# Recipient assessment

# Background

- Addenbrooke's ~ 300 transplants per year
  - Kidney ~ 160 (25% living donor)
  - Liver ~ 110
  - Pancreas ~ 20
  - Bowel ~ 10

- Only adult centre to perform liver containing small bowel transplants

- Novel machine technologies

- Papworth

# RECIPIENT ASSESSMENTS

# Guiding principles for assessment:

1. Transplantation is not contraindicated for the patient
2. The patient will receive a suitably matched organ
3. The patient will have a good chance of surviving the transplant operation
4. The patient has room to put the new organ(s) in
5. The new organ(s) will receive an adequate blood supply
6. The patient will be able to look after their new organ(s)

# Kidney: contraindications

- Absolute contraindications:
  - Uncontrolled cancer
  - Active systemic infections
  - Any condition with life expectancy < 2 years

- Relative contraindications:
  - Predicted patient survival of < 5 years
  - Malignant disease not amenable to curative treatment
  - HIV infection not treated with HAART or progression to AIDS
  - Cardiovascular disease
  - Predicted graft loss > 50% at 1 year
  - Predicted non-adherence to immunosuppressant therapy
  - Immunosuppression predicted to cause life threatening complications
  - Raised BMI

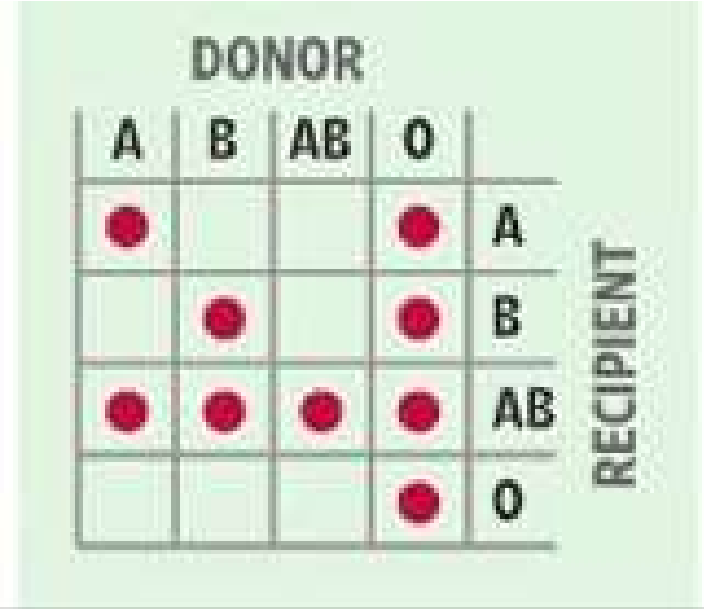
# Kidney: suitably matched organs

## Tissue Typing:

- Antibodies brought on by sensitisation events:
  - –Pregnancy
  - –Blood transfusions
  - –Previous transplants
- The more sensitising events, the less likely it is that we'll find a suitable donor
- 2's are bad!

- **Recipient choice**

## Blood Group:



# Kidney: chances of surviving the operation

- Relatively low risk:
  - 2-3 % chance of dying within the first year
  - 10% for high risk recipients

- Robust cardiac assessment:
  - **ECG**
  - **Chest X-Ray**
  - **ECHO**
  - ETT
  - MIBI/DSE
  - Coronary Angiogram

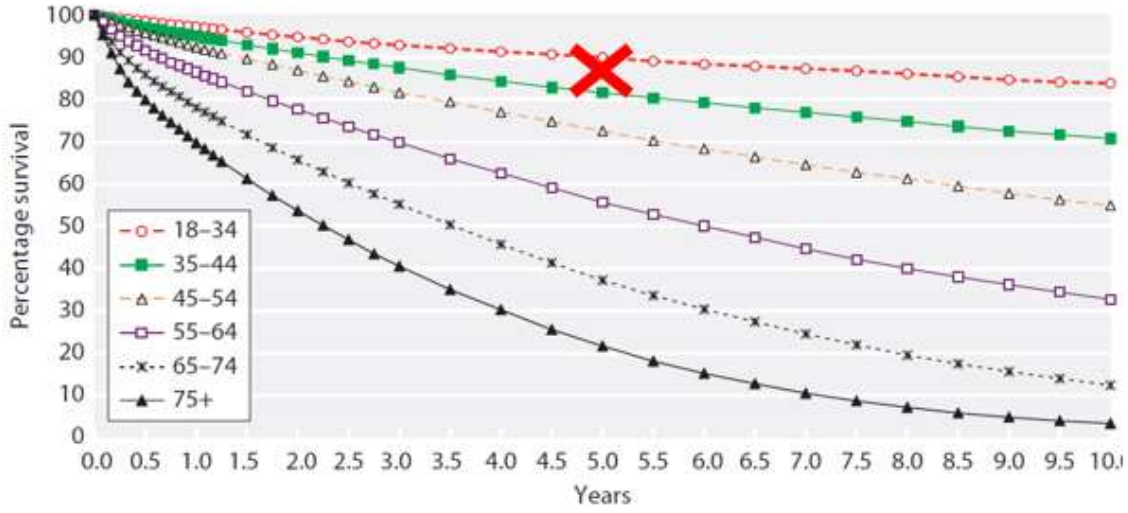
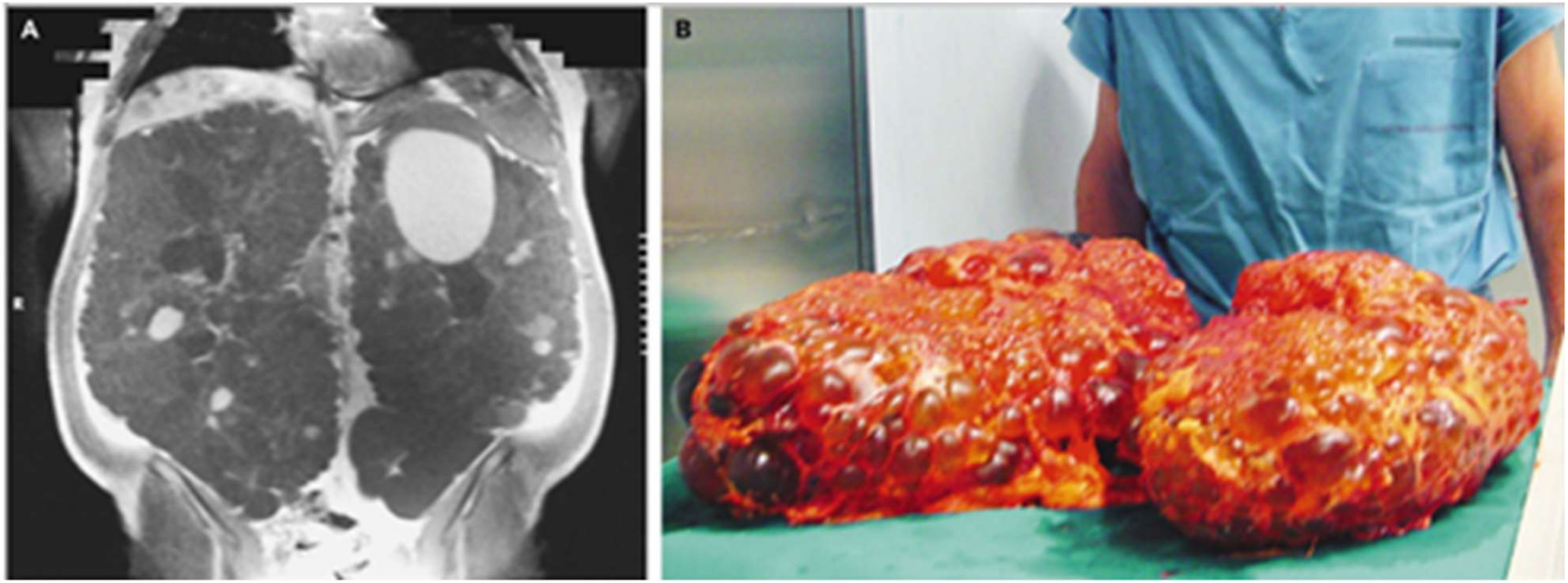


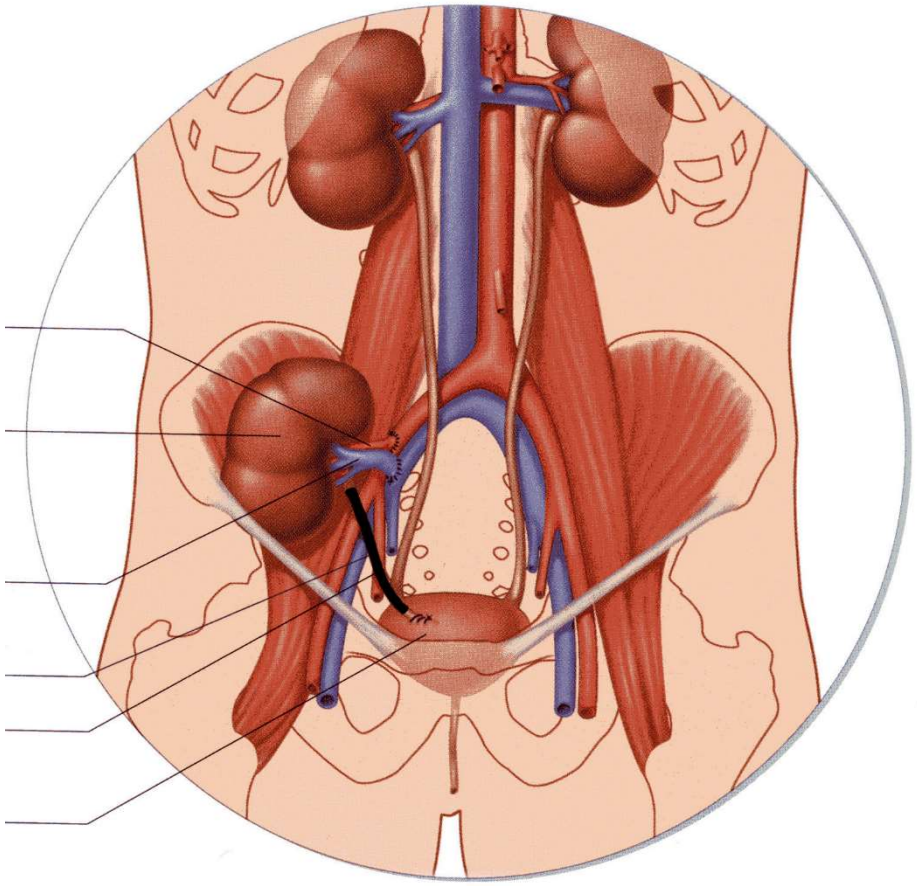

**Fig. 5.4.** Survival of incident RRT patients (unadjusted), 1997–2015 cohort (from day 0)

# Kidney: room to fit the organs



# Kidney: adequate blood supply

Palpation of arteries +/-
a duplex scan to assess:



# Kidney: will they look after the organ

## Cognitive function:

Can they remember instructions r.e. medications?

## Adherence:

Will they take life long immunosuppression?

Will they turn up to clinic appointments?

## Social issues:

Are they able in a stable environment with good support?

Do they have any dependents?

## Transport

How will they get to Addenbrookes for the transplant and follow up appointments?

# Liver: contraindications

- Absolute contraindications:
  - Continued alcohol use in case of ALD
  - Continued IV drug use

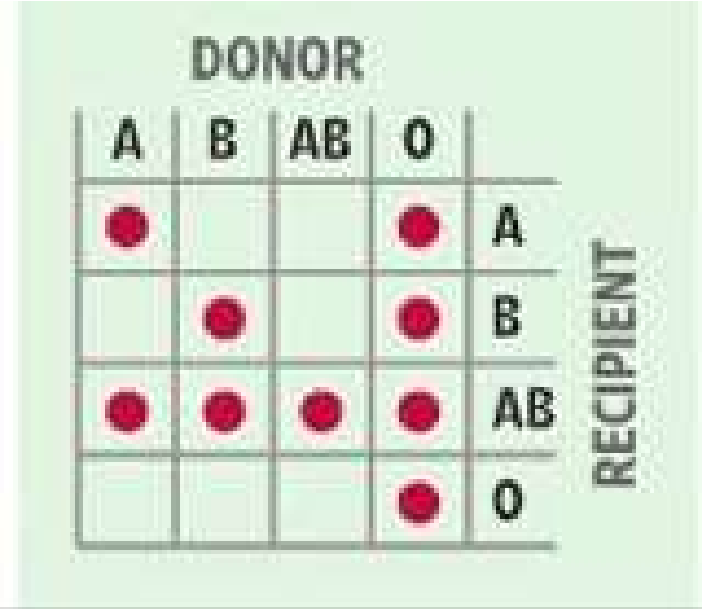
- Deselection criteria:
  - In the category of chronic liver disease, sodium, creatinine, bilirubin and INR present and UKELD score <49
  - Tumour rupture occurred
  - α-fetoprotein (AFP) greater than 1,000 iu/ml
  - A single tumour >7 cm, more than 5 tumours, between 2 to 5 tumours any one >3 cm or a single tumour >5 cm and ≤7 cm and a volume increase ≥20% within a 6-month time period, all judged by USS or CT scan, radiological evidence of vascular invasion extra-hepatic tumour spread. Tumour size will be assessed by serial scanning 3-monthly using the scan, which demonstrates the largest diameter
  - Failure of adherence with guidelines relating to alcoholic liver disease and illicit drug use
  - The development of comorbidities sufficient to impact on expected 50% probability of survival at 5 years

# Liver: suitably matched organs

## Recipient:

- Size mismatch
- Previous surgical history
- Recipient choice

## Blood Group:

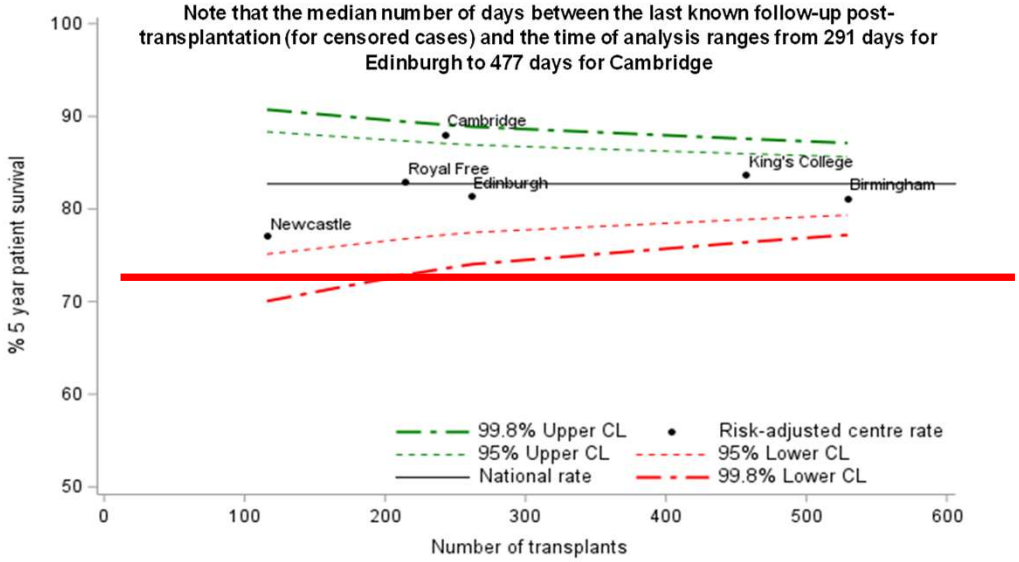


# Liver: chances of surviving the operation

- High risk:
  - 7 % chance of dying within the first year
  - 12-18 % risk of dying without a transplant

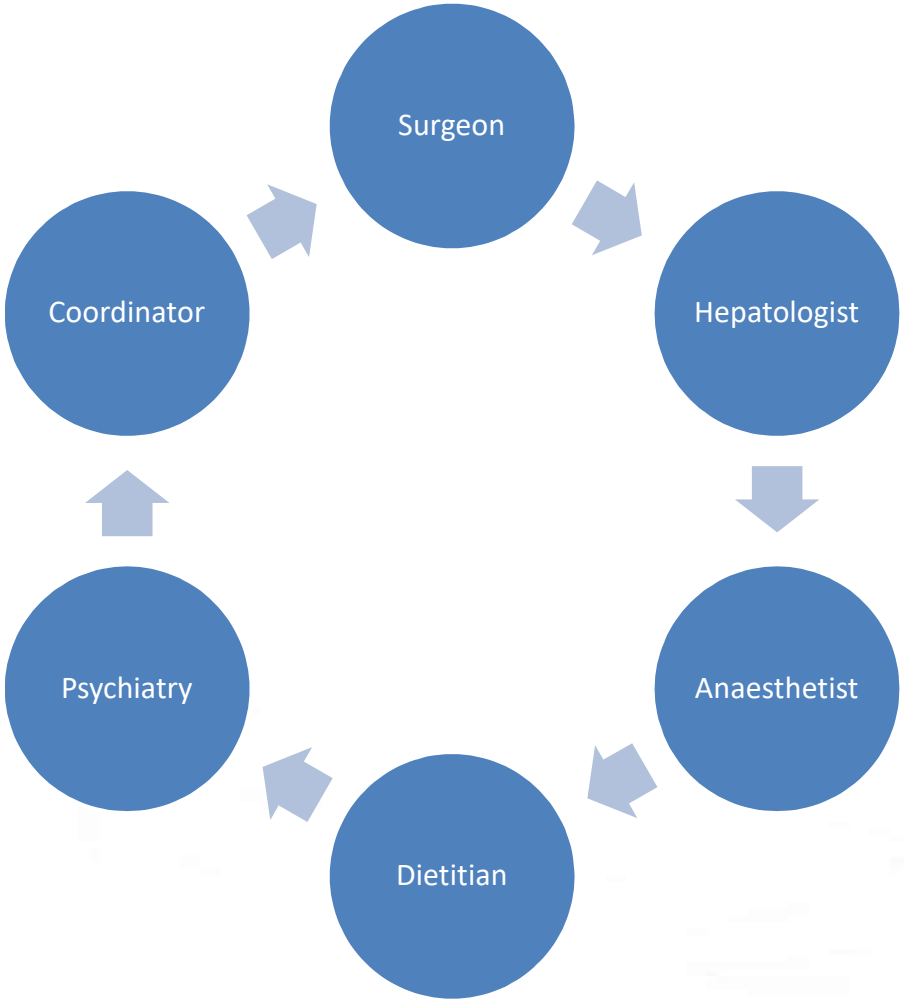
- Robust assessment:
  - **ECG**
  - **Chest X-Ray**
  - **ECHO**
  - **ETT**
  - **MIBI/DSE**
  - **Lung function (ABG)**
  - **CT**
  - Coronary Angiogram

**Figure 3.16** **Risk-adjusted 5 year patient survival rates for adult elective deceased donor first liver transplants, 1 April 2010 - 31 March 2014**




Leeds have been excluded due to a lack of follow up beyond 4 years

# Liver: MDT assessment



# Liver: will they look after the organ

## Cognitive function:

- Can they remember instructions r.e. medications?
- Encephalopathy

## Adherence:

- Will they take life long immunosuppression?
- Will they turn up to clinic appointments?
- **Recidivism**

## Social issues:

- Are they able in a stable environment with good support?
- Do they have any dependents?

## Transport

- How will they get to Addenbrookes for the transplant and follow up appointments?

# Pancreas: contraindications

- Absolute contraindications:
  - Excessive cardiovascular risk including:
    - o Angiography indicating clinically significant and severe and non-correctable coronary artery disease
    - o Recent myocardial infarction (within 6 months)
  - Non-curable malignancy
  - Active sepsis
  - Active peptic ulcer
  - Major psychiatric history likely to result in non-adherence
  - Inability to withstand surgery and immunosuppression

- Relative contraindications:
  - Ejection fraction below 50%
  - Cerebrovascular accident with severe long-term impairment
  - Active infection with Hepatitis B or C virus
  - Body mass index greater than 30 kg/m2 (absolute contraindication for PTA and for type 2 diabetics)
  - Insulin requirements >100 units/day
  - Extensive aorta/iliac and/or peripheral vascular disease
  - Continued abuse of alcohol or other drugs

# Pancreas: suitably matched organs

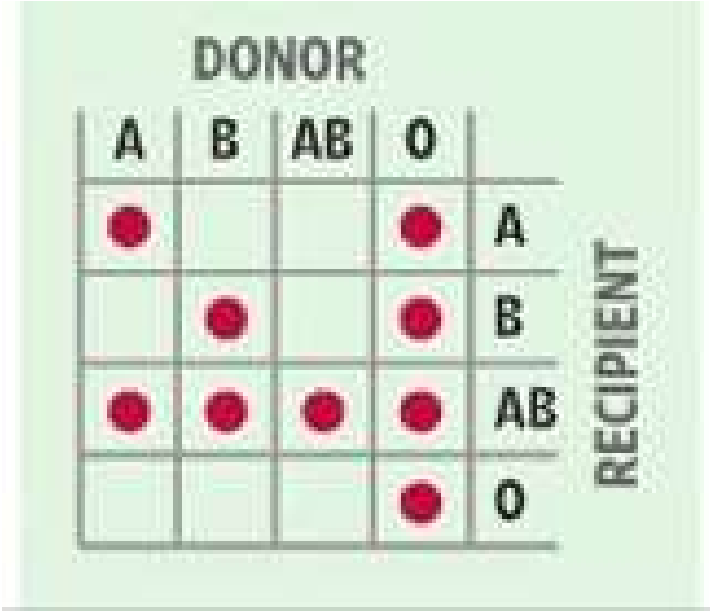
## Tissue Typing:

- Antibodies brought on by sensitisation events:
  - –Pregnancy
  - –Blood transfusions
  - –Previous transplants

- The more sensitising events, the less likely it is that we'll find a suitable donor

- 2's aren't so bad

## Blood Group:



# Pancreas: chances of surviving the operation

- Relatively low risk:
  - 2 % chance of dying within the first year

- Robust assessment:
  - **CT**
  - **ECG**
  - **Chest X-Ray**
  - **ECHO**
  - ETT
  - MIBI/DSE
  - Coronary Angiogram

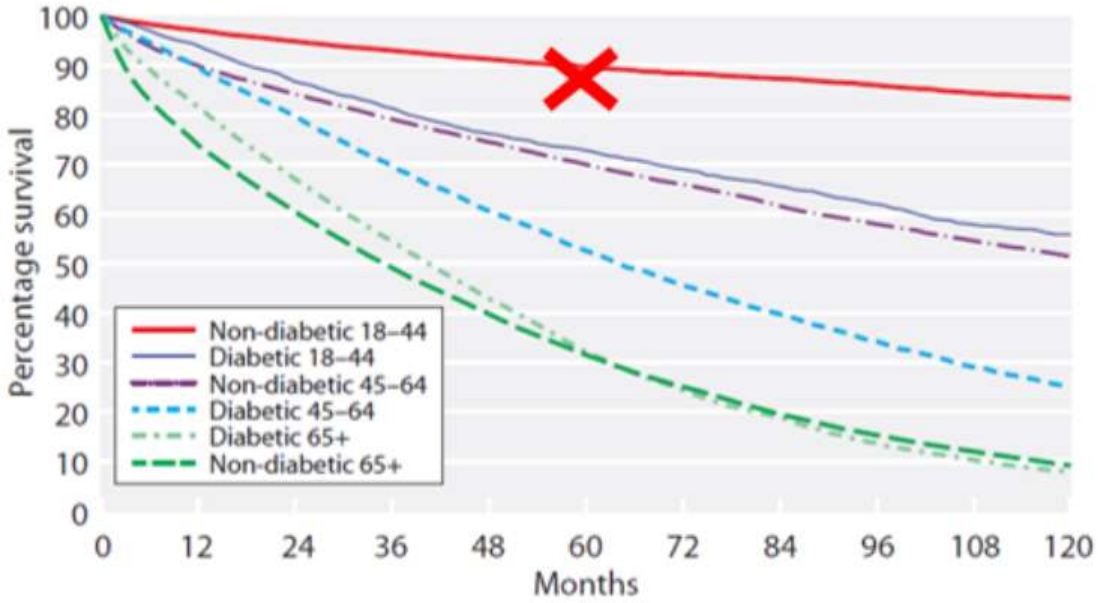
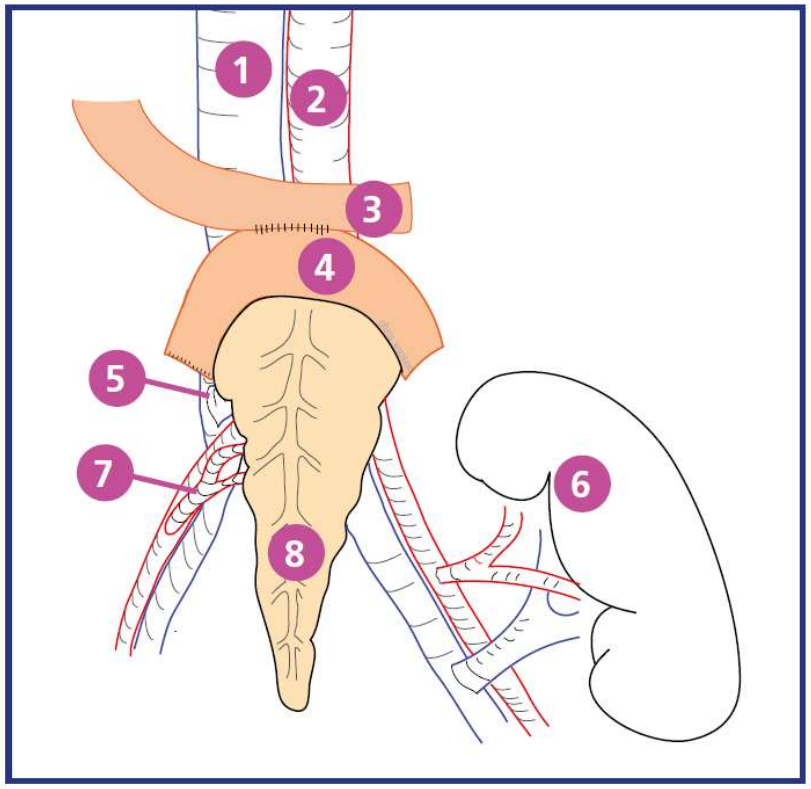



**Fig. 5.19.** Long term survival for incident RRT patients with and without diabetes by age group, 2004–2013 cohort, followed up for a minimum of three years

# Pancreas: adequate blood supply

Palpation of arteries +/-
a duplex scan to assess:




1. Vena Cava
2. Aorta
3. Recipient intestine
4. Donor duodenum
5. Donor Portal vein to IVC
6. Transplanted kidney
7. Donor arterial conduit to right common iliac artery
8. Transplanted pancreas

# Pancreas: will they look after the organ

Cognitive function:

Can they remember instructions r.e. medications?

## Adherence:

Will they take life long immunosuppression?

Will they turn up to clinic appointments?

Social issues:

Are they able in a stable environment with good support?

Do they have any dependents?

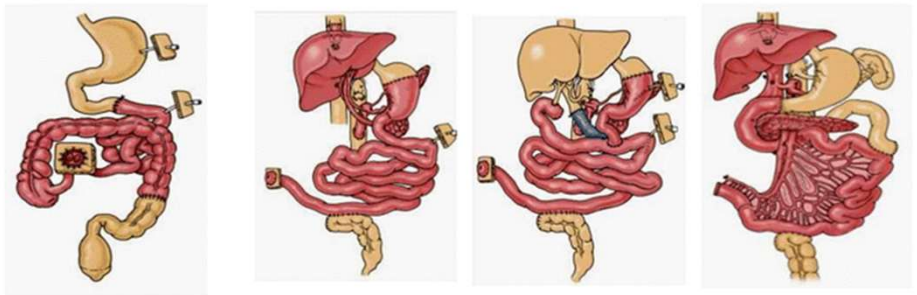
Transport

How will they get to Addenbrookes for the transplant and follow up appointments?

# Bowel: contraindications

- Absolute contraindications:
  - Metastatic malignant disease
  - Systemic disease with a poor prognosis
  - Severe neurological diseases with progressive impairment

- Relative contraindications
  - Active generalised sepsis or severe systemic infection
  - Requirement for ventilator support
  - Neurological diseases with permanent sequelae
  - Insufficient venous access
  - Systemic disease with a life expectancy <5 years
  - Neoplastic disease with an uncertain prognosis
  - Psychosis unlikely to respond to full treatment and result in non-adherence (for adults)
  - Patients unlikely to adequately comply with post-small intestinal transplant treatment, including inadequate social support, particularly poor social circumstances, or personality disorder with 'at risk' behavior
  - Age above 60 years



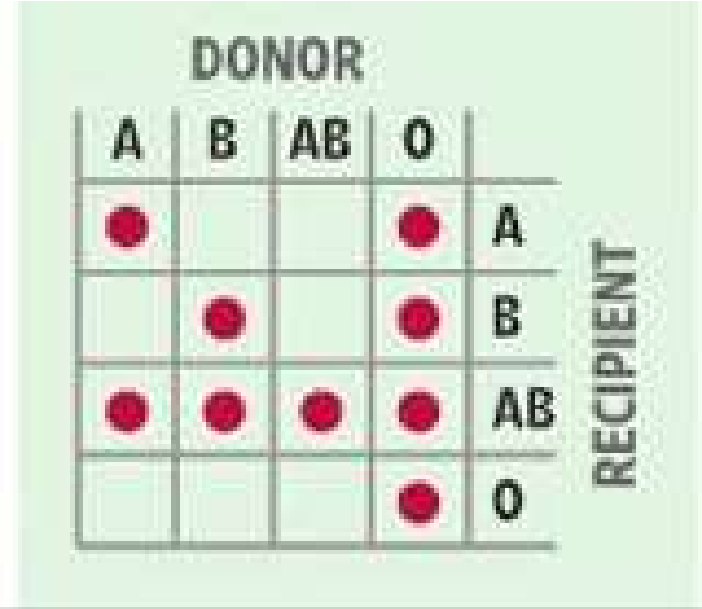

*Each procedure may include part of the colon transplantation according to indications*

# Bowel: suitably matched organs

## Recipient:

- Size mismatch
- CMV

## Blood Group:



# Bowel: chances of surviving the operation

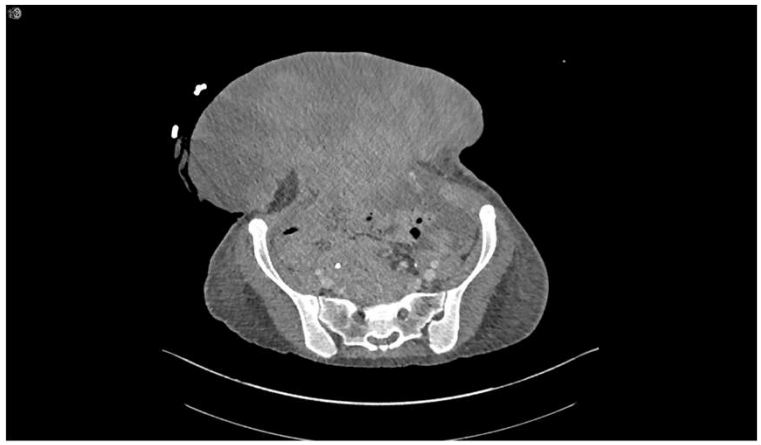
- **High risk:**
  - 2-3 % chance of dying within the first year
  - 10% for high risk recipients
- Robust assessment:
  - **ECG**
  - **Chest X-Ray**
  - **ECHO**
  - ETT
  - MIBI/DSE
  - Coronary Angiogram
  - Vascular surgeons
  - Papworth
  - Liver biopsy
  - CT
  - Another CT
  - Perhaps an MRI?
  - Phone a friend???

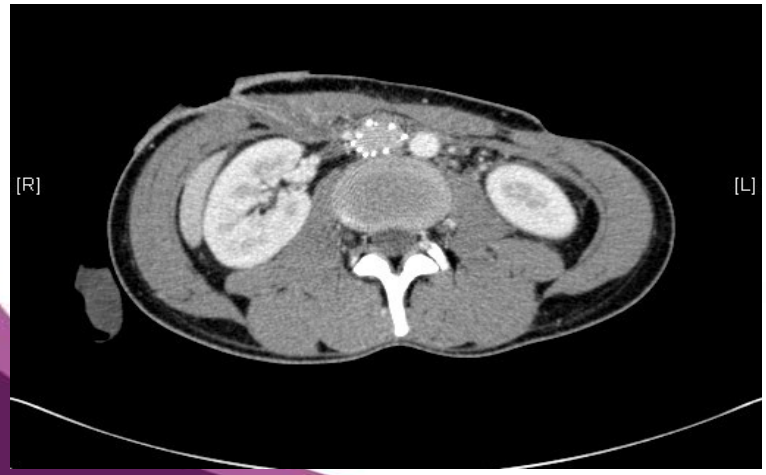
**Table 6.4** Unadjusted patient survival (%) for adult first intestine transplants between 1 April 2009 and 31 March 2019, by transplant type

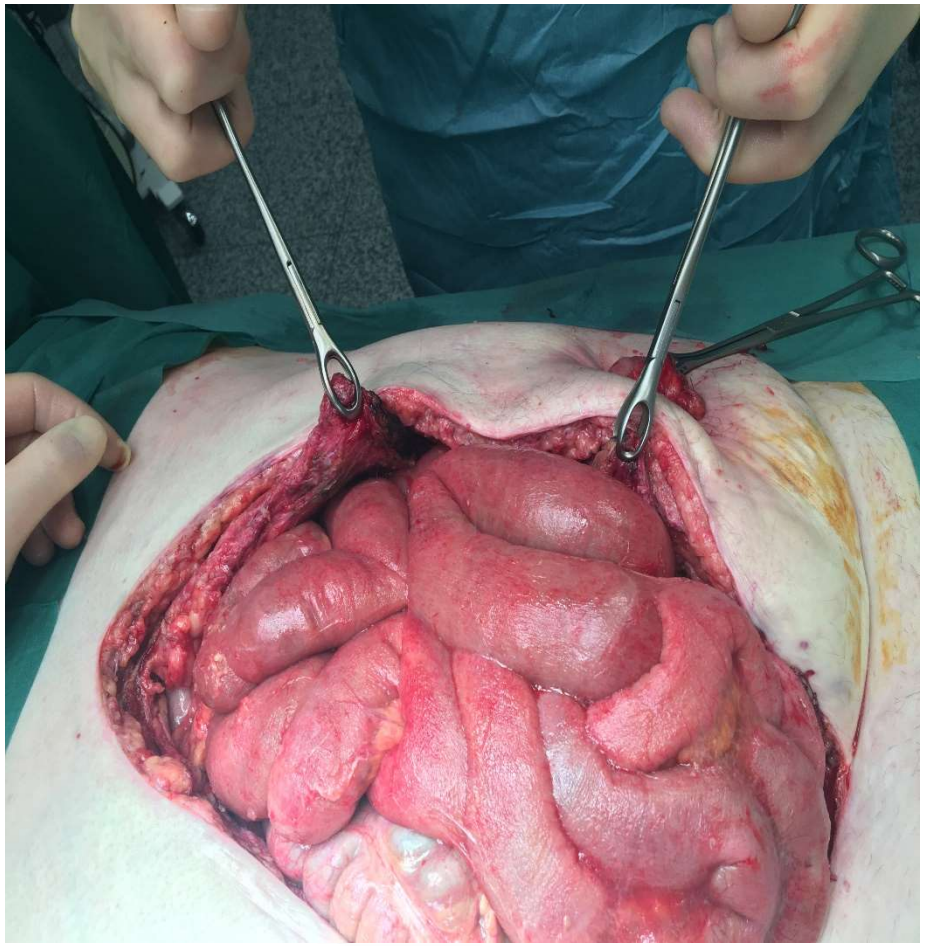
| Transplant type | Number of transplants | 90-day survival (95% CI) | | 1-year survival (95% CI) | | 5-year survival (95% CI) | |
|---|---|---|---|---|---|---|---|
| **Cambridge** | | | | | | | |
| Including liver | 48 | 87.5 | (74.3-94.2) | 73.4 | (57.8-84.0) | 26.1 | (9.1-47.1) |
| Not including liver[1] | 34 | 100.0 | - | 83.6 | (65.0-92.8) | 74.8 | (53.7-87.4) |
| **Oxford** | | | | | | | |
| Not including liver[1] | 45 | 88.6 | (74.7-95.1) | 80.5 | (64.5-89.8) | 56.9 | (36.6-72.9) |
| **TOTAL** | **127** | **91.3** | **(84.8-95.1)** | **78.5** | **(69.9-85.0)** | **51.4** | **(39.5-62.1)** |

[1] Includes intestine only

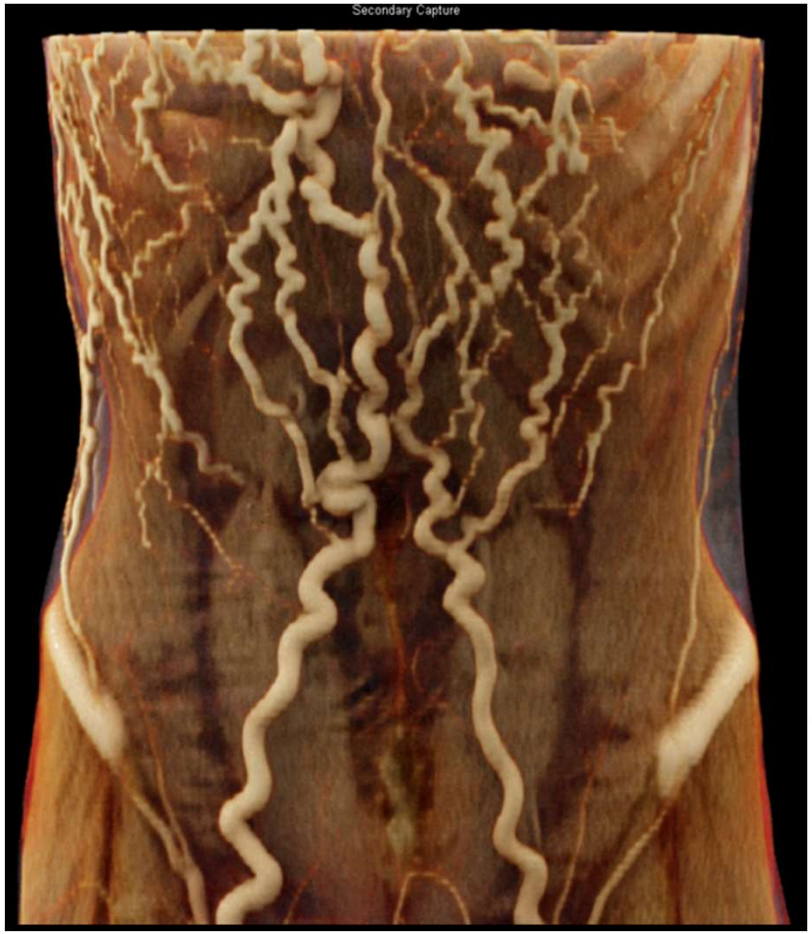
# Bowel: room to fit the organs



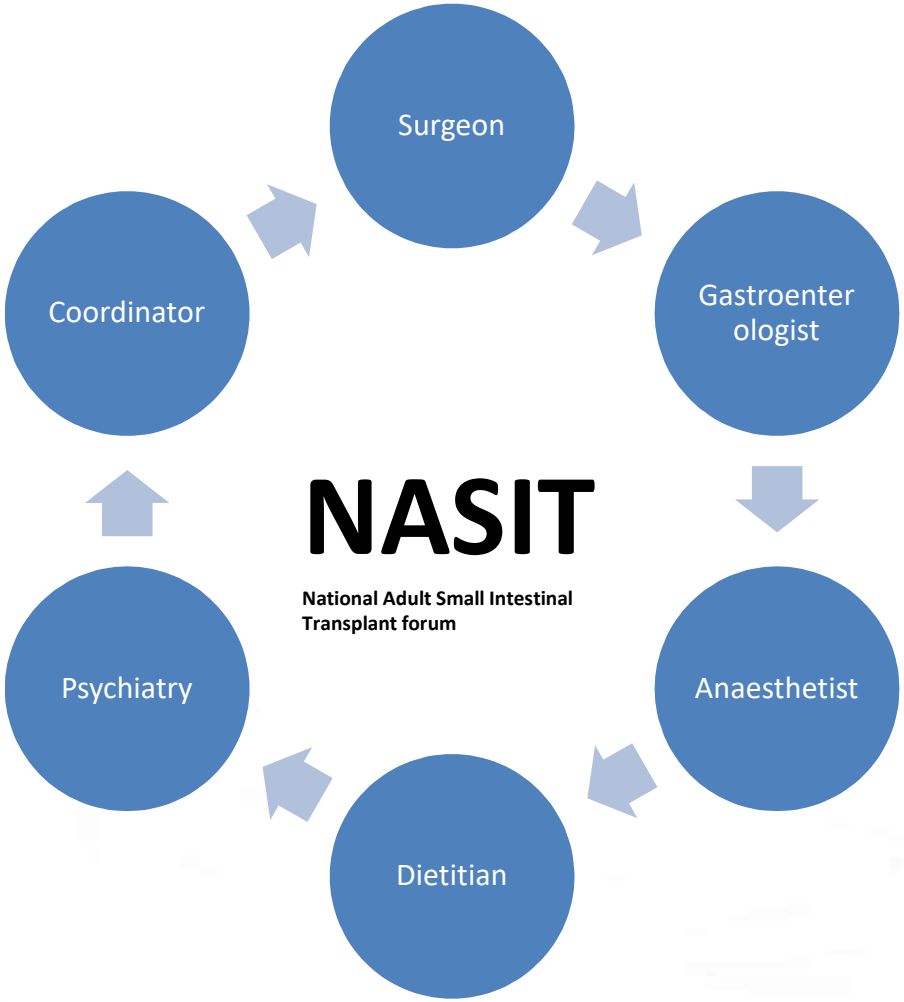


# Bowel: adequate blood supply



# Bowel: assessment



# Bowel: will they look after the organ

## Cognitive function:

Can they remember instructions r.e. medications?

## Adherence:

Will they take life long immunosuppression?

Will they turn up to clinic appointments?

## Social issues:

Are they able in a stable environment with good support?

Do they have any dependents?

## Transport

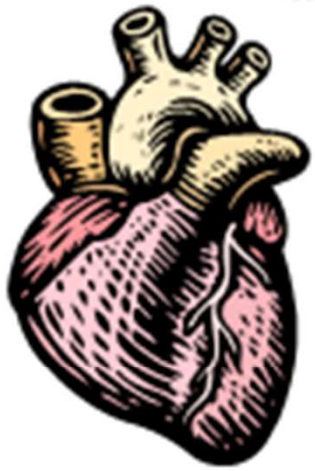
How will they get to Addenbrookes for the transplant and follow up appointments?

# Heart Transplant Assessment Investigations

CXR/ECG

Cervical Smear/ Mammogram/PSA

MRSA Swabs/Sputum Culture



Echocardiogram

Dental Health

Blood Tests

Right Heart Catheter

Coronary Angiogram

VO2 Max

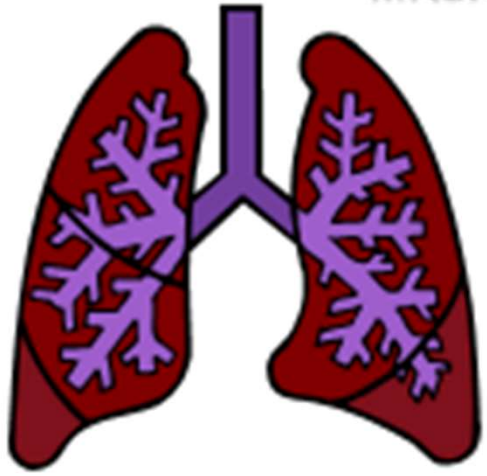
Lung Function Tests and 6 Minute Walk

# Lung Transplant Assessment Investigations

CXR/ECG

Cervical Smear/ Mammogram/PSA

MRSA Swabs/Sputum Culture



Dental Health

Echocardiogram

Blood Tests

Bone Density / DEXA Scan

Lung Perfusion Scan & diaphragm screen

Coronary Angiogram

Chest CT Scan

Lung Function Tests and 6 Minute Walk