

## **NHS BLOOD & TRANSPLANT**

### **COLD ISCHAEMIA TIME FOR KIDNEY TRANSPLANTS**

The length of time that elapses between a kidney being removed from the donor to its transplantation into the recipient is called the Cold Ischaemia Time (CIT). Generally, the shorter this time, the more likely the kidney is to work immediately and the better the long-term outcome. One of the reasons why live donor kidney transplantation is so successful is because the CIT is only one to two hours long. For deceased donor renal transplants, CIT can never be as short as this, but efforts are made to keep the time to a minimum. Evidence indicates that the outcome is only adversely affected when CIT is longer than 20 hours, although many deceased donor kidney transplants with a CIT of more than 20 hours have been very successful.

The factors which determine CIT include a) transportation of the kidney from the retrieval hospital to the hospital where the transplant is performed, b) the need to tissue type the donor and cross-match the donor and potential recipients, c) the occasional necessity of moving the kidney to another hospital if a transplant cannot go ahead, d) contacting and preparing the recipient for the transplant and e) access to the operating theatre.

The CIT for kidneys that are retrieved and transplanted within one geographical area tend to be shorter than the CIT for kidneys that are moved from one area of the country to another. Data are presented in Table 1 for each renal transplant unit: a) for local kidneys only and b) for all kidneys transplanted at the unit. Median CITs are shown in addition to inter-quartile ranges. Fifty percent of the transplants have a CIT within the inter-quartile range. For kidneys retrieved outside a centre's geographical area, the transplanting centre has a limited influence over the total CIT and the CIT is usually greater than that for a locally retained kidney. There is some variation in average (median) CIT between different transplant centres although all centres continually try to reduce this time.

**Table 1 Median cold ischaemia times for kidney only transplants from donors after brain death in adult patients, 1 Jan 2009 - 31 Dec 2011**

Centre	% transplants with no reported CIT	Local transplants			All transplants		
		Median	IQ range	N <sup>1</sup>	Median	IQ range	N <sup>1</sup>
Addenbrooke's Hospital, Cambridge	11	16.0	12.0-18.0	11	15.0	12.0-17.0	66
Belfast City Hospital, Belfast	3	19.0	15.5-22.5	8	21.0	19.0-24.0	66
Churchill Hospital, Oxford	18	17.5	11.5-21.0	12	15.0	12.0-20.0	80
Derriford Hospital, Plymouth	0	13.0	13.0-13.0	1	17.0	16.0-19.0	18
Freeman Hospital, Newcastle	0	17.0	14.0-24.0	13	18.0	16.0-21.0	61
Guy's Hospital, London	23	13.0	11.0-17.0	13	13.0	12.0-17.0	82
Leicester General Hospital, Leicester	14	14.0	13.0-14.5	4	12.0	9.0-15.0	73
Manchester Royal Infirmary, Manchester	4	14.0	13.0-18.0	29	16.0	13.0-19.0	141
Northern General Hospital, Sheffield	5	11.5	10.0-12.0	6	16.0	13.0-20.0	58
Nottingham City Hospital, Nottingham	0	13.5	13.0-15.0	6	15.0	13.0-18.0	92
Queen Alexandra Hospital, Portsmouth	4	14.5	13.5-15.0	4	16.0	14.0-20.0	47
Queen Elizabeth Hospital, Birmingham	7	16.0	13.5-19.5	24	16.0	14.0-21.0	114
Royal Infirmary of Edinburgh, Edinburgh	3	13.5	12.0-18.0	20	14.0	12.0-16.0	106
Royal Liverpool University Hospital, Liverpool	1	13.5	12.5-15.0	12	16.0	14.0-18.0	75
Southmead Hospital, Bristol	3	14.0	12.0-16.0	5	16.0	14.0-18.0	89
St George's Hospital, London	7	12.0	8.0-15.0	14	13.0	11.0-16.0	56
St James's University Hospital, Leeds	2	14.0	11.0-17.0	13	16.0	14.0-19.0	88
The Royal Free Hospital, London	16	16.0	13.0-18.0	11	13.0	11.0-17.0	51
The Royal London Hospital, London	7	14.0	12.0-18.0	13	16.0	13.0-18.0	116
University Hospital of Wales, Cardiff	4	13.0	12.0-21.0	13	14.0	13.0-17.0	80
Walsgrave Hospital, Coventry	0	14.0	5.0-16.0	3	15.0	13.0-18.0	31
West London Renal and Transplant Centre	15	22.0	18.0-29.0	16	23.0	18.0-30.0	138
Western Infirmary, Glasgow	4	13.5	12.0-15.0	12	16.0	14.0-18.0	118
<b>UK</b>	<b>7</b>	<b>15.0</b>	<b>12.0-18.0</b>	<b>263</b>	<b>16.0</b>	<b>13.0-19.0</b>	<b>1846</b>

<sup>1</sup> Number of transplants included in calculation of median