



# Accident & Emergency Performance

## England 2013/14: national and regional data

RESEARCH PAPER 14/22     14 April 2014

How many people attended accident and emergency departments in 2013/14? What was the pattern of A&E attendance across the year? Are different areas of England busier at different times of year? How do NHS trusts compare on key performance metrics such as the number of patients waiting for more than four hours?

In answering these questions, as well as others, this note provides an analysis of the Department of Health's Weekly A&E Data from April 2013 to March 2014.

Carl Baker

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### *Updates to this document*

April 2014: Published for the first time  
June 2014: Updated and corrected section on attendances per 1000 population.  
July 2014: Updated in the light of revised underlying data.



## Key Findings

- There were **21.7 million** attendances at A&E in England in 2013/14, of which **14.2 million** were at major departments. The figure for major departments is 0.3% lower than 2012/13.
- **Greater Manchester** registered the highest number of major A&E attendances per thousand population, at 355, while **Leicestershire & Lincolnshire** registered the lowest, at 166.
- **July was the busiest month** for type 1 A&E attendances in 2013/14, while **January was the quietest month**. The quietest single week is the **final week of December**. Regional variation between these patterns was observed – for instance, **Devon, Cornwall and the Isles of Scilly** registers particularly high attendance relative to the rest of the country in August.
- **Barts Health NHS Trust**, in London, registered the highest total major attendance of any NHS trust in the country. The lowest was registered by **Hinchingbrooke Health Care NHS Trust** in Cambridgeshire.
- Of the 14.2m attendances at major departments, 925,000 – 6.5% – **waited for over four hours** for discharge, admission or transfer. This is a rise on the previous year's figure of 6.2% (889,000).
- The **lowest percentage** of patients waiting for more than four hours at A&E was registered in **West Yorkshire**. The highest percentage was registered in **Leicestershire and Lincolnshire**.
- Nationwide, there was no statistically significant relationship between waiting time performance and the level of attendance at major departments. In two individual areas, there was a statistically significant tendency for **waiting times performance to improve as attendance levels rose**.
- The **best performance for waiting times** figures was registered in **June and July**. The **worst performance** was registered in **April 2013**, at the end of a difficult winter for A&E performance. Winter 2013/14 brought much better performance, with no returns to the lows of the previous winter.
- Those NHS trusts in which all emergency patients attended major A&E departments (rather than walk-in centres or minor injury units) tended to have better waiting time performance.
- **Emergency admissions** via major A&E departments represent 26.7% of total attendances at major departments. The highest percentage was in **Bath, Gloucestershire, Swindon and Wiltshire**, at 30.9%, while the lowest was in **South Yorkshire and Bassetlaw**, at 22.1%.
- In weeks where more patients attended major A&E departments, the **percentage of patients admitted tended to be smaller**.
- In weeks where a greater percentage of patients at major A&E departments were admitted, waiting time performance at major departments **tended to be poorer**.

## I Introduction & Trends

The Department of Health publishes weekly data on accident and emergency attendance and performance. For each NHS trust<sup>1</sup>, the following data is reported:

- Attendance at A&E, by type (see right for definition of A&E types)
- Number and percentage of patients waiting over four hours for treatment
- Numbers of emergency admissions
- Number of emergency admissions waiting for over four hours

### Types of Accident & Emergency Department

**Type 1 ('major A&E departments')**: A consultant led 24 hour service with full resuscitation facilities and designated accommodation for the reception of accident and emergency patients.

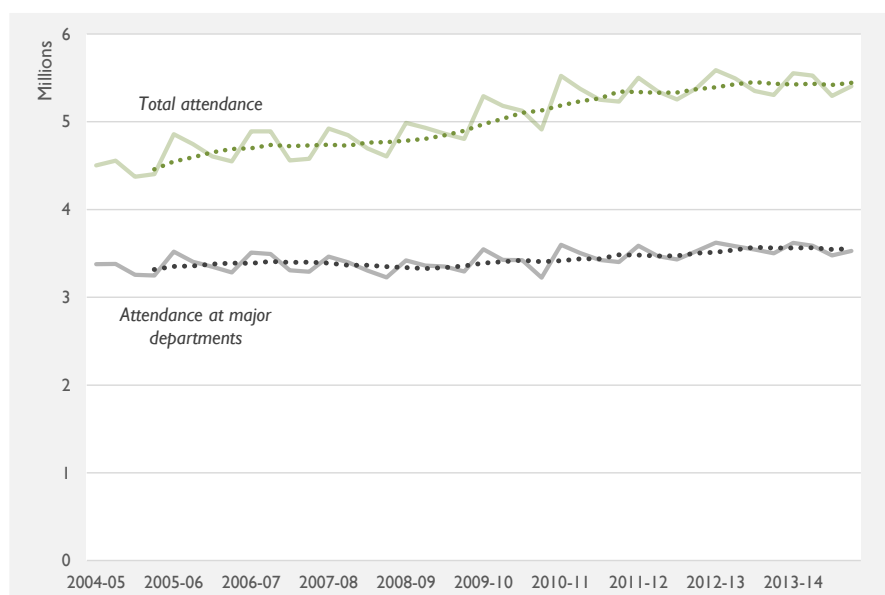
**Type 2**: A consultant led single specialty accident and emergency service (e.g. ophthalmology, dental) with designated accommodation for the reception of patients.

**Type 3**: Other type of A&E/minor injury units / Walk-in Centres, primarily designed for the receiving of accident and emergency patients. A type 3 department may be doctor led or nurse led.

This document analyses the weekly data from 2013/14, i.e. April 2013 to March 2014, mostly focusing on attendance at major (type 1) A&E departments. This introductory section, however, puts the recent data in context by outlining trends in A&E attendance and performance since 2004.

Attendances at major A&E departments has remained relatively static aside from seasonal variation. However, there has been an increase in total attendance. This is most likely due to the introduction of more minor A&E departments such as minor injury units, and an emphasis away from major A&E departments as the first stop for all unplanned medical attendances.

**Chart 1** displays quarterly data for A&E attendances since for total attendances and attendances at type 1 departments, i.e. major A&E departments. This data is compiled from the Department of Health's quarterly time series, which goes back to 2004-05.

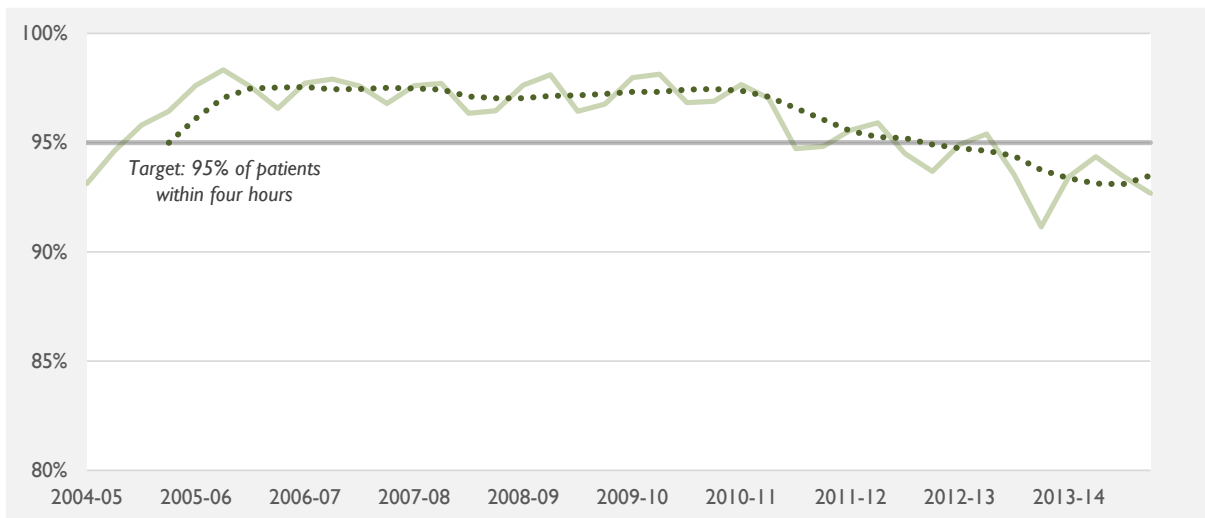


**Chart 1: Accident & Emergency weekly attendance, quarterly data, 2004-2014**  
With four-period moving average

<sup>1</sup> In this document, 'NHS trust' is used as shorthand for both ordinary NHS trusts and NHS foundation trusts.

There were 21.8 million attendances at A&E in 2013-14, of which 14.2 million were at major departments. Total attendance was 56% higher than in 1987-88, the earliest year provided in the Department of Health’s annual time series – and 32% higher than ten years ago. However, attendance at major departments has grown by just 12% since 2003-04 – indicating again that the bulk of the growth in A&E attendance has been at non-traditional units.

**Chart 2** shows quarterly trends since 2004-05 in the percentage of patients at type 1 A&E departments who waited for less than four hours. Performance has declined from 2010-11 onwards. In particular, winter 2012-13 registered particularly poor performance, with some individual weekly returns dipping below 90%. This paper is mostly concerned with the data from April 2013 to March 2014, and we will see later that the low point in April 2013 is not matched at any other time in 2013-14.



**Chart 2: % of type 1 emergency patients seen within 4 hours, quarterly data, 2004-2014**  
*With four-period moving average*

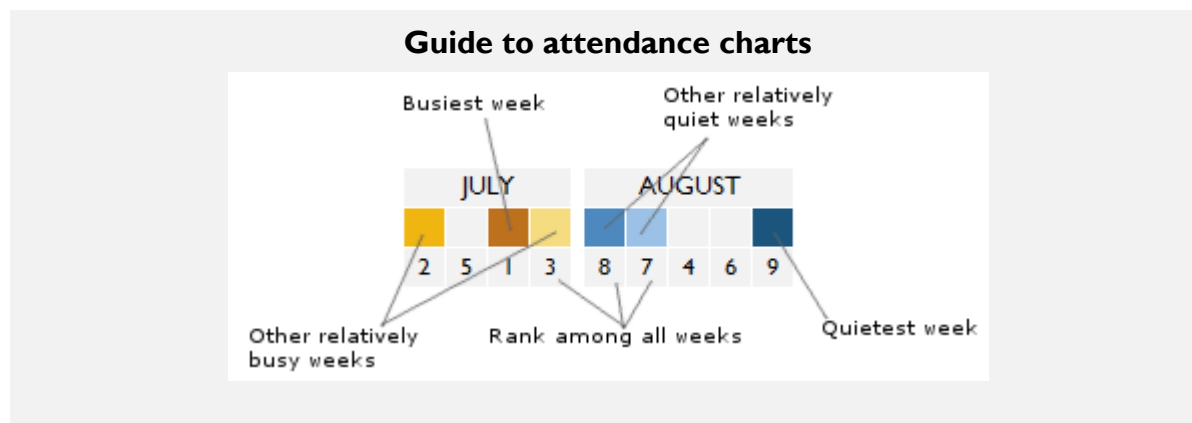
The data for 2013-14, analysed in this document, is given at the level of NHS trusts. NHS trusts are grouped into 25 area teams. The following table shows the number of NHS trusts in each area team which reported at least six months of data from major A&E departments. Note that an NHS trust can represent more than one major A&E department, although this is not true in all cases.

Area Team	Number of NHS Trusts
London	22
<b>SOUTH OF ENGLAND</b>	
Bath, Gloucestershire, Swindon & Wiltshire	4
Bristol, N Somerset, Somerset & S Gloucs	5
Devon, Cornwall And Isles Of Scilly	5
Kent & Medway	4
Surrey & Sussex	7
Thames Valley	4
Wessex	7
<b>NORTH OF ENGLAND</b>	
Cheshire, Warrington & Wirral	5
Cumbria, Northumberland, Tyne & Wear	7
Durham, Darlington & Tees	3
Greater Manchester	8
Lancashire	3
Merseyside	5
North Yorkshire & the Humber	4
South Yorkshire & Bassetlaw	5
West Yorkshire	5
<b>MIDLANDS &amp; EAST OF ENGLAND</b>	
Arden, Herefordshire & Worcestershire	5
Birmingham & the Black Country	7
Derbyshire & Nottinghamshire	4
East Anglia	8
Essex	5
Hertfordshire & the South Midlands	7
Leicestershire & Lincolnshire	2
Shropshire & Staffordshire	4

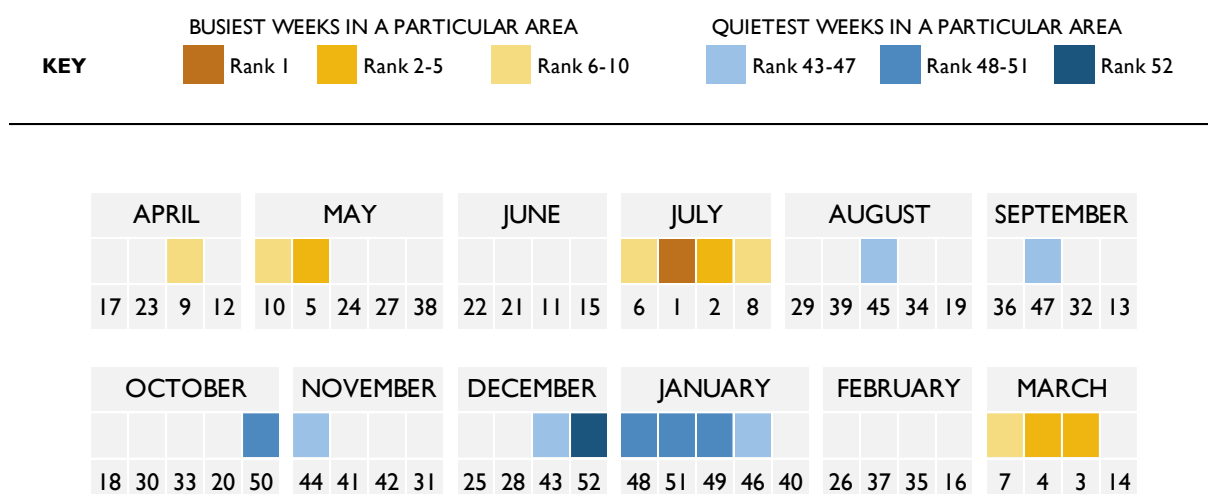
## 2 Attendance 2013/14

### 2.1 Overall

Total attendance at Accident and Emergency in 2013/14 was almost 21.8 million. This was a rise of 40,000, or 0.2%, on 2012-13. Of these attendances, 14.2 million were at major A&E departments – a fall of 0.3% on the previous year for the equivalent figure. Attendances at major departments represented 65% of the total attendance figures.



The table below shows, at a national level, which weeks were the busiest for attendance at major (type 1) departments. Each square represents a week. Brown and yellow squares represent the busiest ten weeks, and blue squares represent the quietest ten weeks, with darker shading representing higher/lower attendance respectively. The numbers below coloured boxes above represent the rank of that week in terms of overall attendance; e.g. the first week of October was the 18<sup>th</sup> busiest overall.



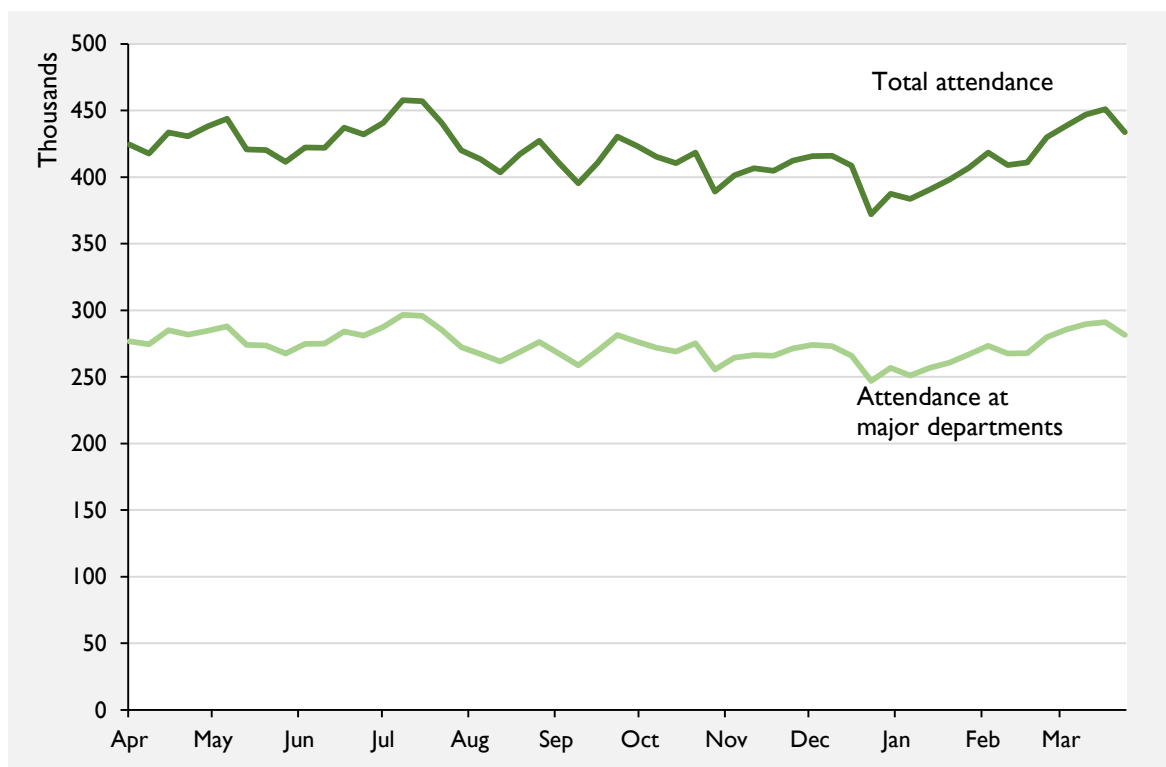
**Chart 3: Busiest and quietest weeks at major A&E departments**  
*Number represents rank of that week among all weeks*

The busiest months for major A&E departments were July 2013 (an average of 291,000 per week at major departments) and March 2014 (287,000 per week). The busiest week was the week ending 14<sup>th</sup> July. 297,000 attended major departments that week – 8% above the weekly average of 273,000. The quietest month was January, with an average of 258,000



attendances per week – 33,000 fewer attendances at major departments per week than July. Meanwhile, the quietest single week was the week ending December 29<sup>th</sup>, with 247,000 attendances at major departments – 10% below the weekly average.

**Chart 4** (below) shows overall patterns of both total attendance and attendance at major (type 1) departments throughout 2013/14. The patterns of attendance at major departments show no statistically significant divergences from the weekly attendance pattern at all departments.



**Chart 4: Weekly variation in total/type I attendances, thousands, 2013-2014**

## 2.2 Which weeks are the busiest at A&E?

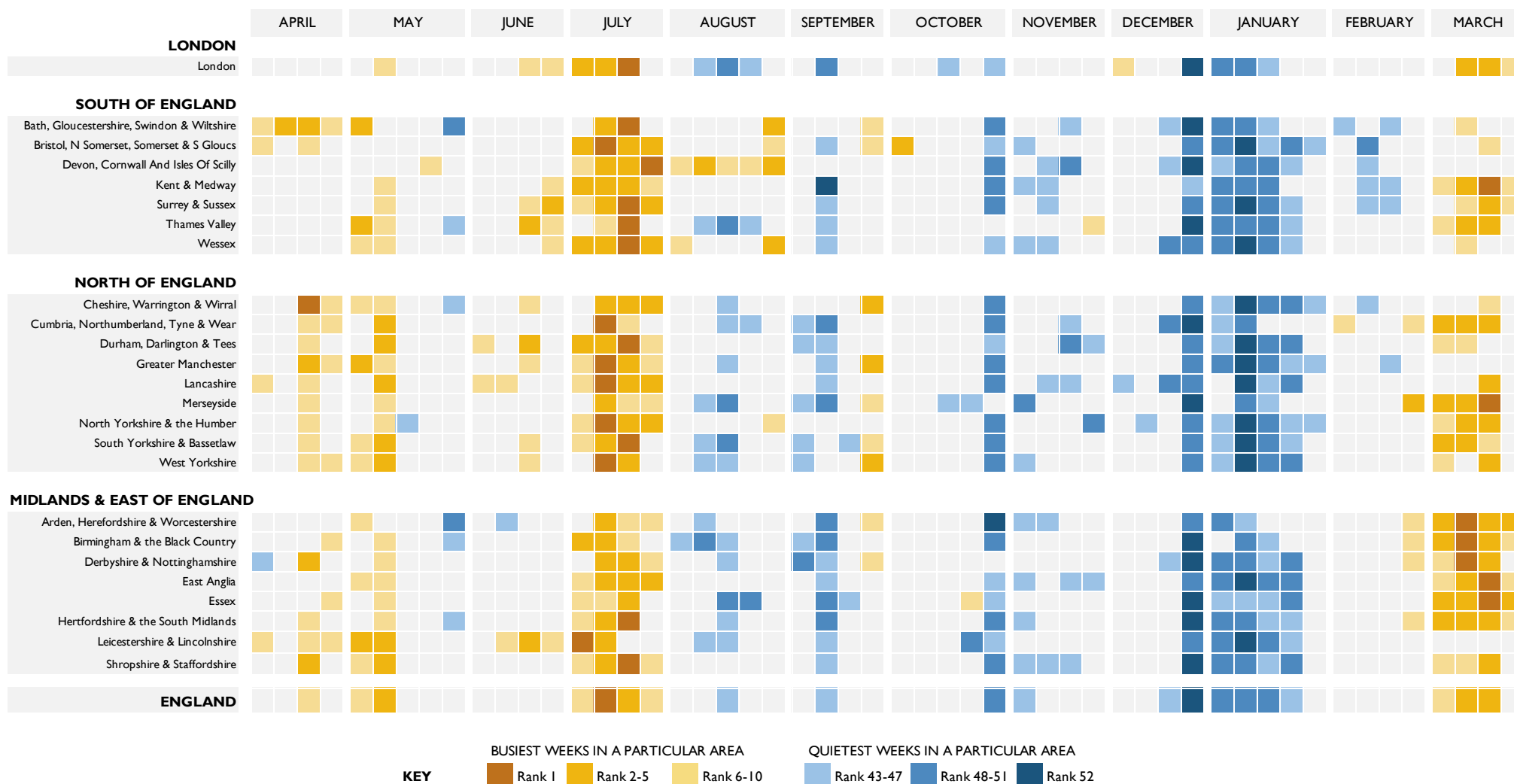
The table on the following page shows how attendance at major A&E departments varies from week to week. Each square represents a week in a particular area team – a group of NHS trusts. The orange squares represent weeks in which the healthcare providers in that particular area were busier than normal, i.e. had high levels of attendance, whereas the brown squares represent weeks in which there were fewer attendees at A&E in a particular area. Note that in this table, the weekly values of (e.g.) London area team are only compared with other values registered by the same area. In terms of raw numbers, the quietest week in London still represents a much higher attendance than even the busiest week in any other area. Similarly, the busiest week in Essex represents fewer attendees than the busiest week in Surrey & Sussex. This table is designed to show patterns of attendance between *weeks*, not between *departments*.

### Analysis

The level of similarity between almost all areas is, in the first instance, very striking. Most areas experienced their busiest single week in July 2013, with two other notable busy periods in late April/early May 2013 and March 2014. All areas experience a dip in attendance from late December to mid-January. Furthermore, many areas experience one of their quietest five weeks in the last week of October, despite neither the previous nor the next week being especially quiet in most of those areas.

However, differences between areas also reveal themselves under closer examination. Devon, Cornwall & the Isles of Scilly register a busy period in August, whereas almost no other area does – in fact, London, Merseyside and Thames Valley, South Yorkshire and Essex all registered one of their five quietest weeks of the year in August. The third week of April is busier, relatively speaking, in the North of England than in the South. Early March 2014 was especially busy in the Midlands and East, and to some degree in the North, but not – at least to the same degree – in some parts of the South.

### Weekly data, highest and lowest attendances per area team



## Variance

The busiest week – July 8-14 – was 20% busier in terms of attendance at major departments than the quietest week, 23-29 December. In almost all areas, the busiest individual week had between 18% and 24% higher attendance than the quietest week. Two exceptions were Devon, Cornwall & the Isles of Scilly and Leicestershire & Lincolnshire, in which the figures were 33% and 36% respectively. The overall variance (i.e. the coefficient of variation) among weekly data is 4%. This is the standard deviation from the mean in any given week given as a percentage. In almost all areas, the variance was between 3.7% and 4.7%. Two notable exceptions are Devon, Cornwall & the Isles of Scilly, and Leicestershire & Lincolnshire, both of which registered variance of over 7%.

What might explain higher variance in these areas? In the case of Devon & Cornwall, it is plausible that the variance is accounted for by its unusual August spike in attendance. In the case of Leicestershire and Lincolnshire the cause is less clear, but it is worth noting that this area team consists of only two NHS trusts with major A&E departments – and given the smaller number of data points, greater than average variance is to be expected.

## 2.3 Which areas are the busiest for A&E attendance at major departments?

In terms of raw numbers, it is no surprise that London (2.7 million) is the busiest area for A&E attendance, followed by Greater Manchester (964,000) and Birmingham & the Black Country (831,000). The lowest attendances in raw terms were registered by Leicestershire & Lincolnshire (288,000), Lancashire (307,000), and Bath, Gloucestershire, Swindon & Wiltshire (309,000).

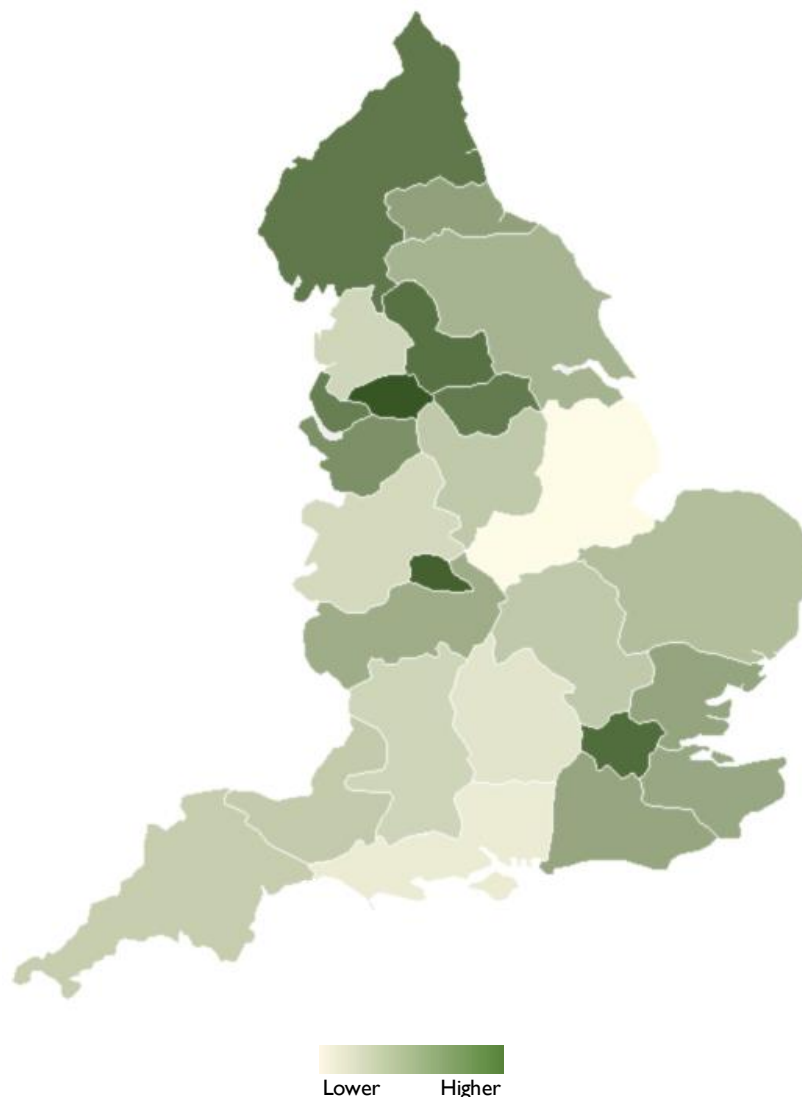
A more interesting measure is given in terms of attendance at type 1 A&E departments in relation to population size. The following table and map displays the figures per 1,000 population:

**Major A&E dept attendances per 1,000 population**

1	Greater Manchester	355
2	Birmingham & the Black Country	343
3	London	331
4	West Yorkshire	323
5	Cumbria, Northumberland, Tyne & Wear	317
6	South Yorkshire & Bassetlaw	313
7	Merseyside	309
8	Cheshire, Warrington & Wirral	289
9	Durham, Darlington & Tees	270
10	Essex	266
11	Surrey & Sussex	265
12	Kent & Medway	262
13	Arden, Herefordshire & Worcestershire	256
14	North Yorkshire & the Humber	249
15	East Anglia	238
16	Derbyshire & Nottinghamshire	225
17	Hertfordshire & the South Midlands	225
18	Bristol, N Somerset, Somerset & S Gloucs	223
19	Devon, Cornwall And Isles Of Scilly	219
20	Bath, Gloucestershire, Swindon & Wiltshire	211
21	Lancashire	210
22	Shropshire & Staffordshire	206
23	Thames Valley	193
24	Wessex	185
25	Leicestershire & Lincolnshire	166

The population data used in calculating this table is taken from the ONS 2011 mid-year estimates of population for CCGs and area teams<sup>2</sup>. Given population changes, small differences in the figures on population-relative attendance should not be seen as significant. Remember also that the fact that a patient attends a hospital in a particular area does not necessarily mean that they live in that area; so some of the above figures may reflect cross-border flows in health traffic.

It may be notable that the top three regions by this measure are all areas in which the workday population of the main settlement is higher than the resident population. The figures above are calculated using resident population estimates, but given that some A&E attendances will occur during the workday, some of the variation above may be attributable to differences between workday and resident population<sup>3</sup>.



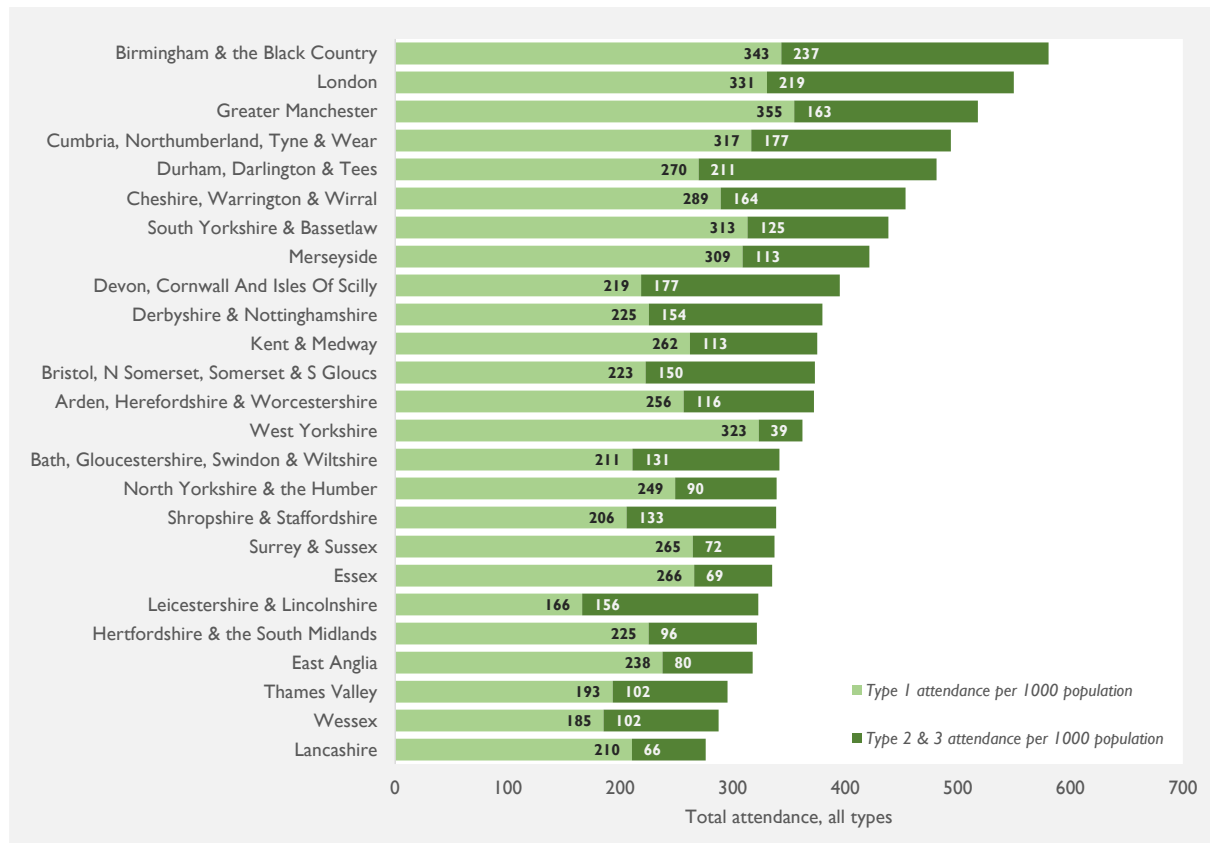
**Chart 5: A&E attendance at major departments per head of population**

Of course, these figures represent only those patients attending major (type 1) A&E units. One might wonder whether some of the differences described above may be due to varying

<sup>2</sup> <http://www.ons.gov.uk/ons/rel/sape/clinical-commissioning-group-population-estimates/mid-2011--census-based/stb---clinical-commissioning-groups---mid-2011.html>

<sup>3</sup> Hospital Episode Statistics for 2012-13 show that 58% of arrivals at A&E were between 9am and 5pm (inclusive).

provision of minor A&E services – e.g. walk-in centres and minor injury units – which take the strain from major departments. **Chart 6** (below) displays total A&E attendance per region, broken down into type 1 attendance (major departments) and type 2/3 attendance (other departments):



**Chart 6: Population-relative A&E attendance per region broken down by type**

The chart shows that there is some variation between regions in the proportion of A&E attendance accounted for by major departments. At the extremes, West Yorkshire’s type 1 attendance accounts for 89% of the total – whereas Leicestershire and Lincolnshire’s major departments account for only 51% of total attendance.

Later, in section 3.6, we will see that the type of department contained in certain NHS trusts may be related to waiting times performance.

## 2.4 NHS Trusts

The following table displays the highest and lowest attendances by NHS trust. Seven of the top 20 trusts for attendance at major departments were in the London area. Note that not all NHS trusts represent the same number of A&E departments, so in some cases these figures reflect variation in the number of institutions rather their size and attendance levels.

<b>Highest</b>		<b>TI attendan</b>	<b>Per day</b>	<b>Area team</b>
1	Barts Health NHS Trust	297,333	815	London
2	Pennine Acute Hospitals NHS Trust	247,690	679	Gr. Manchester
3	Heart Of England NHS Foundation Trust	236,897	649	Birmingham
4	Mid Yorkshire Hospitals NHS Trust	216,728	594	West Yorkshire
5	Barking, Havering And Redbridge University Hospitals NHS	200,240	549	London
6	Leeds Teaching Hospitals NHS Trust	197,690	542	West Yorkshire
7	King's College Hospital NHS Foundation Trust	171,121	469	London
8	Central Manchester University Hospitals NHS Foundation	168,639	462	Gr. Manchester
9	Nottingham University Hospitals NHS Trust	161,015	441	Derbyshire/Notts
10	Lewisham Healthcare NHS Trust	160,099	439	London
11	United Lincolnshire Hospitals NHS Trust	155,094	425	Leicestershire/Lincolnshire
12	Sandwell And West Birmingham Hospitals NHS Trust	148,374	407	Birmingham
13	North Middlesex University Hospital NHS Trust	145,520	399	London
14	Barnet And Chase Farm Hospitals NHS Trust	142,390	390	London
15	East Kent Hospitals University NHS Foundation Trust	141,285	387	Kent/Medway
16	Northumbria Healthcare NHS Foundation Trust	140,737	386	Cumb/Northum/Tyne & W
17	Calderdale And Huddersfield NHS Foundation Trust	138,799	380	West Yorkshire
18	Brighton And Sussex University Hospitals NHS Trust	138,541	380	Surrey/Sussex
19	Doncaster And Bassetlaw Hospitals NHS Foundation Trust	136,902	375	South Yorkshire
20	Guy's And St Thomas' NHS Foundation Trust	136,360	374	London

<b>Lowest</b>		<b>Attendance</b>	<b>Per day</b>	<b>Area team</b>
1	Hinchingbrooke Health Care NHS Trust	38,813	106	East Anglia
2	Isle Of Wight NHS Trust	39,610	109	Wessex
3	Northern Devon Healthcare NHS Trust	39,715	109	Devon/Cornwall
4	Dorset County Hospital NHS Foundation Trust	40,669	111	Wessex
5	Ealing Hospital NHS Trust	42,218	116	London
6	Salisbury NHS Foundation Trust	43,057	118	Bath/Gloucs/Wiltshire
7	Harrogate And District NHS Foundation Trust	44,967	123	North Yorkshire/Humber
8	Southport And Ormskirk Hospital NHS Trust	45,222	124	Merseyside
9	Yeovil District Hospital NHS Foundation Trust	45,388	124	Bristol/Somerset/S Gloucs
10	Mid Staffordshire NHS Foundation Trust	46,761	128	Shropshire/Staffordshire
11	East Cheshire NHS Trust	47,599	130	Cheshire/Warrington/Wirral
12	Wye Valley NHS Trust	49,311	135	Arden/Hereford/Worcester
13	Weston Area Health NHS Trust	49,995	137	Bristol/Somerset/S Gloucs
14	Birmingham Children's Hospital NHS Foundation Trust	50,259	138	Birmingham
15	Sheffield Children's NHS Foundation Trust	50,904	139	South Yorkshire
16	Airedale NHS Foundation Trust	53,206	146	West Yorkshire
17	The Queen Elizabeth Hospital, King's Lynn, NHS Foundation	53,467	146	East Anglia
18	Alder Hey Children's NHS Foundation Trust	56,120	154	Merseyside
19	Taunton And Somerset NHS Foundation Trust	56,221	154	Bristol/Somerset/S Gloucs
20	South Warwickshire NHS Foundation Trust	56,224	154	Arden/Hereford/Worcester

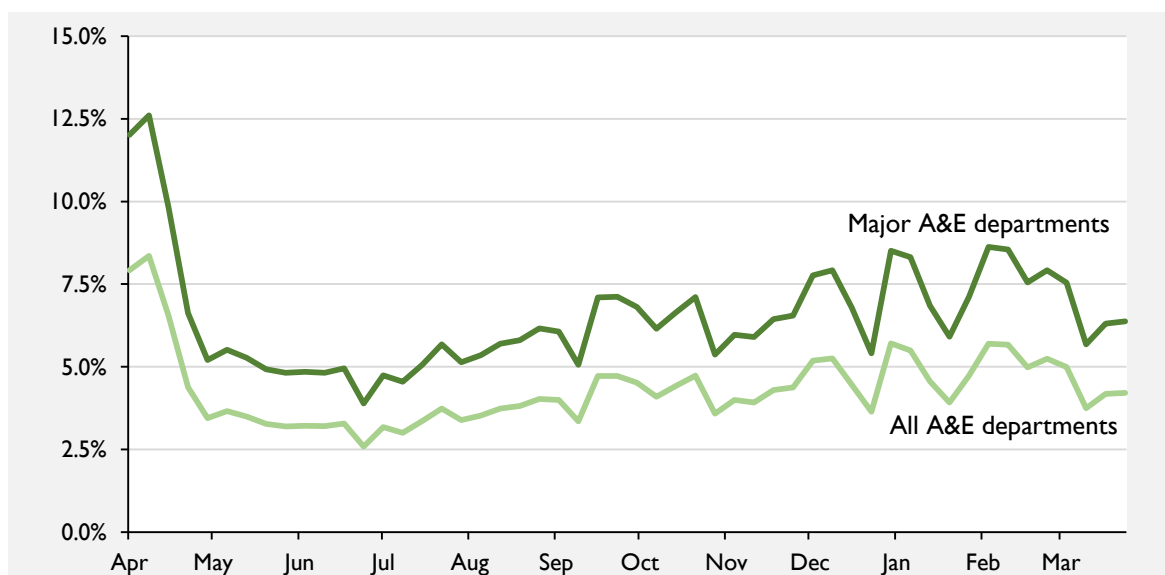
### 3 Waiting Times, 2013-14

The key measure of A&E waiting times is the proportion of patients who waited for over four hours at type 1 departments. This measure is defined as follows:

The clock starts from the time that the patient arrives in A&E and stops when the patient leaves the department on admission, transfer from the hospital or discharge.<sup>4</sup>

In ambulance cases, the arrival time is when hand over occurs or 15 minutes after the ambulance arrives at A&E – whichever is earlier. The NHS has an ‘operational standard’ of **95% of patients being seen within 4 hours**. This standard is measured via aggregated quarterly data, rather than weekly data, for all A&E departments.

Overall, 6.5% of patients waited for over four hours in major A&E departments in 2013/14. This represents a rise on the previous year’s figure of 6.2%. The following chart tracks the weekly proportion of patients waiting four hours or more across England.



**Chart 7: Percentage of patients waiting over 4 hours at A&E departments, 2013/14**  
Weekly data

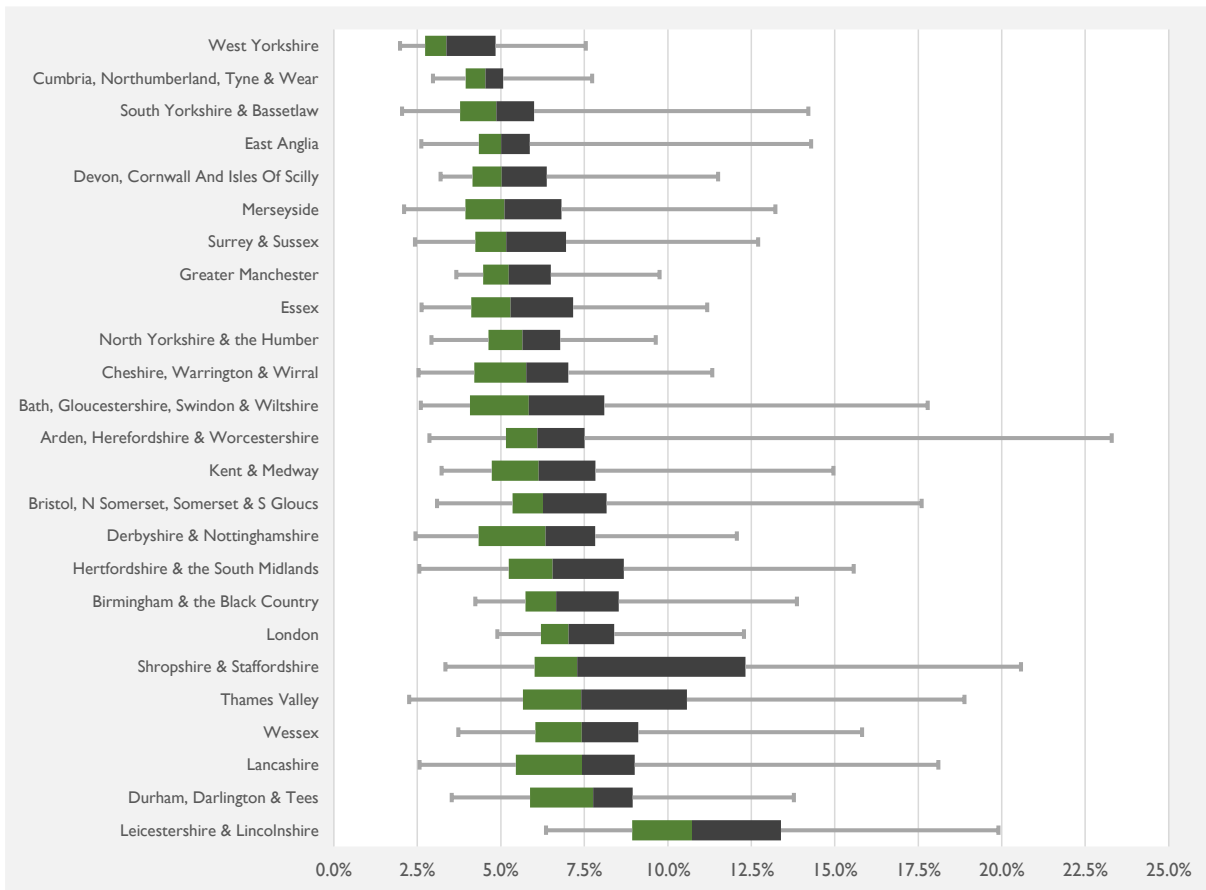
Once again, the left-most end of this chart shows the end of a difficult winter 2012/13 for A&E departments in which the proportion of patients waiting for over 4 hours was very high. As the chart shows, while waits rose again in winter 2013/14, we did not see a return to the high levels of the previous winter.

#### 3.1 Which areas registered the best performance for waiting times?

**Chart 8** (below) shows how different areas performed in terms of waiting times. An explanation follows below the chart.

<sup>4</sup> <http://www.england.nhs.uk/statistics/wp-content/uploads/sites/2/2013/03/AE-Guidance3.doc>

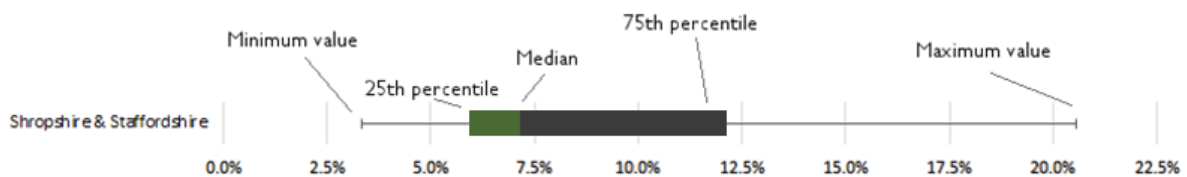




**Chart 8: Variation in the percentage of patients waiting over four hours per area team**

**Chart Explanation**

The key below gives a guide to how to read this chart.



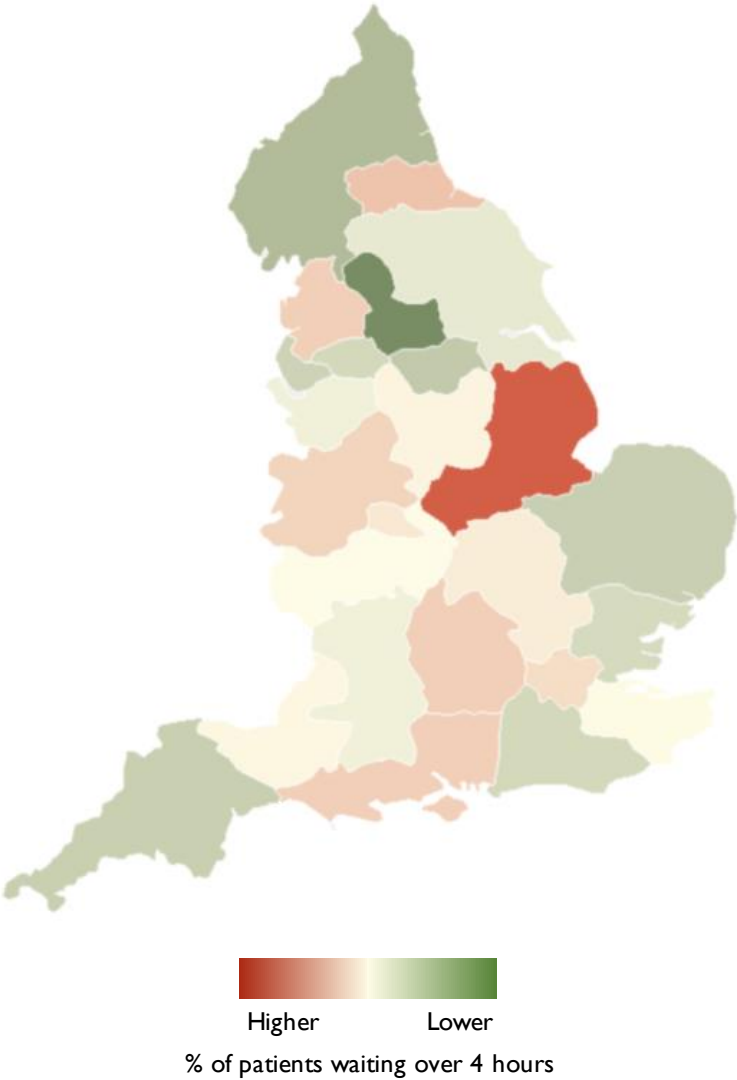
The minimum and maximum values correspond to the lowest and highest waiting time percentages that Shropshire and Staffordshire recorded in any week in 2013-14 – namely, 3.3% and 20.6% respectively. Each of the four sections of the chart – the two ‘whiskers’ and the two boxes – represents one quarter of all weeks. The green and grey boxes taken together represent the middle half of weekly values. The meeting point of these boxes is the *median* value, i.e. 7.2%. This means that, in Shropshire and Staffordshire, half of weeks registered a waiting time percentage of less than 7.2%, and the other half registered a percentage of more than 7.2%.

Although the maximum value is 20.6%, we can see that the 75<sup>th</sup> percentile is 11.7% – meaning that only one quarter of weeks registered waiting time percentages of over 11.7%. The green box, however, is very small. This indicates that one quarter of all weeks were registered in a very small range, between 5.9% and 7.2%. The grey box is much larger since the third quartile of values – those falling between the median and the 75<sup>th</sup> percentile – had a larger range, between 7.2% and 11.7%.

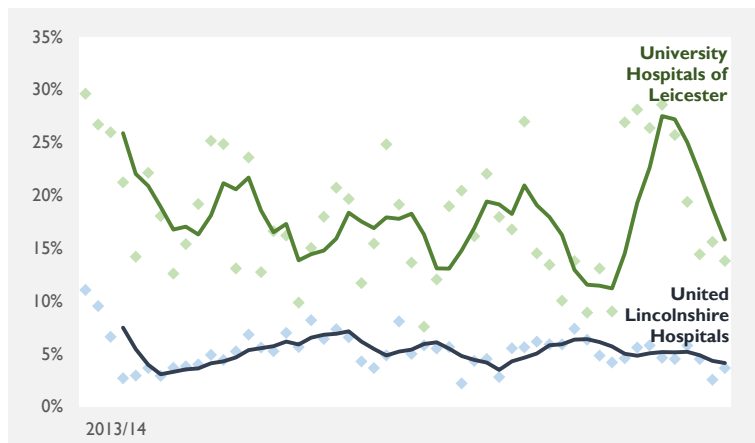
**Analysis**

In almost all areas, the median percentage of patients waiting over 4 hours was between 5% and 7.5%. The exceptions recording a median *below* 5% were West Yorkshire, Cumberland Northumberland & Tyne & Wear, and East Anglia. On the other hand, the exceptions which recorded a median above 7.5% were Darlington Durham & Tees and Leicestershire & Lincolnshire. The performance of Leicestershire & Lincolnshire is notably different to other areas, since the 25<sup>th</sup> percentile of values – at 9.0% -- was higher even than the 75<sup>th</sup> percentile of all but three other areas.

Since many of the maximum values were recorded during the unusual period of April 2013, a more useful measure of variance and consistency is the “inter-quartile range” (IQR) – i.e. the size of the middle 50% of values. A low IQR implies greater consistency in recorded values across the year, whereas a high IQR represents more variation. In Cumberland, Northumberland and Tyne & Wear, the IQR was just 1.2%, whereas in Shropshire and Staffordshire the IQR was 5.8%.



**Chart 9: Median weekly waiting time performance by area**



**Chart 10: Percentage of type I admissions waiting for over four hours at Leicester and Lincolnshire Hospitals**  
Weekly data with four-week moving average

### 3.2 NHS Trusts

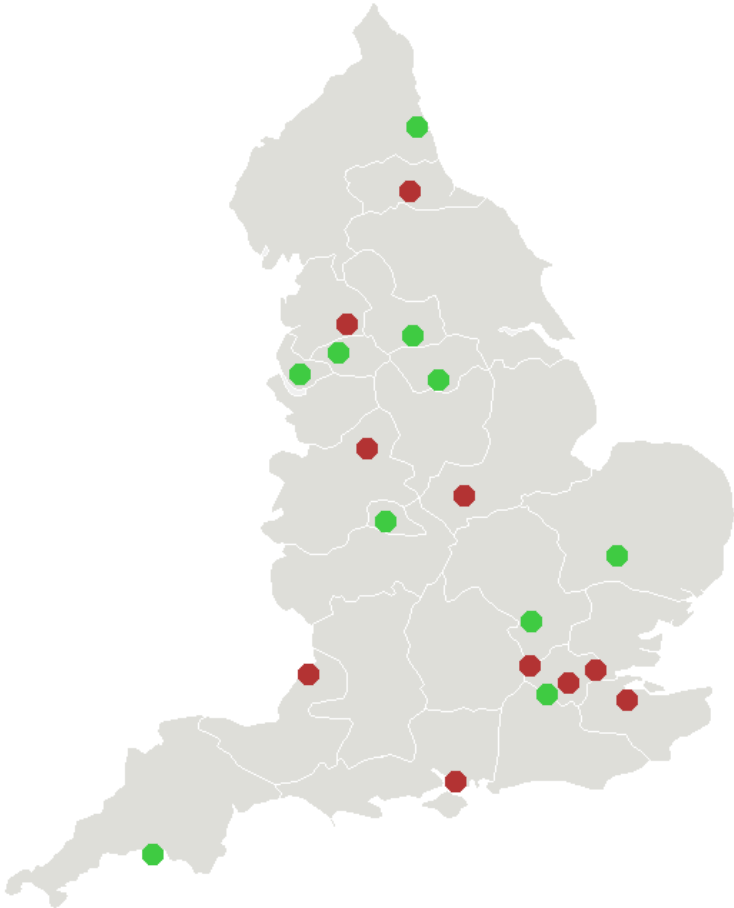
Although the regional data presented above demonstrates interesting trends, it is important not to take the overall performance of a particular area as representative of the performance of any individual hospital – or even any individual NHS trust – within that area. Sometimes there is significant variation *within* a particular region. The starkest example of this is found in Leicestershire and Lincolnshire, which as we have seen above is the overall worst-performing area team. But the performance of the United Lincolnshire Hospitals NHS

Trust – one of the two trusts with major A&E departments in this area – was relatively favourable, ranking 62<sup>nd</sup> out of 145 such trusts and registering performance close to the 95% target. By contrast, the University Hospitals of Leicester trust was the worst-performing in the country. In summary, then: Leicestershire and Lincolnshire may be the worst-performing region in the country, but this does not reflect poorly upon all hospitals or trusts in that area.

To further explore data at the level of NHS trusts, the following table shows the best- and worst-performing NHS trusts in terms of waiting times, aggregated across the year.

#### Lowest and highest NHS trusts for patients waiting over 4 hours in major accident and emergency depts

1	Chelsea And Westminster Hospital NHS Foundation Trust	1.7%
2	Alder Hey Children's NHS Foundation Trust	2.0%
3	Birmingham Children's Hospital NHS Foundation Trust	2.3%
4	Luton And Dunstable University Hospital NHS Foundation Trust	2.3%
5	Sheffield Children's NHS Foundation Trust	2.4%
6	Northumbria Healthcare NHS Foundation Trust	2.8%
7	Mid Yorkshire Hospitals NHS Trust	3.2%
8	Bolton NHS Foundation Trust	3.6%
9	Plymouth Hospitals NHS Trust	3.6%
10	Hinchingbrooke Health Care NHS Trust	3.7%
<hr/>		
136	East Lancashire Hospitals NHS Trust	10.9%
137	North Bristol NHS Trust	11.1%
138	University Hospital Of North Staffordshire NHS Trust	11.1%
139	Medway NHS Foundation Trust	11.1%
140	King's College Hospital NHS Foundation Trust	11.4%
141	County Durham And Darlington NHS Foundation Trust	11.7%
142	North West London Hospitals NHS Trust	12.8%
143	Portsmouth Hospitals NHS Trust	13.4%
144	Barking, Havering And Redbridge University Hospitals NHS Trust	13.7%
145	University Hospitals Of Leicester NHS Trust	18.2%



**Chart 11: Locations of the trusts with the highest and lowest waiting times performance**

Other examples of relatively well-performing trusts in otherwise poor-performing areas – in addition to United Lincolnshire Hospitals – are as follows:

<i>Trust</i>	<i>&gt;4h</i>	<i>Rank</i>	<i>Area team</i>
Isle Of Wight NHS Trust	4.7%	38	7.8%
North Tees And Hartlepool NHS Foundation Trust	4.8%	43	7.6%
Lancashire Teaching Hospitals NHS Foundation Trust	5.0%	50	7.5%
Hampshire Hospitals NHS Foundation Trust	5.0%	52	7.8%
Poole Hospital NHS Foundation Trust	5.0%	54	7.8%

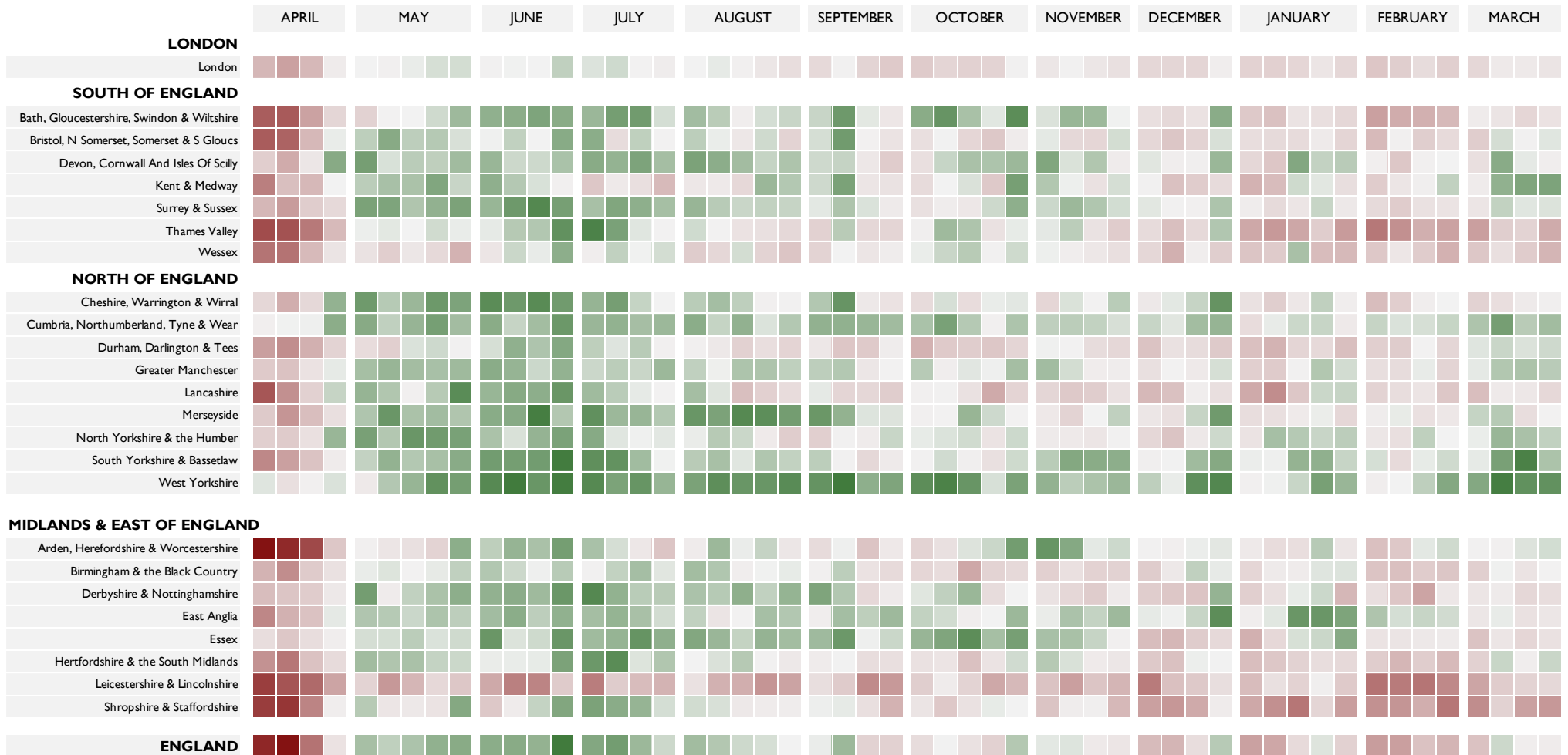
By contrast, the following trusts perform relatively poorly in areas that were otherwise fairly successful:

<i>Trust</i>	<i>&gt;4h</i>	<i>Rank</i>	<i>Area team</i>
Northern Devon Healthcare NHS Trust	7.3%	103	5.4%
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	7.3%	104	5.4%
City Hospitals Sunderland NHS Foundation Trust	8.1%	117	4.6%
Peterborough And Stamford Hospitals NHS Foundation Trust	8.5%	120	5.4%
Southport And Ormskirk Hospital NHS Trust	8.7%	122	5.5%
Royal Cornwall Hospitals NHS Trust	9.6%	128	5.4%

### 3.3 Weekly Variation Between Areas

The following table compares weekly waiting time data across all NHS area teams. Once again, each square represents a week. In this table, values are compared between all areas – so a redder square means that the area performed badly in that week relative to all values recorded by all areas in all weeks, and a greener square represents a week in which the area performed well by this measure. The middle 20% of values are coloured grey.

### Highest and lowest % of patients waiting over 4 hours at major departments, overall



**Key** Lower % of patients waiting >4 hours Higher % of patients waiting >4 hours

This table makes it easy to see seasonal performance variation both between and within areas. In the best-performing areas, even the worst weeks for waiting times were better than average – whereas in the worst-performing areas, even the most favourable weeks were still only average by national standards. Some areas, like Thames Valley, registered both notably high and notably low waiting times over the course of the year, whereas others – such as London – registered more uniform values across the year.

The highest registered value for patients waiting over 4 hours was in Arden, Herefordshire and Worcestershire, in the week of 1<sup>st</sup>-7<sup>th</sup> April, at 23.3%. The lowest value was in West Yorkshire, in June 10<sup>th</sup>-16<sup>th</sup>, at just under 2%.

### 3.4 Correlations between attendance and waiting times

Intuitively, one might expect that in weeks when higher attendance at A&E is registered, the proportion of patients waiting for four hours or more would rise. In other words, it is natural to think that one would be *more likely* to wait for over four hours in a week when there is *high attendance* at A&E. In fact, the data analysed here shows no statistically significant overall relationship. In two areas, there was a notable *negative* correlation (Lancashire and Durham, Darlington and Tees;  $r^2 = 0.24$  and  $0.29$  respectively) between attendance at major departments and waiting times. In other words, in these areas, busier weeks tended to correlate with *better* waiting time performance, i.e. fewer patients waiting for over four hours. No areas registered a positive correlation of statistical significance.<sup>5</sup>

We can only speculate about the reason for these negative correlations. Two possible explanations are that A&E departments in these areas excel at anticipating demand and adjusting service and staffing levels to account for busy periods. On the other hand, it could be that these areas struggle with service and staffing levels in quieter periods, thus leading to higher waiting times. Exploration of these hypotheses would require further research.

### 3.5 Weekly variation in waiting times across areas

#### Chart explanation

The chart below compares waiting times data *within* areas. A brown square represents a week in which the number of patients waiting for 4+ hours in a particular area was high in relation to other values recorded by that area across the year. A blue square represents a week in which this number was low in relation to values recorded in the same area in 2013-14. So the cluster of blue on the Durham/Darlington/Tees rows in June and July means that these weeks were among the best in the year for this area's waiting times performance, since numbers waiting more than four hours were low.

Note, again, that this chart does not compare waiting times between areas, unlike the previous table. Rather, the purpose of this chart is to identify patterns in weeks and months which tended to be best or worst for waiting times in different areas.

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<sup>5</sup> For the purposes of these calculations, the first three weeks of April 2013 are omitted. This is because in most areas these weeks are significant outliers in terms of the proportion of patients waiting for more than four hours, and are not typical of the 2013-14 trends. In some areas – for instance, West Yorkshire – the April weeks were not notable outliers, so it is more appropriate to include them in the correlation calculation.

### In which weeks did areas register their highest and lowest waiting times?





## Analysis

While this chart shows less uniformity than the equivalent for raw attendance data, there are still many points of similarity. Almost all areas experienced low waiting times during June. More strikingly, the first three weeks of April were among the highest in terms of waiting time in almost every area in England. This represents the tail-end – and indeed, the low point – of a particularly difficult winter for these figures, as displayed in the long-term time series chart at the beginning of this document. Winter 2013-14, on the other hand, saw much better performance overall – although data from April 2014 is not yet available for comparison. While January and February 2014 saw relatively high waiting times in some areas, they were not often as high as those experienced over the previous winter. Nevertheless, it is notable that the high waiting times in early January come at a time when – in terms of raw numbers – many areas were experiencing low attendance numbers.

### 3.6 Type 1 Percentage and Waiting Times

Another interesting tendency in the data warrants discussion. In NHS trusts where all attendance was registered at major (type 1) departments, better waiting times performance was more likely to be observed.

Overall, 50 NHS trusts (35% of 144 trusts reporting attendance at major departments) met the NHS's operational standard of 95% of patients waiting less than four hours in major departments. 35 of these 50 successful trusts reported *all* of their attendance at type 1 departments, and *no* attendance at any other departments such as minor injury units or walk-in centres. There are only 59 NHS trusts in which type 1 attendance accounted for all A&E attendance – so in all, 59% of these type-1 dominated trusts met the 95% target. This is strikingly higher than the 35% figure for all trusts. Furthermore, in trusts with a mixture of attendance at major and minor departments, the proportion reaching the operational standard was just 18%.

What might explain this difference? It is possible that at least some NHS trusts with a higher percentage of type 1 attendance are those in areas where provision of minor A&E units is less extensive. If this is the case, then the patients with minor injuries which are normally treated at minor A&E units may instead attend type 1 departments. Since waiting time performance at minor A&E units tends to be very good – often at or near 100% of patients waiting for less than four hours – it is plausible that the kinds of injuries that are treated at minor units tend to be those which can be easily treated in under four hours. If this is the case, then areas where patients are more likely to attend major departments for minor injuries will be likely to register better performance for type 1 waiting times.

On the other hand, NHS trusts with a low percentage of their attendance at type 1 departments are likely to be those with better provision of minor A&E units. If this is the case, then – plausibly – more patients with minor injuries will attend type 2 and 3 departments rather than major A&E departments. Given this, the remainder of attendances at type 1 departments are likely to be more serious on average than those in areas with a higher percentage of type 1 attendance. As such, it is possible that these are cases which take a greater amount of time to deal with, and thus to lead to worse performance of those trusts on the four-hour measure.

Even if this speculation is accurate, this effect cannot explain all variance among waiting times data – but it is useful to keep in mind as a caveat to the trends detailed in this section.

For instance, when observe that West Yorkshire performs best where type 1 waiting times are concerned, we should also note that the percentage of total attendance accounted for by type 1 departments is, at 89%, higher in this region than anywhere else in the country.

## 4 Emergency Admissions

Data is collected for the number of emergency admissions to hospital. This section looks specifically at emergency admissions via type 1 A&E departments.

### 4.1 Area teams & NHS trusts

The following chart shows annual data, for each area team, of the number of emergency admissions via type 1 departments as a percentage of type 1 attendance.

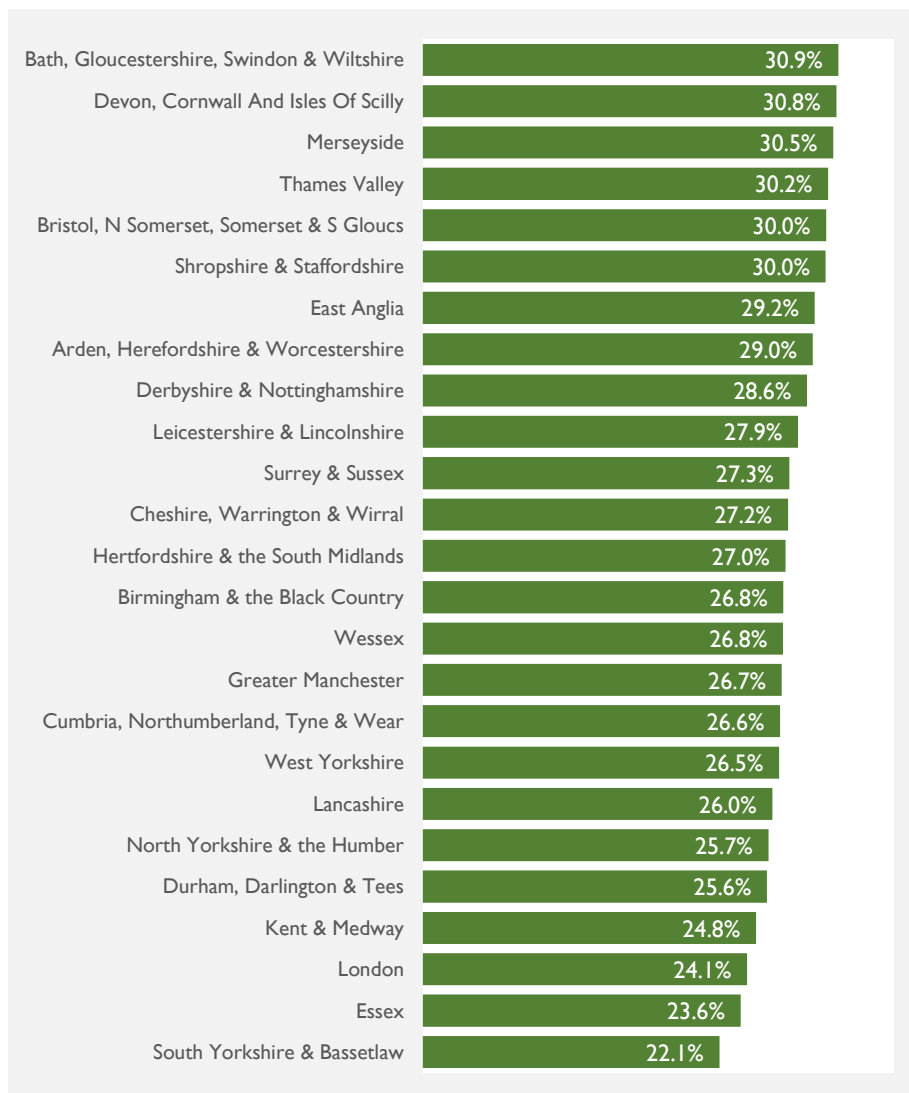


Chart 12: Admissions major departments as a percentage of attendance at major departments

The table below shows the highest and lowest individual NHS trusts, by the same measure:

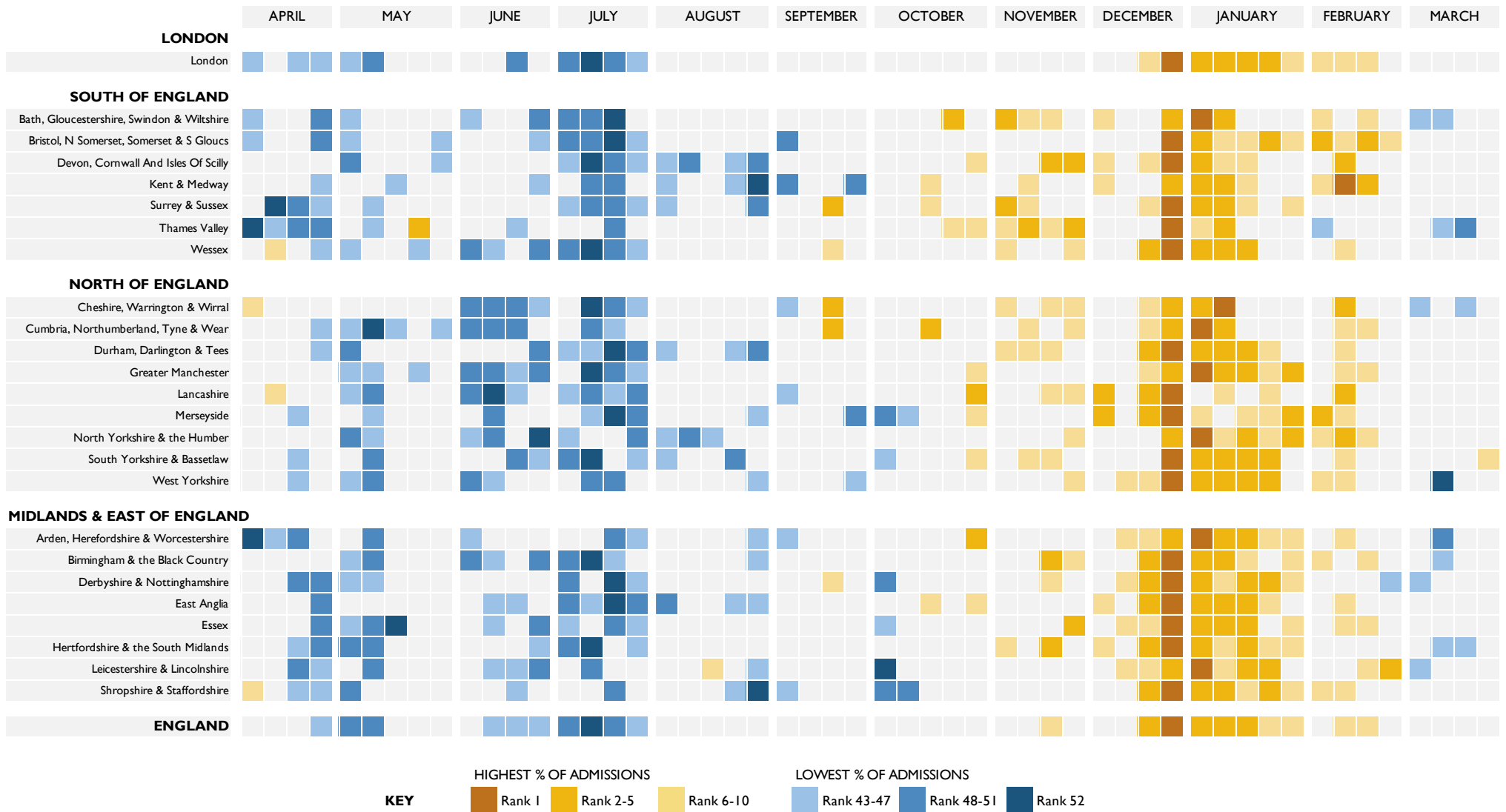
<b>Emergency Admissions via major departments</b> as a percentage of attendance		
1	Ealing Hospital NHS Trust	47.8%
2	Croydon Health Services NHS Trust	42.3%
3	City Hospitals Sunderland NHS Foundation Trust	39.5%
4	Imperial College Healthcare NHS Trust	38.5%
5	North West London Hospitals NHS Trust	38.0%
6	West Middlesex University Hospital NHS Trust	37.0%
7	Royal United Hospital Bath NHS Trust	36.6%
8	East Lancashire Hospitals NHS Trust	36.3%
9	University Hospitals Coventry And Warwickshire NHS Trust	35.9%
10	Leeds Teaching Hospitals NHS Trust	35.5%
136	Barnet And Chase Farm Hospitals NHS Trust	18.0%
137	Lancashire Teaching Hospitals NHS Foundation Trust	18.0%
138	James Paget University Hospitals NHS Foundation Trust	17.9%
139	Kingston Hospital NHS Foundation Trust	16.1%
140	Chelsea And Westminster Hospital NHS Foundation Trust	15.0%
141	North Middlesex University Hospital NHS Trust	14.9%
142	Sheffield Children's NHS Foundation Trust	14.8%
143	Homerton University Hospital NHS Foundation Trust	13.6%
144	University College London Hospitals NHS Foundation Trust	11.8%
145	Medway NHS Foundation Trust	11.5%

## 4.2 Weekly variation in admissions data

As the following table shows, there is seasonal variation in the percentage of attendances at major departments that result in emergency admission. In particular, the table shows that in July – the busiest period for major attendance – the proportion of these attendances resulting in admission was at its lowest. Conversely, at the quietest period – late December and January – the proportion was at its highest. The data reveals a negative correlation ( $r^2 = 0.39$ ) between attendance at major departments and the percentage of admissions at these departments.

These trends show less regional variation than the basic attendance data or the waiting times data.

### Emergency admissions as a proportion of type I attendance: highest and lowest weeks by area



Data on admissions is also significantly positively correlated with waiting times data. Specifically, as the percentage of type 1 attendances resulting in admission increases, so does the percentage of patients waiting for over four hours for treatment. This correlation was statistically significant on a national level as well as in some individual area teams.

The table on the following page shows variation in admissions data between regions. Orange values represent a high proportion of admissions compared with all data registered by all areas, whereas blue values represent a low proportion of admissions by this measure. So, for instance, the fact that South Yorkshire almost always records a blue value represents the fact (reported above) that this area has lower than average admission rates by national standards. The converse is true of areas like Merseyside.

### Percentage of type I attendances resulting in admission

