



Public Health
England

Protecting and improving the nation's health

Hypertension prevalence estimates in England, 2017

Estimated from the Health Survey for
England

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Published March 2020

PHE publications
gateway number: GW-1181

PHE supports the UN
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Main findings and background

Main findings

It is estimated that 11.8 million adults aged 16 years or older in England had hypertension in 2017. This is equal to approximately 26.2% of the adult population.

At CCG level, estimated hypertension prevalence ranges from 16% to 33.8%. At GP practice level, hypertension ranges between 18.8% and 31%, excluding the highest and lowest 10% of practices.

Estimated hypertension prevalence is highest in CCGs in the East and South East of England, and is also high in the North of England, coastal areas, and in areas with older populations.

Comparisons of the prevalence estimates and the 2016/17 Quality and Outcomes Framework (QOF) suggest that approximately 68% of the estimated number of people with hypertension are recorded on GP QOF hypertension registers.

Background

Hypertension is a major risk factor for heart disease, stroke, and kidney disease and is a public health priority for the wider public health system. Hypertension is mainly detected and managed in general practice. It generally has no symptoms, but early diagnosis and effective management can prevent progression to cardiovascular disease.

Hypertension prevalence estimates have been created for areas in England based on Health Survey for England data from 2016 and 2017.

The definition of hypertension for these estimates is: “adults with self-reported drug treatment for high blood pressure and adults with recorded high blood pressure and no prescribed medication”. This is the same as the definition used by the Adult Health report from the Health Survey for England, 2017: files.digital.nhs.uk

Estimates have been created for general practitioner (GP) practices, clinical commissioning groups (CCGs) and local authorities in England. Results for GP practices and CCGs are presented here.

Overview of hypertension prevalence

High quality information on national levels of hypertension is collected via the Health Survey for England, as adult participants' blood pressure is measured in their homes by a qualified nurse. The sample size of the survey is too small to provide hypertension figures for local authorities and CCGs, but the national data can be used to create synthetic estimates for these areas.

These prevalence estimates are synthetic, which means they are based not on real measurements of blood pressure in local areas, but on the national risk of hypertension in England applied to local areas. In some areas where local risk factors are very different from the national profile, they may under or over-estimate hypertension.

The England prevalence by age, sex and self-assessed health status was applied to synthetic local area populations to estimate the overall crude prevalence in the local areas. Hypertension prevalence increases with age and poor health. Areas with an older age structure or those with a poorer self-assessed health status are likely to have a higher prevalence of hypertension.

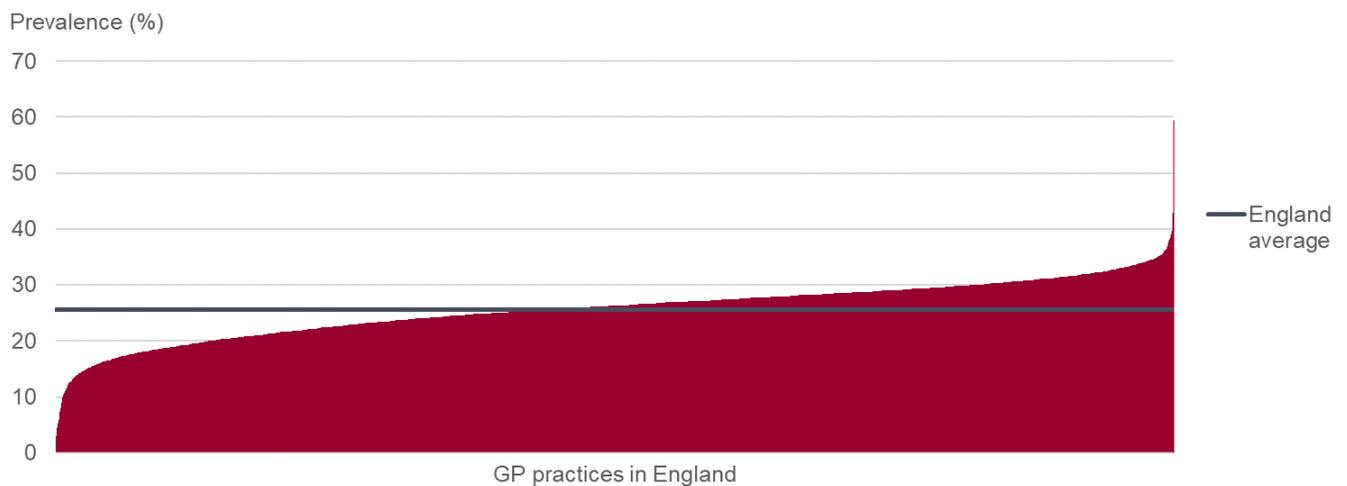
Full details of the method and data sources used can be found in the 'Technical document' available from the 'National Cardiovascular Intelligence Network' (NCVIN). Please email ncvin@phe.gov.uk

All estimates are available to download at: www.gov.uk/guidance/cardiovascular-disease-data-and-analysis-a-guide-for-health-professionals

GP practice hypertension prevalence

The estimated prevalence of hypertension in GP practices ranges from 2.2% to 59.3%, though the practices with the extreme highest and lowest estimates often have either very young or old patient groups. For example, the practice with 59.3% hypertension serves care home residents in a CCG, so all its patients are at very high risk of hypertension. When we remove the highest and lowest 10% of practices, the range of hypertension is between 18.8% and 31% of patients. Figure 1 shows the range of estimated hypertension prevalence in the 7,384 practices with list sizes of more than 750 patients.

Figure 1. Estimated hypertension prevalence by GP practice in England, 2017



Source: PHE analysis of data from the Health Survey for England, ONS 2011 Census, NHS Digital practice list sizes

CCG hypertension prevalence

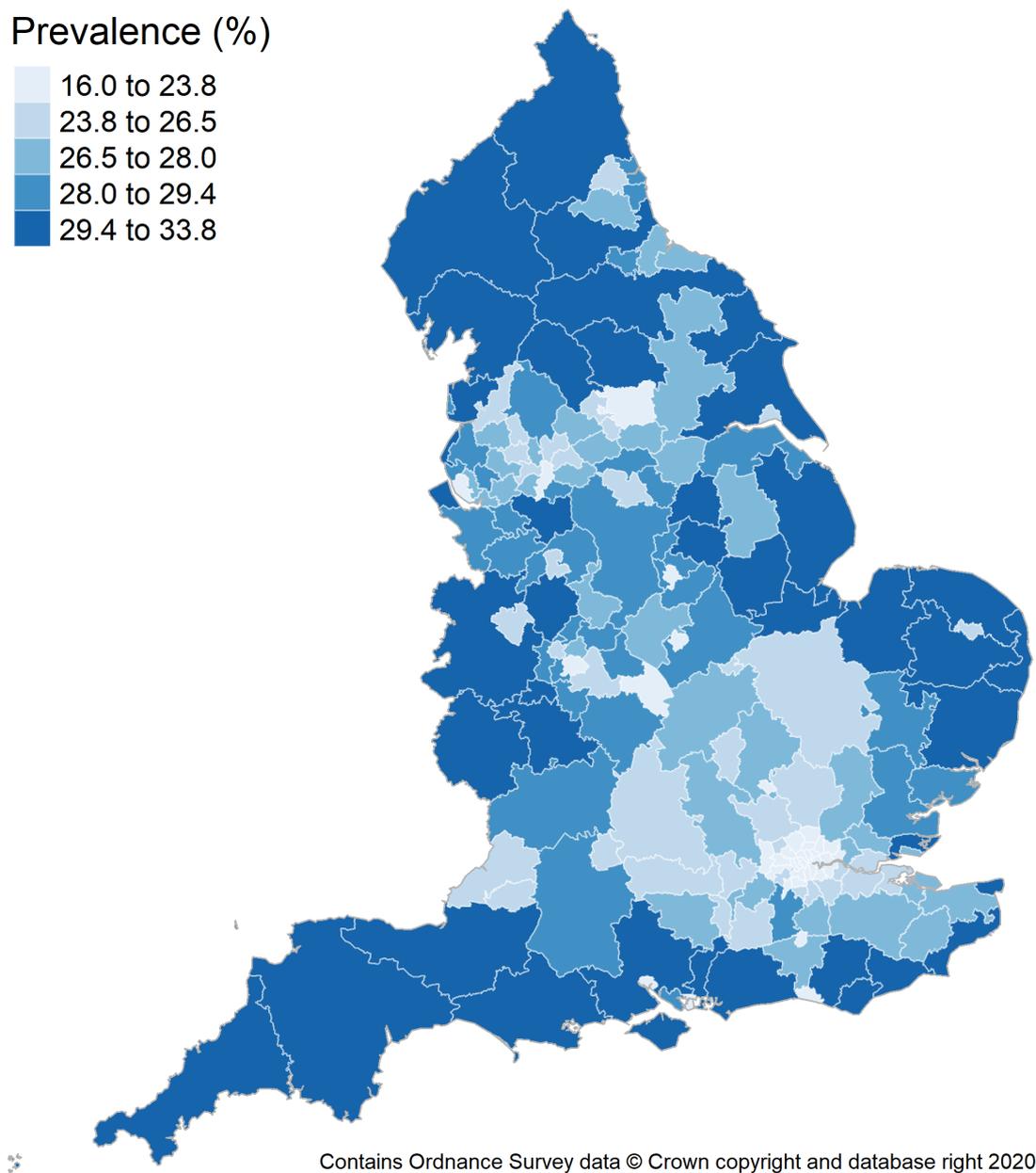
Hypertension prevalence ranges from 16% to 33.8% in the 191 CCGs in England. CCGs with the lowest prevalence of hypertension were Tower Hamlets, Bradford City and Islington (Table 1). CCGs with the highest estimated prevalence were North Norfolk, Fylde & Wyre and Lincolnshire East in the East of England, and Isle of Wight (Table 2) in the South East of England.

Figure 2 shows the range of hypertension prevalence in CCGs by grouping the CCG values into 5 equal sized groups, or quintiles. The CCGs in the highest quintiles are mainly situated in the north and along the southern and eastern coastal regions, and lowest quintiles in London and central England.

Hypertension prevalence is driven largely by the age structure of the population and hypertension is highest in the CCGs which have high proportions of elderly people.

However, other factors such as general health status contribute towards higher levels of hypertension in the population.

Figure 2. Estimated hypertension prevalence (16+), 2017



Source: PHE analysis of data from the Health Survey for England, ONS 2011 Census, ONS mid-year population estimates

Comparison against Quality and Outcomes Framework registers

The Quality and Outcomes Framework (QOF) is a voluntary annual reward and incentive programme for all GP practices in England. It includes the collection of certain disease and condition registers in patients, including hypertension. The register is a measure of the prevalence of hypertension in patients that has been recorded by the GP. Comparing the hypertension prevalence estimates and the 2016/17 QOF hypertension register provides an estimate of the number of people with high blood pressure who are not recorded by their GP on a hypertension register.

Making this comparison is difficult, however, for 2 reasons. Firstly, the hypertension prevalence estimates only include adults aged 16 years and older, whilst the QOF hypertension register includes adults and children. Secondly, the QOF shows patients registered in practices within a CCG, whilst the hypertension prevalence estimates are based on people living in a CCG area. In some cases, these 2 populations are very different, for example Bradford City CCG in Table 1 has a much larger registered patient population than the estimated population resident in the CCG area, so the number of cases from the 2 sources are not comparable.

The hypertension QOF register in England recorded just over 8 million (13.8%) people with hypertension in the population in 2016/17. Comparisons of these new prevalence estimates with the 2016/17 QOF hypertension register suggests that only approximately 68% of the estimated number of people with hypertension are recorded on GP QOF hypertension registers. This assumes that children aged 15 or less with hypertension are not included in either QOF registers or prevalence estimates.

Table 1. CCGs with the lowest estimated adult hypertension (16+), 2017

CCG	QOF register hypertension prevalence (%)	QOF register hypertension cases	Estimated hypertension 16+ (%)	Estimated hypertension 16+ cases
NHS Tower Hamlets	7.6	23,573	16.0	39,360
NHS Bradford City	8.9	11,543	17.7	10,820
NHS Islington	8.8	21,739	17.9	35,280
NHS Newham	10.6	40,991	17.9	48,360
NHS Lambeth	9.5	37,400	18.0	48,120
NHS City And Hackney	9.4	29,144	18.1	40,780
NHS Wandsworth	8.2	32,482	18.4	48,840
NHS Manchester CCG	10.2	63,951	18.4	80,300
NHS Southwark	10.6	34,338	18.5	47,320
NHS Nottingham City	10.5	38,784	19.8	53,100

Source: PHE analysis of data from the Health Survey for England, ONS 2011 Census, ONS mid-year population estimates, and QOF 2016/17

Table 2. CCGs with the highest estimated adult hypertension (16+), 2017

CCG	QOF register hypertension prevalence (%)	QOF register hypertension cases	Estimated hypertension 16+ (%)	Estimated hypertension 16+ cases
NHS North Norfolk	18.1	31,191	33.8	49,600
NHS Fylde & Wyre	18.1	29,164	32.7	52,500
NHS Isle Of Wight	17.7	25,404	32.7	38,860
NHS Lincolnshire East	17.9	44,270	32.6	64,280
NHS Southport And Formby	17.0	21,057	32.3	31,280
NHS Eastbourne, Hailsham And Seaford	17.4	34,109	32.1	50,960
NHS West Norfolk	18.5	32,143	31.9	46,580
NHS Hastings And Rother	18.1	30,688	31.7	49,600
NHS Scarborough And Ryedale	16.8	20,022	31.7	29,700
NHS East Riding Of Yorkshire	17.3	52,979	31.7	83,700

Source: PHE analysis of data from the Health Survey for England, ONS 2011 Census, ONS mid-year population estimates, and QOF 2016/17

Summary of method used

These hypertension prevalence estimates use the same definition provided by the Adult Health report from the Health Survey for England (HSE), 2017¹. This is defined as either adults with self-reported blood pressure drug treatment, or adults with a recorded blood pressure higher than 140/90 mmHg and no prescribed blood pressure medication. In the Health Survey for England these data are collected in a nurse-led interview of adult survey respondents. This definition is not a clinical diagnosis of hypertension as outlined by the NICE hypertension guideline² and implemented by general practice in England.

The estimates were constructed in 3 stages. The first stage was creating a regression model, which quantified the statistical relationship between individual level risk factor predictors and whether a person had hypertension, based on the definition highlighted above. Data on the respondents who attended the nurse interview in the Health Survey for England for 2016 and 2017 were used to create the model. Age-group, sex and general health status of the survey respondents were included as predictors. Ethnicity and deprivation were also tested as predictors, but neither were strong enough to use in the final model.

The second stage was to create synthetic populations for GP practices, CCGs and local authorities. These populations were broken down by the same group of predictors that the model included, which were age, sex and general health status. The sources used for these populations included practice list sizes from NHS Digital, mid-year population estimates from the Office for National Statistics, and 2011 Census data on general health status.

The third stage was to take the final model outputs, referred to as odds-ratios, for each age-group, sex and general health status predictor and apply these to the synthetic populations to produce the final prevalence estimate percentages for each area.

Uncertainty intervals around the final prevalence estimates were also created for CCGs and local authorities. These intervals provide a range of prevalence for each area in which there is a 95% chance of having a true prevalence between the upper and lower interval.

¹ Ng Fat, L. (2018). Health Survey for England 2017: Adult health. NHS Digital. Accessed 5 Feb 2020 here: <https://files.digital.nhs.uk/75/9C8B99/HSE17-Adult-health-rep-v2.pdf>

² National Institute for Health and Care Excellence. 2019. NICE guideline NG136: Hypertension in adults: diagnosis and management. Accessed 5 Feb 2020 here: www.nice.org.uk/guidance/ng136

These prevalence estimates are synthetic, which means they are not based on real measurements of hypertension in local areas. They represent the risk profile for hypertension in England applied to local populations. In some areas where those risk factors are very different from the national profile they may under or over-estimate hypertension.

Full details of the method and data sources used can be found in the 'Technical document' available from the 'National Cardiovascular Intelligence Network' (NCVIN). Please email ncvin@phe.gov.uk