diabetes
Health Intelligence

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# APHO Diabetes Prevalence Model:
## Key Findings for England

### Introduction

The new APHO Diabetes Prevalence Model provides estimates of total diabetes prevalence for adults in England. The estimates are adjusted for age, sex, ethnic group and deprivation. Estimates are provided up to 2030 based on projected population change and projected increases in obesity. As with all modeled data, there is a degree of uncertainty around the APHO Diabetes Prevalence Model estimates. Uncertainty ranges have been calculated that give a plausible range in which the true value is likely to lie. Full details of the model methods can be found on the YHPHO website.

### Current Prevalence of Diabetes in Adults

It is estimated that in 2010 there are 3,099,853 (uncertainty range 2,220,903 – 4,531,494) people aged 16 years and older living with diabetes (diagnosed and undiagnosed) in England. This is equal to 7.4% (uncertainty range 5.3% - 10.8%) of the population in this age group.

Comparisons between estimates for 2009 and the 2008/09 Quality and Outcomes Framework suggest that 72.9% of adults with diabetes are included in general practice diabetes registers. It is therefore estimated that there are 821,800 adults with diabetes who were not diagnosed in England in 2009.

Diabetes prevalence is higher in men than in women. Crude prevalence (not adjusted for age) is higher in people from South Asian ethnic groups and Black ethnic groups (see Figure 1).

There is a clear association between increasing age and higher diabetes prevalence with 14.3% (uncertainty range 10.6% - 19.2%) of people aged 55 – 74 years old estimated to have diabetes and 16.5% (uncertainty range 12.3% - 22.0%) of those aged over 75 years old. There was also an estimated 176,491 (1.8% uncertainty range 0.9% - 3.6%) women aged of child bearing age (16 to 44 years old) with diabetes.

At PCT level the highest estimated prevalence of total diabetes in adults was in

### Key Messages

- It is estimated that 3,099,853 people aged 16 years and older in England have diabetes in 2010
- Comparisons with the 2008/09 Quality and Outcomes Framework data suggest that only 72.9% of adults with diabetes are currently diagnosed.
- Prevalence of diabetes among adults to rise to 8.5% in 2020 and 9.5% by 2030
- Approximately half of the increase in estimated diabetes prevalence is due to the changing age and ethnic group structure of the population and half due to increasing obesity



YHPHO

Diabetes Health Intelligence is a strategic programme within Yorkshire and Humber Public Health Observatory providing national diabetes health intelligence

Figure 1: Summary of estimates of diabetes prevalence for England, 2010, by age, ethnicity and sex

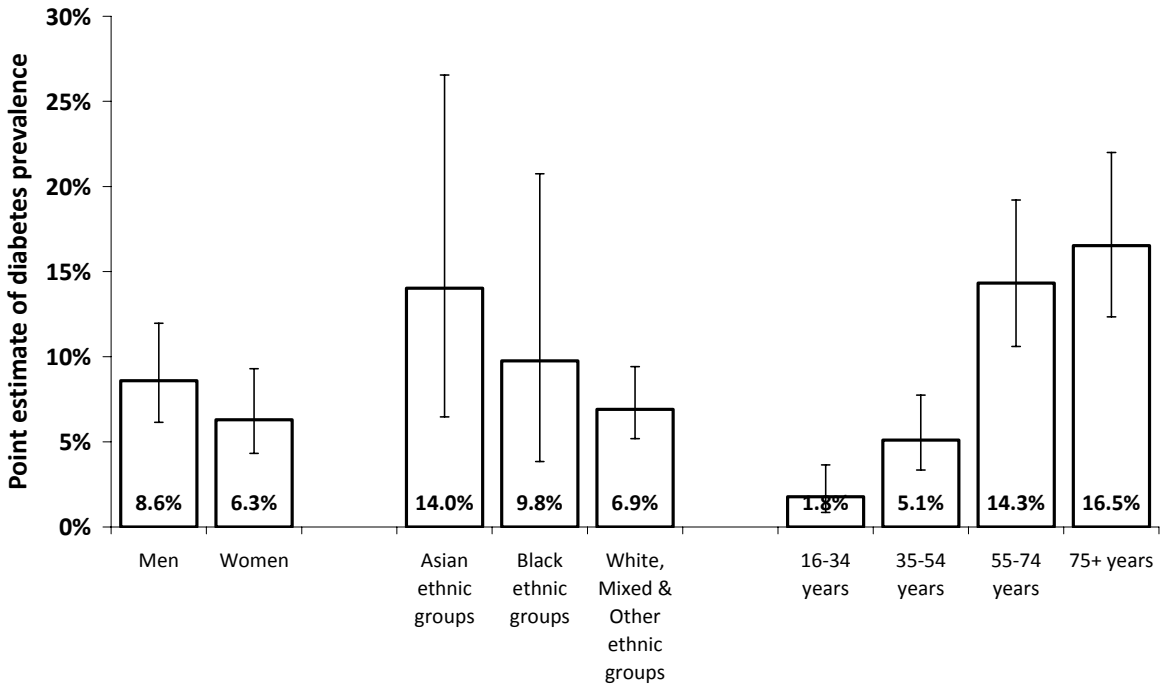



Table 1: PCTs with highest estimated total diabetes prevalence, 2010

| | Number | % | Uncertainty range Lower limit | Upper limit |
|---|---|---|---|---|
| Heart of B'ham | 22,144 | 10.9% | 5.8% | 20.1% |
| Leicester City | 23,123 | 10.0% | 5.8% | 17.1% |
| Newham | 18,213 | 9.9% | 5.3% | 18.2% |
| Brent | 21,186 | 9.7% | 5.4% | 17.2% |
| Wolverhampton | 18,143 | 9.7% | 6.3% | 15.3% |
| Harrow | 16,597 | 9.6% | 5.7% | 16.2% |
| Sandwell | 21,423 | 9.4% | 6.2% | 14.9% |
| Redbridge | 17,962 | 8.9% | 5.3% | 15.2% |
| B'ham East & North | 27,155 | 8.9% | 5.9% | 14.0% |
| Walsall | 17,602 | 8.8% | 6.1% | 13.3% |

Table 2: PCTs with lowest estimated total diabetes prevalence, 2010

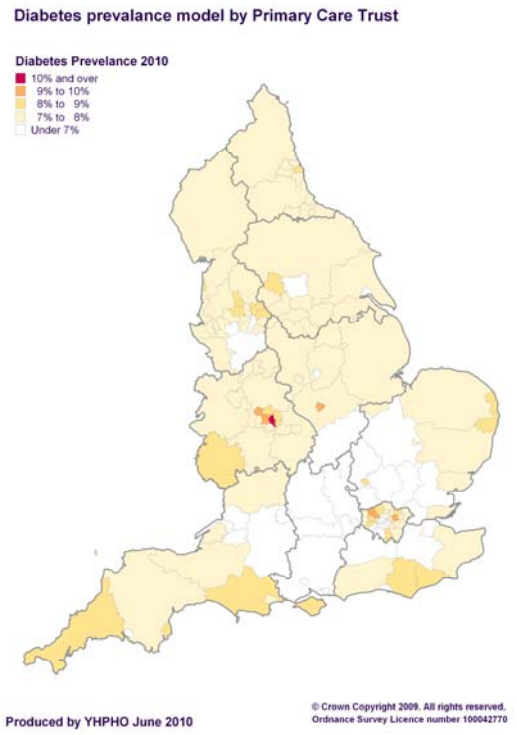
| | Number | % | Uncertainty range Lower limit | Upper limit |
|---|---|---|---|---|
| Southampton | 12,196 | 6.3% | 4.4% | 9.5% |
| Westminster | 13,660 | 6.3% | 4.1% | 10.2% |
| Islington | 9,986 | 6.3% | 4.0% | 10.3% |
| Portsmouth | 10,299 | 6.2% | 4.4% | 9.2% |
| Berkshire West | 22,210 | 6.2% | 4.4% | 9.1% |
| Hammersmith and Fulham | 8,745 | 6.1% | 3.9% | 9.8% |
| Richmond and Twickenham | 8,912 | 6.1% | 4.2% | 9.0% |
| Buckinghamshire | 30,291 | 6.0% | 4.4% | 8.7% |
| Camden | 12,494 | 6.0% | 3.8% | 9.9% |
| Wandsworth | 13,199 | 5.5% | 3.5% | 9.0% |

Heart of Birmingham PCT, Leicester City PCT, Newham PCT and Brent PCT. The PCTs with the lowest estimated adult diabetes prevalence include Wandsworth PCT, Camden PCT, Buckinghamshire PCT and Richmond and Twickenham PCT.

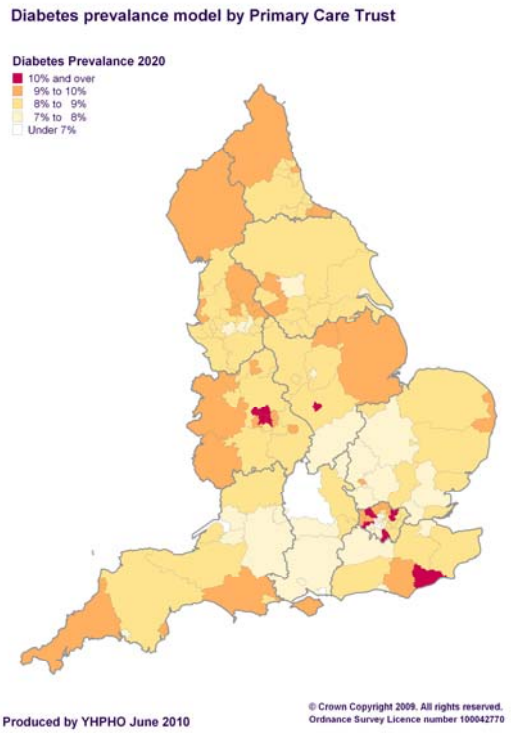
## Future Prevalence of Diabetes in Adults

Between 2010 and 2030 the prevalence of diabetes among people aged 16 years and older is estimated to increase to 4,603,363 or 9.5%. Approximately half of this increase is due to the changing age and ethnic group structure of the population and about half is due to the projected increase in obesity.

Map 1: Diabetes Prevalence by PCT, 2010




Map 2: Diabetes Prevalence by PCT, 2020




Map 3: Diabetes Prevalence by PCT, 2030

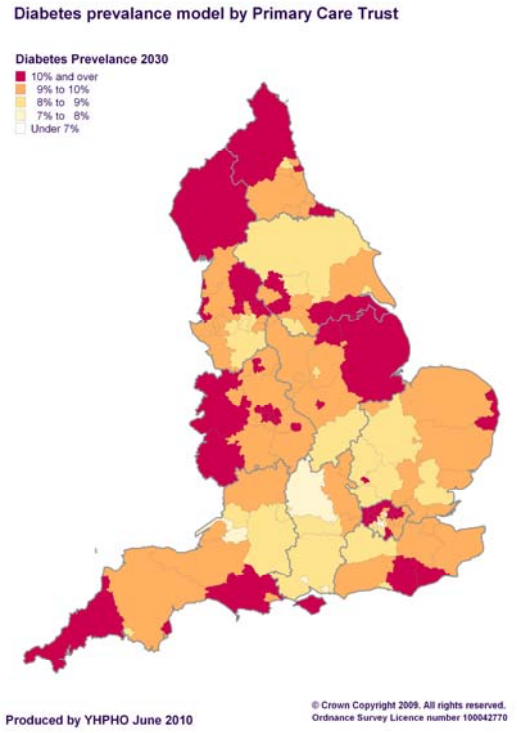



Table 3: Estimates of total diabetes prevalence, 2010-2030

| | Number | % | Uncertainty range Lower limit | Upper limit |
|---|---|---|---|---|
| 2010 | 3,099,853 | 7.4% | 5.3% | 10.8% |
| 2015 | 3,466,662 | 8.0% | 5.7% | 11.7% |
| 2020 | 3,822,930 | 8.5% | 6.0% | 12.5% |
| 2025 | 4,189,229 | 9.0% | 6.3% | 13.3% |
| 2030 | 4,603,363 | 9.5% | 6.7% | 14.2% |

The prevalence of diabetes is not estimated to increase uniformly across England with some PCTs projected to see the prevalence of diabetes almost double between 2010 and 2030 (see Table 4). Eight of the ten PCTs that are estimated to experience the greatest proportional increase are in London.

Table 4: Increase in estimated prevalence by PCT

| | 2010 | 2030 | Increase |
|---|---|---|---|
| Greatest increase | | | |
| Harrow | 9.6% | 13.9% | 44.8% |
| Croydon | 8.3% | 11.9% | 43.6% |
| Milton Keynes | 6.4% | 9.2% | 43.5% |
| Redbridge | 8.9% | 12.7% | 42.4% |
| Hounslow | 8.5% | 12.0% | 41.4% |
| Hillingdon | 7.6% | 10.7% | 40.6% |
| Enfield | 7.9% | 11.1% | 39.7% |
| Leicester City | 10.0% | 13.9% | 38.8% |
| Barnet | 8.1% | 11.2% | 38.0% |
| Westminster | 6.3% | 8.7% | 37.7% |
| Lowest increase | | | |
| Gateshead | 7.6% | 9.4% | 23.9% |
| B'ham E & N | 8.9% | 11.0% | 23.5% |
| Salford | 7.2% | 8.9% | 23.4% |
| Bristol | 6.3% | 7.8% | 23.2% |
| Sheffield | 7.3% | 9.0% | 23.1% |
| Wandsworth | 5.5% | 6.8% | 22.6% |
| Leeds | 6.7% | 8.3% | 22.6% |
| Plymouth | 6.9% | 8.5% | 22.4% |
| S Birmingham | 7.5% | 9.2% | 22.3% |
| Bath & NE Somerset | 6.4% | 7.7% | 20.7% |

## Tools for using own population data

Two Excel based tools have been developed to allow users to apply the APHO Diabetes Prevalence Model to their own population data. One tool applies the model structure with the underlying prevalence rates detailed above to a user defined population. The other tool applies the model structure to the user defined population and allows the user to identify specific groups with a different risk of having diabetes to the general population (eg ethnic groups not included in the APHO Diabetes Prevalence Model, people with mental health problems). Both tools provide point estimates of prevalence and lower and upper uncertainty limits.

## Further work

Diabetes Health Intelligence is working with other Public Health Observatories to consider how the methods in the model can be used to estimate diabetes prevalence in Wales, Scotland, Northern Ireland and the Republic of Ireland. This work is being done through the auspices of APHO. Diabetes Health Intelligence is also investigating methods for providing robust estimates of the number of children (under 16 years) old with diabetes.

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