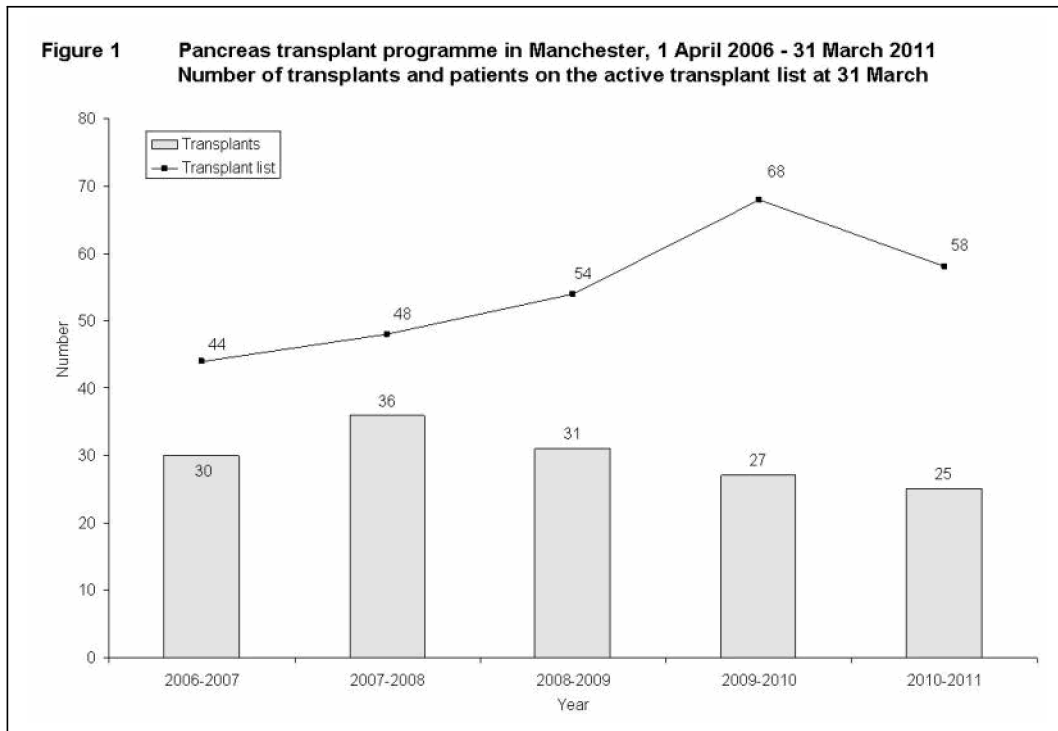


# MANCHESTER ROYAL INFIRMARY, MANCHESTER

## FIGURE 1 SUMMARY OF VASCULARISED PANCREAS TRANSPLANT ACTIVITY



### TABLES 1-2 PANCREAS TRANSPLANTATION

| Transplant Centre | Transplant type | Number of transplants |           |           |           |           |
|-------------------|-----------------|-----------------------|-----------|-----------|-----------|-----------|
|                   |                 | 2006/07               | 2007/08   | 2008/09   | 2009/10   | 2010/11   |
| Manchester        | SPK             | 23                    | 26        | 21        | 20        | 20        |
|                   | IP              | 7                     | 10        | 10        | 7         | 5         |
|                   | <b>Total</b>    | <b>30</b>             | <b>36</b> | <b>31</b> | <b>27</b> | <b>25</b> |

SPK=Simultaneous pancreas/kidney, IP=Isolated pancreas

| Transplant Centre | Donor type   | Number of transplants |           |           |           |           |
|-------------------|--------------|-----------------------|-----------|-----------|-----------|-----------|
|                   |              | 2006/07               | 2007/08   | 2008/09   | 2009/10   | 2010/11   |
| Manchester        | DBD          | 28                    | 28        | 27        | 25        | 22        |
|                   | DCD          | 2                     | 8         | 4         | 2         | 3         |
|                   | <b>Total</b> | <b>30</b>             | <b>36</b> | <b>31</b> | <b>27</b> | <b>25</b> |

DBD=Donation after brain death, DCD=Donation after circulatory death

**TABLE 3  
ACTIVE PANCREAS TRANSPLANT LIST**

| Transplant Centre | Number of patients listed as at 1 April |      |      |      |      |
|-------------------|---|------|------|------|------|
|                   | 2007                                    | 2008 | 2009 | 2010 | 2011 |
| Manchester        | 44                                      | 48   | 54   | 68   | 58   |

**TABLE 4  
NEW ACTIVE PANCREAS TRANSPLANT REGISTRATIONS  
(Includes re-registrations)**

| Transplant Centre | Number of patients joining the transplant list |         |         |         |         |
|-------------------|--|---------|---------|---------|---------|
|                   | 2006/07  | 2007/08 | 2008/09 | 2009/10 | 2010/11 |
| Manchester        | 58   | 41      | 57      | 46      | 29      |

**TABLE 5  
MEDIAN WAITING TIME TO PANCREAS TRANSPLANT**

Due to a shortage of donated organs, patients must wait for a pancreas transplant. Patients' waiting times differ for many reasons, but the table below shows the average (median) unadjusted waiting time to pancreas transplant, by centre.

These waiting times are calculated using a statistical technique known as the Kaplan-Meier method. Waiting time is determined from the date the patient was actively registered for a pancreas transplant to the date of transplant. Patients who were removed from or died whilst on the list are censored at date of removal or death, respectively. Patients still waiting for a transplant on the active list at the time of analysis are also censored and any periods of suspension from the list are not counted as part of the waiting time. Patients may be suspended from the list for a number of reasons; the patient may not be well enough for the transplant or not available whilst they are on holiday.

| <b>Patients first registered on the active pancreas transplant list between<br/>1 April 2006 and 31 March 2010</b> |     |               |             |
|--|-----|---------------|-------------|
| Transplant Centre  | N   | Median (days) | (95% CI)    |
| Manchester   | 202 | 474           | (327 - 621) |

**TABLES 6-7 AND FIGURES 2-3  
UNADJUSTED AND RISK-ADJUSTED GRAFT AND PATIENT SURVIVAL**

The probability of the pancreas graft or the patient surviving at least one-year post pancreas transplant can be estimated based on previous data. The risk-adjusted rate gives an estimate of what the survival rate at a centre would have been if they had a similar mix of patients across all centres. 'Graft survival' estimates the expected probability of the actual graft surviving at least one year after transplant and is based on time from transplant to graft failure, censoring for death with a functioning graft and grafts still functioning at time of analysis. 'Patient survival' estimates the expected probability of the patient surviving at least one year after their transplant and is based on time from transplant to patient death, censoring for patients still alive at time of analysis.

| <b>Unadjusted patient and graft survival rates following first deceased donor SPK transplant, 1 April 2006 to 31 March 2010</b> |            |           |    |              |
|---|------------|-----------|----|--------------|
| Survival at one-year  | % Survival | (95% CI)  | N  | Events       |
| Patient survival  | 92         | (83 - 96) | 84 | Deaths: 6    |
| Pancreas graft survival   | 82         | (71 - 88) | 83 | Failures: 15 |

| <b>Risk-adjusted patient and graft survival rates following first deceased donor SPK transplant, 1 April 2006 to 31 March 2010</b> |            |           |    |              |
|--|------------|-----------|----|--------------|
| Survival at one-year   | % Survival | (95% CI)  | N  | Events       |
| Patient survival   | 91         | (81 - 97) | 84 | Deaths: 6    |
| Pancreas graft survival  | 79         | (65 - 88) | 83 | Failures: 15 |

## Comparison of survival rates across centres

We present a visual comparison of survival rates across centres that is based on a graphical display known as a funnel plot (1, 2). This display is used to show how consistent the rates of the different transplant units are with the national rate.

These funnel plots show the risk-adjusted survival rate plotted against the number of transplants for each centre, with the overall national risk-adjusted survival rate (solid line), and its 95% (thin dotted lines) and 99.8% (thick dotted lines) confidence limits superimposed. Each dot in the plot represents one of the centres unadjusted estimates and each cross the risk-adjusted estimates.

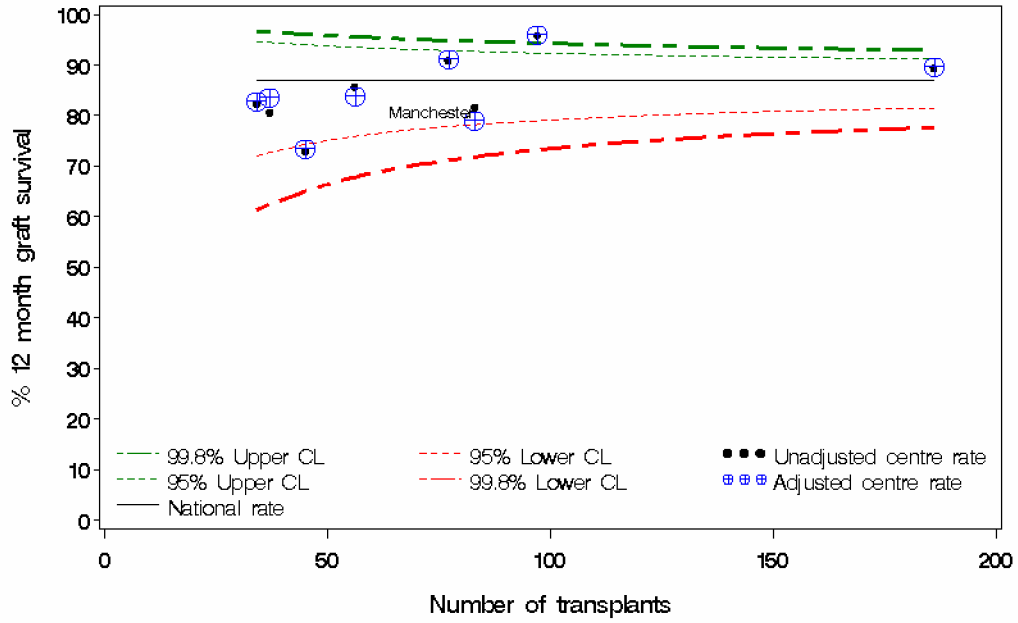
## Interpreting the funnel plots

If a centre lies within all the limits, then that centre has a survival rate that is statistically consistent with the national rate. If a centre lies outside the 95% confidence limits, this serves as an alert that the centre may have a rate that is significantly different from the national rate. If a centre lies outside the 99.8% limits, then further investigations may be carried out to determine the reasons for the possible difference. When a centre lies above the upper limits, this indicates a survival rate that is higher than the national rate, while a centre that lies below the lower limits has a survival rate that is lower than the national rate.

## References

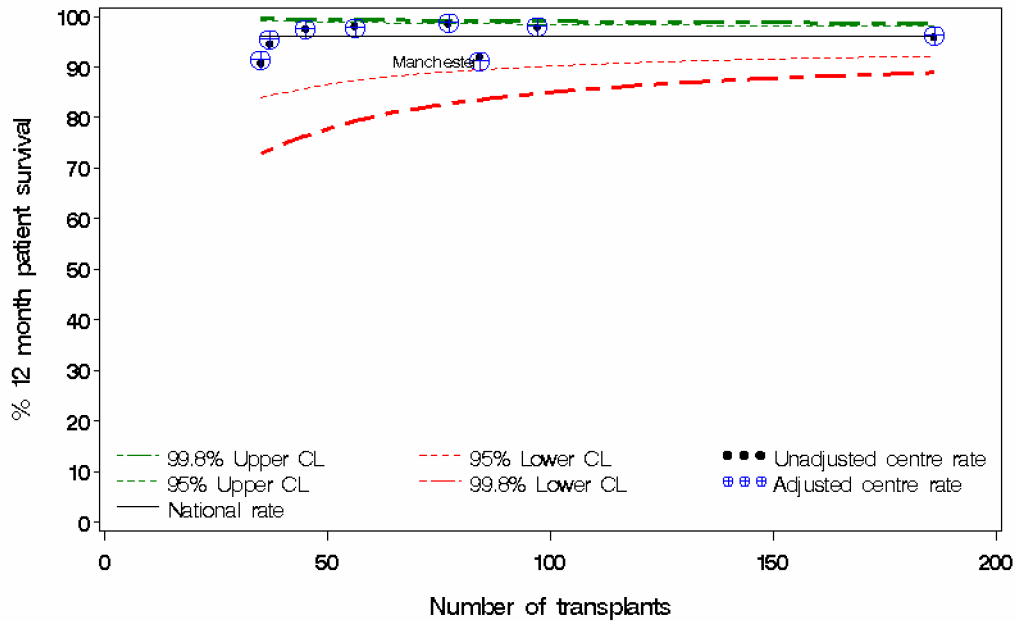
- 1 Tekkis PP, McCulloch P, Steger AC, Benjamin IS, Poloniecki JD. Mortality control charts for comparing performance of surgical units: validation study using hospital mortality data. *British Medical Journal* 2003; 326: 786 - 788.
- 2 Stark J, Gallivan S, Lovegrove J, Hamilton JRL, Monro JL, Pollock JCS, Watterson KG. Mortality rates after surgery for congenital heart defects in children and surgeons' performance. *Lancet* 2000; 355: 1004 - 1007.

Adjusted<sup>1</sup> and unadjusted 12 month graft survival rates following first deceased donor SPK transplants performed in the UK, between 1 April 2006 and 31 March 2010, by centre



<sup>1</sup> Survival estimates presented are risk-adjusted for donor type, donor age, donor BMI and waiting time

Adjusted<sup>1</sup> and unadjusted 12 month patient survival rates following first deceased donor SPK transplants performed in the UK, between 1 April 2006 and 31 March 2010, by centre



<sup>1</sup> Survival estimates presented are risk-adjusted for donor type, donor age, donor BMI and waiting time