

Ready Reckoner Methods May 2024

This document explains the process of estimating smoking-related figures at the regional, local, ward, combined authority, constituency and ICB levels of England from national figures. For an explanation of how the national figures were derived, [see the CBPF model May 2024](#).

In the Ready Reckoner, 'Local Authority' or 'LA' means Upper Tier Local Authorities (i.e. county councils, unitary authorities, metropolitan boroughs and London boroughs). The Isles of Scilly and the City of London are removed as populations are very low and data are rarely available for them. Where the LA value for a statistic is unavailable, which is rare, the most recent year in which the value is available is used instead.

The list of areas is updated to match those at the time of release, but where sources use older boundaries, these are mapped to the new areas as closely as possible. For example, the LA of Cumbria has recently split into Cumberland and Westmoreland and Furness and its districts have been retired. Proportions (e.g. smoking prevalences) may be estimated using the older geography, and counts (e.g. number of economically active people) by splitting the areas according to population or by adding figures for the constituent districts.

While LA names and boundaries are up to date, owing to limitations in the available data sets, ward and constituency names and boundaries are from 2021.

ICB smoking prevalences are directly available. However, as shown below, ICB geographies are estimated using Local Authority boundaries and these is used for generating most figures. Where Upper Tier Local Authorities (UTLA) boundaries do not cross ICBs, the UTLA statistics are summed and used. Where UTLAs do cross ICB boundaries, Lower Tier Local Authorities (LTLAs) are summed used instead. Where LTLAs cross ICB boundaries, which is rare, approximate proportions of the LTLA are assigned to each ICB. This assignment is referred to in this document as 'U/LTLA level'. In some cases, LTLA values were unavailable for 2022, so were estimated using the most recent available value, or if that wasn't possible, the value for the UTLA.

Regions, Local Authorities, Combined LAs and ICBs

First, methods are explained for regional, local, combined authority and ICB levels. Ward and constituency methods are explained afterwards.

Smoking prevalence and spend stats

	<u>Regional level</u>	<u>Local level</u>	<u>Combined Local Authority level</u>	<u>ICB level</u>
<u>Smoking prevalence</u>	Directly available from APS ⁱ	Directly available from APS ⁱⁱ	Directly available from APS ⁱⁱⁱ	Directly available from APS ^{iv}
<u>Total adult population</u>	Directly available from ONS pop. estimates (adding together ages 18+) ^v	Directly available from ONS pop. estimates (adding together ages 18+) ^v	Not used	Found at U/LTLA level and summed to ICB level ^v
<u>Number of (adult) smokers</u>	Smoking prevalence * Total adult population	Smoking prevalence * Total adult population	Sum of results for the LAs which make up the CA	Smoking prevalence * Total adult populations
<u>Average spend per smoker</u>	National figure from CBPF model	National figure from CBPF model	National figure from CBPF model	National figure from CBPF model
<u>Annual spend on tobacco</u>	National figure from CBPF model * Number of smokers in this region/ Total number of smokers in all regions	National figure from CBPF model * Number of smokers in this region/ Total number of smokers in all regions	Sum of results for the LAs which make up the CA	National figure from CBPF model * Number of smokers in this region/ Total number of smokers in all regions
<u>Estimated revenue from cigarette and HRT taxation</u>	National figure from CBPF model * Number of smokers in this region/ Total number of smokers in all regions	National figure from CBPF model * Number of smokers in this LA/ Total number of smokers in all LAs	Sum of results for the LAs which make up the CA	National figure from CBPF model * Number of smokers in this ICB /Total number of smokers in all ICBs

Healthcare and Health stats

	<u>Regional level</u>	<u>Local level</u>	<u>Combined Local Authority level</u>	<u>ICB level</u>
<u>Smoking prevalence in ages 35+</u>	Cut of data provided directly to ASH by OHID	Cut of data provided directly to ASH by OHID	Not used	Not used
<u>Total population aged 35+</u>	Directly available from ONS pop. estimates (adding together ages 35+)ʷ	Directly available from ONS pop. estimates (adding together ages 35+)ʷ	Not used	Not used
<u>Number of smokers 35+</u>	Smoking prevalence 35+ * Total population 35+	Smoking prevalence 35+ * Total population 35+	Sum of results for the LAs which make up the CA	Found at U/LTLA level summed to ICB level
<u>NHS costs</u>	National figure from CBPF model * Number of smokers 35+ in this region/ Total number of smokers 35+ in all regions	National figure from CBPF model * Number of smokers 35+ in this LA/ Total number of smokers 35+ in all LAs	Sum of results of the LAs which make up the CA	National figure from CBPF model * Number of smokers 35+ in this ICB/ Total number of smokers 35+ in all ICBs
<u>QALY cost of death</u>	National figure from CBPF model * Number of smokers 35+ in this region/ Total number of smokers 35+ in all regions	National figure from CBPF model * Number of smokers 35+ In this LA/ Total number of smokers 35+ in all LAs	Sum of results for the LAs which make up the CA	National figure from CBPF model * Number of smokers 35+ in this ICB/ Total number of smokers 35+ in all ICBs

Social care stats

	<u>Regional level</u>	<u>Local level</u>	<u>Combined Local Authority level</u>	<u>ICB level</u>
<u>Smoking prevalence in ages 50+</u>	Cut of data provided directly to ASH by OHID	Cut of data provided directly to ASH by OHID	Not used	Not used
<u>Total population aged 50+</u>	Directly available from ONS pop. estimates (adding together ages 50+)⁹	Directly available from ONS pop. estimates (adding together ages 50+)⁹	Not used	Not used
<u>Number of smokers 50+</u>	Smoking prevalence 50+ * Total population 50+	Smoking prevalence 50+ * Total population 50+	Sum of results for the LAs which make up the CA	Found at U/LTLA level summed to ICB level
<u>Social care costs</u> each of: <ul style="list-style-type: none"> • Domiciliary care costs, • Residential care costs • Cost of informal care by family & friends • Cost of unmet care need 	National figure from CBPF model * Number of smokers 50+ / Total number of smokers 50+ in all regions	National figure from CBPF model * Number of smokers 50+ / Total number of smokers 50+ in all LAs	Sum of results of the LAs which make up the CA	National figure from CBPF model * Number of smokers 50+ in ICB / Total number of smokers 50+ in all ICBs
<u>Social care cost total</u>	Sum of the four components above	Sum of the four components above	Sum of results of the LAs which make up the CA	Sum of the four components above

Employment and Productivity stats

	<u>Regional level</u>	<u>Local level</u>	<u>Combined Local Authority level</u>	<u>ICB level</u>
<u>Median Gross Annual Pay</u>	Directly available from Annual Survey of Hours and Earnings ^{vi}	Directly available from Annual Survey of Hours and Earnings ^{vi}	Not used	Found at U/LTLA level and averaged to estimate ICB level ^{vi}
<u>Number of employed people</u>	Directly available from Annual Population Survey ^{vii}	Directly available from Annual Population Survey ^{vii}	Not used	Found at U/LTLA level summed to ICB level ^{vii}
<u>Number of Economically Inactive people who want a job</u>	Directly available from Annual Population Survey ^{viii}	Directly available from Annual Population Survey ^{viii}	Not used	Found at U/LTLA and summed to ICB level ^{viii}

<u>Weighting for smoking related lost earnings</u>	Smoking prevalence * Median gross annual pay * Number of employed people	Smoking prevalence * Median gross annual pay * Number of employed people	Not used	Smoking prevalence * Mean median gross annual pay * Number of employed people
<u>Smoking related lost earnings</u>	National figure from CBPF model * Weighting in this region/ Total weighting in all regions	National figure from CBPF model * Weighting in this region/ Total weighting in all LAs	Sum of results of the LAs which make up the CA	National figure from CBPF model * Weighting in this region/ Total weighting in all ICBs
<u>Weighting for smoking related unemployment</u>	Smoking prevalence * Median gross annual pay * Number of Economically Inactive people who want a job	Smoking prevalence * Median gross annual pay * Number of Economically Inactive people who want a job	Not used	Smoking prevalence * Mean median gross annual pay * Number of Economically Inactive people who want a job
<u>Smoking related unemployment</u>	National figure from CBPF model * Weighting in this region/ Total weighting in all regions	National figure from CBPF model * Weighting in this region/ Total weighting in all LAs	Sum of results of the LAs which make up the CA	National figure from CBPF model * Weighting in this region/ Total weighting in all ICBs
<u>Cost of early deaths (lost productivity)</u>	National figure from CBPF model * Number of adult smokers/ Total adult smokers in all regions	National figure from CBPF model * Number of adult smokers/ Total adult smokers in all regions	Sum of results of the LAs which make up the CA	National figure from CBPF model * Number of adult smokers/ Total adult smokers in all regions
<u>Reduced GVA due to expenditure on tobacco</u>	National figure from CBPF model * Number of adult smokers/ Total adult smokers in all regions	National figure from CBPF model * Number of adult smokers/ Total adult smokers in all regions	Sum of results of the LAs which make up the CA	National figure from CBPF model * Number of adult smokers/ Total adult smokers in all regions
<u>Productivity cost total</u>	Sum of the four components above	Sum of the four components above	Sum of results of the LAs which make up the CA	Sum of the four components above

Fire stats

	<u>Regional level</u>	<u>Local level</u>	<u>Combined Local Authority level</u>	<u>ICB level</u>
Fire costs each of: <ul style="list-style-type: none">• Number of fires• Costs of death• Costs of injuries• Costs of property damage• Fire and Rescue service costs	National figure from CBPF model * Number of smokers in this region/ Total number of smokers in all regions	National figure from CBPF model * Number of smokers in this LA/ Total number of smokers in all LAs	Sum of results of the LAs which make up the CA	National figure from CBPF model * Number of smokers in this ICB/ Total number of smokers in all ICBs

Wards and Constituencies

Estimates are found for the population count and the smoker count in each ward, for ages 18+, 35+ and 50+ as explained below. The smoker count is used to weight the breakdown of national figures, similarly to the process for LAs above.

Smoking related lost earnings and smoking related unemployment both include extra weighting factors. The standard smoker count weighting is normalised so that the sum of the weights within a LA sums to one. Then this is multiplied by the LA cost estimate to create a final estimate.

Fire costs are not estimated for wards or constituencies due to very low average numbers of smoking-related fires per ward (below one per year).

Ward population estimates

Experimental ward population estimates are available from the ONS^{ix}. These are used to give ward population estimates for ages 18+, 35+ and 50+ and then normalised so that the sum of ward populations match the LA population.^v

Ward smoker count estimates

The estimation of the number of smokers in a ward is done in several steps.

- First, an estimate of the number of smokers in a ward is found based solely on its age and gender profile.
- Second, a deprivation factor is calculated, to represent how typical the deprivation level of the ward is for the LA it's in and applied to the age-and-gender based estimate.

- Finally, the estimates of all the wards in a local authority are normalised so that they sum to the established LA total.

Ward number of smokers estimate based on age and gender

For the following groups, the ward population estimate^{ix} is multiplied by the national (England) smoking prevalence, which is provided directly to ASH by OHID.

Male, 18-34

Male, 35-64

Male, 65+

Male, 50+

Female, 18-34

Female, 35-64

Female, 65+

Female, 50+

The results are added together to find an estimated number of smokers in the ward for each of 18+, 35+ and 50+.

Deprivation factor

A deprivation factor is calculated, to represent how typical the deprivation level of the ward is for the LA it's in.

1. The deprivation level is found at the LSOA (Lower Layer Super Output Area) level geography^x
2. The median rank of the LSOAs in each ward is found
3. The wards are split into deciles, with 1 the most deprived wards (lowest median LSOA rank) and 10 the least deprived (highest median LSOA rank)
4. Deprivation deciles are also calculated for Lower Tier Local Authorities^{xi}
5. The national smoking rates by deprivation decile^{xii} are used to assign the 'expected' smoking prevalence given an area's decile
6. For every combination of LA decile and ward decile, a factor is calculated which can be applied to the LA expected prevalence to get the ward expected prevalence.

For example, the national smoking prevalence at decile 1 is 16.4% and at decile 5 is 12.7%. So for a ward at decile 1 in an LA at decile 5, the deprivation factor is 1.291, because:

$$\begin{array}{l} \text{LA decile expected smoking rate} \quad * \quad \text{factor} \quad = \quad \text{Ward expected smoking rate} \\ 12.7\% \quad \quad \quad \quad * \quad 1.291 \quad = \quad 16.4\% \end{array}$$

7. These factors are recorded for each ward, based on the ward and LA deprivation decile.
8. For each group (age 18+, 35+ and 50+) in each ward, the age- and gender- based estimate is multiplied by the deprivation factor to get a modified estimate.

Local Authority normalisation

The estimated number of smokers in a given ward, is divided by the sum of the ward estimates within each local authority to get a ward estimate which is normalised to the LA total. This can be divided by the normalised population estimate found earlier to generate a smoking prevalence estimate.

Constituencies

Constituency values are generated from ward estimates in the same way that CA values are calculated from LA values.

ⁱFingertips, Local Tobacco Control Profiles, Smoking Prevalence in adults (18+) – current smokers (APS) 2022
Proportion - % - [Region in England](#)

ⁱⁱFingertips, Local Tobacco Control Profiles, Smoking Prevalence in adults (18+) – current smokers (APS) 2022
Proportion - % - [Counties & UAs in England](#)

ⁱⁱⁱFingertips, Local Tobacco Control Profiles, Smoking Prevalence in adults (18+) – current smokers (APS) 2022
Proportion - % - [Combined Authorities in England](#)

^{iv}Fingertips, Local Tobacco Control Profiles, Smoking Prevalence in adults (18+) – current smokers (APS) 2022
Proportion - % - [ICBs in England](#)

^v[ONS Mid-year estimates](#) by country, region and upper & lower tier local authority (2021) MYE2: Persons.

^{vi}[Annual Survey of Hours and Earnings - Resident Analysis](#) (2022) Median gross annual pay of full-time workers.

^{vii}[Annual population survey](#) (2022) Economic activity rate – aged 16 – 64.

^{viii}[Annual population survey](#) (2022) % of economically inactive who want a job.

^{ix}ONS [Ward-level population estimates \(experimental statistics\)](#)

^xNational statistics, [English indices of deprivation](#), File 1: index of multiple deprivation, IMD rank

^{xi}National statistics, [English indices of deprivation](#) File 10: local authority district summaries, IMD average score

^{xii}Fingertips, Local Tobacco Control Profiles, Smoking Prevalence in adults (18+) – current smokers (APS)
[Country & UA deprivation deciles in England](#) (IMD2019, 4/21 geography) 2022