

1. Cost of lost productivity

1.1. Smoking-attributable early deaths:

- 1.1.1. Local smoking attributable mortality rate from LTCP (per 100,000 pop 35yrs+)
- 1.1.2. Applied to local 35+ smoking population (from SAMOSP) to give a gross figure of estimated number of smoking attributable deaths
- 1.1.3. The distribution of all deaths in England is calculated across age and sex, based on data from National Life Tables (3yr rolling average)
- 1.1.4. The gross number of smoking attributable deaths (1.1.2.) is then disaggregated by sex and age (35-89yrs) according to distribution calculated in 1.1.3.
- 1.1.5. Employment rates (%) for England, stratified by sex and age group, are derived from Regional Labour Market statistics
- 1.1.6. Outputs of 1.1.4. and 1.1.5. are combined to produce an estimate of the smoking-attributable deaths in the different age/sex categories for people in employment only
- 1.1.7. The local general mortality rate is then calculated for each age/sex category according to data from NHS digital (provided at the LA level)
- 1.1.8. The general mortality rate from 1.1.7. is then subtracted from the calculated smoking-attributable figures from 1.1.6. to account for individuals who would have died anyway
- 1.1.9. For each age/sex category, the number of years of potential productivity remaining is calculated (based on years from state retirement age); for people aged above retirement age, employment rates derived from DWP data are applied in a reverse cumulative cascade from age 89 to retirement age, with the calculated years of potential productivity at retirement age added to the calculated value for each preceding year
- 1.1.10. Outputs from 1.1.9. are combined with the outputs from 1.1.8. to produce an actuarial table of years of potential productivity lost due to smoking-attributable early deaths for each age/sex category
- 1.1.11. The median England salary stratified by age (5yr increments) and sex are derived from ONS figures and expressed for each grouping relative to the sex-specific median income for all ages, thus producing a distribution curve
- 1.1.12. The local median male and female salaries are derived from the Annual Survey of Hours and Earnings (in-filled from parent level where insufficient local data exist) and are combined with 1.1.11. to produce an estimate of local salaries stratified by age group and sex
- 1.1.13. Output of 1.1.10 is then combined with the output of 1.1.12 to produce a gross estimate of lost income, stratified by sex and age-year
- 1.1.14. A discounting table is produced using the years of remaining potential productivity from 1.1.9. and the assigned discounting factor (3.5% by default) to calculate an age-year and sex stratified discounting value
- 1.1.15. Outputs from 1.1.13. and 1.1.14. are combined to produce discounted cost estimates for each year-age and sex cohort
- 1.1.16. All values from 1.1.15. are summed to produce a total, discounted value for lost productivity due to early smoking-attributable deaths

England value: £2.585bn

1.2. Smoking Breaks:

- 1.2.1. Total local number of estimated smokers in employment derived from SAMPOSP
- 1.2.2. Local count of full-time and part-time roles derived from the Annual Survey of Hours and Earnings and used to calculate a local ratio of for FT:PT
- 1.2.3. Local data for median part-time and full-time salaries are derived from the Annual Survey of Hours and Earnings (in-filled from parent level where insufficient local data exist)
- 1.2.4. Local number of paid days for part-time and full-time workers also derived from the Annual Survey of Hours and Earnings
- 1.2.5. Outputs from 1.2.1. and 1.2.2. are combined to produce an estimate of the number of full-time and part-time employed smokers at the selected locality
- 1.2.6. Outputs of 1.2.3. and 1.2.4. are combined to estimate the median average salary per minute for full-time and part-time employment at the selected locality
- 1.2.7. According to the BHF-commissioned Cebr report, "Health at Work", the average time spent on smoking breaks per day is 8mins for part-time workers and 10mins for full-time workers; these estimates are combined with the outputs of 1.2.6. to produce a total daily estimate of the cost of a smoking break per part-time and full-time worker
- 1.2.8. The outputs of 1.2.4., 1.2.5. and 1.2.7. are then combined to produce a cumulative cost of lost productivity due to smoking breaks in part-time and full-time workers
- 1.2.9. The outputs of 1.2.8. are summed to produce an overall productivity cost

England value: £3.29bn

1.3. Smoking-related absenteeism

- 1.3.1. According to Weng et al (2013), smokers take an average of 2.74 additional sick days than non-smokers (across part-time and full-time workers)
- 1.3.2. The outputs from 1.2.1. and 1.3.1. are combined to estimate the total number of additional days' of absenteeism that are accumulated across the entire population of employed smokers
- 1.3.3. The outputs from 1.2.2. and 1.2.3. are combined with 1.3.2. to produce estimates of lost value based on median salaries for part-time and full-time workers
- 1.3.4. Outputs from 1.3.3. summed to produce a total estimate of lost productivity

England value: £1.326bn

2. Costs of NHS Treatment

2.1. Ambulatory care:

- 2.1.1. Differential age-group, sex and smoking status stratified rates of primary care events (resource groups: GP consultations, nurse consultations, outpatient visits and GP prescriptions) were derived from the custom analysis undertaken for the NICE ROI tool, itself based on data from the 2006 General Household Survey
- 2.1.2. Using the data from 2.1.1., the smoking-attributable excess healthcare events (for each resource type and age-group/sex cohort) could be calculated by subtracting the rates for smokers and ex-smokers respectively from the rates for never smokers
- 2.1.3. Age-group / sex stratified estimates of local smoking prevalence were derived from the SAMOSP
- 2.1.4. Outputs from 2.1.2. and 2.1.3. were combined to produce a total number of events for each of the four resource groups
- 2.1.5. The PSSRU Unit Costs of Health and Social Care was used to derive the average cost per event for each of the resource groups (adjusted for inflation)
- 2.1.6. Outputs from 2.1.4. and 2.1.5. were combined to produce gross estimates of the cost of excess events due to smoking in each resource group
- 2.1.7. Outputs from 2.1.6. summed to generate the final, gross figure

England value: £1.488bn

2.2. Inpatient care:

- 2.2.1. The total 35yr+ population is derived from ONS population estimates
- 2.2.2. The cost per capita (35+) of smoking-attributable hospital admissions is derived from the LTCP
- 2.2.3. Outputs from 2.2.1. and 2.2.2. are combined to produce a gross estimate

England value: £897m

3. Costs of Social Care Provision for Smoking-attributable Disabilities

3.1. Publicly-funded Social Care:

- 3.1.1. The total cost across England of publicly-funded social care for treating people with smoking-attributable conditions is derived from the ASH-commissioned report by Landman Economics, "Cost of smoking to social care"
- 3.1.2. The output of 2.1.3. is used to derive estimates of the national and local counts of smokers aged 50yrs and above
- 3.1.3. Outputs from 3.1.1. and 3.1.2. are used to estimate the average cost of publicly-funded social care in England per smoker aged 50+
- 3.1.4. The output from 3.1.3. is then reaggregated to the local level by using the data from 3.1.2. to provide a total local cost

England value: £774m

3.2. Privately-funded Social Care:

- 3.2.1. The same procedure is followed as described in 3.1.

England value: £641m

4. Cost of Smoking-related Fires

4.1. Fatalities:

- 4.1.1. DCLG Fire statistics for the 3 previous annual periods are used to estimate the annual number of smoking-related fires, deaths and injuries across England, defined as those incidents caused by fires ignited by smokers' materials or cigarette lighters
- 4.1.2. DCLG data on incidents of all causes attended by local fire and rescue services used to derive aggregate counts of mortality and casualties for the same periods used in 4.1.1. at the F&RS geographical level
- 4.1.3. The outputs from 4.1.1. are used to estimate the proportion of all England fire-casualties occurring in each F&RS area in each of the 3 years
- 4.1.4. The outputs from 4.1.1. and 4.1.3. are then combined to produce a synthetic estimate of the F&RS-level count of smoking-related deaths across each of the 3 target years
- 4.1.5. For each F&RS area, the 3 outputs of 4.1.4. are averaged to produce a mean number of annual smoking-related deaths
- 4.1.6. The total adult smoking population figures for all Local Authority areas are derived from LTCP prevalence data and ONS population estimates; these counts are then aggregated to the F&RS level (which have contiguous borders with LAs)
- 4.1.7. The outputs from 4.1.6. allow for the relative proportion of F&RS smokers to be calculated for each LA
- 4.1.8. The outputs of 4.1.5. and 4.1.7. are combined to produce LA-level estimates of the number of smoking-related house fire deaths
- 4.1.9. Table 22 of the DCLG report "The economic cost of fire" is used to derive the regional cost-per-fire of smoking-attributable fatalities and injuries (most recent data is from 2008)
- 4.1.10. The total regional costs of casualties as a consequence of fire are also derived from the 2008 DCLG data (Table 9)
- 4.1.11. The DCLG Fire Stats for 2008 are used to produce regional counts of all fires and fire-related deaths and injuries
- 4.1.12. The outputs of 4.1.9., 4.1.10. and 4.1.11. are combined to produce an adjusted estimate of the regional cost per fatality
- 4.1.13. The outputs of 4.1.8. and 4.1.12. are combined to produce the total cost of smoking-related fire fatalities at the local level

England value: 168m

4.2. Injuries:

- 4.2.1. The same procedure is followed as in 4.1., except the data for smoking-related fire *injuries* (non-fatal casualties) are used instead

England value: £63m

4.3. Property damage:

- 4.3.1. The number of smoking-related housefires for the selected location is derived from the same procedure outlined in steps 4.1.1. to 4.1.8.
- 4.3.2. The count of regional fires is derived from 4.1.11.
- 4.3.3. The total regional cost of fire-related property damage is drawn from Table 9 of the DCLG report "The economic cost of fire"
- 4.3.4. The output of 4.3.3. is divided by the output of 4.3.2. to produce a regional cost of property damage per house fire
- 4.3.5. The output of 4.3.4. is then combined with the count from 4.3.1. to produce a total local cost of property damage due to smoking-related fires

England value: £90m

4.4. Response costs:

- 4.4.1. The total annual cost of responding to fires on a regional level is drawn from Table 10 of the DCLG "economic cost of fire" report
- 4.4.2. This is divided by the output of 4.3.2. to produce a regional response cost per fire
- 4.4.3. The output of 4.4.2. is then applied to the output of 4.3.1 to produce a total cost of property damage from smoking-related housefires in the selected location

England value: £7m