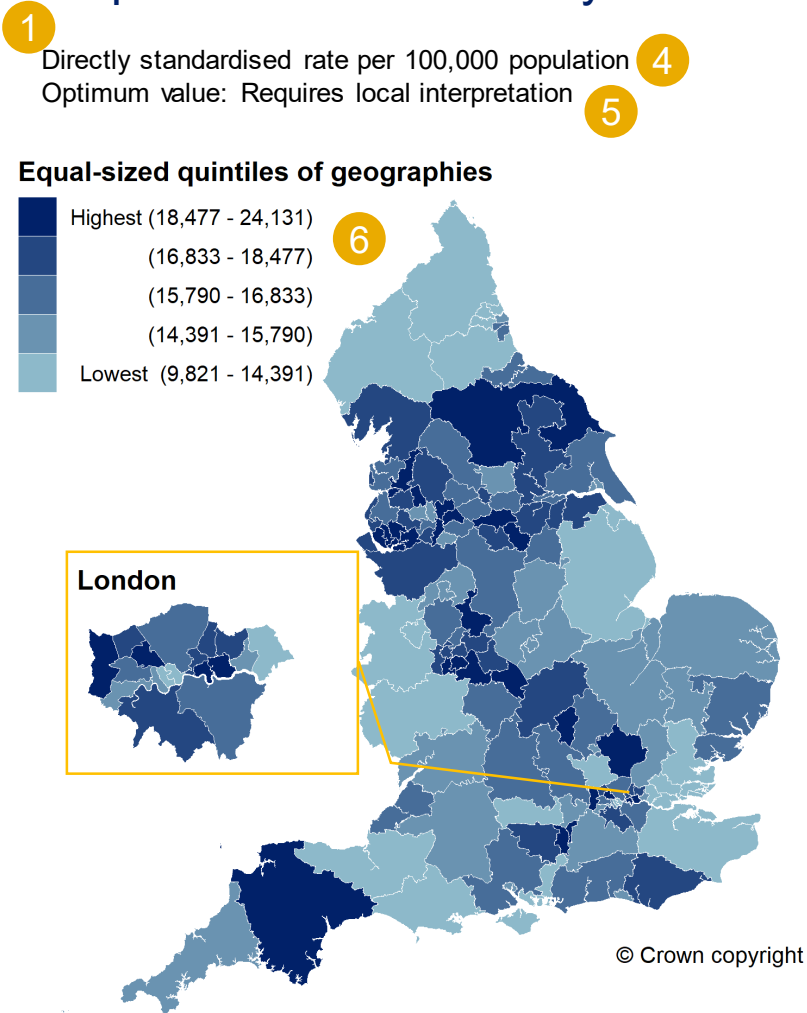


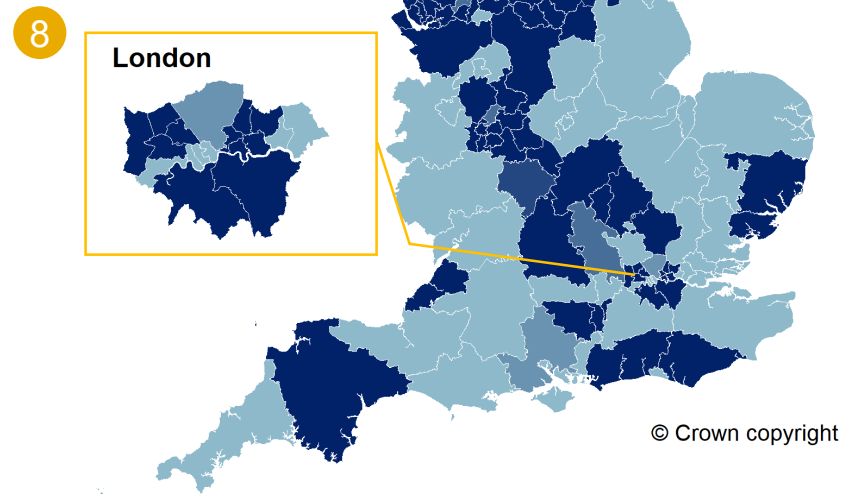
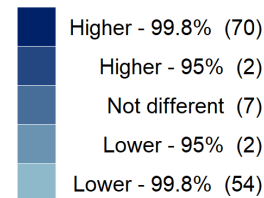
## Maps

- 1 Type of statistic** (e.g. rate, proportion)
- 2 Geographic boundaries**
- 3 Year of data presented**
- 4 Rate calculated per x number of people**
- 5 Optimum values** Low indicates lower values are preferential (high indicates higher values are preferential). Local interpretation maybe required for some indicators.

### Map 1a: Experimental statistic: Variation in rate of all vision outpatient attendances by clinical commissioning group (2019/20)



#### Significance level compared with England



## Quick user guide

- 6 Equal sized quintiles** The number of areas presented on the map are divided equally between the 5 categories with those with the highest values forming the 'Highest' group etc.

For example, in 2020 there were 135 clinical commissioning groups (CCGs), so 27 CCGs are in each category. **Darker** areas have the highest values.

- 7 Significance level compared with England** The **darkest** and **lightest** shading on map shows CCGs whose confidence intervals do not overlap with the England value.

The second **darkest** and **lightest** colours show areas where the England value falls between the CCG's 95% and 99.8% CI.

The number in brackets indicates the number of CCGs in each category.

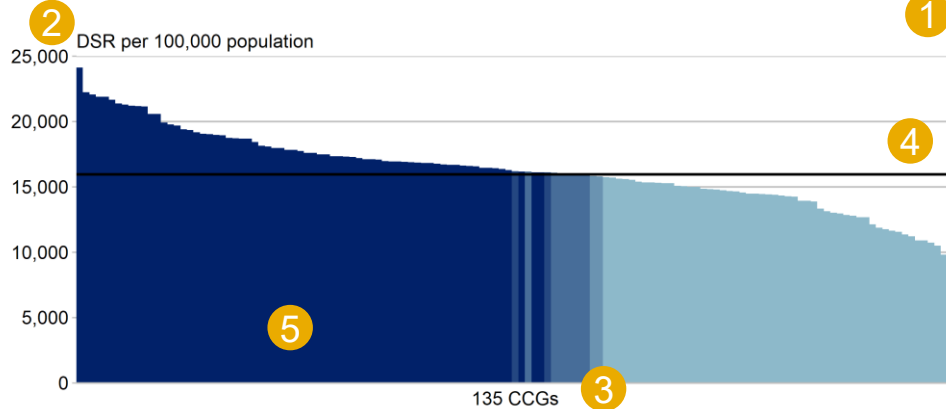
- 8 London** is presented as a separate zoomed in map for clarity.

## Chart, box plot and table

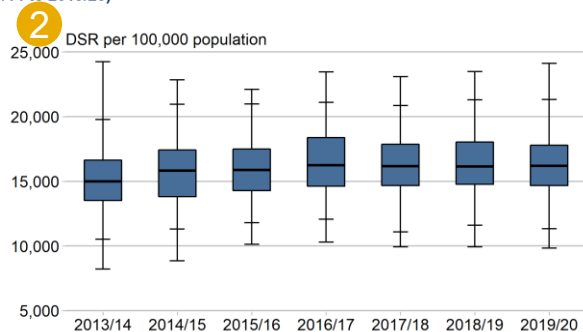
## Quick user guide

- 1** Title shows indicator details including: value type, geography and year.
- 2** The y-axis plots the value and gives details of the value type e.g. rate / proportion and the unit e.g. per 100,000 population.
- 3** The x-axis shows the geography and the number of areas on chart.
- 4** The line shows the England average.
- 5** Each bar represents an area (e.g. a CCG). The height of the bar is relative to the value for that area. Collectively, the bars show the spread of values across England.
- 6** For each indicator, data is presented visually in a time series of box and whisker plots. The box plots show the distribution of data.

Column chart: Experimental statistic: Variation in rate of all vision outpatient attendances by CCG (2019/20)



Box plot time series: Experimental statistic: Variation in rate of all vision outpatient attendances by CCG (2013/14 to 2019/20)



Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
Max-Min (Range)	16,023	14,006	11,987	13,143	13,161	13,556	14,310	No significant change
75th-25th percentile	3,115	3,599	3,206	3,737	3,189	3,275	3,117	No significant change
95th-5th percentile	9,266	9,640	9,187	9,034	9,764	9,708	10,003	No significant change
Median	14,990	15,825	15,875	16,231	16,177	16,153	16,194	INCREASING Significant

The colour of the bar represents how significant the area's value is in relation to England based on the area's confidence interval. Areas utilise the same colours and categories as the maps.

Areas that are significantly higher than England at a 99.8% or 95% level are shown as darker bars whereas those with lower significance to England, at a 99.8% or 95% level, are lighter. The colour in the middle represents areas that are **not significantly different** from England.

Where the significance bar chart is unavailable, the equal interval map colours have been used.

The line inside each box shows the median (the mid-point, so if the 135 CCGs were sorted in order of value, the value halfway between the CCGs in the 67<sup>th</sup> and 68<sup>th</sup> position would give the median). The bottom and top of the **blue box** represents the values which 25% and 75% of the areas fall below. 50% of the areas have a value within this range.

The whiskers mark the values at which 5% and 95% of areas fall below. The median and maximum values are also shown.

The time series allows us to see how the median has changed over time, but also whether the gap between the extreme values has changed.

The table accompanying the box and whisker plots shows whether there has been any statistically significant change in the median, or in the degree of variation over time.

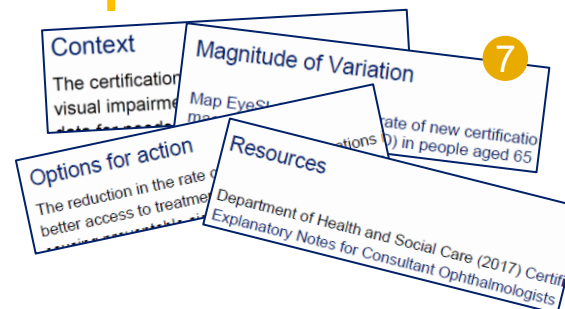
### 7 Sections in the chapter

**Context** – an overview of why the indicator is of public health interest

**Magnitude of variation** – commentary in relation to the chart, box plot and table

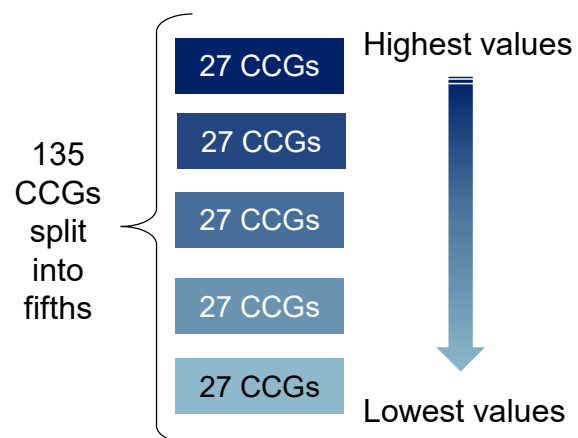
**Options for action** – suggestions for best practice

**Resources** – links to useful documents

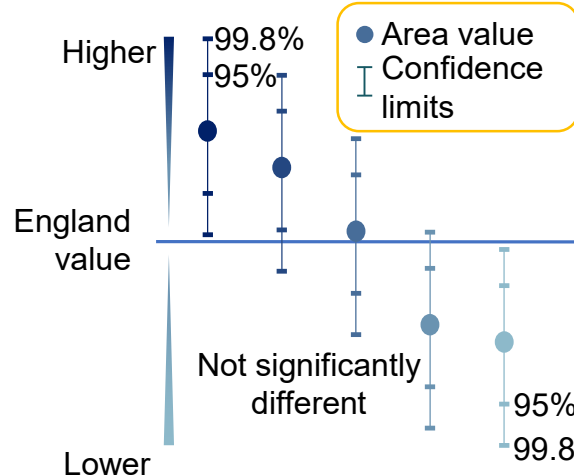


## How were the categories calculated?

## Equal-sized quintiles



## Significance to England



Confidence intervals give an estimated range in which the true CCG value lies.

Where the CCG's confidence interval does not overlap with the England value, the CCG is classed as being *significantly higher* or *lower* than England at a 99.8% level.

If the England value lies between the 99.8% and 95% CI, this value is classed as being *significantly higher* or *lower* than England at a 95% level.

Where the England value is between the upper 95% and lower 99.8% CI, the CCG is classed as *not being significantly different* from England.

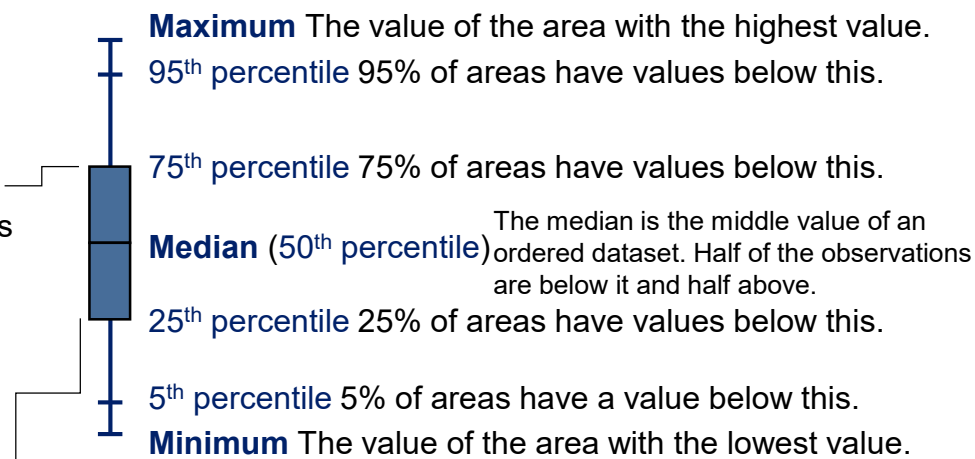
## Box &amp; whisker plot

## Whiskers

Show the extreme values in the dataset.

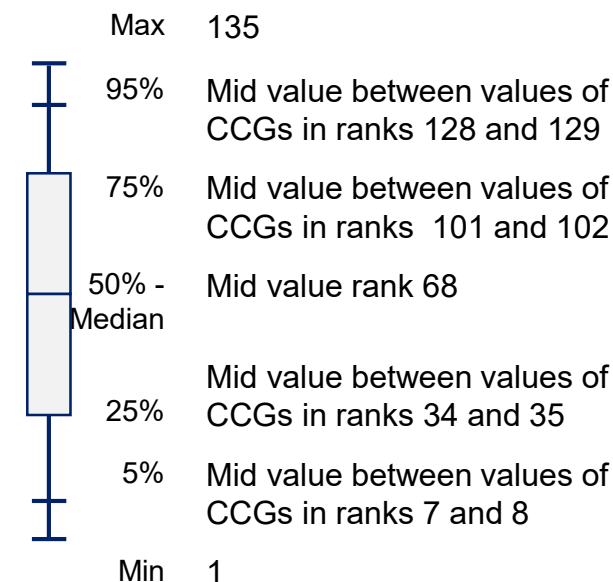
## Box

50% of the data values lie between the 25<sup>th</sup> and 75<sup>th</sup> percentile. The distance between these is known as the inter-quartile range (IQR).



## Box plot percentile

## CCG rank position (135 CCGs in 2020)



# Outpatient activity

## Context

Ophthalmology is a specialty clinical service provided predominantly in an outpatient setting. Hospital episode statistics (HES) for outpatient activity includes all NHS Trusts in England and NHS commissioned activity within the independent sector.<sup>1</sup> Since the financial year beginning 2009, all vision outpatient attendances have seen an increase of 37.6% in attendances when compared to the financial year beginning 2019 and accounted for 9.4% of all NHS outpatient attendances in the financial year beginning 2019.<sup>2</sup> There is no mandatory requirement to code outpatient attendances by diagnosis or procedure, so data with this level of detail is incomplete. Nevertheless, outpatient data reflect overall trends in activity associated with service provision and are used as a proxy for 'need' to inform service planning and commissioning decisions and for service contract agreements.

The rising outpatient activity has posed significant and increasing pressure on capacity for timely service provision, resulting in delays for follow-up appointments and increasing the risk of harm and adverse outcomes for patients.<sup>3, 4, 5</sup> This has attracted national attention at the highest levels within the NHS with efforts across the sector to address these challenges.<sup>4,5</sup>

The following treatment specialty codes were used for the analyses on variations in all vision outpatient attendance presented in the following sections: ophthalmology (130), paediatric ophthalmology (216), medical ophthalmology (460), orthoptics (655) and optometry (662).

## Outpatient activity during the COVID-19 pandemic

The coronavirus (COVID-19) pandemic has impacted greatly on all vision outpatient attendances with attendance levels dropping considerably for both all outpatient and first attendance.

Although attendance did increase from the lower levels of attendance observed during the first wave when routine primary private and NHS sight tests were suspended<sup>6</sup> and

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<sup>1</sup> NHS Digital [Hospital Episode Statistics \(HES\)](#) [Accessed 16 Jun 2021]

<sup>2</sup> NHS Digital [Hospital Outpatient Activity, 2019-20: Treatment specialty](#) [Accessed 06 Aug 2021]

<sup>3</sup> Healthcare Safety Investigation Branch (2020) [Investigation into lack of timely monitoring of patients with glaucoma](#) [Accessed 24 Nov 2020]

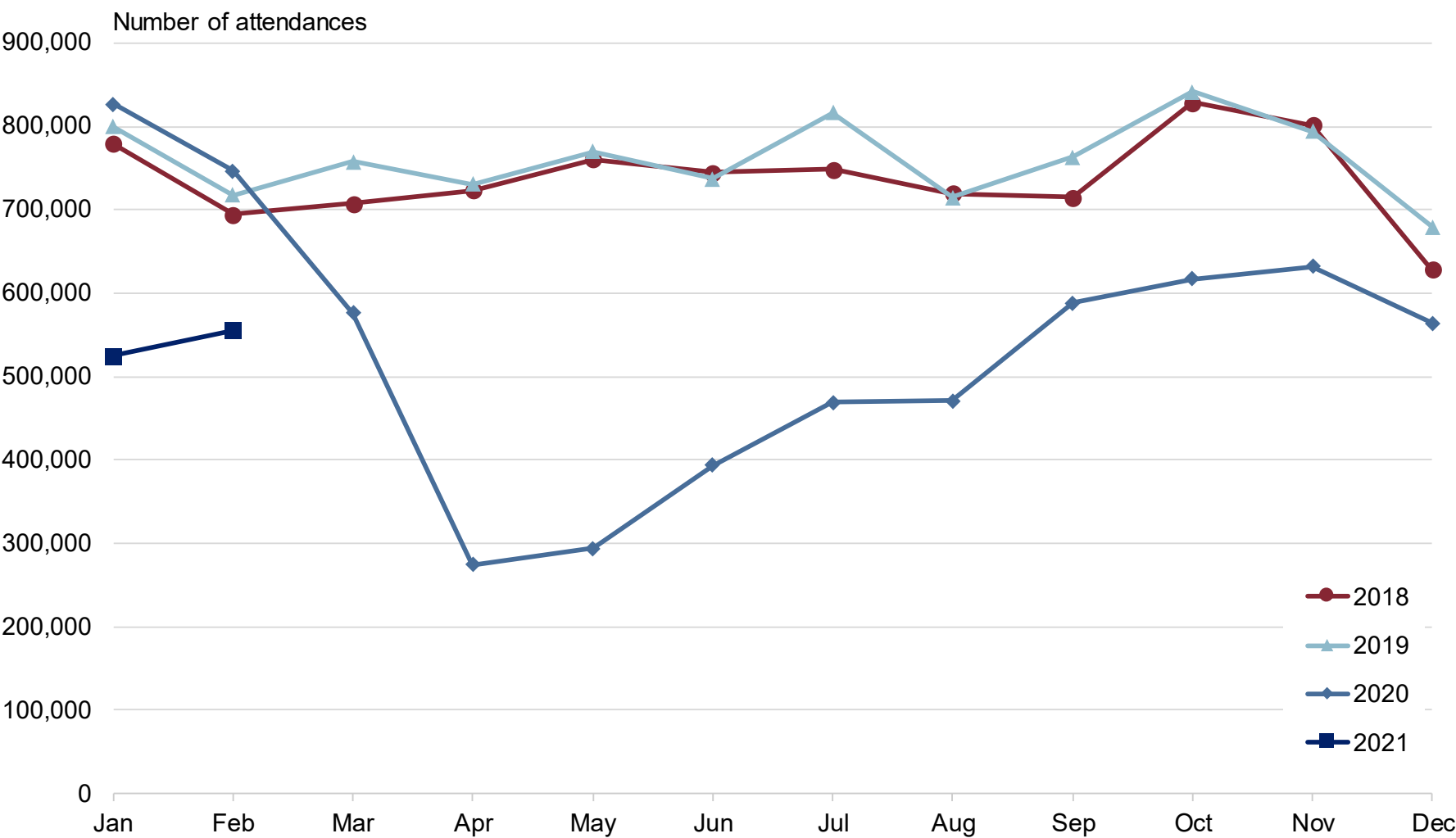
<sup>4</sup> NHS England (2019) [Transforming Elective Care Services – Ophthalmology](#) [Accessed 08 Jul 2021]

<sup>5</sup> Getting It Right First Time (2019) [Ophthalmology GIRFT Programme National Specialty Report](#) [Accessed 24 Jun 2020]

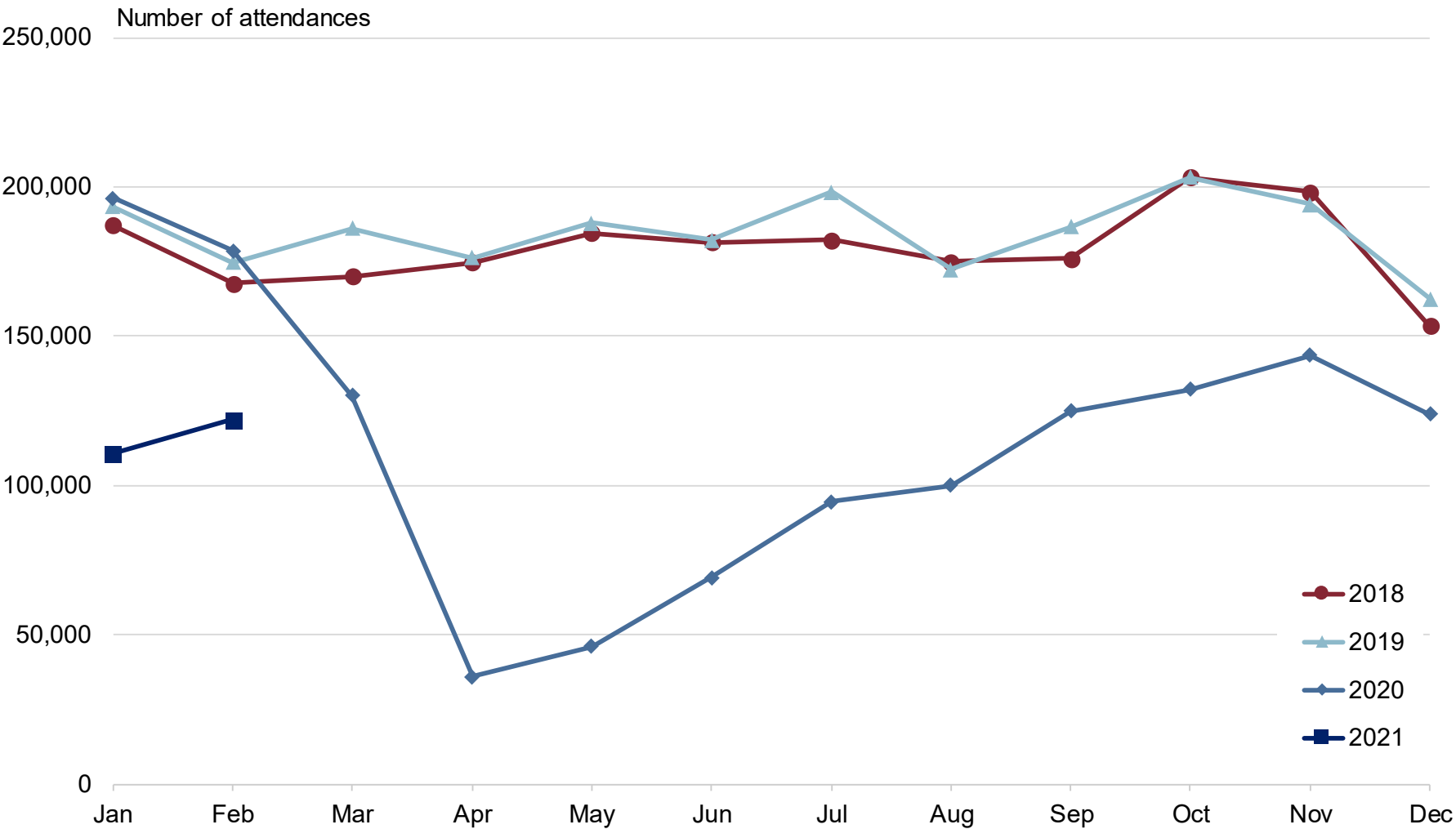
<sup>6</sup> NHS England and NHS Improvement (2020) [Resumption of optical services in England](#) [Accessed 19 Jun 2021]

face to face outpatient attendances were only allowed if absolutely necessary, subsequent waves have impacted upon attendance to a lesser extent. However, this does not reflect the true demand position as it does not include the total number of patients waiting to be seen following a new referral, and those risk assessed as low and still waiting to be seen for a routine appointment.

**Figure 1.1: Experimental statistic - Provisional data: All vision outpatient attendances in all ages for England (January 2018 to February 2021)**



**Figure 1.2: Experimental statistic - Provisional data: All vision outpatient first attendances in all ages for England (January 2018 to February 2021)**

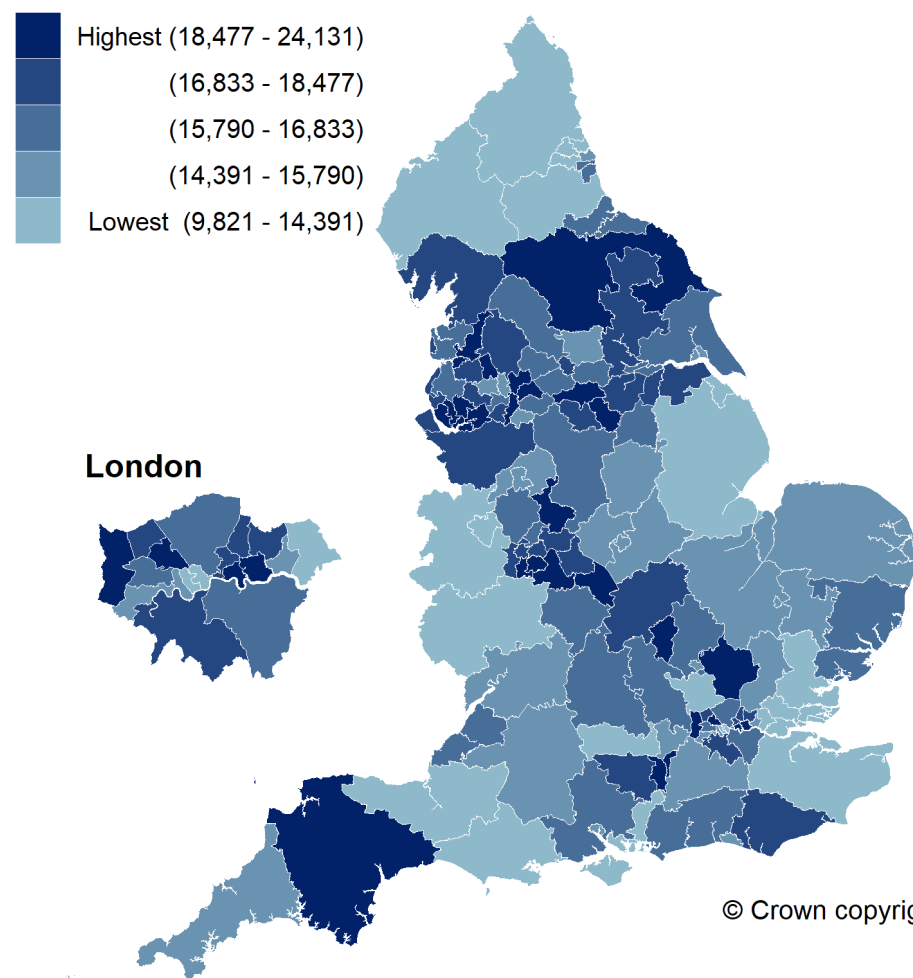


## Map 1a: Experimental statistic: Variation in rate of all vision outpatient attendances by clinical commissioning group (2019/20)

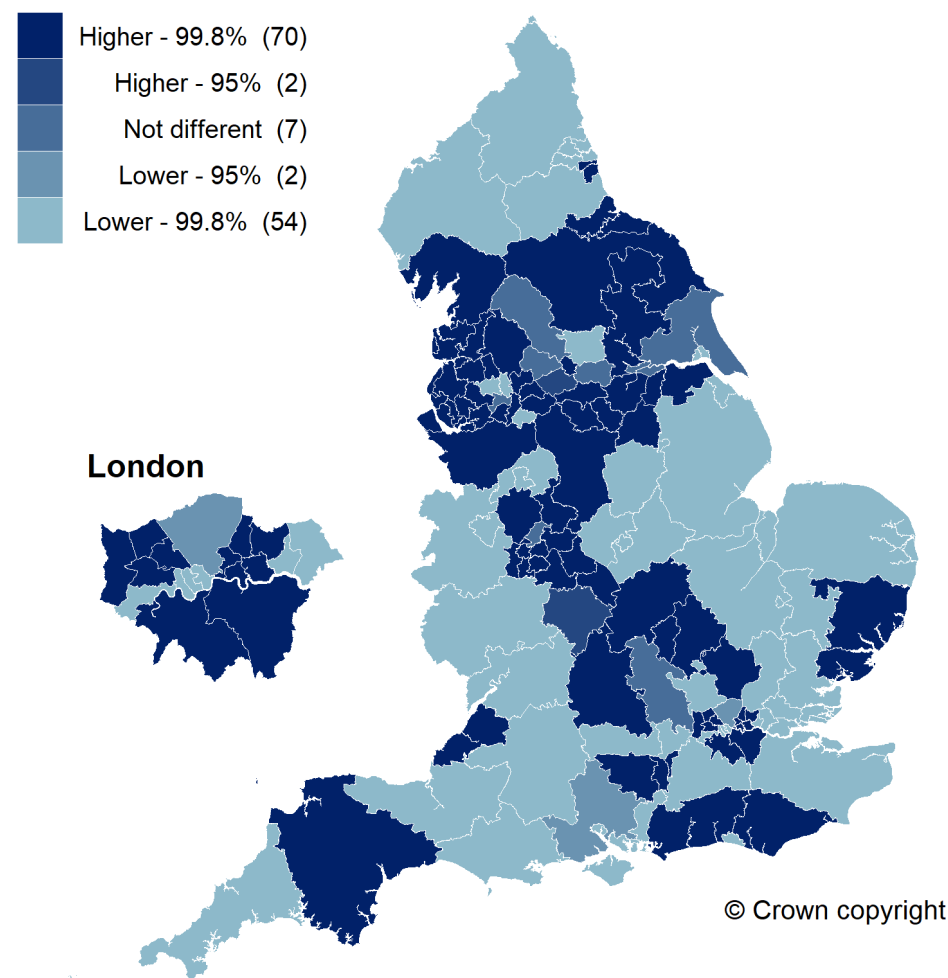
Directly standardised rate per 100,000 population

Optimum value: Requires local interpretation

### Equal-sized quintiles of geographies

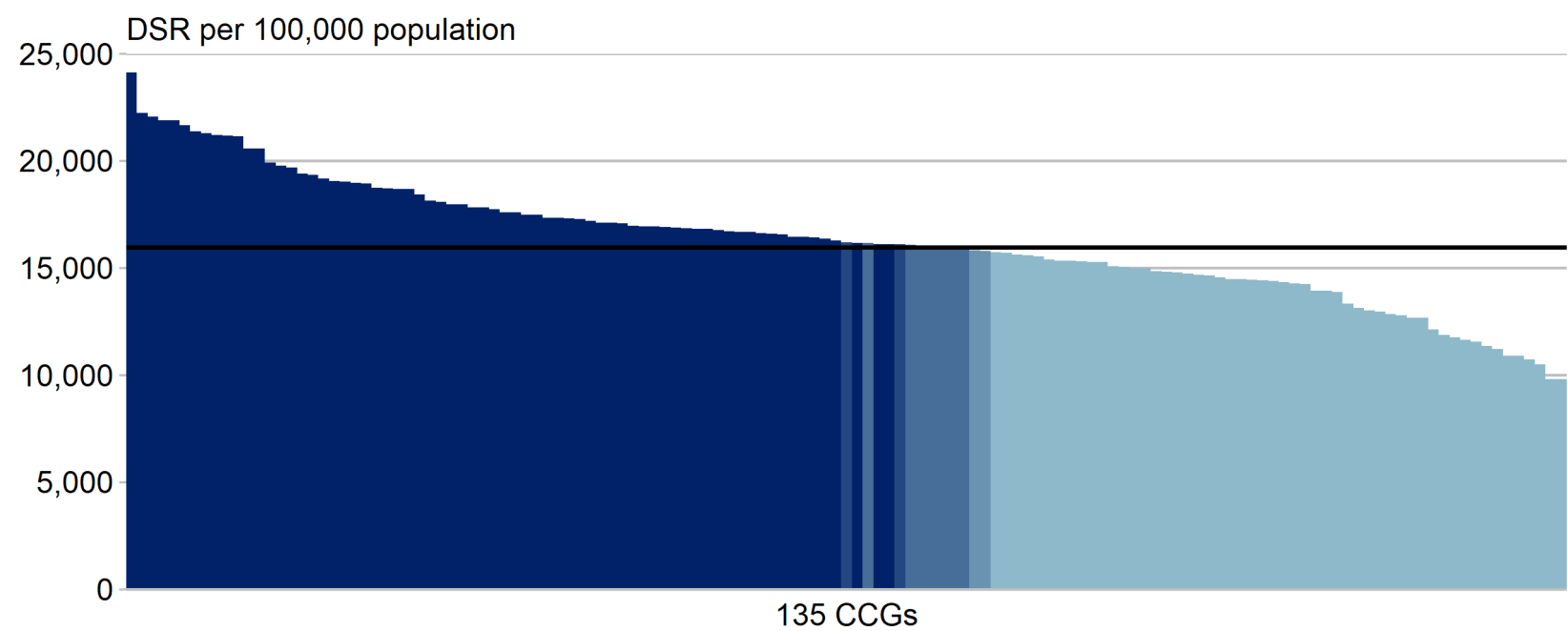


### Significance level compared with England

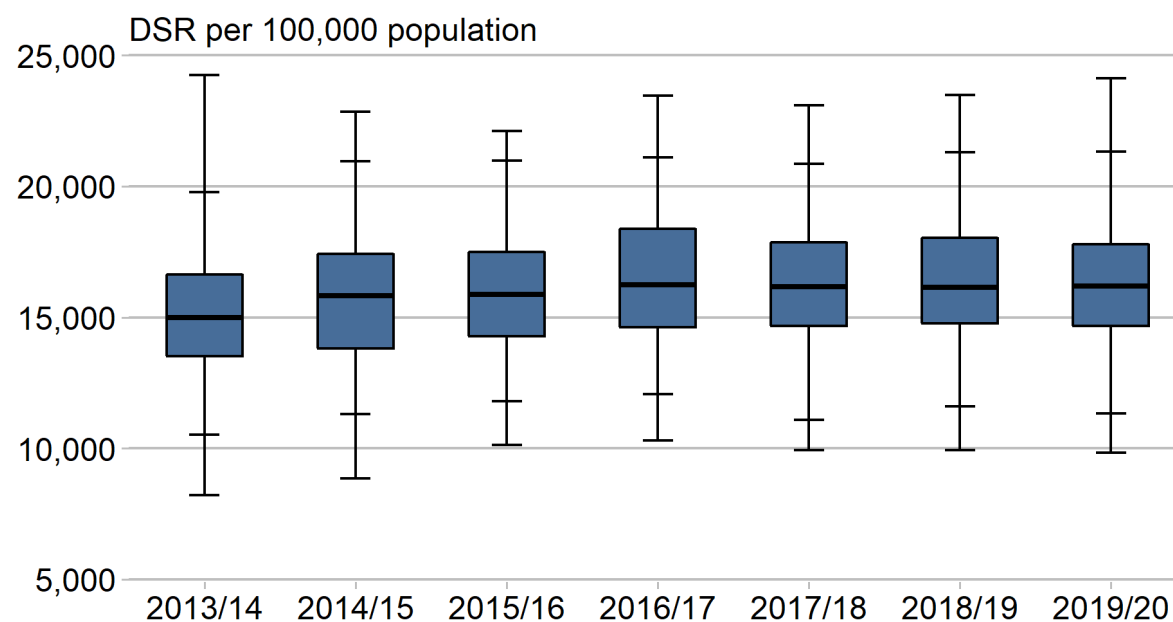




Column chart: Experimental statistic: Variation in rate of all vision outpatient attendances by CCG (2019/20)



**Box plot time series: Experimental statistic: Variation in rate of all vision outpatient attendances by CCG (2013/14 to 2019/20)**



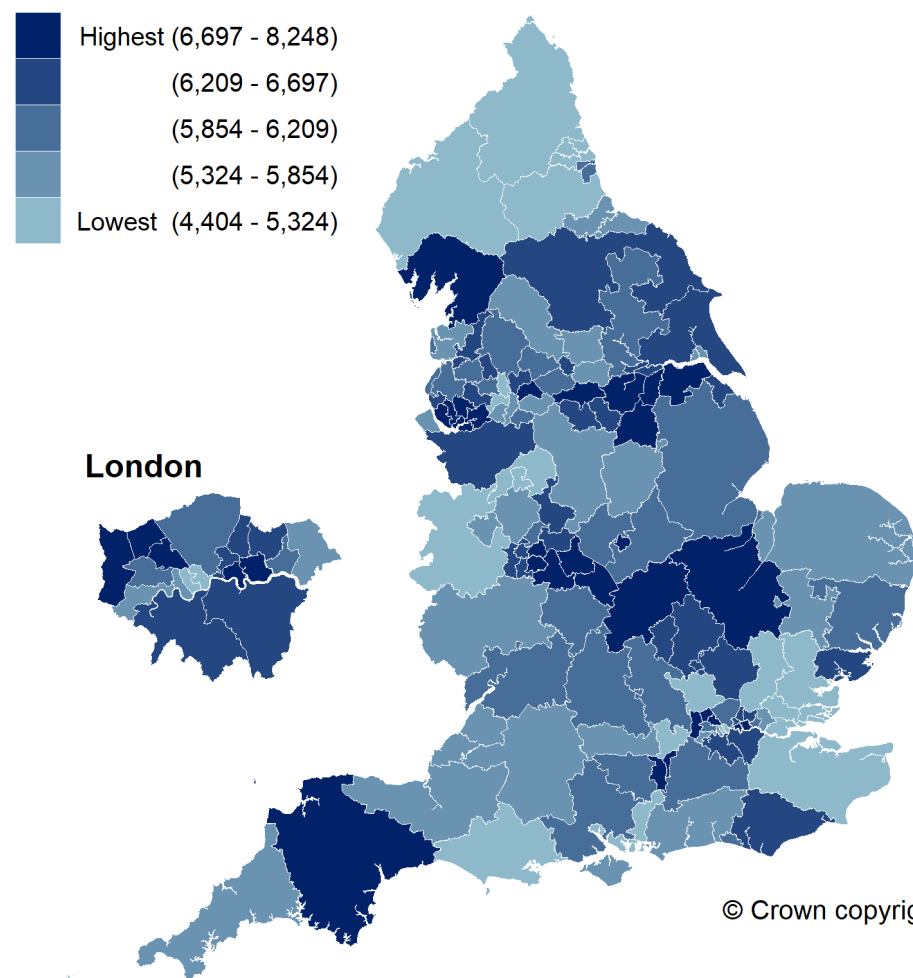
Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
Max-Min (Range)	16,023	14,006	11,987	13,143	13,161	13,556	14,310	No significant change
75th-25th percentile	3,115	3,599	3,206	3,737	3,189	3,275	3,117	No significant change
95th-5th percentile	9,266	9,640	9,187	9,034	9,764	9,708	10,003	No significant change
Median	14,990	15,825	15,875	16,231	16,177	16,153	16,194	INCREASING Significant

## Map 1b: Experimental statistic: Variation in rate of all vision outpatient attendances (persons based) by clinical commissioning group (2019/20)

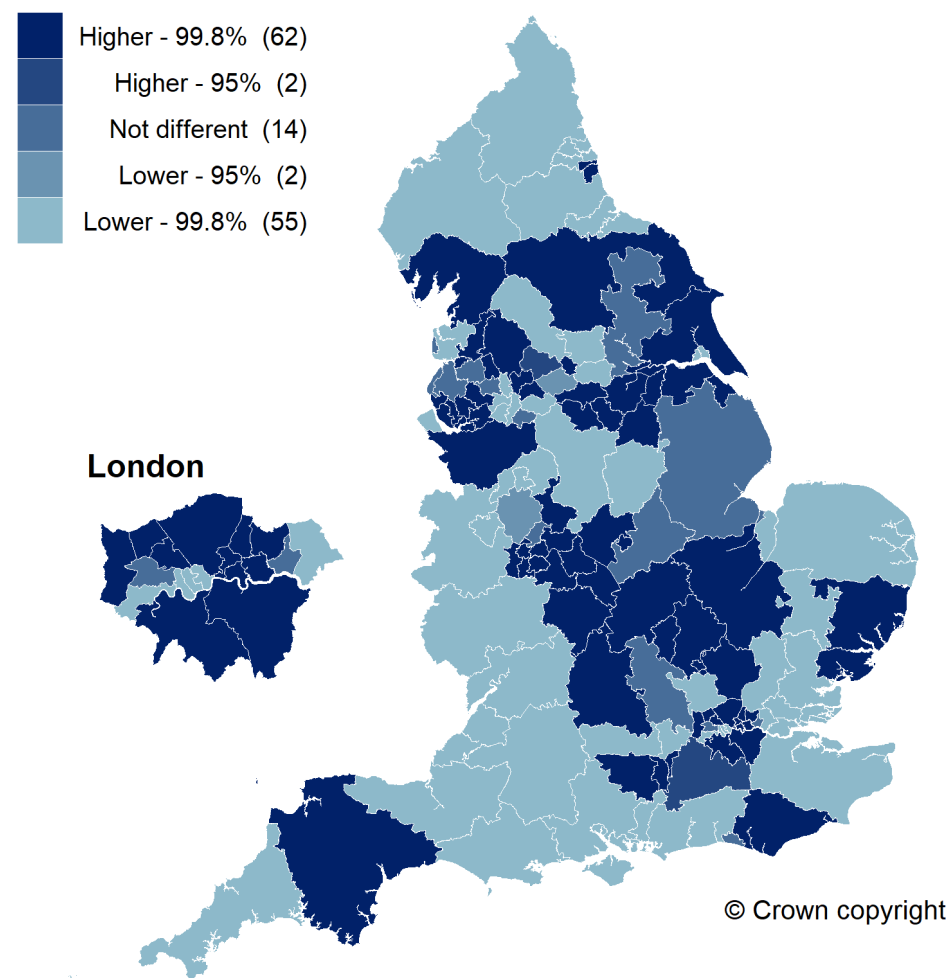
Directly standardised rate per 100,000 population

Optimum value: Requires local interpretation

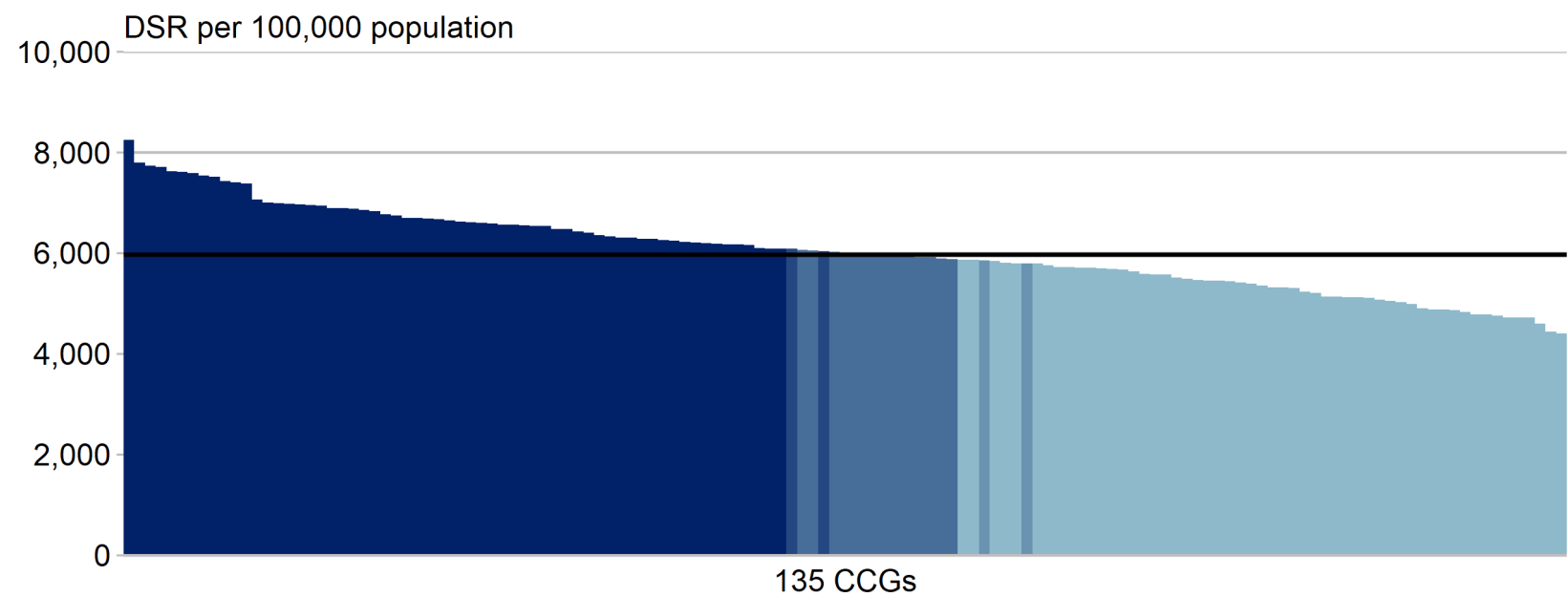
### Equal-sized quintiles of geographies



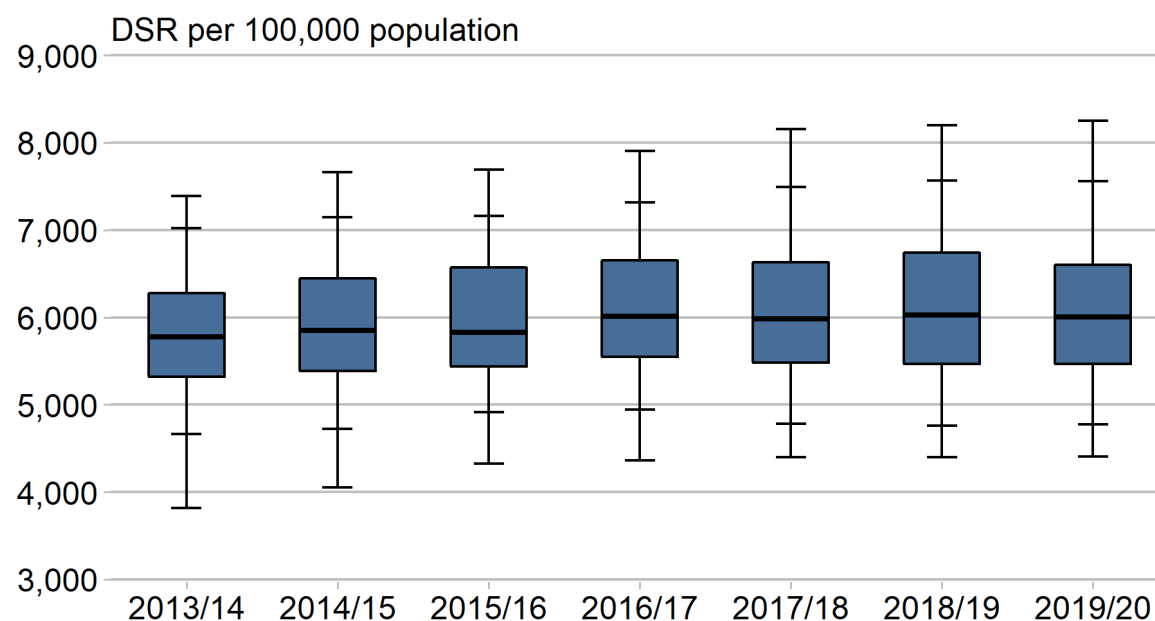
### Significance level compared with England



Column chart: Experimental statistic: Variation in rate of all vision outpatient attendances (persons based) by CCG (2019/20)



**Box plot time series: Experimental statistic: Variation in rate of all vision outpatient attendances (persons based) by CCG (2013/14 to 2019/20)**



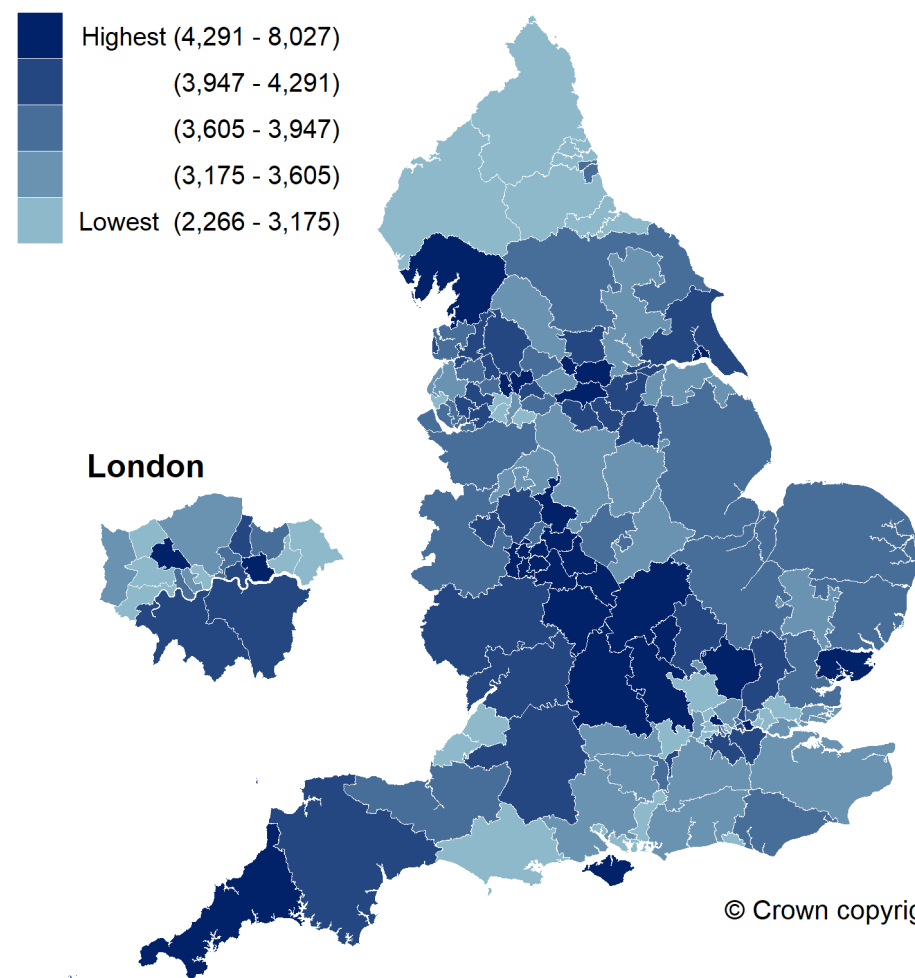
Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
Max-Min (Range)	3,576	3,605	3,367	3,546	3,754	3,800	3,843	No significant change
75th-25th percentile	954	1,062	1,130	1,104	1,143	1,278	1,135	WIDENING Significant
95th-5th percentile	2,355	2,424	2,245	2,373	2,712	2,808	2,781	WIDENING Significant
Median	5,776	5,846	5,827	6,008	5,981	6,028	6,002	INCREASING Significant

## Map 1c: Experimental statistic: Variation in rate of all vision outpatient first attendances by clinical commissioning group (2019/20)

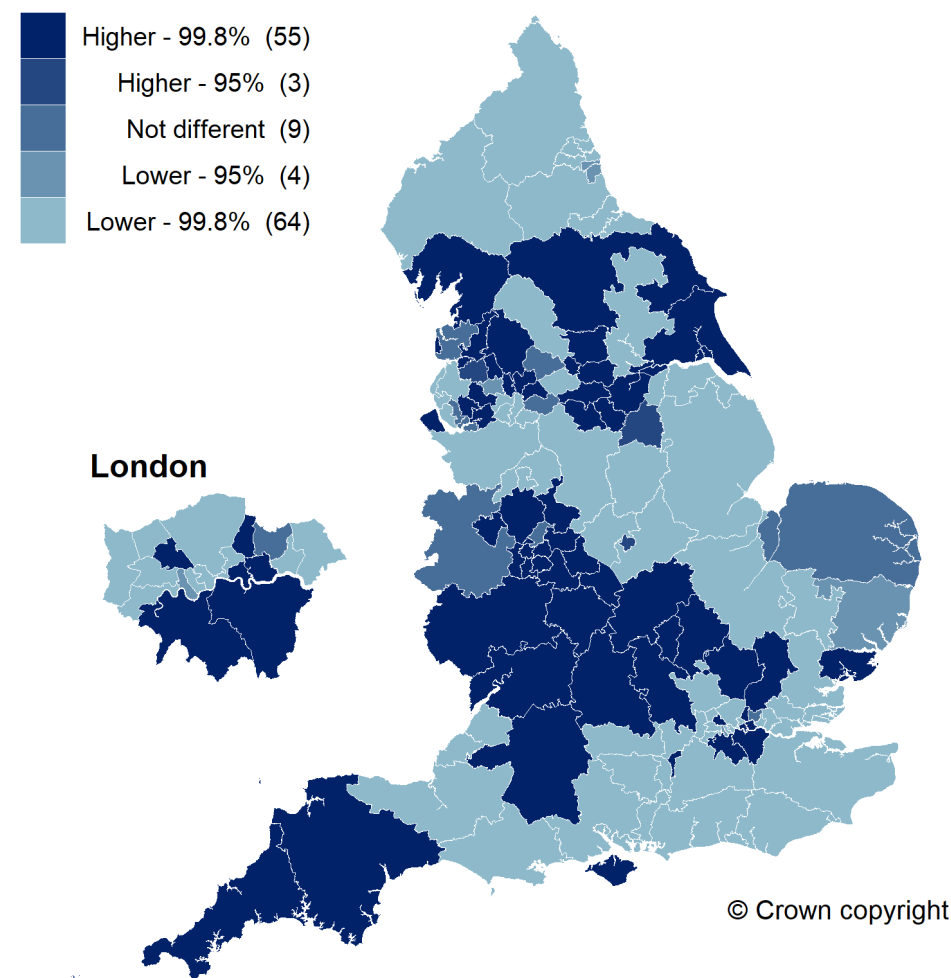
Directly standardised rate per 100,000 population

Optimum value: Requires local interpretation

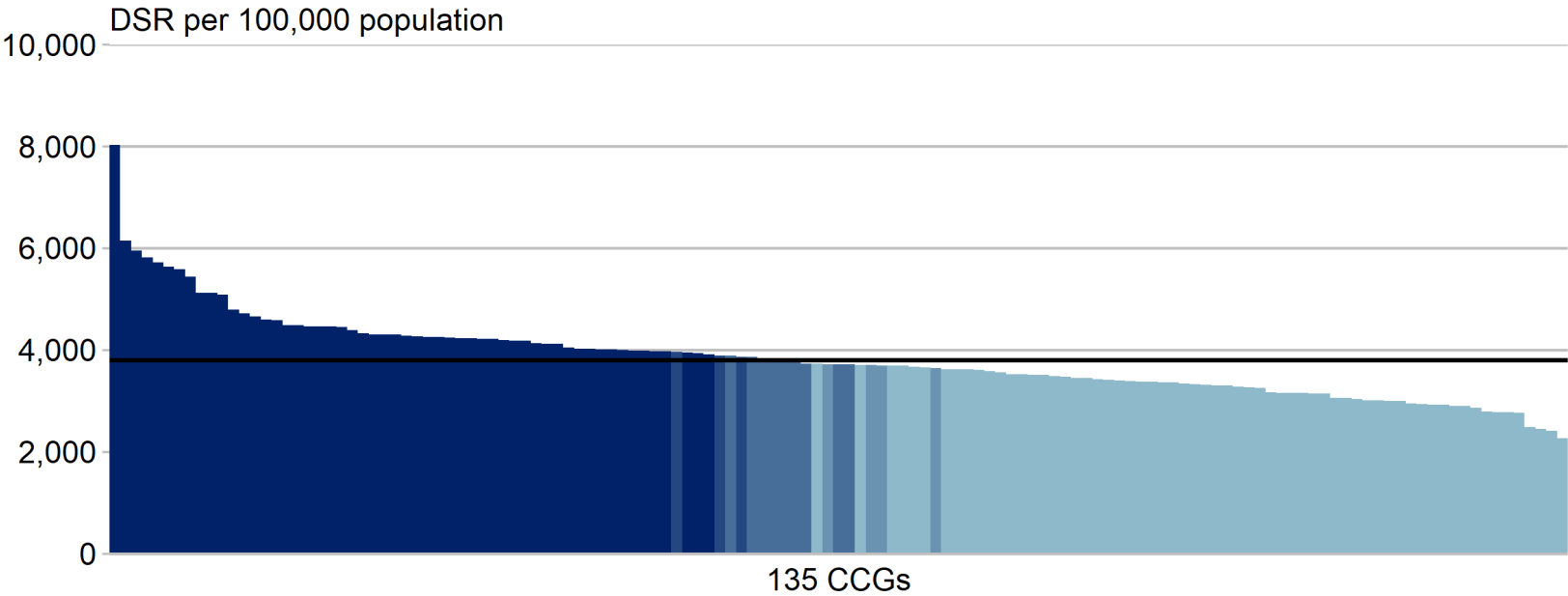
### Equal-sized quintiles of geographies



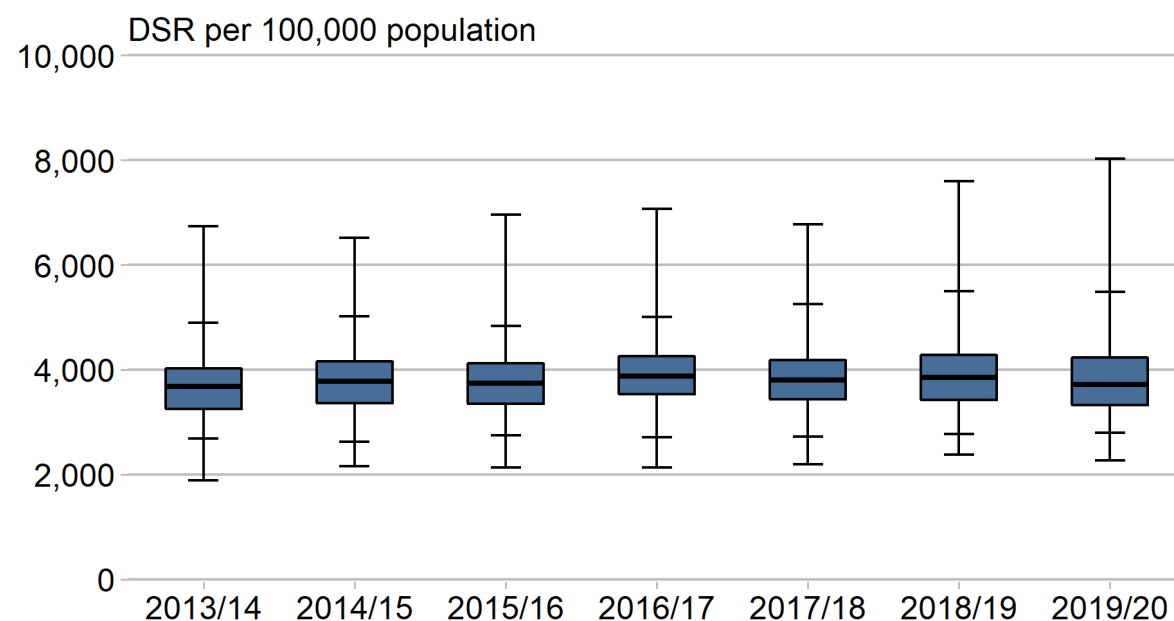
### Significance level compared with England



Column chart: Experimental statistic: Variation in rate of all vision outpatient first attendances by CCG (2019/20)



**Box plot time series: Experimental statistic: Variation in rate of all vision outpatient first attendances by CCG (2013/14 to 2019/20)**



Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
Max-Min (Range)	4,843	4,362	4,832	4,937	4,580	5,223	5,760	No significant change
75th-25th percentile	774	804	773	717	751	863	905	No significant change
95th-5th percentile	2,221	2,387	2,087	2,286	2,527	2,728	2,693	WIDENING Significant
Median	3,686	3,777	3,746	3,878	3,802	3,857	3,720	No significant change

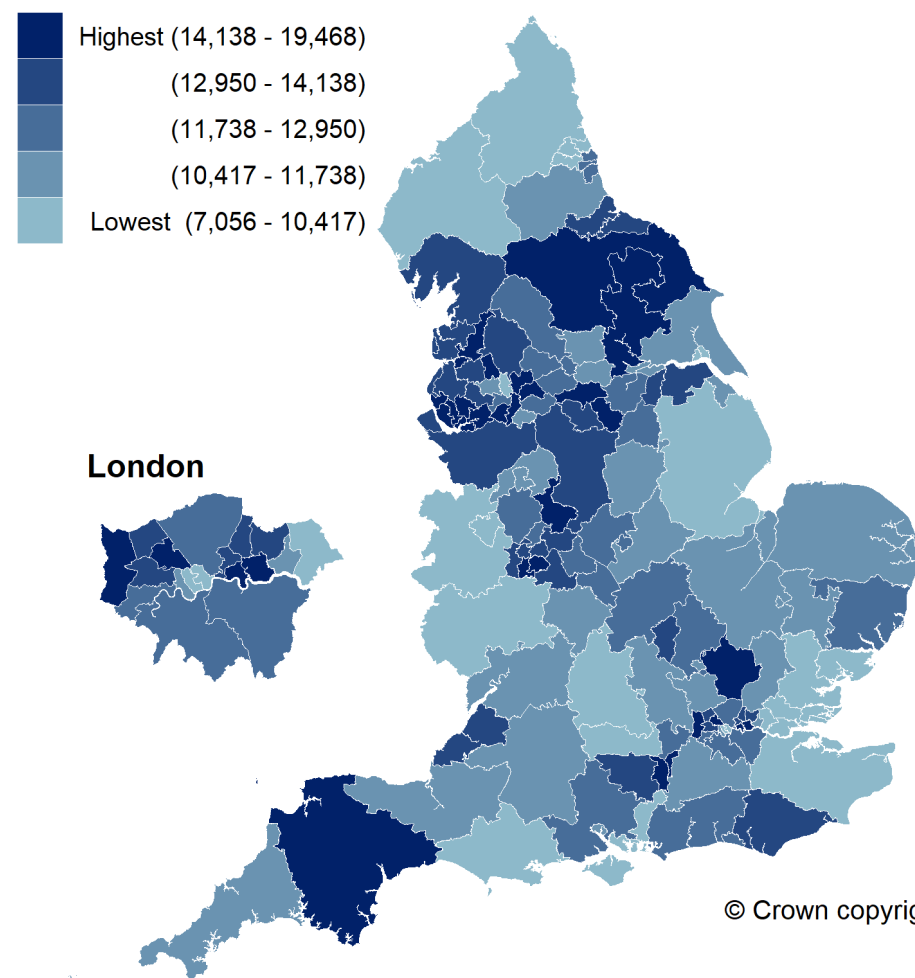


## Map 1d: Experimental statistic: Variation in rate of all vision outpatient follow up attendances by clinical commissioning group (2019/20)

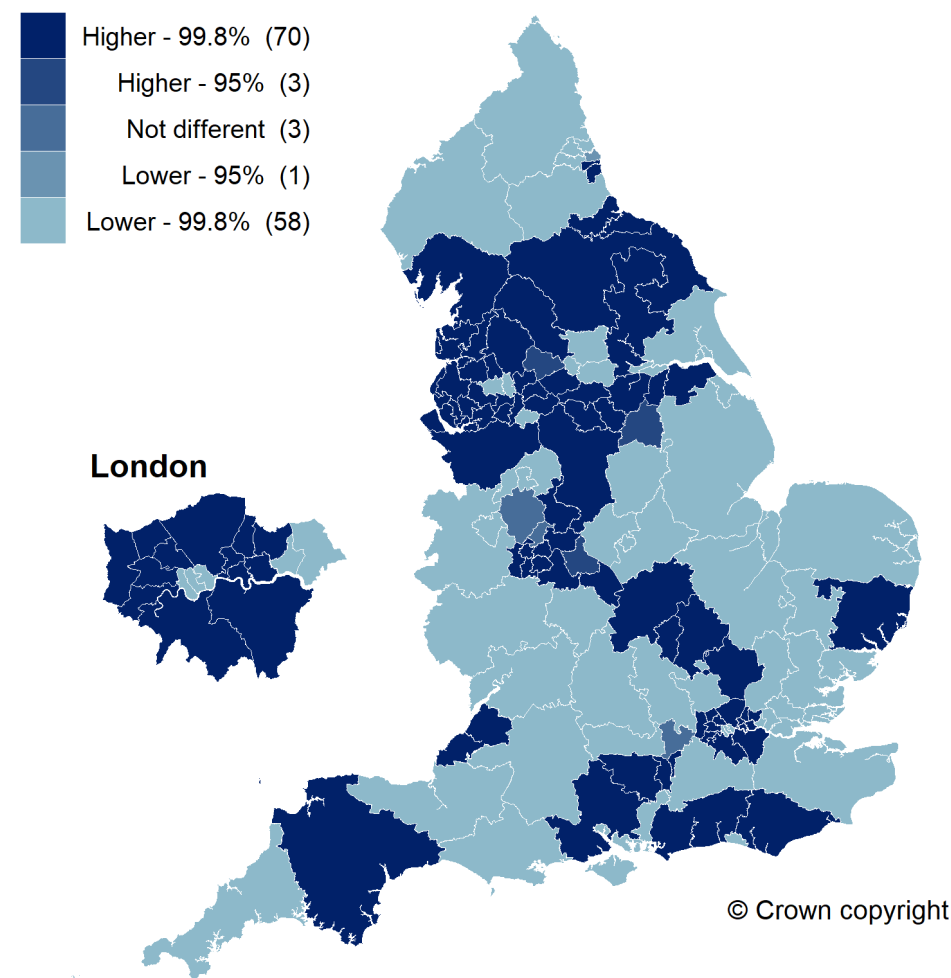
Directly standardised rate per 100,000 population

Optimum value: Requires local interpretation

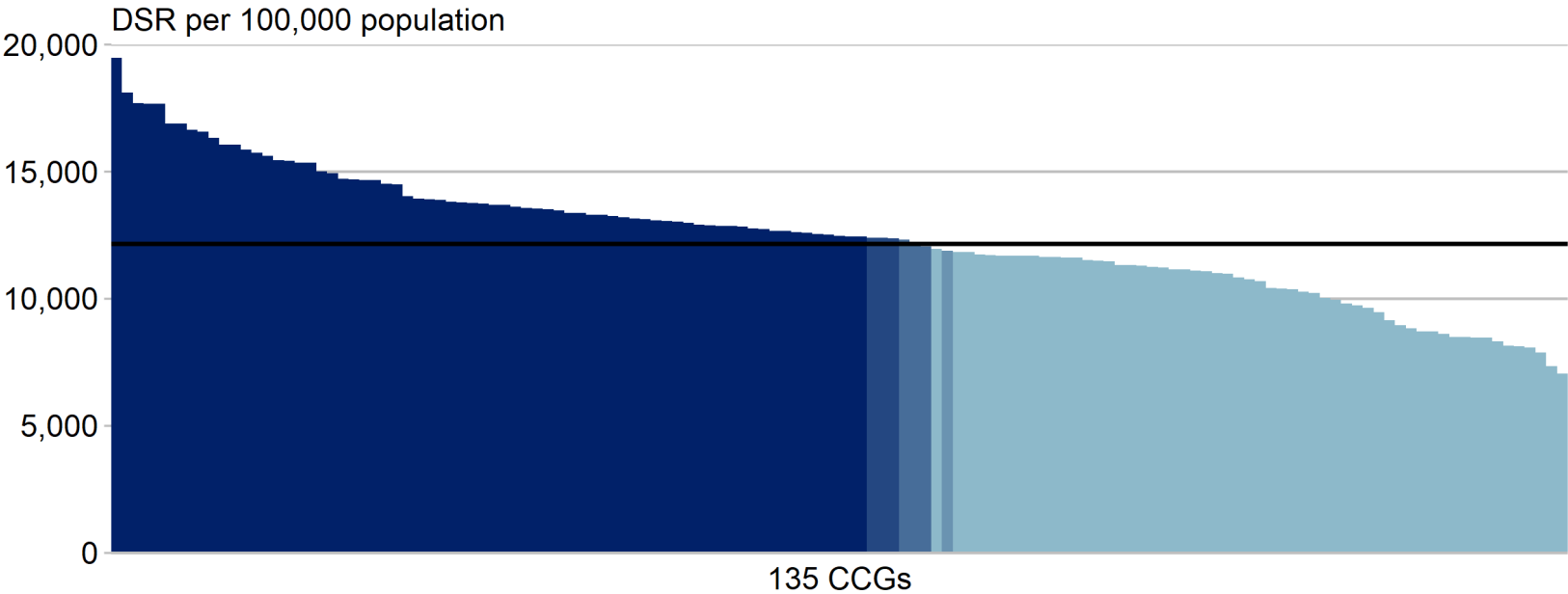
### Equal-sized quintiles of geographies



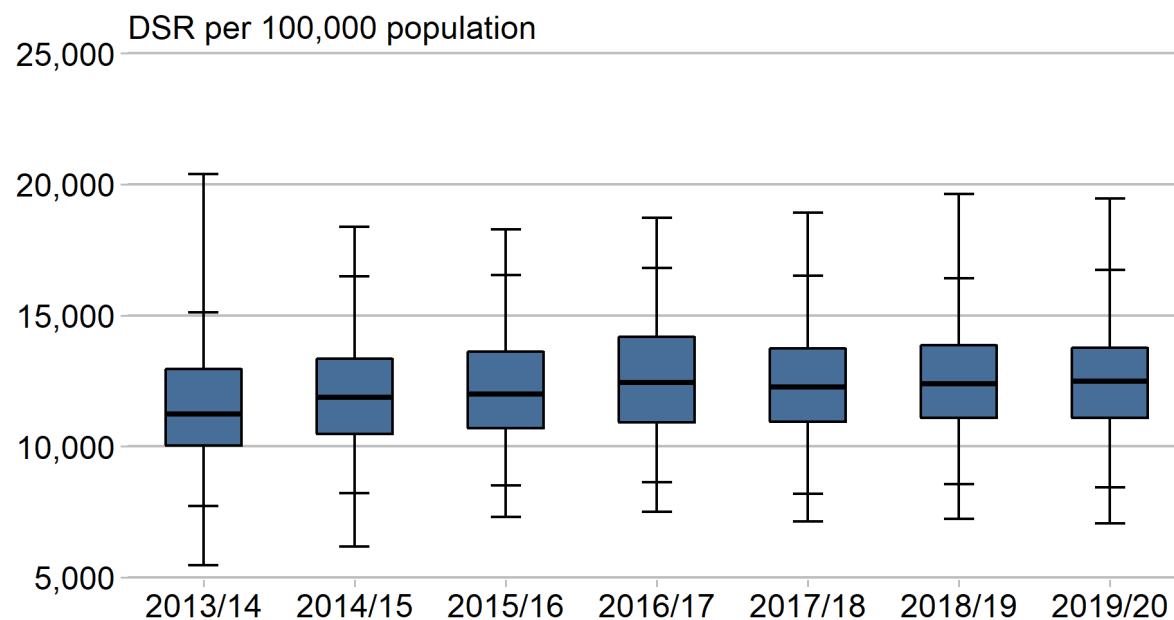
### Significance level compared with England



Column chart: Experimental statistic: Variation in rate of all vision outpatient follow up attendances by CCG (2019/20)



**Box plot time series: Experimental statistic: Variation in rate of all vision outpatient follow up attendances by CCG (2013/14 to 2019/20)**



Year	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	
Max-Min (Range)	14,925	12,201	10,965	11,216	11,765	12,400	12,413	No significant change
75th-25th percentile	2,924	2,890	2,931	3,271	2,811	2,774	2,661	No significant change
95th-5th percentile	7,400	8,262	8,016	8,154	8,308	7,860	8,299	No significant change
Median	11,225	11,867	12,002	12,427	12,260	12,379	12,486	INCREASING Significant

## Magnitude of Variation

### Map 1a: Experimental statistic: Variation in rate of all vision outpatient attendances by clinical commissioning group

The maps and column chart display the latest period (2019/20), during which clinical commissioning group (CCG) values ranged from 9,821 per 100,000 population to 24,131 per 100,000 population, which is a 2.5-fold difference between CCGs.

The England value for 2019/20 was 15,960 per 100,000 population.

The box plot shows the distribution of CCG values for the period 2013/14 to 2019/20.

The median increased significantly from 14,990 per 100,000 population in 2013/14 to 16,194 per 100,000 population in 2019/20.

During 2019/20 there were approximately 9.0 million outpatient attendances (all ages) for the treatment specialty codes relating to hospital-based ophthalmic services. The rate of all outpatient attendance increased over the 7 year period (2013/14 to 2019/20) with no significant change in the level of variation between CCGs.

Factors contributing to these variations are likely to include:

- capacity pressures on service provision to meet the rising demand for outpatient activity
- differences in clinical practice and decision-making
- availability of commissioned services for primary referral optimisation and ongoing monitoring
- differences in data coding and completeness for type of attendance

### Map 1b: Experimental statistic: Variation in rate of all vision outpatient attendances (persons based) by clinical commissioning group

The maps and column chart display the latest period (2019/20), during which CCG values ranged from 4,404 per 100,000 population to 8,248 per 100,000 population, which is a 1.9-fold difference between CCGs.

The England value for 2019/20 was 5,969 per 100,000 population.

The box plot shows the distribution of CCG values for the period 2013/14 to 2019/20.

Both the 95th to 5th percentile gap and the 75th to 25th percentile gap widened significantly.

The median increased significantly from 5,776 per 100,000 population in 2013/14 to 6,002 per 100,000 population in 2019/20.

Approximately 3.4 million patients of all ages attended ophthalmology outpatient appointments during 2019/20. The person based rate of attendance increased over the period 2013/14 to 2019/20.

#### Map 1c: Experimental statistic: Variation in rate of all vision outpatient first attendances by clinical commissioning group

The maps and column chart display the latest period (2019/20), during which CCG values ranged from 2,266 per 100,000 population to 8,027 per 100,000 population, which is a 3.5-fold difference between CCGs.

The England value for 2019/20 was 3,803 per 100,000 population.

The box plot shows the distribution of CCG values for the period 2013/14 to 2019/20.

The 95th to 5th percentile gap widened significantly.

First attendance rates are a proxy indicator of new demand for ophthalmology services in any one year.

Some of the variation observed may be related to differences in service organisation around pre-referral and referral management and how these are commissioned. In addition, differences in coding giving rise to some duplication may also be a factor for example if a patient was seen for the first time by more than one sub-specialty such as for glaucoma and then cataract; or attended an eye emergency clinic and subsequently attended a sub-specialty clinic. Coding by diagnosis is incomplete as it is not mandatory requirement in outpatient settings, and as such quantifying any duplication is not reliable.

#### Map 1d: Experimental statistic: Variation in rate of all vision outpatient follow up attendances by clinical commissioning group

The maps and column chart display the latest period (2019/20), during which CCG values ranged from 7,056 per 100,000 population to 19,468 per 100,000 population, which is a 2.8-fold difference between CCGs.

The England value for 2019/20 was 12,157 per 100,000 population.

The box plot shows the distribution of CCG values for the period 2013/14 to 2019/20.

The median increased significantly from 11,225 per 100,000 population in 2013/14 to 12,486 per 100,000 population in 2019/20.

Whilst the rate of follow-up attendances increased, there was no significant change in the variations between CCGs. It is likely that this rise in follow-up attendances is driving the rise in all outpatient attendances. This may be explained by changes in clinical management arising from introduction of new interventions and treatment pathways generating multiple episodes of care (for example for age related macular degeneration, and retinal maculopathies)<sup>7, 8, 9, 10, 11, 12, 13</sup> and differences in the organisation of services particularly for chronic disease management from active intervention to monitoring.

## Options for action

Ophthalmology outpatient services have been under considerable capacity pressures to meet the rising demand for care for a prolonged period and these have only been further exacerbated by the backlogs arising from the pandemic. The following actions should be considered urgently at place and integrated care system (ICS) level to understand local variations and inform appropriate action to address them.

### Capacity

Review outpatient attendance activity together with waiting times for first and follow-up appointments, and demographic factors, as means to assess pressure on service provision and accessibility.

### Review referral guidance and clinical protocols

Review referral guidance and clinical protocols to provide consistent, evidence-based clinical decision-making for referral, referral management, active intervention and ongoing monitoring.

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<sup>7</sup> National Institute for Health and Care Excellence (2008 updated 2012) [Ranibizumab and pegaptanib for the treatment of age-related macular degeneration \(NICE technology appraisal guidance \[TA155\]\)](#) [Accessed 17 May 2021]

<sup>8</sup> National Institute for Health and Care Excellence (2013) [Ranibizumab for treating diabetic macular oedema \(NICE technology appraisal guidance \[TA274\]\)](#) [Accessed 17 May 2021]

<sup>9</sup> National Institute for Health and Care Excellence (2013) [Ranibizumab for treating visual impairment caused by macular oedema secondary to retinal vein occlusion \(NICE technology appraisal guidance \[TA283\]\)](#) [Accessed 17 May 2021]

<sup>10</sup> National Institute for Health and Care Excellence (2013) [Aflibercept solution for injection for treating wet age-related macular degeneration \(NICE technology appraisal guidance \[TA294\]\)](#) [Accessed 17 May 2021]

<sup>11</sup> National Institute for Health and Care Excellence (2014) [Aflibercept for treating visual impairment caused by macular oedema secondary to central retinal vein occlusion \(NICE technology appraisal guidance \[TA305\]\)](#) [Accessed 17 May 2021]

<sup>12</sup> National Institute for Health and Care Excellence (2015) [Aflibercept for treating diabetic macular oedema \(NICE technology appraisal guidance \[TA346\]\)](#) [Accessed 17 May 2021]

<sup>13</sup> National Institute for Health and Care Excellence (2016) [Aflibercept for treating visual impairment caused by macular oedema after branch retinal vein occlusion \(NICE technology appraisal guidance \[TA409\]\)](#) [Accessed 7 Jul 2021]

## Data

Improve consistency of mandated coding requirements to avoid duplication and encourage coding by diagnosis and/or procedure to better inform service planning and commissioning to meet demand and need.

## Working differently

Build on existing developments for collaborative working across primary and secondary eye care settings<sup>14</sup> and make better use of the range of clinical skills and competencies across primary, community and hospital eye care to manage demand and backlogs.

## Service organisation

Commission systems-based delivery of whole pathways which include extended primary eye care services to provide consistent coverage of pre-referral investigations as a means to improve quality of referrals; and community eye services for the management and monitoring of less complex acute conditions and long term conditions at low risk of deterioration. This approach outlined in the systems and assurance framework for eye-health (SAFE)<sup>15</sup>, particularly applicable now and achievable for ICS.

## Communication

Ensure hospital outcome letter is copied routinely to referring optometrist to provide continuity of care and moderate future referral decision making.

The following documents are directly aligned with current NHS policy and priorities and can be used for service transformation:

- [NHS Long Term Plan](#)
- Full implementation of NICE guidelines for [Cataracts in adults: management \(NICE guideline \[NG 77\]\)](#), [Glaucoma: diagnosis and management \(NICE guideline \[NG 81\]\)](#) and [Age-related macular degeneration \(NICE guideline \[NG 82\]\)](#)
- [Getting It Right First Time - Ophthalmology GIRFT Programme National Specialty Report](#)
- [NHS England and NHS Improvement - National Eye Care Transformation and Recovery Programme<sup>16</sup>](#)
- [NHS England – the priorities and operational planning guidance 2021-22 and associated implementation guidance](#)
- [NHS England - Eye Care Planning & Implementation Guidance annex 2021-22](#)

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<sup>14</sup> Royal College of Ophthalmologists and The College of Optometrists (2020) [Our vision for safe and sustainable patient eye care services in England during and beyond COVID-19](#) [Accessed 24 Nov 2020]

<sup>15</sup> Clinical Council for Eye Health Commissioning (2018) [SAFE: Systems and assurance framework for eye health](#) [Accessed 24 May 2021]

<sup>16</sup> NHS (2021) [2021/22 priorities and operational planning guidance](#) [Accessed 12 Jul 2021]

All of the above have specifically identified eye health services as an NHS priority, have supporting resources and as such present the ideal opportunity for taking these proposed actions forwards to achieve change and sustainable improvement.

## Resources

Getting It Right First Time (2019) [Ophthalmology GIRFT Programme National Specialty Report](#) [Accessed 24 Jun 2020]

National Institute for Health and Care Excellence (2017) [Cataracts in adults: management \(NICE guideline \[NG 77\]\)](#) [Accessed 07 Jun 2021]

National Institute for Health and Care Excellence (2017) [Glaucoma: diagnosis and management \(NICE guideline \[NG 81\]\)](#) [Accessed 07 Jun 2021]

National Institute for Health and Care Excellence (2018) [Age-related macular degeneration \(NICE guideline \[NG 82\]\)](#) [Accessed 07 Jun 2021]

Royal College of Ophthalmologists (2021) [NHS England Eye Care Planning and Implementation Guidance 2021-22 Summary Annexe](#) [Accessed 24 Nov 2020]



# About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, research, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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