

NHS BLOOD AND TRANSPLANT KIDNEY ADVISORY GROUP

CUSUM MONITORING UPDATING EXPECTED MORTALITY AND GRAFT FAILURE RATES

- 1 For CUSUM monitoring to remain informative, expected 30-day mortality and 30-day graft failure rates need to be updated to keep them relevant to current practice.
- 2 Current expected rates are based on centre-specific performance between 1 January 2007 and 31 December 2011 and the revised rates will be based on performance between 1 January 2012 and 31 December 2016. As with current expected rates the calculation to determine the revised rates will give greater weight to the most recent performance. The monitoring period will also be brought forward so that it remains independent of the period used to calculate the baseline rates.
- 3 Current and revised expected mortality and graft failure rates are presented separately by age group and donor type in **Tables 1 to 8**.
- 4 Revised centre-specific mortality and graft failure rates for deceased and living donor adult transplants are consistent with current expected rates and national rates have remained similar (**Tables 1 to 4**).
- 5 With the exception of Bristol, revised centre-specific expected mortality rates for deceased and living donor paediatric transplantation have been set to the default minimum of 1% as there were no paediatric deaths during the updated baseline period. There has been an increase in the revised expected mortality rate for living donor transplantation at Bristol following one patient death during the baseline period (**Table 7**).

SUMMARY

- 6 Expected mortality and graft failure rates have been updated to ensure CUSUM monitoring is relevant to current practice and the revised rates will be incorporated into the next CUSUM reports. Any new historical signals which appear as a result of these amendments will not be investigated retrospectively.

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Table 1 Revised expected 30-day mortality rates for deceased donor adult kidney only transplants based on transplants performed between 1 January 2012 and 31 December 2016

Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2012 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	142	0.2	196	0.1	-0.1
Birmingham	343	1.0	492	0.1	-0.9
Bristol	308	1.5	377	0.6	-0.9
Cambridge	456	1.5	566	0.5	-1.0
Cardiff	339	0.6	323	1.6	1.0
Coventry	96	0.2	138	2.5	2.3
Edinburgh	290	0.3	289	0.1	-0.2
Glasgow	306	0.5	489	0.7	0.2
Guy's	289	0.2	596	0.3	0.1
Leeds	460	1.3	692	0.5	-0.8
Leicester	183	0.8	341	1.5	0.7
Liverpool	274	0.2	331	1.2	1.0
Manchester	463	0.2	749	0.5	0.3
Newcastle	327	0.4	361	0.5	0.1
Nottingham	221	0.8	299	0.1	-0.7
Oxford	325	0.6	462	0.1	-0.5
Plymouth	224	0.2	203	1.2	1.0
Portsmouth	213	1.2	307	0.4	-0.8
Sheffield	191	1.6	231	1.0	-0.6
St George's	205	0.2	411	0.6	0.4
The Royal Free	267	1.4	417	0.9	-0.5
The Royal London	326	2.1	398	0.7	-1.4
WLRTC	365	1.1	488	0.3	-0.8
National	6613	0.8	9156	0.6	-0.2

Table 2 Revised expected 30-day graft failure rates for deceased donor adult kidney only transplants based on transplants performed between 1 January 2012 and 31 December 2016

Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2012 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	145	5.0	201	6.1	1.1
Birmingham	358	7.1	513	6.6	-0.5
Bristol	308	1.9	376	2.3	0.4
Cambridge	464	4.1	572	2.9	-1.2
Cardiff	341	2.5	322	3.0	0.5
Coventry	101	9.4	137	3.0	-6.4
Edinburgh	296	4.7	294	1.6	-3.1
Glasgow	310	3.3	490	2.9	-0.4
Guy's	299	3.6	611	4.2	0.6
Leeds	468	4.2	700	4.1	-0.1
Leicester	188	3.8	346	4.2	0.4
Liverpool	280	3.8	332	3.4	-0.4
Manchester	469	2.5	759	3.7	1.2
Newcastle	330	3.3	364	2.1	-1.2
Nottingham	224	3.3	302	2.4	-0.9
Oxford	328	3.2	465	1.9	-1.3
Plymouth	231	6.2	203	3.8	-2.4
Portsmouth	215	2.5	307	2.0	-0.5
Sheffield	193	2.2	234	3.7	1.5
St George's	206	2.6	420	4.3	1.7
The Royal Free	269	4.7	420	3.0	-1.7
The Royal London	334	7.3	416	6.9	-0.4
WLRTC	375	5.2	493	2.6	-2.6
National	6732	4.1	9277	3.6	-0.5

Table 3 Revised expected 30-day mortality rates for living donor adult kidney only transplants based on transplants performed between 1 January 2012 and 31 December 2016

Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2012 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	102	0.2	291	0.1	-0.1
Birmingham	286	0.2	307	0.1	-0.1
Bristol	180	0.2	183	0.7	0.5
Cambridge	200	0.2	215	1.1	0.9
Cardiff	169	0.2	175	0.8	0.6
Coventry	161	0.2	116	1.2	1.0
Edinburgh	119	0.2	159	0.1	-0.1
Glasgow	129	1.1	191	0.1	-1.0
Guy's	468	0.2	385	0.6	0.4
Leeds	191	0.2	216	0.1	-0.1
Leicester	221	1.6	165	0.1	-1.5
Liverpool	126	0.2	193	0.1	-0.1
Manchester	277	0.6	415	0.1	-0.5
Newcastle	215	1.1	258	0.1	-1.0
Nottingham	76	0.2	68	0.1	-0.1
Oxford	217	0.9	244	0.1	-0.8
Plymouth	77	0.2	86	0.1	-0.1
Portsmouth	87	0.2	125	1.4	1.2
Sheffield	95	0.2	110	1.2	1.0
St George's	236	0.2	230	0.1	-0.1
The Royal Free	166	0.2	177	0.1	-0.1
The Royal London	185	0.7	219	0.1	-0.6
WLRTC	388	0.2	285	0.1	-0.1
National	4371	0.3	4813	0.3	0.0

Table 4 Revised expected 30-day graft failure rates for living donor adult kidney only transplants based on transplants performed between 1 January 2012 and 31 December 2016

Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2012 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	106	3.9	291	0.7	-3.3
Birmingham	294	3.3	312	2.4	-0.9
Bristol	182	2.5	182	0.6	-2.0
Cambridge	200	0.1	217	2.4	2.3
Cardiff	171	2.8	176	3.6	0.8
Coventry	162	2.6	117	1.8	-0.8
Edinburgh	122	2.8	160	0.8	-2.0
Glasgow	131	4.7	193	2.4	-2.3
Guy's	474	2.0	384	1.0	-1.0
Leeds	192	1.2	217	1.9	0.7
Leicester	220	1.4	165	0.5	-0.9
Liverpool	129	3.4	193	0.5	-2.9
Manchester	276	0.2	416	1.9	1.7
Newcastle	214	0.1	260	1.3	1.2
Nottingham	76	2.5	68	2.6	0.1
Oxford	218	2.4	244	1.2	-1.2
Plymouth	80	4.0	86	0.5	-3.5
Portsmouth	87	1.2	124	0.5	-0.7
Sheffield	96	1.7	110	1.5	-0.2
St George's	237	1.2	231	1.1	-0.1
The Royal Free	167	1.4	177	0.7	-0.7
The Royal London	187	2.4	220	2.5	0.1
WLRTC	391	2.1	289	2.1	0.0
National	4412	2.0	4832	1.5	-0.5

Table 5 Revised expected 30-day mortality rates for deceased donor paediatric kidney only transplants based on transplants performed between 1 January 2012 and 31 December 2016					
Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2011 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	12	1.0	15	1.0	0.0
Birmingham	39	1.0	39	1.0	0.0
Bristol	34	1.0	34	1.0	0.0
Glasgow	19	1.0	19	1.0	0.0
GOSH	54	1.0	54	1.0	0.0
Guy's	29	1.0	29	1.0	0.0
Leeds	45	1.0	45	1.0	0.0
Manchester	25	1.0	25	1.0	0.0
Newcastle	9	1.0	9	1.0	0.0
Nottingham	58	1.0	59	1.0	0.0
National	324	1.0	328	1.0	0.0

Table 6 Revised expected 30-day graft failure rates for deceased donor paediatric kidney only transplants based on transplants performed between 1 January 2011 and 31 December 2016					
Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2011 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	12	1.0	4	1.0	0.0
Birmingham	39	1.7	35	1.0	-0.7
Bristol	34	1.0	28	2.8	1.8
Glasgow	19	1.0	16	1.0	0.0
GOSH	55	3.8	41	1.8	-2.0
Guy's	29	1.0	21	1.7	0.7
Leeds	45	2.3	43	3.2	0.9
Manchester	25	1.0	32	3.9	2.9
Newcastle	9	1.0	7	1.0	0.0
Nottingham	59	7.0	42	3.7	-3.3
National	326	2.4	269	2.6	0.2

Table 7 Revised expected 30-day mortality rates for living donor paediatric kidney only transplants based on transplants performed between 1 January 2012 and 31 December 2016					
Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2012 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	8	1.0	8	1.0	0.0
Birmingham	25	1.0	37	1.0	0.0
Bristol	26	1.0	23	6.6	5.6
Glasgow	20	1.0	21	1.0	0.0
GOSH	67	1.0	90	1.0	0.0
Guy's	53	1.0	62	1.0	0.0
Leeds	18	1.0	15	1.0	0.0
Manchester	44	1.0	72	1.0	0.0
Newcastle	12	1.0	20	1.0	0.0
Nottingham	15	4.7	14	1.0	-3.7
National	288	1.0	362	0.4	-0.6

Table 8 Revised graft failure rates for living donor paediatric kidney only transplants based on transplants performed between 1 January 2012 and 31 December 2016					
Transplant centre	Current baseline period (2007 – 2011)		Revised baseline period (2012 – 2016)		Difference in rates
	N	Rate %	N	Rate %	
Belfast	8	0.9	8	1.0	0.1
Birmingham	26	4.9	37	1.0	-3.9
Bristol	27	12.1	22	12.3	0.2
Glasgow	21	14.8	21	1.0	-13.8
GOSH	67	0.9	90	1.0	0.1
Guy's	54	3.0	63	2.1	-0.9
Leeds	18	0.9	15	2.1	1.2
Manchester	45	8.5	72	3.5	-5.0
Newcastle	13	17.2	20	1.0	-16.2
Nottingham	16	8.9	14	8.9	0.0
National	295	5.3	362	2.1	-3.2