



*Blood and Transplant*

**REPORT FOR NHS ENGLAND –  
COMMISSIONERS OF TRANSPLANTATION  
SERVICES**

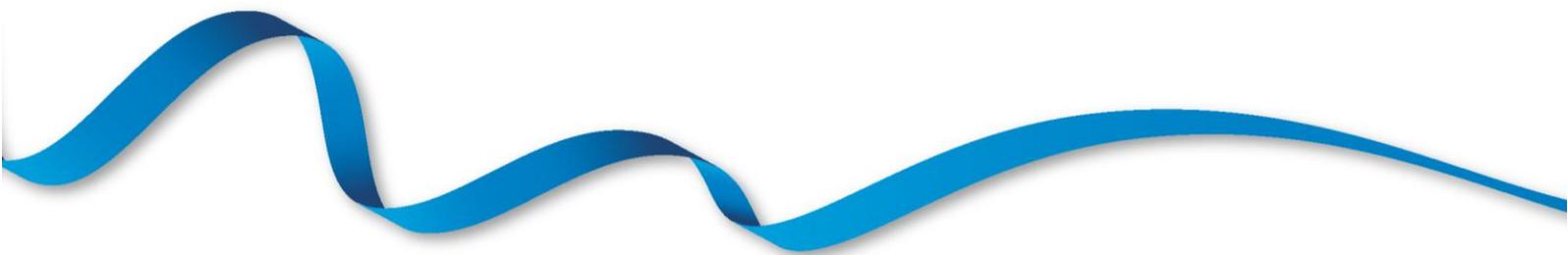
**CARDIOTHORACIC TRANSPLANTATION**

**INTERIM REPORT FOR 2015/2016  
(1 OCTOBER 2012 – 30 SEPTEMBER 2015)**

**PUBLISHED MARCH 2016**



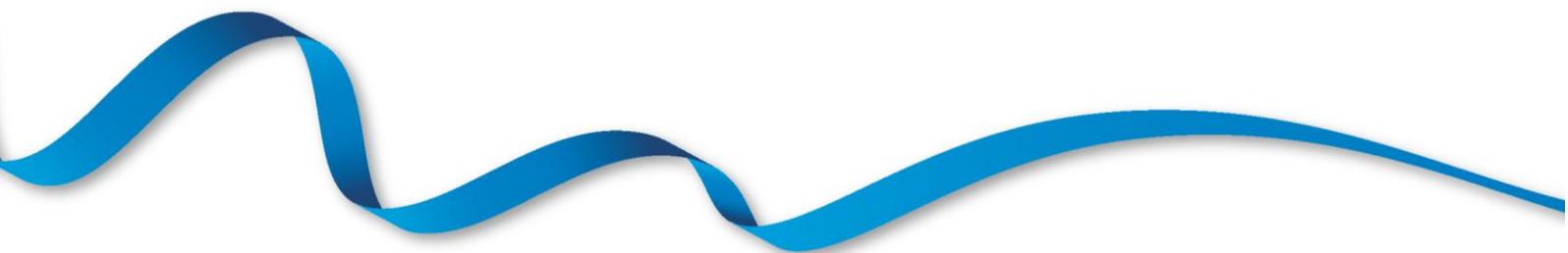
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# **Executive Summary**



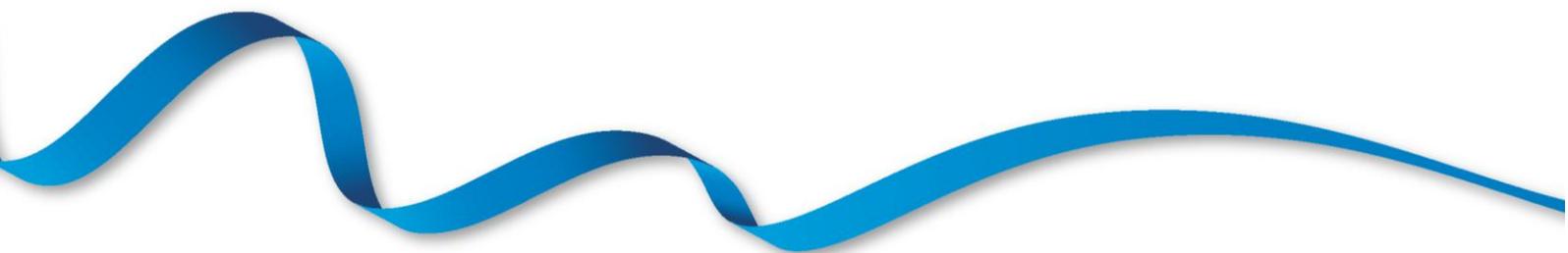
## EXECUTIVE SUMMARY

This report presents key figures about cardiothoracic transplantation in the UK. The period reported covers three years of transplant data, from 1 October 2012 to 30 September 2015. The report presents information on the number of transplants and survival analysis after first heart and/or lung transplantation; both on a national and centre-specific basis.

### Key findings

- There were 1138 cardiothoracic **transplants** performed in the UK in the three year period. Of these, 532 were first heart-only transplants and 566 were first lung or heart/lung transplants.
- The national rate of survival 30 days after first **heart transplantation of adults** is 90.5%. These rates vary between centres, ranging from 82.5% to 96.4% (unadjusted).
- The national rate of survival 30 days after first **heart transplantation of paediatrics** is 96.6%. These rates vary between centres, ranging from 95.7% to 97.7% (unadjusted). Centre-specific estimates of these rates must be interpreted with caution due to the small number of transplants upon which they are based.
- The national rate of survival 90 days after first **lung transplantation of adults** from deceased donors is 90.6%. These rates vary between centres, ranging from 83.3% to 94.0% (unadjusted).
- The national rate of survival 90 days after first **lung transplantation of paediatrics** from deceased donors is 94.7%. Centre-specific estimates of these rates must be interpreted with caution due to the small number of transplants upon which they are based.

# Introduction



## INTRODUCTION

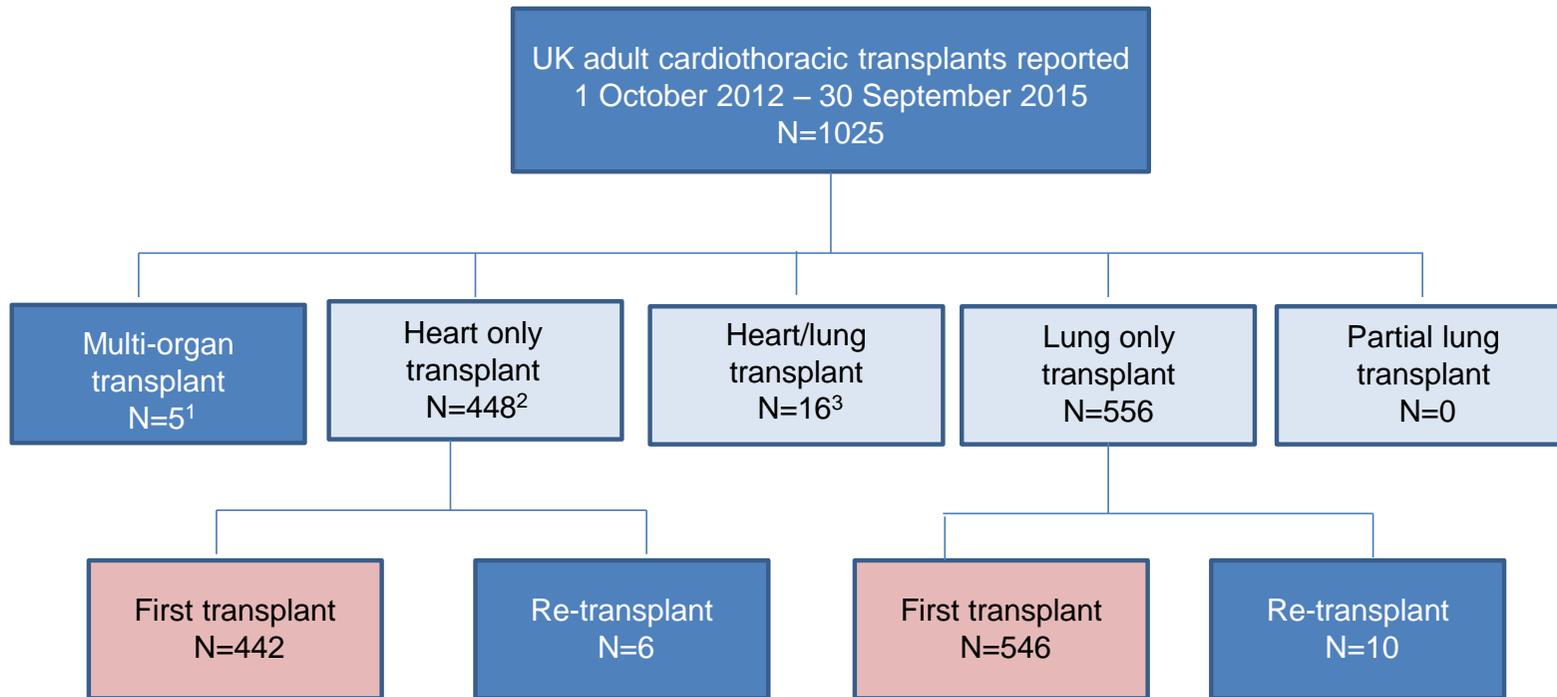
This interim report presents information on transplant activity and patient mortality after first heart and/or lung transplantation between 1 October 2012 and 30 September 2015, for all centres performing heart and/or lung transplantation in the UK. Data were obtained from the UK Transplant Registry, at NHS Blood & Transplant, that holds information relating to donors, recipients and outcomes for all cardiothoracic transplants performed in the UK.

There are two paediatric transplant centres; Great Ormond Street and Newcastle (also an adult transplant centre). Results are described separately for hearts and lungs and also for adult (aged  $\geq 16$  years) and paediatric patients (aged  $< 16$  years). However, both adult and paediatric transplants carried out at Great Ormond Street are included in the paediatric report, and paediatric transplants carried out at non-paediatric centres are included in the adult report. Heart lung blocks are included in the lung activity section but are excluded from all post-transplant survival analyses.

Methods used are described in the Appendix.

**Figure 1a** and **Figure 1b** details the 1138 cardiothoracic transplants performed in the UK in the three year period. Of these, 1133 transplants are analysed in the transplant activity sections (multi-organ transplants are not included). However, the survival analyses sections are based on 532 first heart transplants and 566 first lung transplants as partial lung transplants and re-transplants are excluded along with multi-organ transplants.

Figure 1a Adult cardiothoracic organ transplants performed in the UK, 1 October 2012 to 30 September 2015

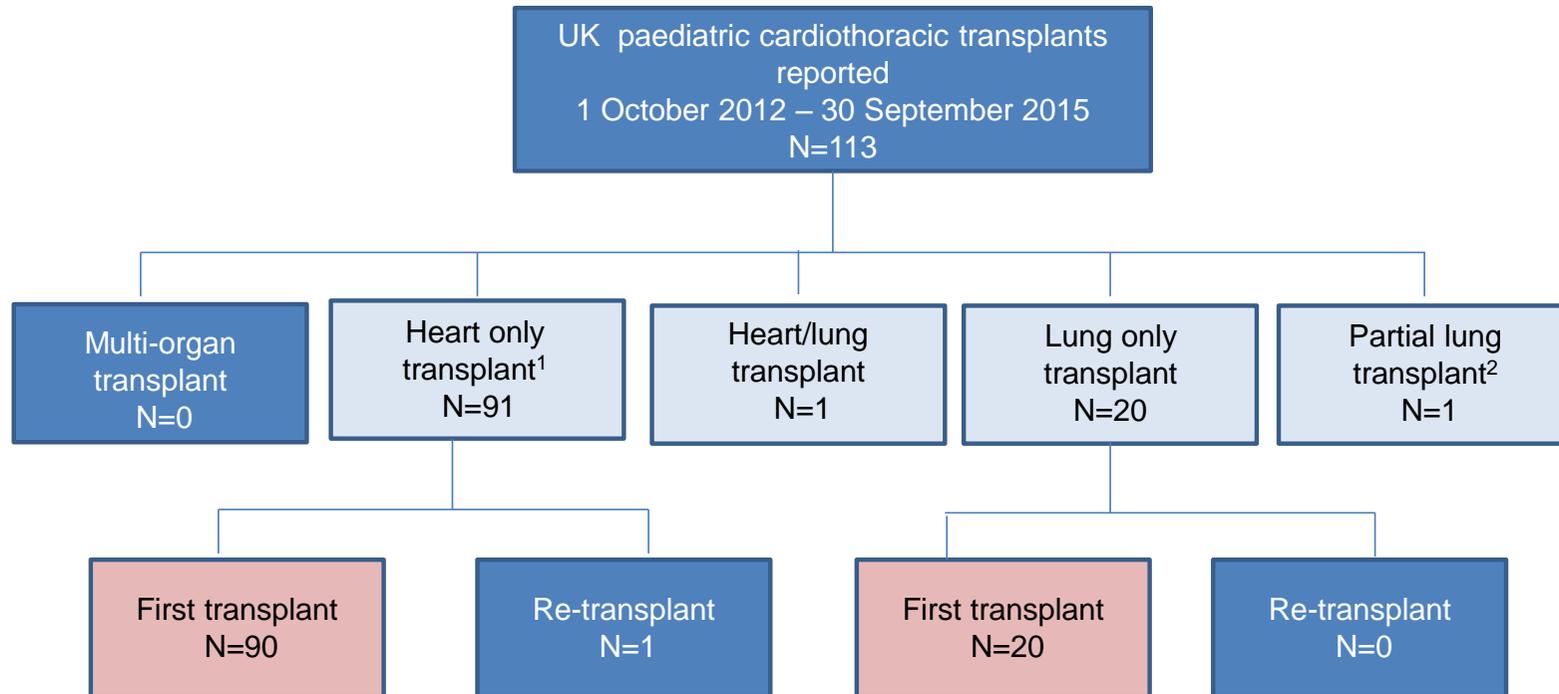


<sup>1</sup> Includes 3 heart and kidney transplants, 1 heart and liver transplant, 1 lung and kidney transplant

<sup>2</sup> Includes 11 DCD heart transplants

<sup>3</sup> Includes 1 re-transplant

Figure 1b Paediatric cardiothoracic organ transplants performed in the UK, 1 October 2012 to 30 September 2015



<sup>1</sup> Includes 1 DCD heart transplant

<sup>2</sup> Includes 1 partial lung transplant from a deceased donor

# **Transplant Activity**

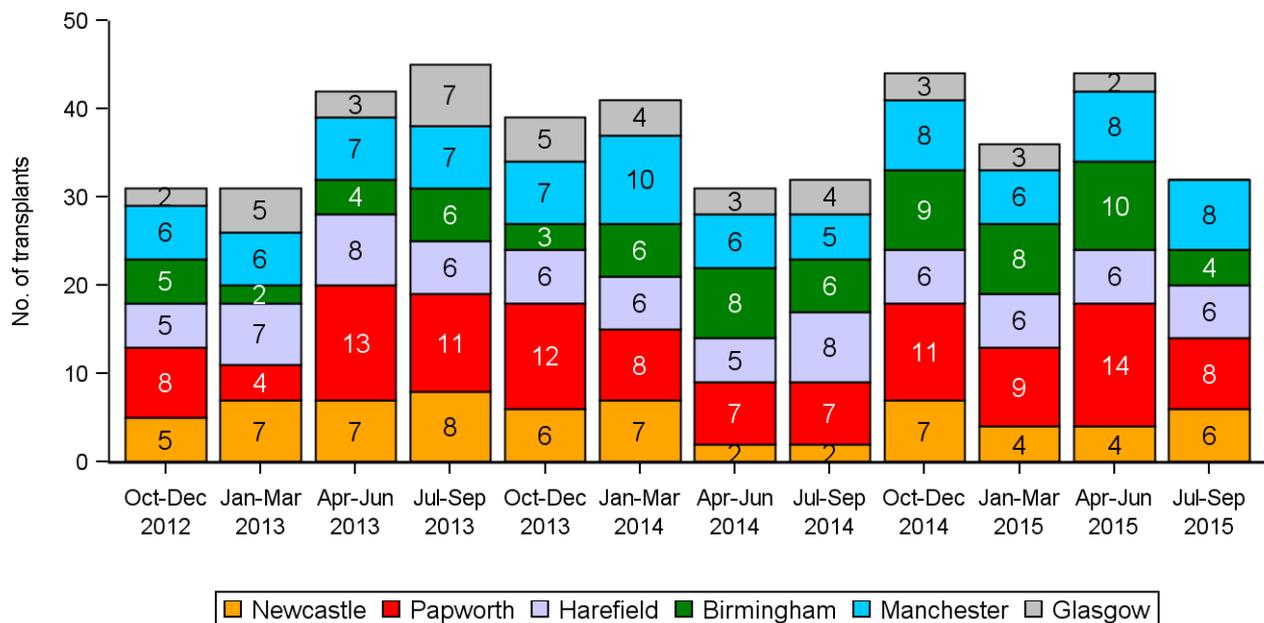


## Adult Heart Transplant Activity

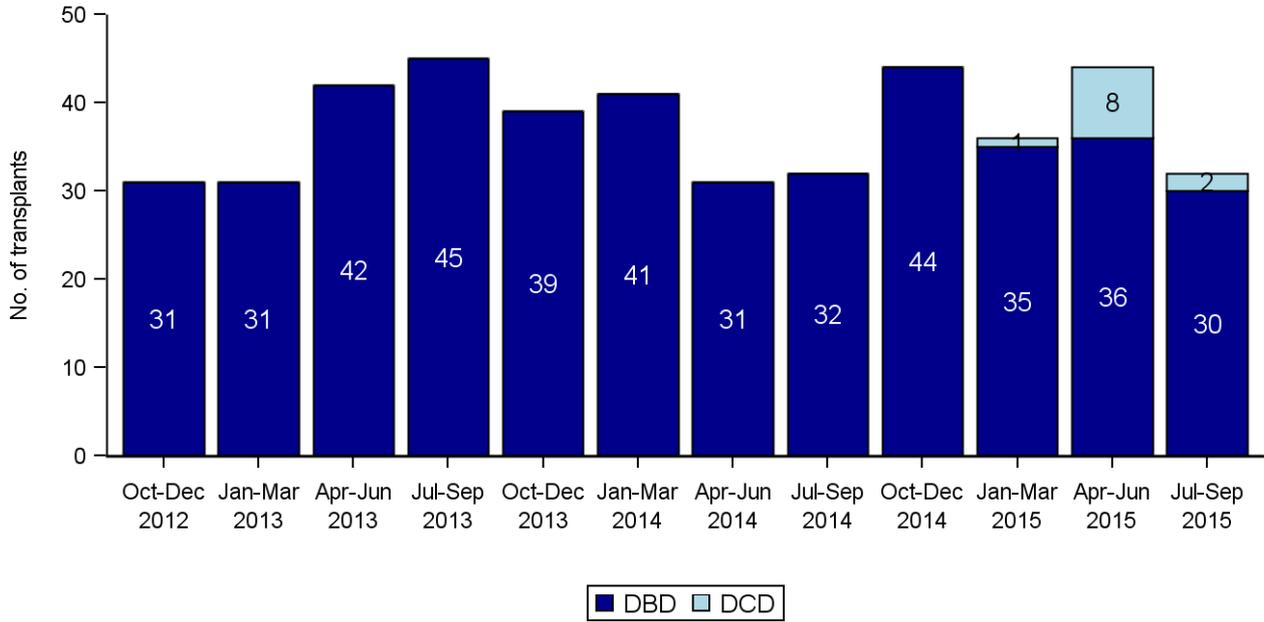
During the 3-year study period 448 adult heart transplants were reported. **Figure 2** shows the adult heart transplant activity by quarter and transplant centre. Heart transplant activity has fluctuated between 31 and 45 per quarter over the 3 year period.

**Figure 3** shows adult heart transplant activity by quarter and donor type and **Figure 4** shows adult heart transplant activity by quarter and urgency status. In the latest quarter, July-September 2015/2016, 88% of transplants performed were urgent.

**Figure 2 Adult heart transplant activity, 1 October 2012 - 30 September 2015, by quarter and transplant centre**



**Figure 3 Adult heart transplant activity, 1 October 2012 - 30 September 2015, by quarter and donor type**



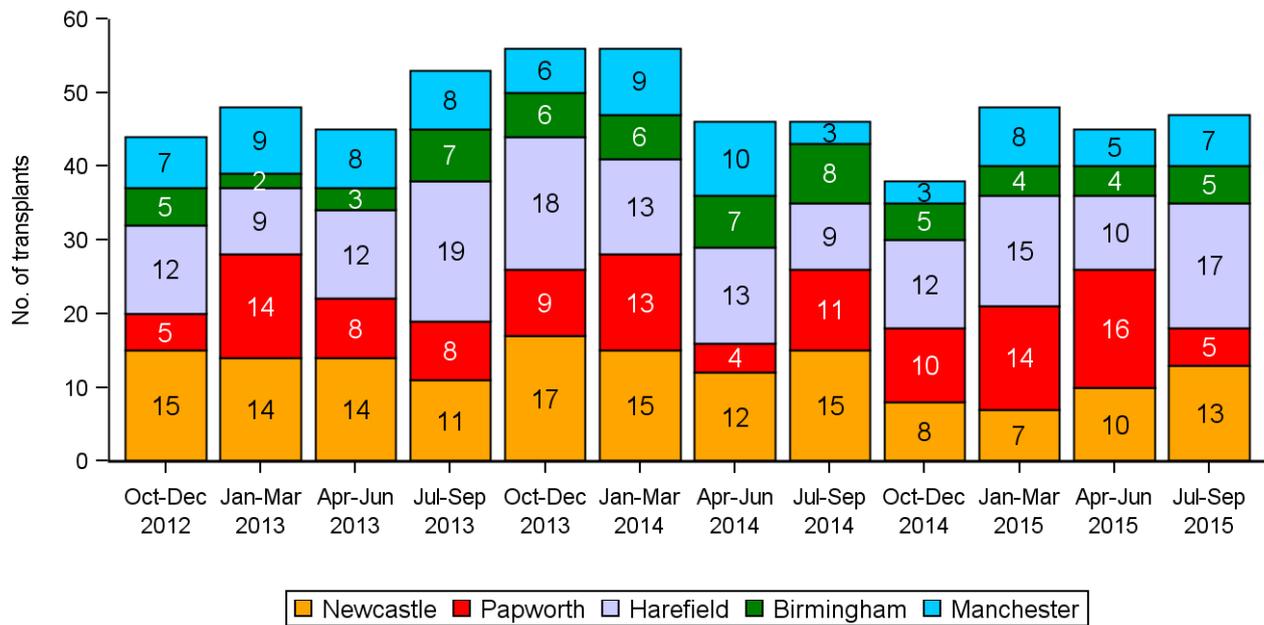
**Figure 4 Adult heart transplant activity, 1 October 2012 - 30 September 2015, by quarter and urgency status**



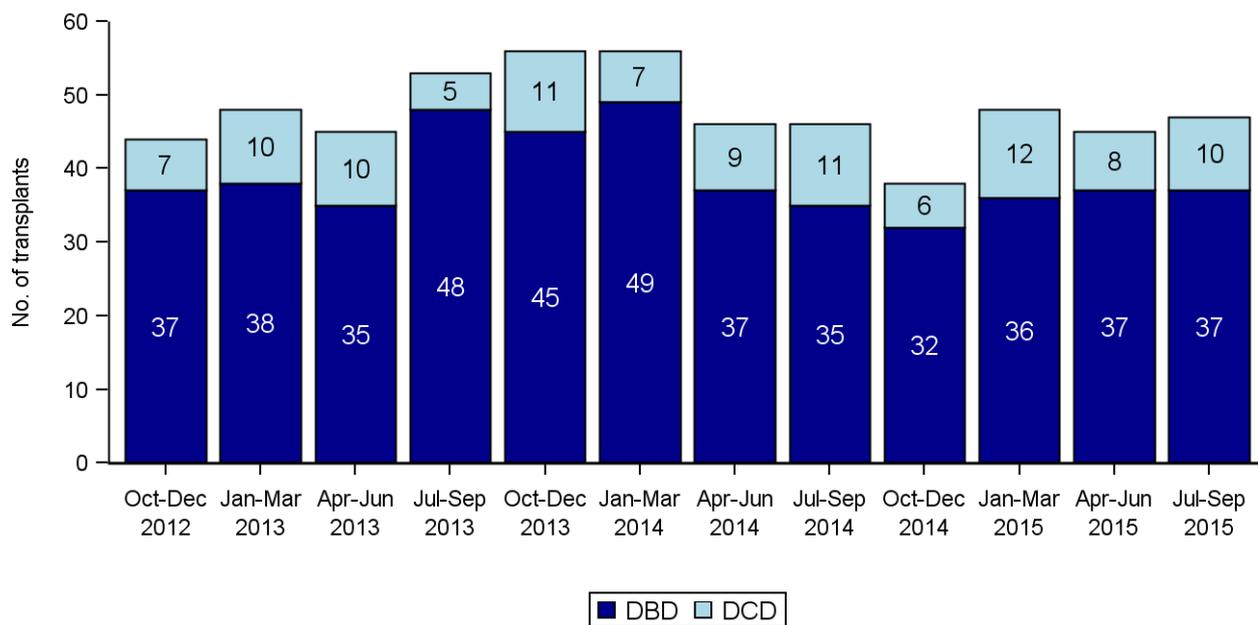
## Adult Lung Transplant Activity

During the 3-year study period 572 adult lung transplants were reported (including heart/lung transplants). **Figure 5** shows the adult lung transplant activity by quarter and transplant centre. Lung transplant activity has been relatively consistent over the 3 year period. **Figure 6** shows adult lung transplant activity by quarter and donor type.

**Figure 5** Adult lung transplant activity, 1 October 2012 - 30 September 2015, by quarter and transplant centre



**Figure 6 Adult lung transplant activity, 1 October 2012 - 30 September 2015, by quarter and donor type**

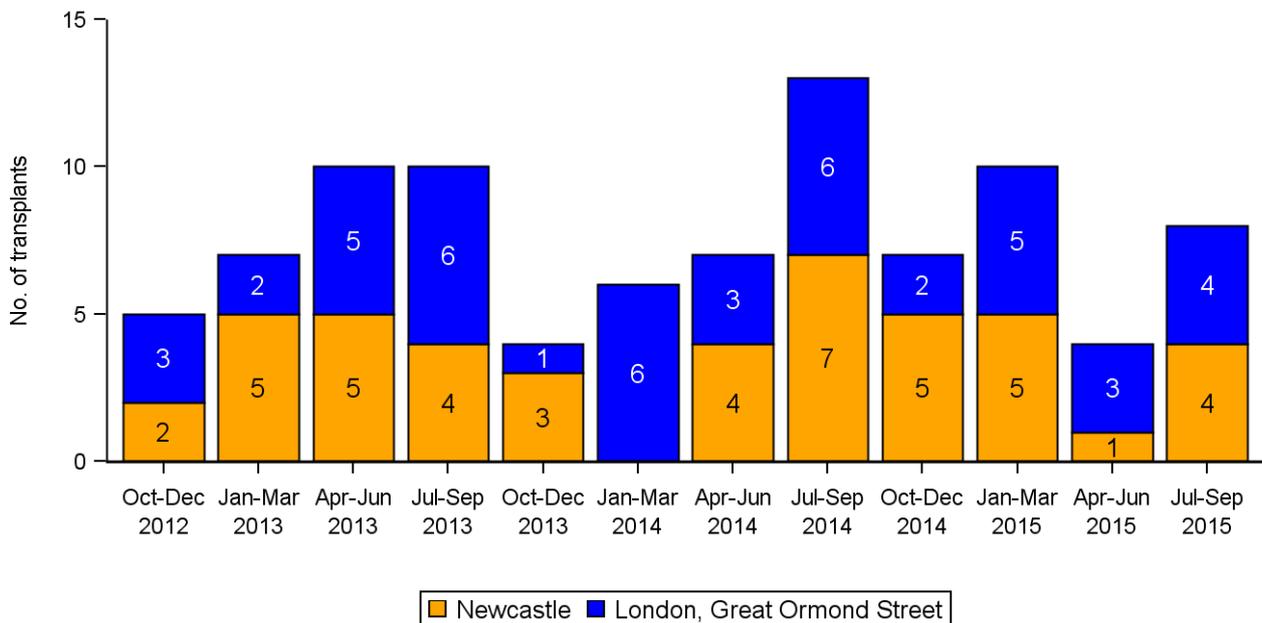


## Paediatric Heart Transplant Activity

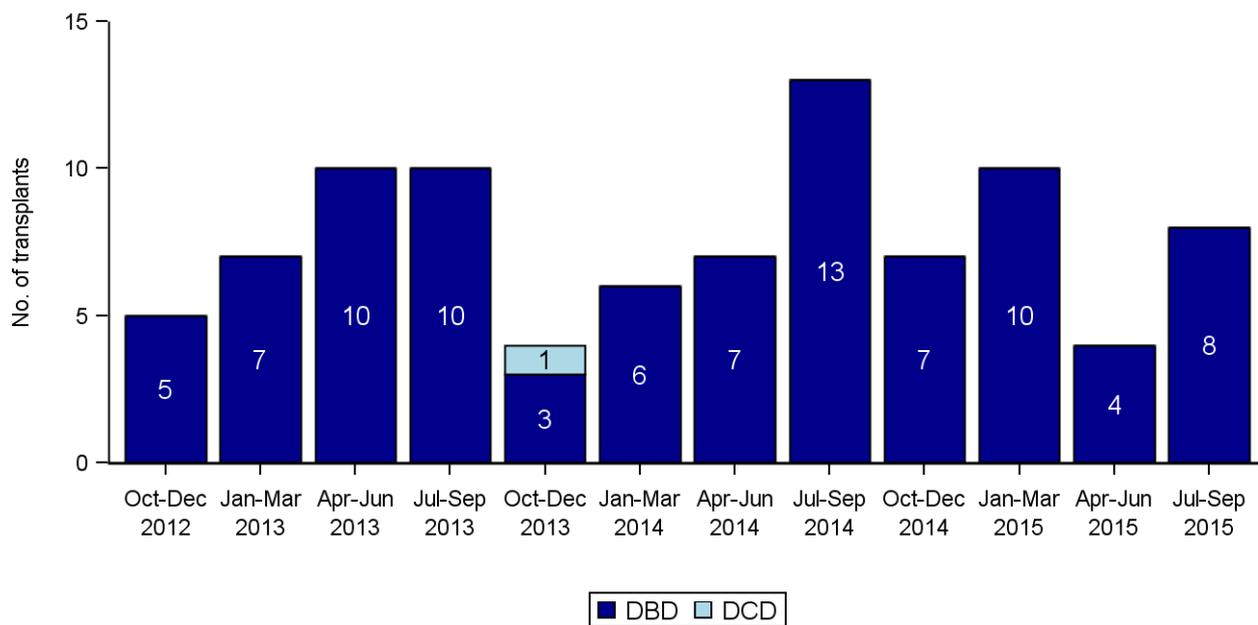
During the 3-year study period 91 paediatric heart transplants were reported. **Figure 7** shows the paediatric heart transplant activity by quarter and transplant centre. Heart transplant activity during the second half of the period was varied with numbers from 4 to 13 per quarter.

**Figure 8** shows paediatric heart transplant activity by quarter and donor type and **Figure 9** shows paediatric heart transplant activity by quarter and urgency status. Most of the patients transplanted in the 3 year period were urgently listed, with only 13 non-urgent transplants in the period.

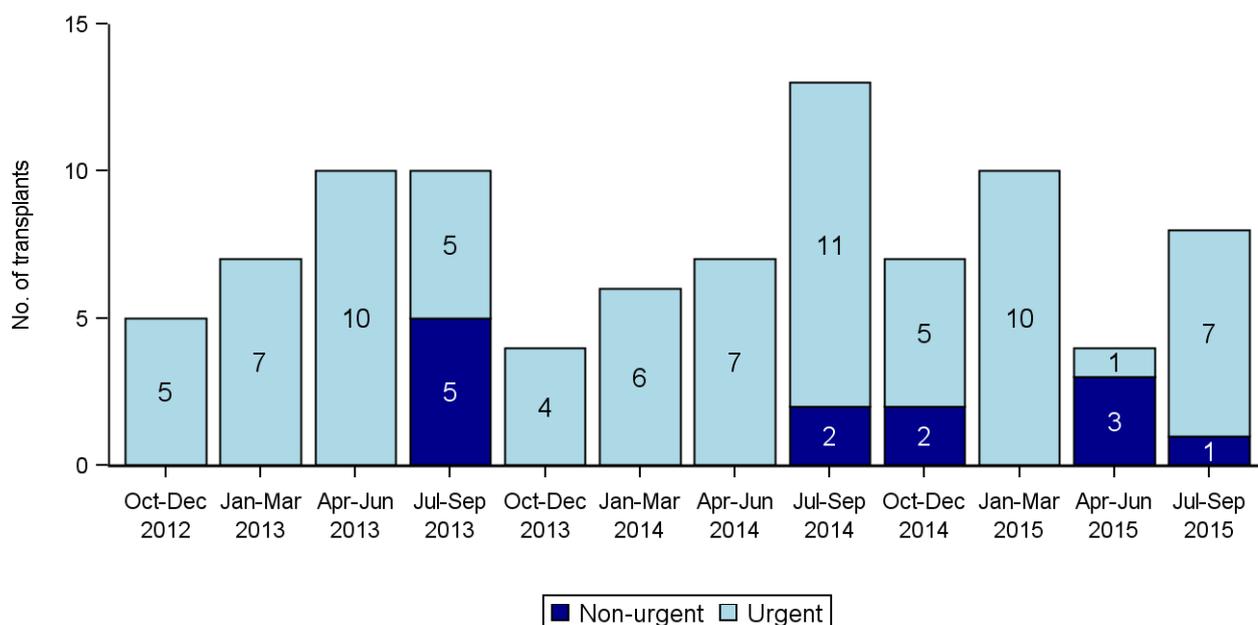
**Figure 7 Paediatric heart transplant activity, 1 October 2012 - 30 September 2015, by quarter and transplant centre**



**Figure 8 Paediatric heart transplant activity, 1 October 2012 - 30 September 2015, by quarter and donor type**



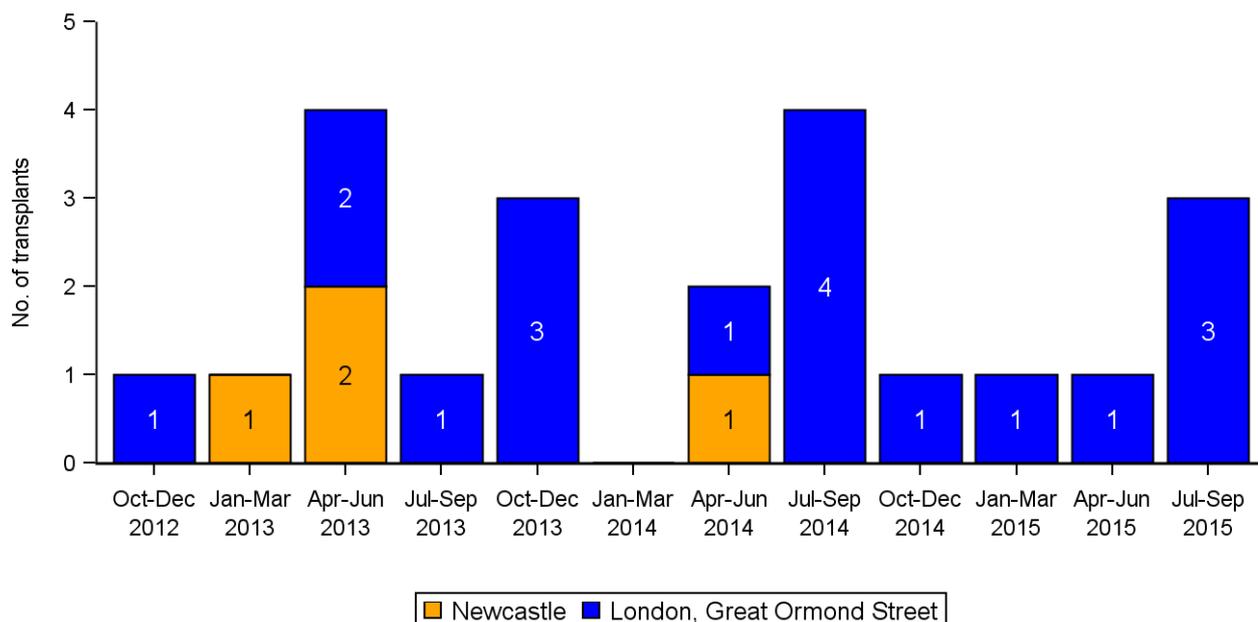
**Figure 9 Paediatric heart transplant activity, 1 October 2012 - 30 September 2015, by quarter and urgency status**



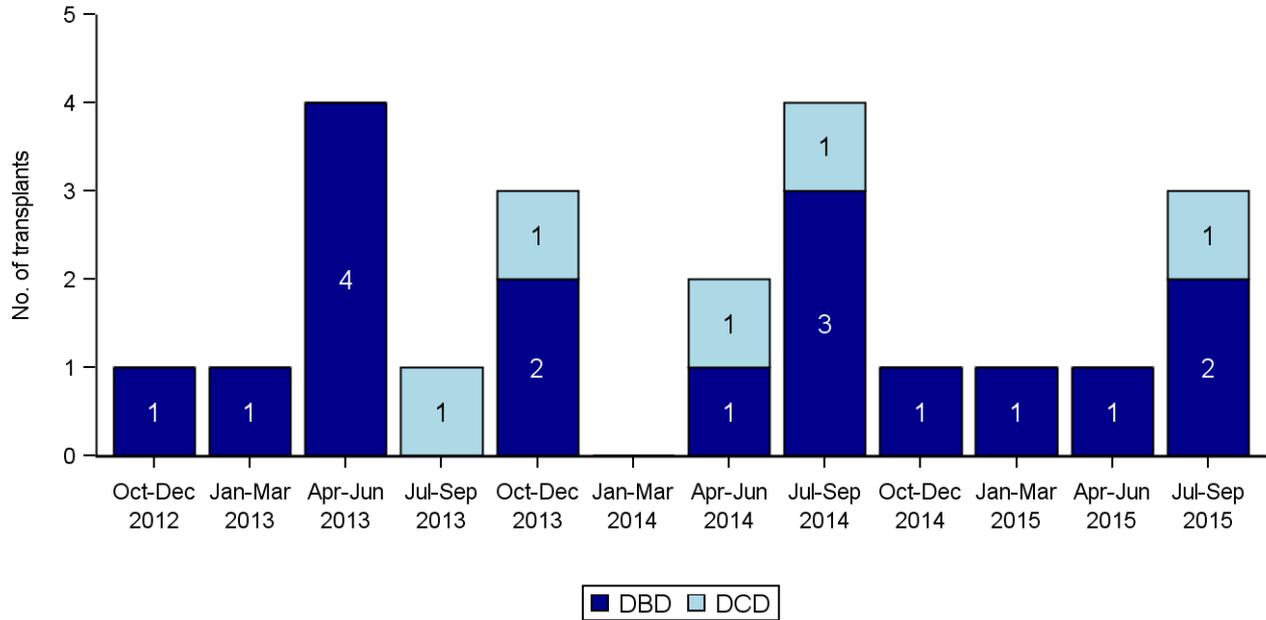
## Paediatric Lung Transplant Activity

During the 3-year study period 22 paediatric lung transplants were reported (including heart/lung and partial lung transplants). **Figure 10** shows the paediatric lung transplant activity by quarter and transplant centre. Lung transplant activity remained generally stable with activity remaining between 0 and 4 transplants per quarter. **Figure 11** shows paediatric lung transplant activity by quarter and donor type.

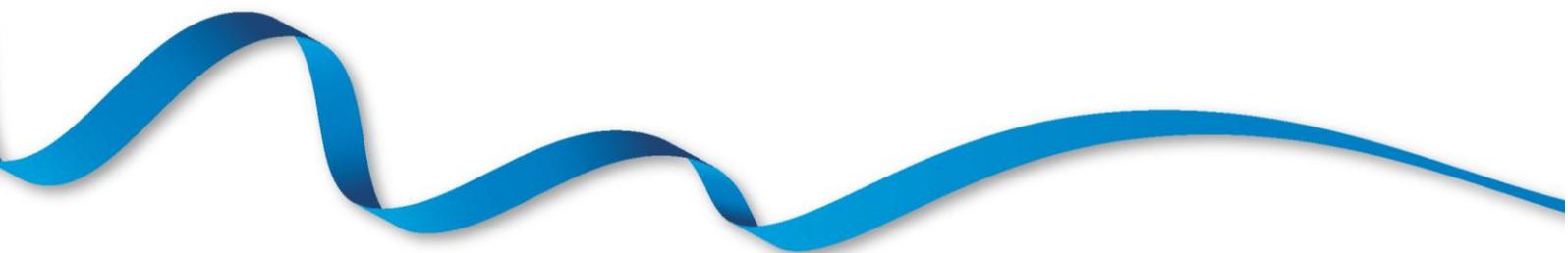
**Figure 10 Paediatric lung transplant activity, 1 October 2012 - 30 September 2015, by quarter and transplant centre**



**Figure 11 Paediatric lung transplant activity, 1 October 2012 - 30 September 2015, by quarter and donor type**



# **Heart Transplantation Adult**

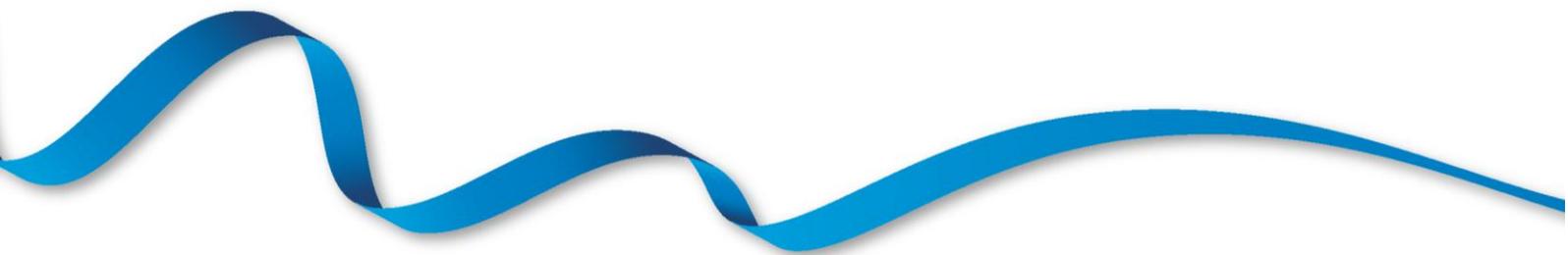


### 30-Day Survival

For the 442 adult first heart-only transplants that were performed between 1 October 2012 and 30 September 2015, survival information was known for all patients and 90.5% were alive 30 days post-transplant. Thirty day unadjusted patient survival for these patients is shown in **Table 1**.

<b>Table 1 Thirty day patient survival for first adult heart transplants, by centre, 1 October 2012 to 30 September 2015</b>				
Centre	Number of transplants	Number of deaths	30 day survival % (95% CI) Unadjusted	
Newcastle	63	11	82.5	(70.7 - 89.9)
Papworth	110	4	96.4	(90.6 - 98.6)
Harefield	74	8	89.2	(79.5 - 94.4)
Birmingham	71	8	88.7	(78.7 - 94.2)
Manchester	84	4	95.2	(87.8 - 98.2)
Glasgow	40	7	82.5	(66.8 - 91.2)
<b>UK</b>	<b>442</b>	<b>42</b>	<b>90.5</b>	<b>(87.4 - 92.9)</b>

# **Lung Transplantation Adult**

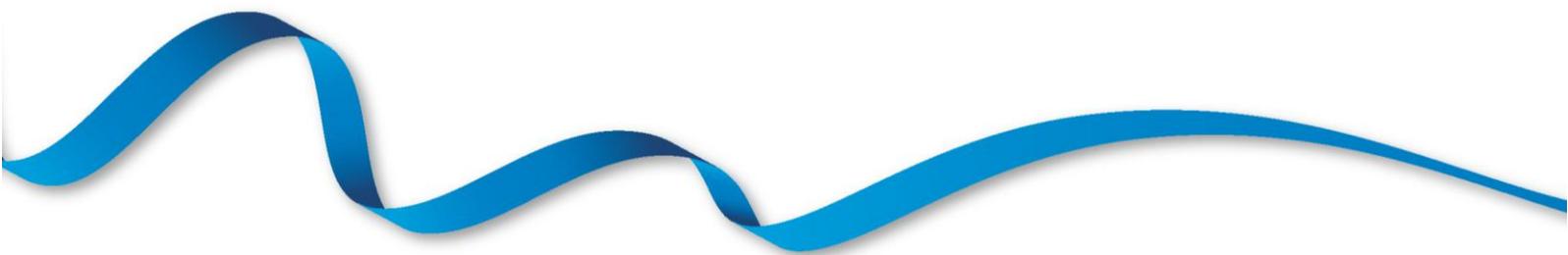


## 90-Day Survival

For the 546 adult first lung-only transplants that were performed between 1 October 2012 and 30 September 2015, survival information was known for 544 patients and of these, 90.6% were alive 90 days post-transplant. Ninety day unadjusted patient survival for these patients is shown in **Table 3**.

<b>Table 3 Ninety day patient survival for first adult lung transplants, by centre, 1 October 2012 to 30 September 2015</b>				
Centre	Number of transplants	Number of deaths	90 day survival % (95% CI) Unadjusted	
Newcastle	146	16	89	(82.6 - 93.1)
Papworth	106	9	91.4	(84.1 - 95.4)
Harefield	150	9	94	(88.7 - 96.8)
Birmingham	60	10	83.3	(71.2 - 90.7)
Manchester	82	7	91.5	(82.9 - 95.8)
<b>UK</b>	<b>544</b>	<b>51</b>	<b>90.6</b>	<b>(87.8 - 92.7)</b>

# **Heart Transplantation Paediatric**

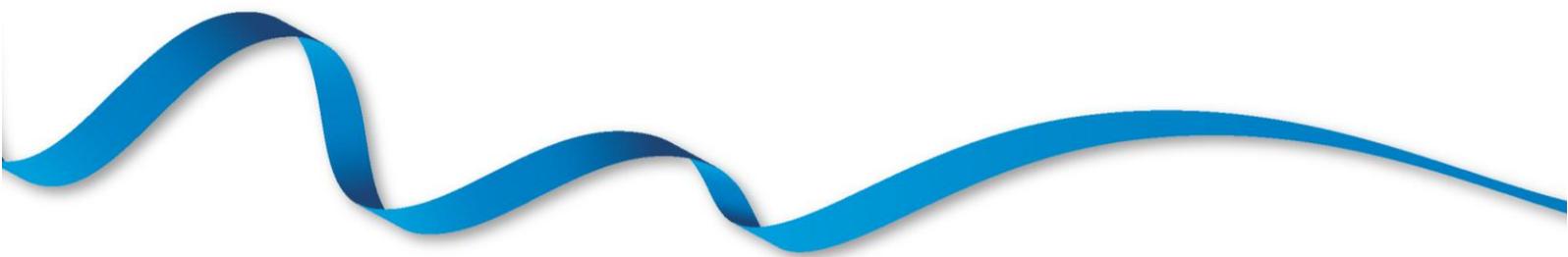


### 30-Day Survival

For the 90 paediatric first heart-only transplants that were performed between 1 October 2012 and 30 September 2015, survival information was known for 89 patients and of these, 96.6% were alive 30 days post-transplant. Thirty day unadjusted patient mortality for these patients is shown in **Table 2**.

<b>Table 2 Thirty day patient survival for first paediatric heart transplants, by centre, 1 October 2012 to 30 September 2015</b>				
Centre	Number of transplants	Number of deaths	30 day survival % (95% CI) Unadjusted	
Newcastle	43	1	97.7	(84.6 - 99.7)
London, Great Ormond Street	46	2	95.7	(83.7 - 98.9)
<b>UK</b>	<b>89</b>	<b>3</b>	<b>96.6</b>	<b>(89.9 - 98.9)</b>

# **Lung Transplantation Paediatric**



## 90-Day Survival

For the 20 paediatric first lung-only transplants that were performed between 1 October 2012 and 30 September 2015, survival information was known for all patients and 95.0% were alive 90 days post-transplant. Ninety day unadjusted patient survival for these patients is shown in **Table 4**. Only 2 of the 20 patients were transplanted at Newcastle and so while these patients are included in the total UK calculation, patient survival estimates are not presented for Newcastle alone.

<b>Table 4 Ninety day patient survival for first paediatric lung transplants, by centre, 1 October 2012 to 30 September 2015</b>				
Centre	Number of transplants	Number of deaths	90 day survival % (95% CI) Unadjusted	
London, Great Ormond Street	18	1	94.4	(66.6 - 99.2)
<b>UK</b>	<b>20</b>	<b>1</b>	<b>94.7</b>	<b>(68.1 - 99.2)</b>

# Appendix



## APPENDIX

### METHODS

#### **Unadjusted mortality rates**

Kaplan-Meier methods were used to estimate the unadjusted 30-day patient mortality for hearts and 90-day patient mortality for lungs. Patients can be included in this method of analysis irrespective of the length of follow-up recorded. If a patient is alive at the end of the follow-up then information about the survival of the patient is censored.

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