

**NHS BLOOD AND TRANSPLANT
ORGAN DONATION AND TRANSPLANTATION DIRECTORATE
NATIONAL RETRIEVAL GROUP**

HEATMAPS OF TEAM MOBILISATION

INTRODUCTION

- 1 The time that NORS teams are mobilised to attend a donor are of interest to determine if there is a pattern over time or between different teams. Heatmaps are a clear way to present how busy teams are according to time of day and also the day of the week.

DATA

- 2 The date and time of team mobilisation (agreed departure time), as recorded on the Retrieval Team Information form, was extracted for all UK donors attended by a NORS team between 1 April 2011 and 31 March 2017. The day of mobilisation as well as the time of day, split into three hour blocks, are shown over time, and for each team.

RESULTS

- 3 **Figure 1** shows the time of mobilisation for all abdominal team attendances over time, this is the time they agreed to leave base. There is a shift over time from late at night/early morning to the period of midnight to 9am. Note that darker shades represent busier times/days.
- 4 **Figure 2** shows the time of mobilisation for abdominal teams overall in the latest three year period. This is broken down by whether or not the donor also donated cardiothoracic organs. The abdominal team are mobilised earlier if the donor is abdominal only. Interestingly more teams are mobilised earlier in the week (Monday/Tuesday) if the donor also has a cardiothoracic team attending.
- 5 **Figure 3** shows the time of mobilisation for the individual abdominal NORS teams. The most frequent mobilisation times are between midnight and 9am, with least activity between 12pm and 9pm.
- 6 **Figure 4** shows the time of mobilisation for the individual cardiothoracic NORS teams. The teams are most often called out between 6am and 9am, as well as other early morning times. Teams are least likely to be called out between 3pm and 9pm.

ACTION

- 7 Members are asked to consider these data and discuss whether any further exploration or analysis is required.

Figure 1 Heatmaps for time of abdominal team mobilisation, 1 April 2011 to 31 March 2017

2011/12 - 2012/13

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	81	53	28	19	11	30	61	99	382
Tuesday	116	66	37	21	13	34	62	120	469
Wednesday	100	75	52	18	6	26	65	97	439
Thursday	107	73	49	16	11	37	65	125	483
Friday	100	61	41	27	14	31	72	101	447
Saturday	96	59	51	17	17	23	47	79	389
Sunday	80	57	36	21	12	10	51	78	345
Total	680	444	294	139	84	191	423	699	2954

2013/14 - 2014/15

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	90	69	57	28	14	20	39	79	396
Tuesday	109	89	72	32	27	36	51	99	515
Wednesday	114	109	74	40	23	23	48	105	536
Thursday	111	81	96	47	18	30	42	85	510
Friday	141	79	79	36	23	26	44	85	513
Saturday	114	91	78	47	20	22	48	74	494
Sunday	80	64	55	34	18	10	38	78	377
Total	759	582	511	264	143	167	310	605	3341

2015/16 - 2016/17

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	74	62	78	43	45	13	23	50	388
Tuesday	74	88	86	65	39	24	22	68	466
Wednesday	99	106	99	63	50	37	33	79	566
Thursday	100	100	106	69	39	36	32	56	538
Friday	90	98	91	62	39	28	29	62	499
Saturday	107	85	99	88	32	19	30	50	510
Sunday	76	54	80	63	29	20	38	61	421
Total	620	593	639	453	273	177	207	426	3388

Figure 2 Heatmaps for time of abdominal team mobilisation, 1 April 2014 to 31 March 2017

Overall

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	116	103	108	57	51	24	43	88	590
Tuesday	121	134	119	87	56	43	44	109	713
Wednesday	158	156	135	79	62	48	55	120	813
Thursday	150	145	159	96	50	49	46	90	785
Friday	152	141	132	86	57	40	52	99	759
Saturday	165	120	144	115	40	32	50	83	749
Sunday	112	84	111	80	38	24	54	97	600
Total	974	883	908	600	354	260	344	686	5009

Overall - cardiothoracic donor

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	28	28	34	17	16	5	11	10	149
Tuesday	22	24	32	29	13	8	10	8	146
Wednesday	19	31	34	18	13	10	8	11	144
Thursday	16	28	30	26	12	7	11	5	135
Friday	28	23	34	17	15	4	4	10	135
Saturday	14	16	34	29	6	4	5	7	115
Sunday	9	17	19	17	13	5	10	18	108
Total	136	167	217	153	88	43	59	69	932

Overall – non cardiothoracic donor

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	88	75	74	40	35	19	32	78	441
Tuesday	99	110	87	58	43	35	34	101	567
Wednesday	139	125	101	61	49	38	47	109	669
Thursday	134	117	129	70	38	42	35	85	650
Friday	124	118	98	69	42	36	48	89	624
Saturday	151	104	110	86	34	28	45	76	634
Sunday	103	67	92	63	25	19	44	79	492
Total	838	716	691	447	266	217	285	617	4077

Figure 3 Heatmaps for time of abdominal team mobilisation, 1 April 2014 to 31 March 2017

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	116	103	108	57	51	24	43	88	590
Tuesday	121	134	119	87	56	43	44	109	713
Wednesday	158	156	135	79	62	48	55	120	813
Thursday	150	145	159	96	50	49	46	90	785
Friday	152	141	132	86	57	40	52	99	759
Saturday	165	120	144	115	40	32	50	83	749
Sunday	112	84	111	80	38	24	54	97	600
Total	974	883	908	600	354	260	344	686	5009

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	13	16	11	6	3	6	8	9	72
Tuesday	10	16	18	11	2	3	6	12	78
Wednesday	23	18	17	5	8	10	12	15	108
Thursday	14	17	15	13	7	6	8	15	95
Friday	20	22	15	10	7	3	8	13	98
Saturday	23	18	22	10	2	1	8	17	101
Sunday	10	9	18	8	4	6	11	10	76
Total	113	116	116	63	33	35	61	91	628

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	13	16	17	3	6	4	8	15	82
Tuesday	14	18	19	15	6	8	5	10	95
Wednesday	29	18	19	13	8	7	4	13	111
Thursday	22	24	21	11	7	10	7	9	111
Friday	20	17	19	13	10	4	10	15	108
Saturday	24	16	22	20	3	7	6	6	104
Sunday	17	11	14	8	7	2	4	13	76
Total	139	120	131	83	47	42	44	81	687

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	9	0	8	2	4	1	4	5	33
Tuesday	10	4	1	1	3	2	2	8	31
Wednesday	5	6	9	4	3	1	4	5	37
Thursday	3	8	7	2	2	2	3	3	30
Friday	4	10	5	4	2	2	2	3	32
Saturday	10	5	5	2	2	2	5	5	36
Sunday	4	7	2	4	2	0	3	4	26
Total	45	40	37	19	18	10	23	33	225

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	6	7	11	7	3	1	3	3	41
Tuesday	7	8	10	15	7	2	2	8	59
Wednesday	7	18	16	8	2	3	3	9	66
Thursday	8	14	13	13	4	6	1	6	65
Friday	17	15	13	7	2	5	2	7	68
Saturday	7	11	11	20	4	4	3	5	65
Sunday	6	5	10	11	1	1	0	0	34
Total	58	78	84	81	23	22	14	38	398

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	29	18	16	11	12	5	5	12	108
Tuesday	26	31	16	13	11	9	6	19	131
Wednesday	37	26	11	12	16	15	10	23	150
Thursday	26	24	25	16	13	11	7	14	136
Friday	22	24	15	15	16	11	8	9	120
Saturday	29	22	24	17	15	5	4	10	126
Sunday	24	15	14	11	13	2	13	13	105
Total	193	160	121	95	96	58	53	100	876

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	17	10	23	5	6	3	6	25	95
Tuesday	20	14	20	11	9	8	12	29	123
Wednesday	21	18	21	11	10	5	9	22	117
Thursday	28	25	25	12	7	8	9	19	133
Friday	22	17	32	10	7	6	11	26	131
Saturday	32	9	21	24	5	6	11	16	124
Sunday	19	13	21	15	2	5	13	27	115
Total	159	106	163	88	46	41	71	164	838

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	17	16	17	7	3	1	2	6	69
Tuesday	9	17	19	10	8	0	5	10	78
Wednesday	12	22	17	13	6	3	2	12	87
Thursday	21	14	27	12	5	1	2	12	94
Friday	21	14	16	11	7	4	1	8	82
Saturday	23	16	17	7	4	6	3	11	87
Sunday	16	9	13	13	3	4	3	8	69
Total	119	108	126	73	36	19	18	67	566

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	10	10	3	6	5	2	2	7	45
Tuesday	12	16	5	4	6	5	0	6	54
Wednesday	13	15	12	7	6	2	7	10	72
Thursday	13	4	20	11	3	2	5	7	65
Friday	13	12	10	10	1	2	4	9	61
Saturday	10	14	13	7	4	0	5	6	59
Sunday	8	10	10	5	2	2	3	16	56
Total	79	81	73	50	27	15	26	61	412

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	2	10	2	10	9	1	5	6	45
Tuesday	13	10	11	7	4	6	6	7	64
Wednesday	11	15	13	6	3	2	4	11	65
Thursday	15	15	6	6	2	3	4	5	56
Friday	13	10	7	6	5	3	6	9	59
Saturday	7	9	9	8	1	1	5	7	47
Sunday	8	5	9	5	4	2	4	6	43
Total	69	74	57	48	28	18	34	51	379

Figure 4 Heatmaps for time of cardiothoracic team mobilisation, 1 April 2014 to 31 March 2017

Overall

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	38	37	52	25	21	9	18	27	227
Tuesday	34	40	52	33	32	10	16	22	239
Wednesday	41	40	48	42	25	19	13	23	251
Thursday	37	35	62	38	22	26	10	16	246
Friday	40	46	48	29	21	15	14	13	226
Saturday	31	33	56	38	15	9	11	19	212
Sunday	25	23	37	37	16	11	14	30	193
Total	246	254	355	242	152	99	96	150	1594

Glasgow

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	1	2	5	1	1	0	0	2	12
Tuesday	0	3	1	3	0	0	1	1	9
Wednesday	0	4	4	5	1	1	0	1	16
Thursday	3	2	5	4	0	1	0	0	15
Friday	0	5	2	2	2	0	0	2	13
Saturday	1	0	2	5	1	0	2	1	12
Sunday	1	2	0	2	3	1	0	0	9
Total	6	18	19	22	8	3	3	7	86

Birmingham

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	8	11	10	2	2	2	8	8	51
Tuesday	7	8	3	7	5	1	5	1	37
Wednesday	13	10	7	5	6	4	3	2	50
Thursday	3	9	11	5	6	3	2	3	42
Friday	13	8	8	4	2	3	2	5	45
Saturday	4	10	11	7	2	1	0	5	40
Sunday	6	6	9	5	3	2	3	6	40
Total	54	62	59	35	26	16	23	30	305

Manchester

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	6	2	11	2	3	1	1	4	30
Tuesday	3	4	16	2	6	1	5	7	44
Wednesday	9	6	10	7	2	1	0	3	38
Thursday	8	7	14	10	2	2	5	2	50
Friday	1	1	15	6	4	2	6	0	35
Saturday	4	1	8	5	1	2	2	4	27
Sunday	2	2	11	3	3	1	2	7	31
Total	33	23	85	35	21	10	21	27	255

Harefield

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	12	16	9	10	2	4	2	5	60
Tuesday	14	10	12	10	5	3	2	8	64
Wednesday	8	6	9	11	8	5	6	10	63
Thursday	11	9	9	9	4	9	1	2	54
Friday	13	13	5	5	4	4	3	3	50
Saturday	9	11	13	9	7	4	2	6	61
Sunday	7	3	9	11	3	0	6	8	47
Total	74	68	66	65	33	29	22	42	399

Papworth

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	6	3	10	6	9	2	7	6	49
Tuesday	6	11	14	2	9	5	1	5	53
Wednesday	9	7	10	10	8	7	2	5	58
Thursday	7	7	15	4	7	9	2	8	59
Friday	9	12	10	7	6	5	3	2	54
Saturday	9	6	13	9	2	0	4	1	44
Sunday	6	6	2	10	3	5	3	6	41
Total	52	52	74	48	44	33	22	33	358

Newcastle

Weekday	Hour								Total
	0-3	3-6	6-9	9-12	12-15	15-18	18-21	21-0	
Monday	5	3	7	4	4	0	0	2	25
Tuesday	4	4	6	9	7	0	2	0	32
Wednesday	2	7	8	4	0	1	2	2	26
Thursday	5	1	8	6	3	2	0	1	26
Friday	4	7	8	5	3	1	0	1	29
Saturday	4	5	9	3	2	2	1	2	28
Sunday	3	4	6	6	1	2	0	3	25
Total	27	31	52	37	20	8	5	11	191