

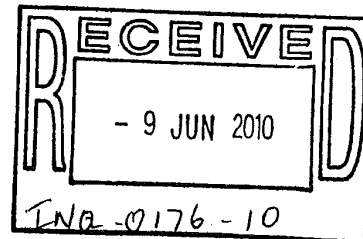
2 Franklin Street, Belfast, BT2 8DQ  
DX 2842 NR Belfast 3

Your Ref:  
AD-0135-10

Our Ref:  
NSC B04/1

Date:  
7 June 2010

Ms Anne Dillon  
Solicitor to the Inquiry  
Arthur House  
41 Arthur Street  
Belfast  
BT1 4GB



Dear Madam

**RE: INVESTIGATION INTO THE DEATH OF ADAM STRAIN**

I refer to the above and to your letter dated 21<sup>st</sup> May 2010. I can advise as follows on behalf of the Belfast Trust:

- Point 1 - The Belfast Trust state that there are 3 possible occasions on which the internal jugular vein could have been ligated.
  1. Insertion of the Broviac Line – In the 1980's and early 1990's it would have been considered standard practice in RBHSC to ligate the internal jugular vein during insertion of a Broviac or Hickman central venous catheter. In the early 1990's a new technique was introduced whereby the common facial vein was used in order to preserve the patency of the IJV. The typed theatre note of 29/5/92 clearly states that the common facial nerve was used, thereby by definition preserving the left IJV.
  2. Removal of the Broviac Line- The removal of the line is a relatively simple procedure which would not have required exploration of the neck. The Broviac line is removed by traction at the exit site (in this case left anterior chest wall.) The anaesthetic record (057 – 077) shows total anaesthetic time of 20 minutes. This would not allow time for an unrecorded surgical exploration of the neck with ligation of the IJV.
  3. Kidney transplant operation - The post mortem report shows the left side of the neck was not explored at the time of the transplant.

The Trust would contend that there is therefore no evidence that the IJV was ligated in RBHSC. The commentary section of the post mortem report is the only place where it is stated that the IJV is ligated. Ligation is not mentioned in the section on internal examination of the neck. The post-mortem report states in this section that "there was no evidence of congestion or obstruction of the major blood vessels or the carotid arteries and jugular veins." The reference to the suture present at the junction of the IJV

*Providing Support to Health and Social Care*



and subclavian vein does not state that any vessel is occluded or obstructed by the suture. The Trust would contend that the suture referred to could have been the PDS suture used to ligate the common facial vein. However it would be unlikely that it had not dissolved by the time of the transplant over 2 years later but it is possible.

- Point 2 – the CVP readings during the entire period of Adam's transplant surgery are contained in the computerised record within Adam Strain's medical records (058-008-023). I enclose reprinted darker copies of the three pages (058-008-022,023,024.) Page 023 relates specifically to your request.
- Point 3 – The manufacturer of the Blood Gas Analyser machine was Instrumentation laboratory, Model number 1400, Serial Number 89070125. The Na<sup>+</sup> and K<sup>+</sup> electrodes were changed on 2<sup>nd</sup> November 1995 and the Ref electrode on the 21<sup>st</sup> December 1995. It is important to state that a small amount of Heparin was used in the blood gas syringes at that time. This would have meant that Na<sup>+</sup> and K<sup>+</sup> measurements would have been unreliable. In later years "Dry" Heparin crystals would have been used which made Na<sup>+</sup> and K<sup>+</sup> measurements more reliable. The Na<sup>+</sup> of 123 was not a reliable figure. I enclose copies of the service records for 1995 for this machine.
- Point 4 - I enclose booklet "Kidney transplantation in Childhood – A guide for families" This was first published in 1993 and was usually supplied to families however the Trust cannot confirm when this practice started.

I trust this is of assistance.

Yours faithfully

pp Nicole Docker

Wendy Beggs  
Assistant Chief Legal Adviser

Direct Line: [REDACTED]  
Fax: [REDACTED]  
Email: [REDACTED]

Adm. Screen

Pick

B6

ALARM AT

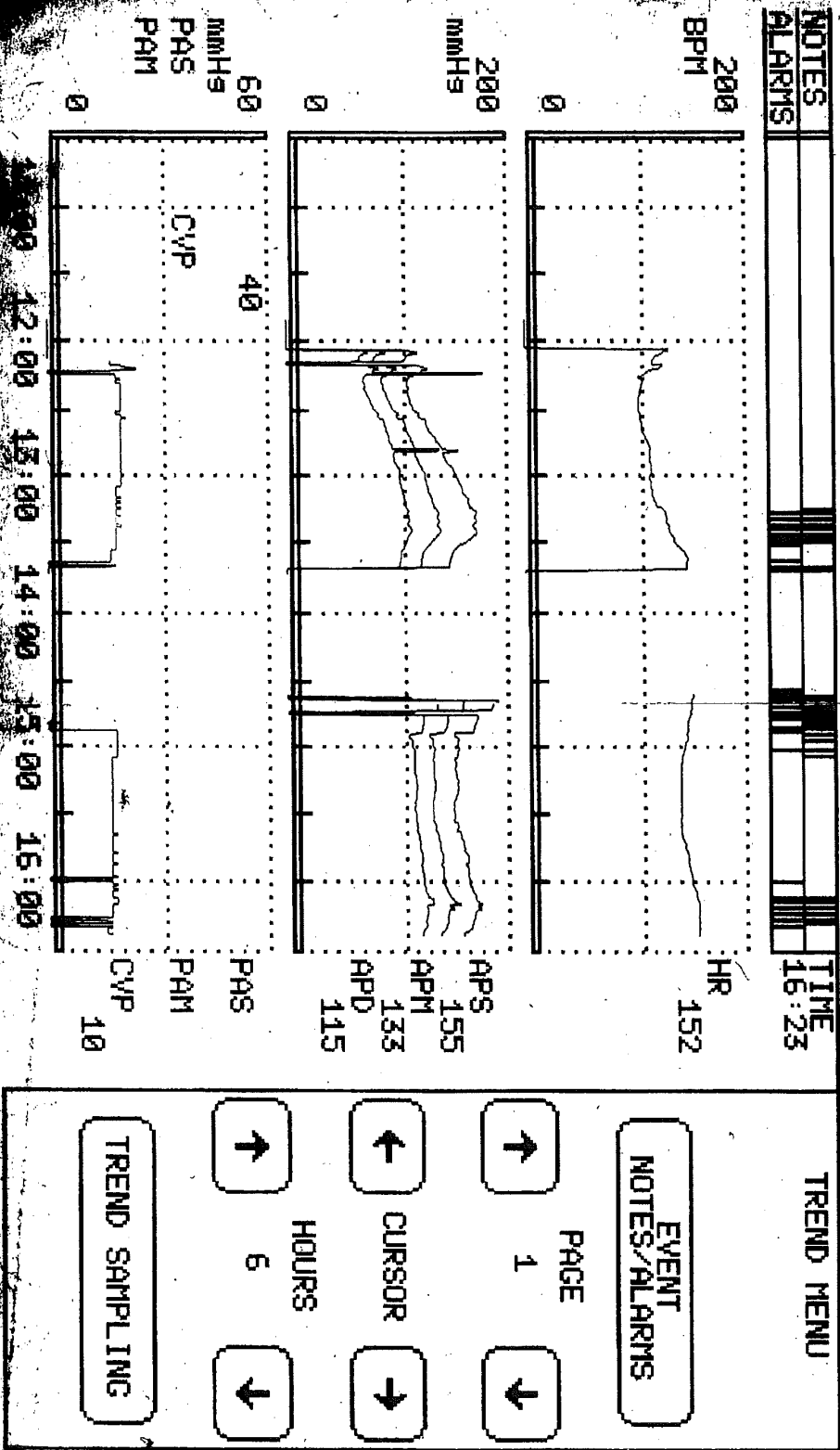
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ALARM SUSPEND

HR 153

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27-NOV-1995 16:23



TREND MENU

EVENT NOTES/ALARMS

PAGE 1

CURSOR

HOURS 6

TREND SAMPLING

Adam Strawn

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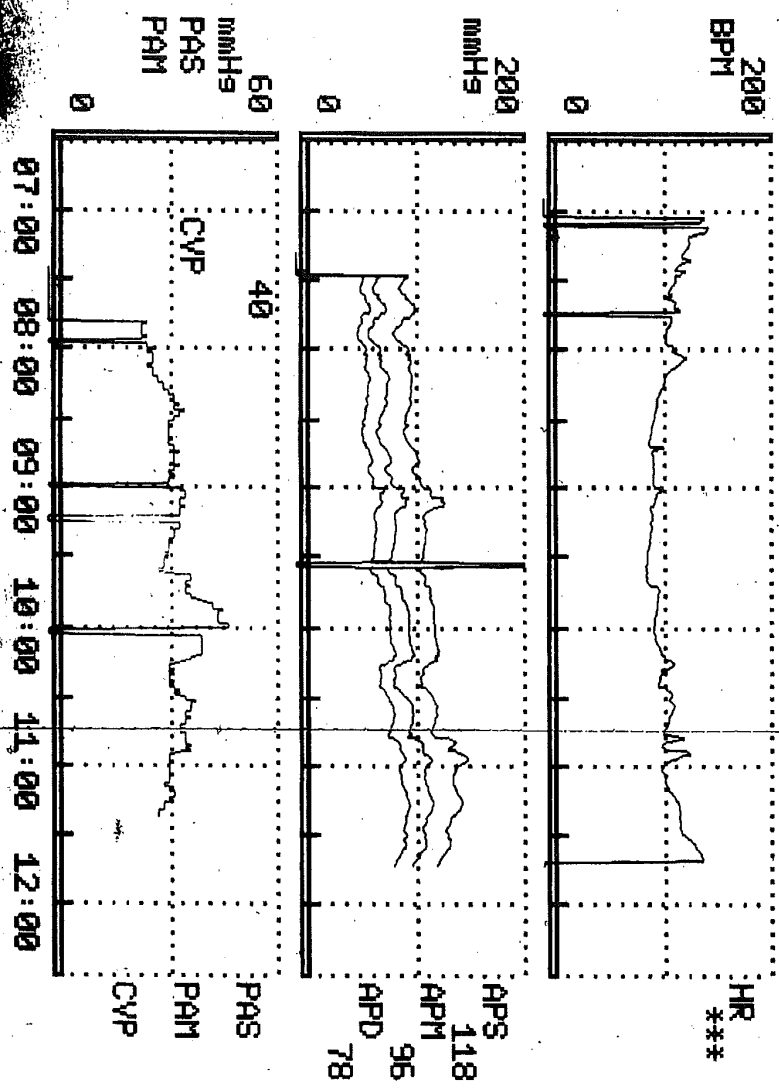
TH2 A ALARM AT TH2 PRINT SCREEN STARTED TH2 27-NOV-1995 11:44

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NOTES	TIME
ALARMS	11:43



EVENT NOTES/ALARMS

PAGE 1

CURSOR UPDATE

HOURS 6

TREND SAMPLING

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TREND MENU

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CURSOR



HOURS

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## TREND SAMPLING

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# Instrumentation Laboratory

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VAT REGISTRATION No. GB 147 4470 59

Location address:

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ICU  
FALL R  
BEET  
Telephone number:

Service call number (page _____ of _____)	
Serial Number	
Instrument type	

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Request time (hhmm)	
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Service engineers code	
Customer number	
Customers order number	

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Depart (hhmm)	1300

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Action Code	

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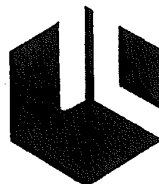
Comments:

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Engineers signature

**CUSTOMER COPY**



# Instrumentation Laboratory

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Telefax: [REDACTED]  
VAT REGISTRATION No. GB 147 4470 59

Location address:

ITU  
breakfast, Cereals, Hoshirou  
breakfast

Telephone number:

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Serial Number	
Instrument type	

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Customer number	
Customers order number	

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Depart (hhmm)	1100

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Calibrate & Check Jr All OK

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**HARDY Tel: 01977 558441 Ref. 275164**

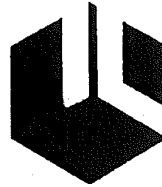
Customers name

Customers signature \_\_\_\_\_

Engineers signature

Boone (SHC)

**CUSTOMER COPY**



# Instrumentation Laboratory

Instrumentation Laboratory (UK) Ltd  
Kelvin Close, Birchwood  
Warrington, Cheshire WA3 7PB

Telephone: [REDACTED]  
Telefax: [REDACTED]  
VAT REGISTRATION No. GB 147 4470 59

Location address:

KB45C  
JCM  
FALG. PD  
BELL ST

Telephone number:

Service call number (page\_\_\_\_\_of\_\_\_\_\_)

Serial Number

Instrument type

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Customer number

Customers order number

Contract number: 2252

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**Comments:**

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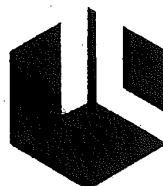
labour

Customers name

**Customers signature**

Engineers signature

**CUSTOMER COPY**



# Instrumentation Laboratory

Instrumentation Laboratory (UK) Ltd  
Kelvin Close, Birchwood  
Warrington, Cheshire WA3 7PB  
Telephone: [REDACTED]  
Telefax: [REDACTED]  
VAT REGISTRATION No. GB 147 4

KBHSE  
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BELFAST

Telephone number:

Service call number (page \_\_\_\_\_ of \_\_\_\_\_)

Serial Number

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Customer number

Contract number:

Customers order number

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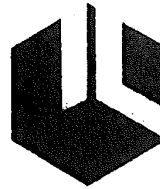
**Customers name.**

Customers signature \_\_\_\_\_

**Final exam signature**

# SERVICE REPORT

CUSTOMER COPY



## Instrumentation Laboratory

Instrumentation Laboratory (UK) Ltd  
Kelvin Close, Birchwood  
Warrington, Cheshire WA3 7PB  
Telephone: [REDACTED]  
Telefax: [REDACTED]  
VAT REGISTRATION No. GB 147 4470 59

Location address:

KBHSC  
T. 44  
FALLS RD  
BULFABT  
[REDACTED]  
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[REDACTED]  
Telephone number: [REDACTED]

Service call number (page \_\_\_\_\_ of \_\_\_\_\_)

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Instrument type

Invoice address:

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Contract number: 2252

Request date (ddmmyy)

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Service engineers code

Customer number

Customers order number

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Customers name

Customers signature

Engineers signature

T RYAN  
[Signature]  
[Signature]

# *Kidney Transplantation in Childhood*



Compiled by members of the



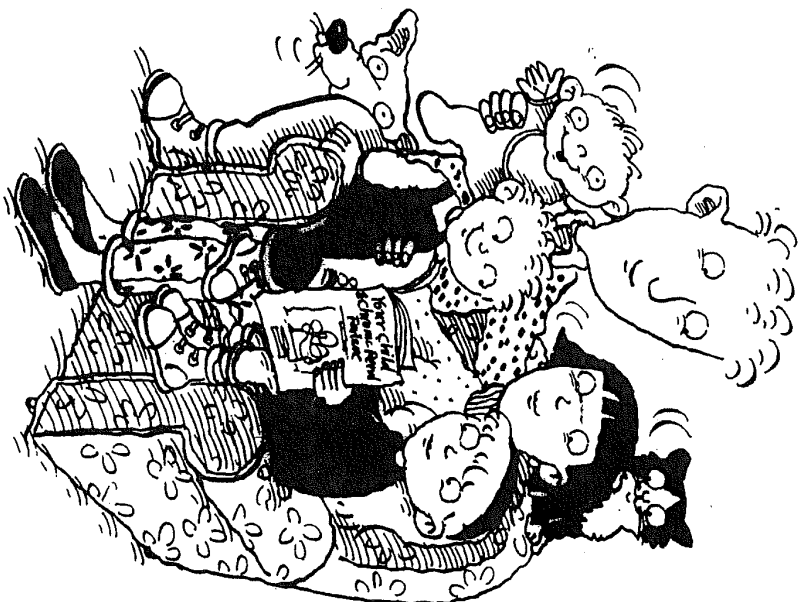
**PAEDIATRIC RENAL UNIT  
CITY HOSPITAL - NOTTINGHAM NG5 1PB**  
Designed and produced by Room at the Top Design, Nottingham  
Illustrations by Jan Smith © ARW 1993  
Publication funded by British Kidney Patient Association,  
Bordon Hants, from whom further copies can be obtained.



*A guide for families*

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You may have already learnt some of the facts about kidney transplantation from the chronic renal failure booklet. This booklet gives more information about what happens before and after a kidney transplant.



## **Why is a transplant necessary?**

### **Common questions**

Dialysis is only a temporary measure before a kidney transplant becomes available. Even if dialysis is going well and keeping your child healthy, it is a renal transplant which offers the best quality of life. With a successful transplant there should be less disruption to family and school life. Diet and fluid restrictions should no longer be necessary. Occasionally a kidney transplant may be considered before a child needs dialysis. This may be discussed with you by your kidney specialist (nephrologist) and transplant surgeon.

## **At what age do we**

### **consider a kidney transplant?**

There is no strict age limit but kidney transplants in infants are usually more difficult to manage.



2

## **Who can donate**

### **to a child with kidney**

### **Common questions**



Most children receive a transplant from a person who has died in an intensive care unit and where the relatives have agreed to donate the kidneys. This type of transplant is known as a cadaveric kidney transplant.

A kidney may also be donated by a family member. This is known as a living related donor transplant. For children this usually means a mother or father. As this type of operation involves operating upon a healthy individual, some units are reluctant to do this. If going ahead transplant surgeons require a detailed physical and social assessment.

Since most children will receive a cadaveric kidney transplant their name has to be added to the national transplant waiting list.

3

## ***what assessment is necessary?***

Placement on the transplant waiting list follows discussion with the kidney specialist and transplant surgeon. Preparation is very important for all the family and this will be carried out by the primary nurse and play leader. Visits to the area where your child will be nursed after the operation will be arranged. Play therapy using dolls, videos and photograph albums of other children who have undergone a transplant may be helpful.

The social worker will also meet with the family to discuss ethical issues and any other problems which can be helped by discussion and information. It is important that your child's questions and fears are talked about as well as your own. You will also meet with the transplant co-ordinator who is a key person within the transplant unit and he/she will make all the necessary arrangements such as tissue typing, which is done by taking a blood sample that is sent to the laboratories for processing and analysis to give most of the information required.



4

## ***how are kidneys matched for transplantation?***

To be offered a kidney your child has to be of a similar blood group to the donor. We also aim to match the tissue type (or genetic make up) of the donor and your child (the recipient). The level of antibodies in your child's blood is also important.

### ***what are antibodies?***

We all have antibodies in our blood which can react against certain cells or tissue types. If your child has had previous transfusions or a previous transplant, then the level of antibodies in the blood may be high. A high level of antibodies means that it may take longer to match a suitable kidney. While on the waiting list your child's antibody levels will be checked by a blood test at regular intervals.



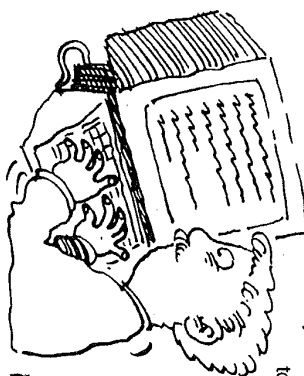
5

## important

### the human element

#### help them?

There is a large waiting list for kidney transplants which is held on a national computer based in Bristol. This does not function on a 'first come first served' basis but is a way of allowing a suitable matched kidney to be found. When the match between a donor kidney and your child's tissue type is suitable then he/she may be offered the kidney at any time. However, sometimes the wait can be quite long.



### making a kidney

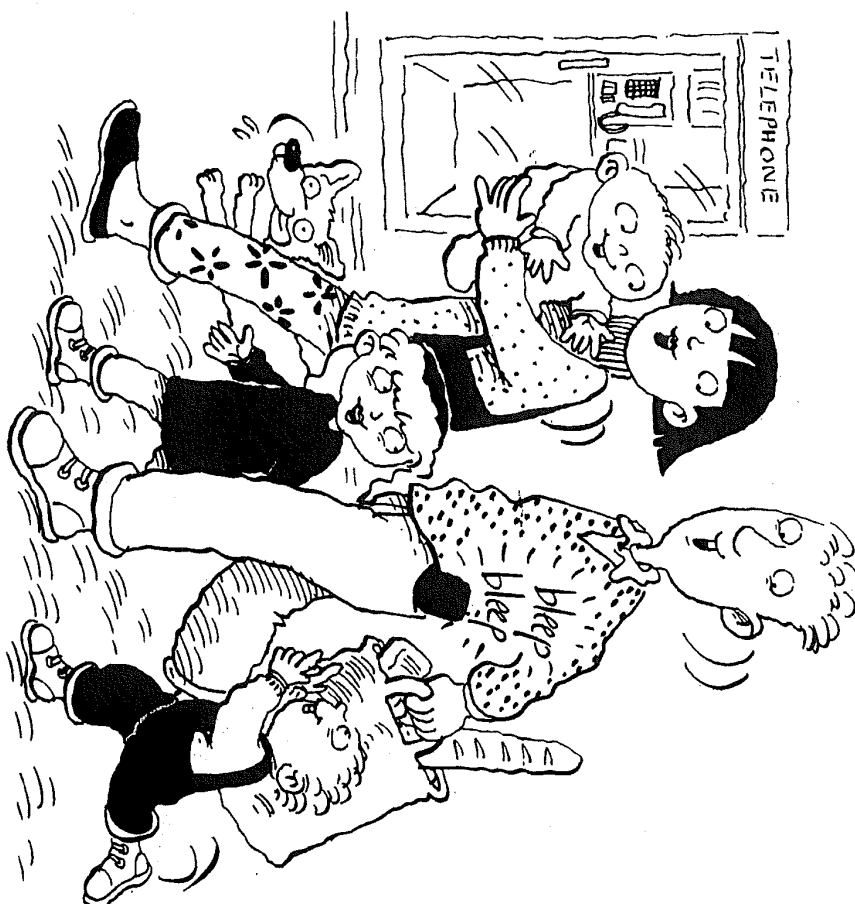
#### transplant

The majority of children receive this type of transplant and it is the transplant co-ordinator who will first receive details. As a donor kidney may be available day or night you will be asked to leave a contact number if you are away from home. Pagers may also be provided to help you keep in touch with the hospital.

The operation can only go ahead if your child is well and not suffering from colds and other infections. You will be asked to come to the hospital as soon as possible as there are tests to be done before it is finally agreed for the operation to proceed.

6

You can be assured that the donor is always tested for the HIV (AIDS) and other viruses. We always look carefully at the match and it is possible for children to have a kidney from an adult donor.



7

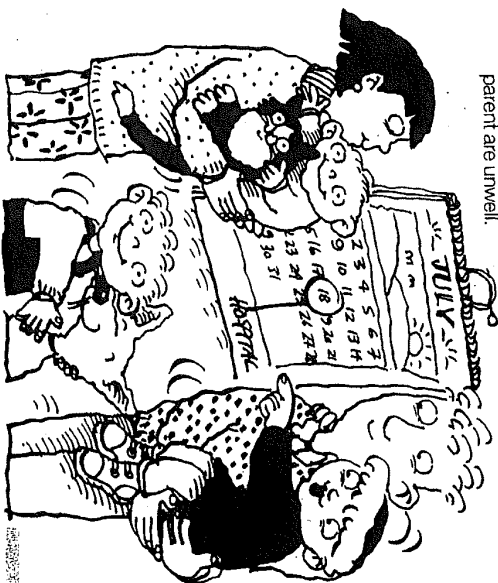
## ***what does the***

## ***transplant operation involve?***

Routine blood tests and x-rays will be considered to make sure your child is fit for the operation. The operation may still be cancelled if the antibodies in your child's blood react against cells from the donor. This is what we mean by the term positive antibody crossmatch when it is inadvisable to proceed as severe early rejection can result.

## ***living related donor transplant***

One of the major advantages of a living related donor transplant from a parent to a child is that the operation can be planned for a certain day and time. The parent will be in a theatre close to their child so that once the kidney is removed it can be placed straight into their child. The operation will be postponed if the child or parent are unwell.



8

## ***where is the***

## ***kidney placed?***

The transplant surgeon places the kidney low down in the abdomen to one side and usually outside the cavity containing the intestines and appendix. The appendix is not removed.

The transplant kidney is placed low down on one side so that it can be joined to the major blood vessels going to the leg and also to avoid problems with the ureter leading to the bladder. The child's own kidney's which are deep in the back, are only removed if they are causing problems.

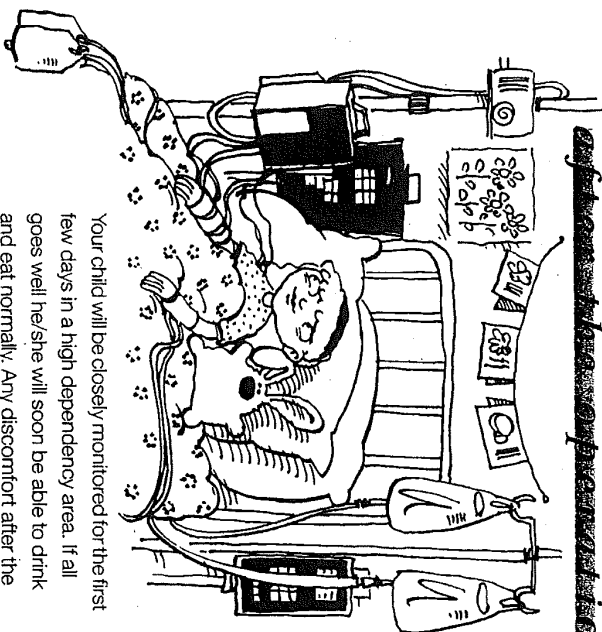
Before the transplant operation starts and while your child is asleep (anaesthetised) a tube is put into a large vein in the neck to measure the pressure in the veins and allow us to give lots of fluid quickly. Also a cannula is usually placed into an artery at the wrist which helps us to take blood samples without having to use frequent needles on your child. Drains are placed near the transplant and a tube (catheter) is also placed into the bladder to accurately measure the urine output. The reasons for all these tubes will have been explained to you and your child before the transplant happens. If your child is very worried about tubes and needles then we might ask the clinical psychologist to help us prepare your child. Some children also have a nasogastric tube placed down the nose to help us to drain fluid off the stomach until the bowels are again working.



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## **what happens**

### **after the operation?**



Your child will be closely monitored for the first few days in a high dependency area. If all goes well he/she will soon be able to drink and eat normally. Any discomfort after the operation will be controlled by an infusion of pain killers.

The drain from around the kidney will usually be removed after two to three days but the catheters into the bladder may stay in place for five to seven days. If there are signs that the kidney is not working then a special scan may have to be arranged. Sometimes transplants take some time to work properly and dialysis may be needed in the meantime. This can be a difficult and worrying time and all members of the renal team will keep you closely informed of progress. Hopefully the transplant will work well.

10

## **how long**

### **will my child be**

### **in hospital?**

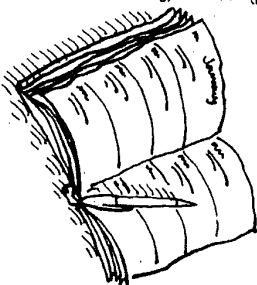
This will depend upon how your child recovers from the transplant operation. It may be ten days to several weeks depending upon how long the kidney takes to start working and whether there are any problems with rejection. Parents will be welcome to stay throughout this time. We appreciate that you may feel torn between your child in hospital, work and other family at home.



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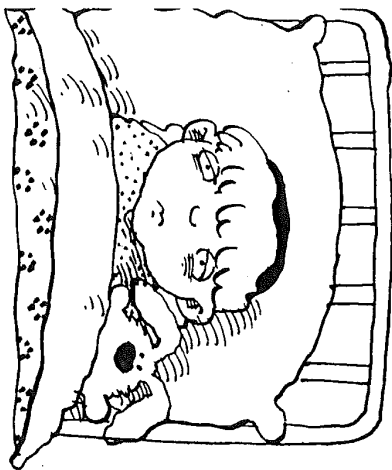
## going home after the transplant

Before you are allowed home you will have some further teaching so that you can carry on monitoring your child's progress at home. To begin with you may be asked to take your child's temperature, and measure the blood pressure and weight. You may be asked to record these along with the current drug treatment. Regular visits to the hospital will be necessary during the first few months so that your child's blood can be tested regularly as one of the most important signs of rejection is a rise in the creatinine level.



## what is rejection?

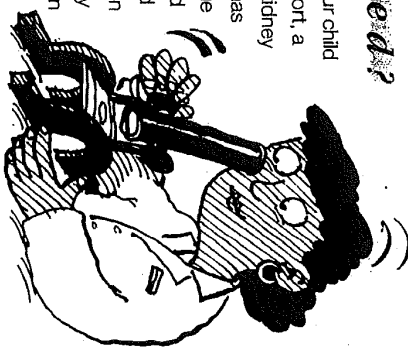
Rejection is the term used for an attack on the kidney by the body's own defences. Signs may include fever, reduced urine output, tenderness over the kidney, rise in blood pressure and feeling generally unwell. If rejection is suspected then a biopsy of the transplant kidney may be needed.



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## how is a biopsy performed?

Using sedation so that your child does not feel any discomfort, a needle is placed into the kidney after an ultrasound scan has been performed. The tissue obtained can be examined under the microscope and can reveal what is going on within the kidney. This may be important information in the choice of treatment.

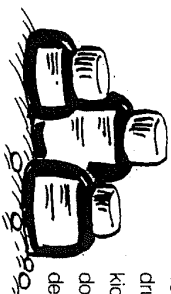


## what drugs are used to prevent rejection?

Powerful drugs known as immunosuppressives are given in big doses at first and then gradually reduced with time.

Such drugs include azathioprine, cyclosporin and prednisolone (steroids). The steroids used are corticosteroids and not the anabolic steroids abused by some athletes. Many units use a combination of all three and occasionally stronger drugs such as antilymphocyte or antithymocyte globulin or OKT3 may be necessary.

You should be aware that immunosuppressive drugs are taken for as long as the transplant kidney functions. It is important that drug dosages are not missed, although a few hours delay in the dose is not crucial.



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## ***how long will the***

### ***transplanted kidney***

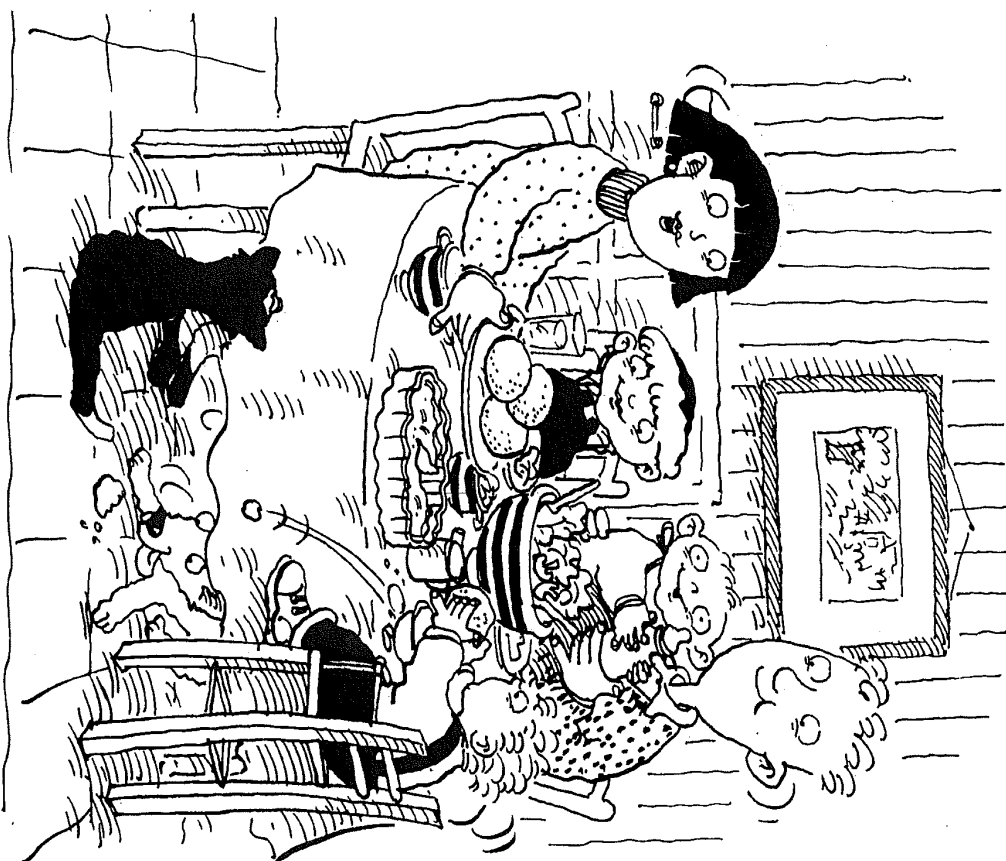
#### ***last?***

Unfortunately kidney transplants do not last for ever. However some adult patients have had their transplants for over twenty years. It is possible to return to dialysis if the kidney fails, to await a further transplant.

## ***Is there a special diet***

### ***after transplantation?***

One of the great benefits of the transplant is that your child is likely to have a better appetite, and diet and fluid restriction should be no longer necessary. Those children who required supplements or overnight feeding beforehand should start to eat and drink again. Weight gain can be a problem after the transplant, especially as appetite is increased by steroids. A 'no added salt' diet is still recommended to help control hypertension. A healthy eating diet will be encouraged for all the family.



## physical changes

### after transplantation?

Initially weight gain and some fattening of the face is quite common but should improve after the steroid drugs are reduced with time. Cyclosporin may cause increased hair growth (called hirsutism) which may need treatment if it is embarrassing. Steroids can also cause an increase in spots or acne in the older child. Enlargement of the gums may also occur and your child should continue to have regular dental supervision. Always ask for advice if there is a problem.



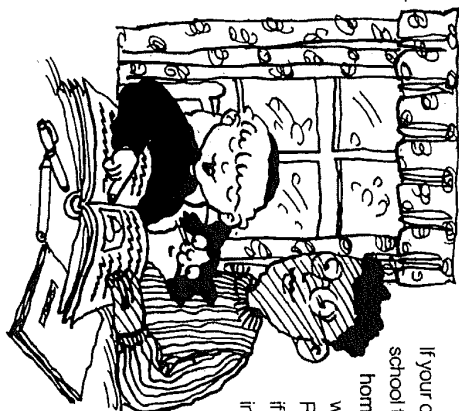
### removal of dialysis catheters after transplantation

These tubes are usually removed about two to three months after a successful transplant. The procedure can usually be done as a day case admission under general anaesthetic.

### emotional well-being

This is a period of great change in all your lives. Hopefully your quality of life will be greatly improved. However, there will also be a period of recovery from this stressful time. Your child may experience bad dreams and changes in behaviour which are all normal reactions and parents may feel exhausted.

16



If your child has lost some time off school then we will try to arrange a home tutor during the first few weeks after a kidney transplant. Return to school may be delayed if your child is on high doses of immunosuppressive drugs which make them susceptible to infection. As there may be some problems with school adjustment, team members will visit the school to explain the treatment and offer a supportive link.

Members of the renal team are always available to give you advice and support after the transplant. If the transplant is successful there will be a reduced contact with the unit compared to the days when your child was on dialysis.

Many recipient families wish to send a letter of thanks to the donor family which is always well received. This may be written any time after the transplant operation. The letter usually expresses sympathy, thanks and a brief description of the child pre and post-transplant. First names may be used but the letters should remain anonymous with no surnames or addresses. The transplant co-ordinator will arrange postage and she/he or other team members are always willing to help you write such a letter.



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## **encouraging a child's**

### **activities and interests**

#### **after a transplant?**

We encourage as much physical exercise as possible. However we do caution against a few sports such as rugby or martial arts as the kidney may be vulnerable to direct kicks or blows.

Your child can go swimming after the dialysis catheter and/or feeding tube is removed.

Every year there is a national event called the Transplant Games where children and adults who have had organ transplants compete. Your child is welcome to participate.



## **common**

### **questions**

1. Can we travel or go on holiday when we are on the transplant list?

YES. However, it does need to be discussed and planned with the renal team.

2. After the transplant, how far can we go away on holiday?

If the transplant goes well, then after about three months a holiday anywhere in the UK could be planned. However, it will depend upon how frequent your child needs to be checked and whether we can make local arrangements for blood tests or check ups if these are necessary. Holidays abroad are also possible but should be deferred until it is certain everything is going well with the transplant.

3. Should seat belts be worn in the car?

Although the lap portion of the seat belt may press slightly over the transplant area this does not harm the kidneys. The wearing of seat belts is compulsory and always recommended.

4. Vaccinations and immunisations

When your child is taking immunosuppressive drugs then all live vaccines such as BCG (for tuberculosis) and live polio should be avoided. Vaccines made from dead bacteria may be acceptable, but always check with your nephrologist.

5. Which infections are a worry post-transplant?

Any infection after a transplant can be a problem but chicken pox is the major concern. If your child is a close contact such as a classmate sitting close by, then you should inform your GP and the renal unit. If your child develops chicken pox while on immunosuppressive treatment then get in touch straight away so that we can start treatment early.

6. What about drugs prescribed elsewhere after a transplant?

There are some antibiotics and other medications which can interact with Cyclosporin. If drugs are prescribed by other doctors then please check with the renal unit.

7. What if my child has sickness and diarrhoea? These can interfere with the absorption of drugs into the body. If your child is improving during the day then the drugs can be given at a later time. If your child cannot keep any drugs down all day then please contact the unit for advice. If your child vomits back his/her tablets within an hour of taking them then the drugs should be given again.

8. Benefit changes? Social Security benefits to which you are entitled will change post-transplant? It is best to seek advice from the social worker as the circumstances for each family and child is different.

9. What do we tell the children about where the transplant kidney came from? This sensitive question will need a sensible answer and is best discussed with team members.

10. Can my child have children in the future after the kidney transplant? If the transplant is working well and your child enters adulthood with good health and good kidney function then it is possible for them to have children of their own. Contraceptive advice should be sought at the appropriate time. Use of the 'pill' must always be discussed with the nephrologist.

11. If my child has appendicitis post-transplant is there risk to the transplant kidney? Not usually.

12. Are there precautions regarding skin care? As the immunosuppressive drugs increase the sensitivity of the skin to the sun's harmful effects, avoidance of over-exposure to the sun and the use of sun block, creams and hats is strongly advised. There is an increased risk of skin cancer in post-transplant patients and all suspicious moles or warts should be reported to the doctor.

13. Does my child require antibiotic cover for teeth extraction? Please discuss this with your nephrologist.



**Antibodies** – Proteins in the blood stream which react against foreign substances.

**Artery** – Blood vessel which carries blood away from the heart to the organs of the body.

**Biopsy** – Removal of a tiny piece of kidney tissue for special examination under a microscope.

**Bladder** – The sac which holds urine before it is passed out of the body.

**Blood group** – The type of blood you have, i.e. groups A, O, AB, B. Cadaveric donor – A kidney donor who has died.

**Cannula** – Small plastic tube inserted into a blood vessel.

**Creatinine** – Waste product in the blood stream which is removed by the kidneys. Measuring the level tells us how well the kidneys function.

**Cross matching** – Test which matches your child's blood against cells from the donor.

**Hypertension** – High blood pressure.

**Immunosuppressive drugs** – Drugs given to damp down the body's response to the transplant kidney and prevent rejection. Azathioprine, Cyclosporin and Prednisolone (steroids) are the drugs commonly used.

**Intravenous infusion** – Fluid given through a cannula (commonly known as a drip).

**Living related donor** – Kidney donor who is a living relative of the child.

**Primary nurse** – The renal nurse who co-ordinates your child's care.

**Recipient** – Child who receives a kidney transplant.

**Rejection** – Vigorous response of the body's own cells to the kidney transplant. Methyprednisolone, Antilymphocyte Globulin (ALG), Antithymocyte Globulin (ATG) and OKT3 are strong drugs used to treat rejection.

**Tissue type** – Proteins on the surface of cells which define our individuality.

**Ureter** – Tube which carries urine from the kidney to the bladder.

**Urinary catheter** – Tube which drains urine from the bladder.

**Vein** – Blood vessel which carries blood away from the organs back to the heart.

