kidney priority list
  - slide 13 – reaching agreement guidelines
  - slide 14 – criteria used to make the decision
- Activity sheet – Who gets the kidney?
- Record sheet – Who gets the kidney?

### Background

---

The number of people needing kidney transplants (about 8000) in the United Kingdom is greater than the number of donor organs available. It is often difficult to find a suitable donor for a person who needs a transplant. Most transplanted kidneys are removed – or 'harvested' – after the donor has died. Sometimes living people donate one of their kidneys, usually to a close family member whose tissue type is similar.

All patients who are waiting for transplants are registered on the UK Transplant National Transplant Database with their tissue types. There are rules which govern the allocation of kidneys to ensure that patients are treated equally and that donated organs are allocated in a fair and unbiased way based on the patient's need and the importance of achieving the closest possible match between donor and recipient. If the new kidney is a poor match, the recipient's immune system is likely to attack and reject it. Kidneys are allocated according to a point score based on factors including blood group, degree of tissue type match with the donor, age and size of both the donor and recipient and waiting time. When a kidney becomes available, the UK Transplant computer identifies who on the list has the most points. The waiting list works on the basis of finding the 'right' person for the 'right' kidney when one becomes available. The waiting list does not work on a 'first-come-first-served' basis. Therefore, if a kidney is obtained in London, it may be sent as far away as Aberdeen or Cardiff if someone in one of those centres is the right person for that kidney. Most people who remain on the list for five years will get a kidney, and could get a transplant at any time

if the tissue type match is perfect. About 400 patients on the waiting list die each year and about 500 are removed from the list each year because they are too ill for a transplant.

## Running the activity

---

Start by setting the scene with PowerPoint presentation slide 9 – who should get a kidney? Explain to students that a young man aged 25 has died in an accident. There is a long waiting list of people who desperately need a kidney transplant or they will die. Twelve people at the top of the list have tissues that match that of the donor. The students have to choose which two patients should receive a kidney. All decisions must be supported by reasons.

PowerPoint presentation slide 10 gives a reminder that the decision needs to be based on evidence and not just 'gut' feeling. Slide 10 also suggests some criteria for making the decision (medical history, current health). You could explain that the decision in 'real life' is based on a points system and ask students to suggest other criteria to use to help choose the two patients. PowerPoint presentation slide 11 raises some issues that may aid the discussion.

Give the students a copy of 'Activity Sheet – Who gets the kidney?' and the record sheet. They should read through the profiles of the patients and choose up to four patients to receive a kidney. These should be listed in order of priority in part 1 and also the reasons for their choices. PowerPoint presentation slide 12 also shows the table. This part of the activity could be set in advance of the lesson. If done during the lesson, set a time limit of about 10 minutes as the kidneys need to be used within 12 hours of being removed from the body.

Now put the students into groups of three or four to agree which two patients should get a transplant. Before any discussion you should show PowerPoint presentation slide 13 which gives some ground rules for discussions or you could ask students to suggest their own rules.

In order to make a final decision, students should first agree which of the reasons (criteria) they have given in part 1 they will use to make the decision. The students should record the criteria on the record sheet (part 2 of the activity sheet). Some groups may also wish to assign values (e.g. +3, +2, +1, 0, -1, -2, -3) to the criteria.

### Plenary

Use PowerPoint presentation slide 14 to record the decisions and criteria used.

## Differentiation

---

### Suggestions for students who may appreciate additional challenge

Students could be asked to find out about xenotransplantation as a method of reducing the number of kidneys or other organs required for transplant.

### Suggestions for students who would benefit from additional support

The number of patients could be reduced to four or six and the criteria discussed as a class before making the final decision.