

**Appendix 3 of 'An Atlas of Tobacco Smoking Scotland',
NHS Health Scotland**

**Smoking Prevalence in Scotland:
2003/4 sub-national estimates**

A Report for NHS Health Scotland

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Addendum note

At the time this report was written the new NHS Board boundaries were not available and thus the tables and maps shown were constructed for the 15 old NHS Boards. However in the main tobacco atlas any Board level tables and maps do relate to the new configuration of 14 NHS Boards.

Executive Summary

This report summarises research commissioned by NHS Health Scotland and undertaken by the Institute for the Geography of Health, University of Portsmouth. The main objective of the study was to estimate the prevalence of smoking at selected sub-national scales across Scotland. Estimates were prepared for census output areas, postcode sectors, census area sectors, census intermediate areas, council areas, Scottish Parliament constituencies and health boards.

Routine smoking information is unavailable for small areas, so the data were generated using multilevel synthetic estimation techniques applied to the 2003/4 release of the Scottish Household Survey. Multilevel synthetic estimation is a robust and established estimation strategy, which has been widely applied in previous research. A technical supplement to this Report discusses methodological matters relating to synthetic estimation of smoking behaviour in Scotland.

It should be emphasised that throughout this Report the focus is on estimation. Reported figures are estimates, and should be treated as such. They reflect expected values for the smoking prevalence, controlling for relevant individual and geographical characteristics. They should not be regarded as absolute or exact. Rather, in the absence of direct, routine measures they provide an acceptable and available insight into the likely sub-national geography of smoking in Scotland. Hence, additionally, they provide indicative guidance on targeting actions relating to smoking cessation.

Key findings

- The proportion of adults who smoke is estimated to be greatest among those aged 25 to 34 (c.34%). Only after the age of 54 does estimated smoking prevalence begin to decline. Overall, around one third of the population aged between 16 and 54 are estimated to be current smokers in Scotland
- Estimated smoking prevalence is highest among women and men aged 25-34. Overall, a greater proportion of men smoke than women but the reverse is the case for young people aged 16 to 24.
- Very few census output areas have estimated smoking prevalences over 50% or under 10%. Eight of the ten lowest prevalence estimates are in the City of Edinburgh. The ten highest estimates are all in the City of Glasgow.
- Among council areas, the highest estimated prevalence is found in the City of Glasgow (34%), while the lowest are in East Dunbartonshire (18.6%) and East Renfrewshire (19.2%).
- The number of people who need to stop smoking to meet a target smoking prevalence of 22% by 2010 is estimated to be disproportionately located in the City of Glasgow
- Consistently high estimated smoking prevalences over recent years have been found in Easterhouse, Cowlands and Drumchapel.

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Aims and Objectives

This Report summarises research conducted for NHS Health Scotland that aimed to:

- produce updated estimates of smoking prevalence using the Scottish Household Survey and the 2001 population census for a variety of sub-national geographies.
- compare these estimates with those generated in previous research.

The research reported here should be read alongside the accompanying CD and is intended as a resource to aid and guide smoking cessation activities within NHS Boards, Community Health Partnerships and Councils across Scotland. The prevalence estimates will be compiled into a 'Smoking Atlas' to be made available in 2006, shortly after legislation to ban smoking in public places comes into force.

Background

The magnitude of the smoking epidemic in Scotland is well-established. The latest available version of the Scottish Household Survey (SHS) suggests that the estimated total current smoking prevalence for men aged 16 and over in Scotland amounts to c 28%¹. For women the figure is slightly lower at c.25%.

In Scotland, as elsewhere, smoking is disproportionately higher in lower income groups. Some 50% of men in the lowest income quartile in Scotland smoke, compared to 16% in the highest income quartile². For women, the figures are 45% and 15% respectively. In lower income communities over 40% of the adult population smoke³.

Smoking prevalence in Scotland exhibits a strong relationship with age (Table 1). The observed relationship is typical for countries at a mature stage in the smoking epidemic: rates generally decline with age but the decline is less marked among women, indeed it is effectively uniform until late middle age. There is particular concern over smoking prevalence among young women.

Table 1: Smoking (%) and Age in Scotland⁴

| | 16-24 | 25-34 | 35-44 | 45-59 | 60-74 | 75+ |
|-------|-------|-------|-------|-------|-------|-----|
| Men | 29 | 36 | 31 | 29 | 23 | 11 |
| Women | 32 | 32 | 32 | 31 | 21 | 13 |

As Table 2 reveals, Scotland has had consistently higher levels of smoking than England or Wales for both men and women over the past thirty years⁵. In an EU context, the prevalence of smoking among women in Scotland is notably high.

Table 2: Adult Smoking (Aged 16+: %) by time and country

| Men | 1976 | 1978 | 1980 | 1982 | 1984 | 1986 | 1988 | 1990 | 1992 | 1994 | 1996 | 1998 | 2000 | 2002 | 2003 | 2004 |
|--------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| England | 45 | 44 | 42 | 37 | 35 | 34 | 32 | 31 | 29 | 28 | 28 | 29 | 29 | 27 | 27 | 26 |
| Wales | 46 | 44 | 45 | 36 | 42 | 33 | 35 | 30 | 32 | 28 | 28 | 29 | 25 | 27 | 29 | 24 |
| Scotland | 50 | 48 | 46 | 45 | 43 | 37 | 36 | 33 | 34 | 31 | 33 | 35 | 30 | 29 | 35 | 29 |
| Women | | | | | | | | | | | | | | | | |
| England | 37 | 36 | 36 | 32 | 32 | 31 | 30 | 28 | 27 | 25 | 27 | 26 | 25 | 25 | 24 | 23 |
| Wales | 37 | 37 | 39 | 34 | 32 | 30 | 28 | 31 | 33 | 27 | 27 | 26 | 24 | 27 | 23 | 22 |
| Scotland | 43 | 42 | 42 | 39 | 35 | 35 | 37 | 35 | 34 | 29 | 31 | 29 | 30 | 28 | 26 | 22 |

Tobacco smoking is the most important preventable cause of ill-health and premature death in Scotland. A 1997 estimate suggested that the NHS of Scotland was, at that time, spending £140m on treating smoking related diseases⁶. The most recent estimate suggests that some 11,300 deaths each year in Scotland may be attributable to smoking.⁷

In view of the epidemiological importance of smoking and its impact on the NHS, it is inevitable that there have been significant attempts by Government and other agencies to reduce levels of smoking in Scotland. These efforts have contributed to the steady reduction in the overall number of adults who smoke⁸. In January 2004 the Scottish Executive published a tobacco control action plan⁹. This included a range of further measures to strengthen tobacco control, including prevention work, education and communications, controls on sales and the expansion of high quality cessation services. The most notable initiative concerned a proposed ban on smoking in enclosed public places. This was debated and passed into legislation; it comes into force on 26 March 2006¹⁰. Within this changing policy context, a new target for adult smoking prevalence (aged 16 and over) has been set. This is 22 per cent by 2010. In the most deprived areas the target is to reduce the rate to 33.2% in 2008¹¹.

This Report provides a sub-national context for the continuing programme of work on smoking cessation. It provides estimates of the variations in smoking prevalence that exist within Scotland, building on previous work in 2001 using 1991 census data and the 1995 and 1998 Scottish Health Surveys, updated in 2003 with 2001 census data. Variations are considered at a range of geographical scales from the census output area to the health board.

Methodology

Sub-national data on health-related behaviours (such as smoking and drinking) is not widely available in the UK. The absence of such data means that monitoring and target setting are often done at a relatively crude geographical scale. Sample surveys in the UK are usually too small to allow the direct production of estimates at any level below that of the region. The funding required for a survey with a sufficiently well-found design and adequate sample size to identify variations in health-related behaviour down to a local geographical scale would be prohibitive. An alternative research strategy is needed.

The research reported here uses multilevel synthetic estimation. This approach recognises that the chance of an individual smoking reflects not only that individual's personal characteristics, but also the characteristics of the environment in which they live. It acknowledges that people's behaviour may be influenced by their environment. This is particularly important in the case of smoking, as it is widely understood that there are 'area effects' that impact on the individual decision to smoke.¹² The present research used a multilevel structure of individuals, nested within postcode sectors, nested within council areas. This structure provides an approximate basis for capturing personal, community and mid-scale influences on smoking.

The original multilevel synthetic estimation procedure, that of Twigg *et al*, is used in the present study.¹³ This approach both allows the generation of age-sex disaggregated estimates and also models processes appropriately in relation to their level of operation. It has been subject to peer-reviewed evaluation in a leading journal and favourable third party assessment.^{14 15} It was the procedure used in the two previous sub-national smoking estimation exercises in Scotland and in a recent study of smoking in England.¹⁶ A technical supplement to this Report provides further detail, including an assessment of the quality of the derived estimates.

The Scottish Household Survey (SHsS) for 2003/4 provided the input data for multilevel synthetic estimation. The SHsS was chosen instead of the Scottish Health Survey (SHS) because of its larger sample size and also because the Scottish Executive use smoking prevalence estimates from the SHsS as their main source for regular monitoring of smoking prevalence against published targets. The SHsS is designed to accommodate direct disaggregation only to the council area. With a multilevel synthetic modelling strategy it provides a suitably large base for the derivation of statistical estimates of smoking to smaller geographical areas. Estimates are provided for the areas identified in Table 3.

Table 3: Sub-national Estimate Geographies

| Unit | N |
|---------------------------------------|-------|
| Output area | 42604 |
| Intermediate geography | 1235 |
| Census area sector | 1010 |
| Post code sector | 937 |
| Scottish Parliamentary Constituencies | 73 |
| Local authorities | 32 |
| Health board area | 15 |

Access was provided to SHsS data on each individual respondent's smoking status, marital status and sex. Normally, the public SHsS dataset provides no information on the clustering of individuals within postcode sectors. For this study, on the basis of a signed agreement, the research team were allowed exceptional access to postcode sector identifiers. This additional information enabled the merging of data from the 2001 Population Census, capturing the community context experienced by individual respondents.

Results

Basic Demographics. Table 4 shows the estimates of current smoking prevalence in Scotland by sex and age in 2003 derived from the multilevel synthetic estimation. It reveals that the proportion of adults who smoke is estimated to be greatest among those aged 25 to 34 (c.34%). Only after the age of 54 does estimated smoking prevalence begin to decline. Overall, nearly one third of the population aged between 16 and 54 are estimated to be current smokers in Scotland. After 54 years old, the smoking prevalence steadily declines with increasing age and the smallest estimated prevalence is reported for people aged 75 - about 12 percent.

The estimated smoking prevalence differs by sex. The highest rates are found among women and men aged 25-34. Although, overall, a greater proportion of men smoke than women, this is not the case for young people aged 16 to 24. The slower rate of decline in the smoking prevalence for women is clearly evident.

Table 4: Model-based estimates of smoking prevalence by sex and age, 2003, (%)

| Age group | Males | Females | All persons |
|-----------|-------|---------|-------------|
| 16-24 | 28.7 | 31.1 | 29.9 |
| 25-34 | 35.5 | 32.2 | 33.8 |
| 35-44 | 31.2 | 29.5 | 30.3 |
| 45-54 | 29.9 | 28.6 | 29.2 |
| 55-64 | 26.1 | 25.6 | 25.8 |
| 65-74 | 18.8 | 19.5 | 19.2 |
| 75 + | 11.1 | 11.9 | 11.6 |
| Total | 28.1 | 26.5 | 27.2 |

Geographical differences. Enduring similarities emerge when the sub-national geographies of the multilevel synthetic estimates of smoking prevalence are considered. These similarities manifest across geographical scales. More detailed analysis is possible with the raw data provided in the CD accompanying this Report.

The mean estimated smoking prevalence across all **output areas** in Scotland is 27.5% (standard deviation 8.4). Most output areas have an estimated prevalence between 20% and 35% (Figure 1). Variation between output areas tends to be uniform in relation to sex: an output area with a high prevalence for men will also have a high prevalence for women. Similarly, there is generally uniformity across age groups, though there is some indication that the output area geography of estimated smoking prevalence is slightly different for people aged 16-24 and 25-34, reflecting the mobility and concentrations of younger people. Very few output areas have estimated smoking prevalences over 50% or under 10%. Perhaps surprisingly, small base population denominators play little part in these extreme values. Of the output areas with the ten lowest prevalence estimates, eight are in the City of Edinburgh (two are in East Renfrewshire). The ten highest estimates are all in the City of Glasgow.

Results at the postcode sector, census area – sector (CAS) and intermediate area are similar. The **postcode sector** provides an illustration of estimated smoking prevalence at what may be seen as a (somewhat imperfect) surrogate for an individual's immediate community. The mean estimated prevalence across postcode sectors is

26.9% (standard deviation 7.9). One postcode sector has an estimated prevalence of just 9% and values below 10% are found in EH12 6 (Murrayfield), AB13 0 (Milltimber), G74 5 (Mearns), and EH4 6 (Cramond). The City of Edinburgh effect is again evident but it is accompanied by low estimates in the environs of Glasgow and Aberdeen. Conversely, the highest estimated level of smoking is 56%. All values over 50% are Glasgow postcodes: G33 4 (Barlanark), G21 2 (Garngad), G22 5 (Hamilton Hill), G15 7 (Drumchapel), G34 9 (Easterhouse), and G2 7 (Glasgow - Centre). Most postcode sectors have an estimated prevalence between 20 and 30% (Figure 2).

Figure 1: Estimated Smoking Prevalence – Output Areas

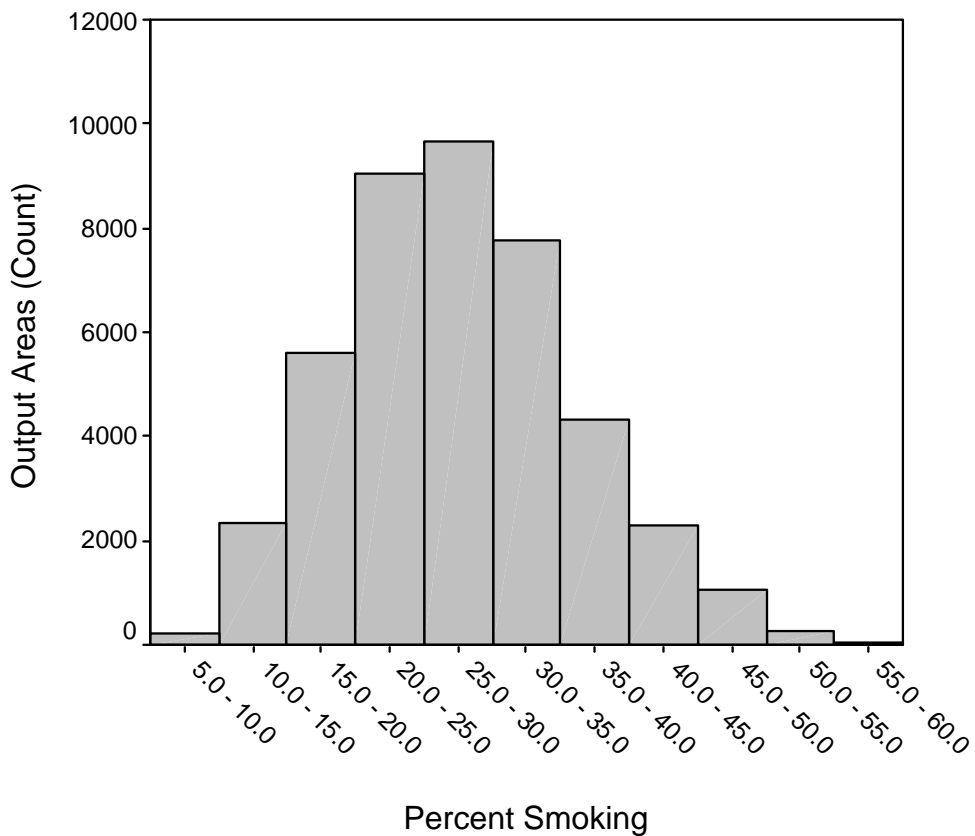


Figure 2: Estimated Smoking Prevalence: postcode sectors

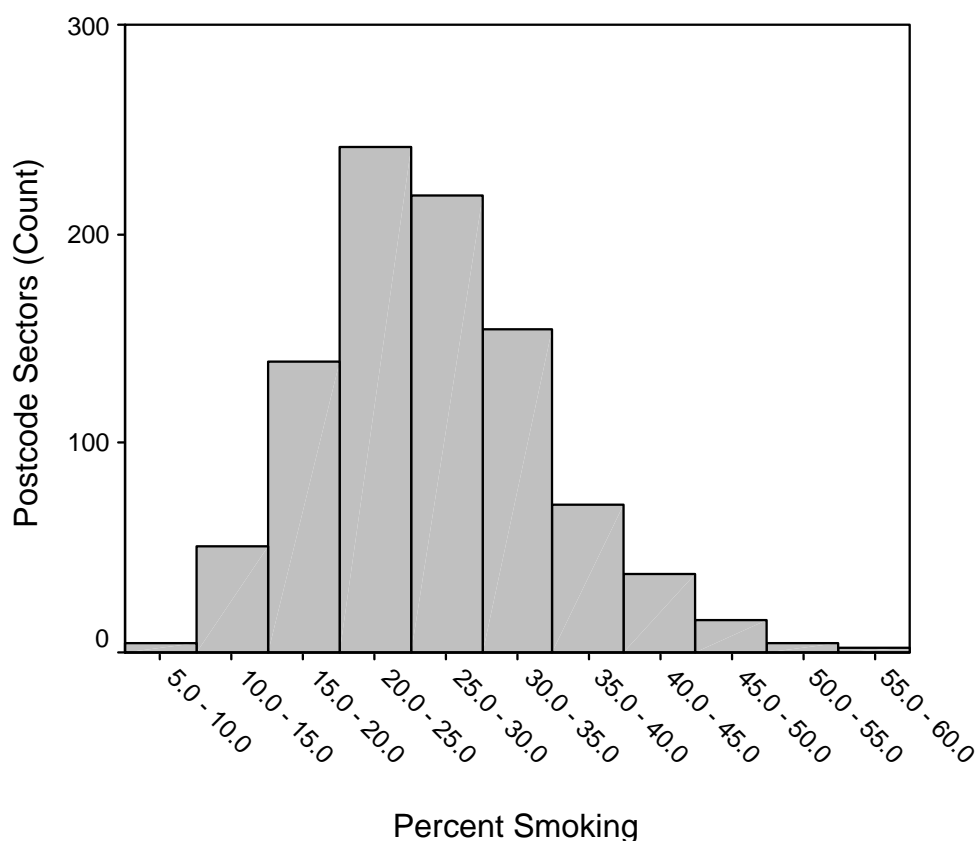


Table 5 summarises the results for **larger geographical areas**. Estimates vary from 18 percent to 40 percent. Among the 32 council areas in Scotland, the highest estimated prevalence is found in City of Glasgow (34%), while the lowest are reported in East Dunbartonshire (18.6%) and East Renfrewshire (19.2%), neighbouring council areas to the City of Glasgow. About 40 percent of people are estimated to smoke in parliament constituencies within Glasgow whereas less than 20 percent may smoke in constituencies like Eastwood, West Aberdeenshire & Kincardine and Strathkelvin & Bearsden; two of these constituencies are, of course on the outskirts of Glasgow. Among the fifteen current health board areas, the estimated smoking prevalence is higher for Greater Glasgow (30.2%), Lanarkshire (29.3%) and Ayrshire & Arran (28.9%), whereas lower estimated prevalences are found in Orkney (21.7%) and Shetland (22.5%).

Table 5: Maximum and minimum estimated smoking prevalence in Health Boards, Council Areas and Scottish Parliament Constituencies

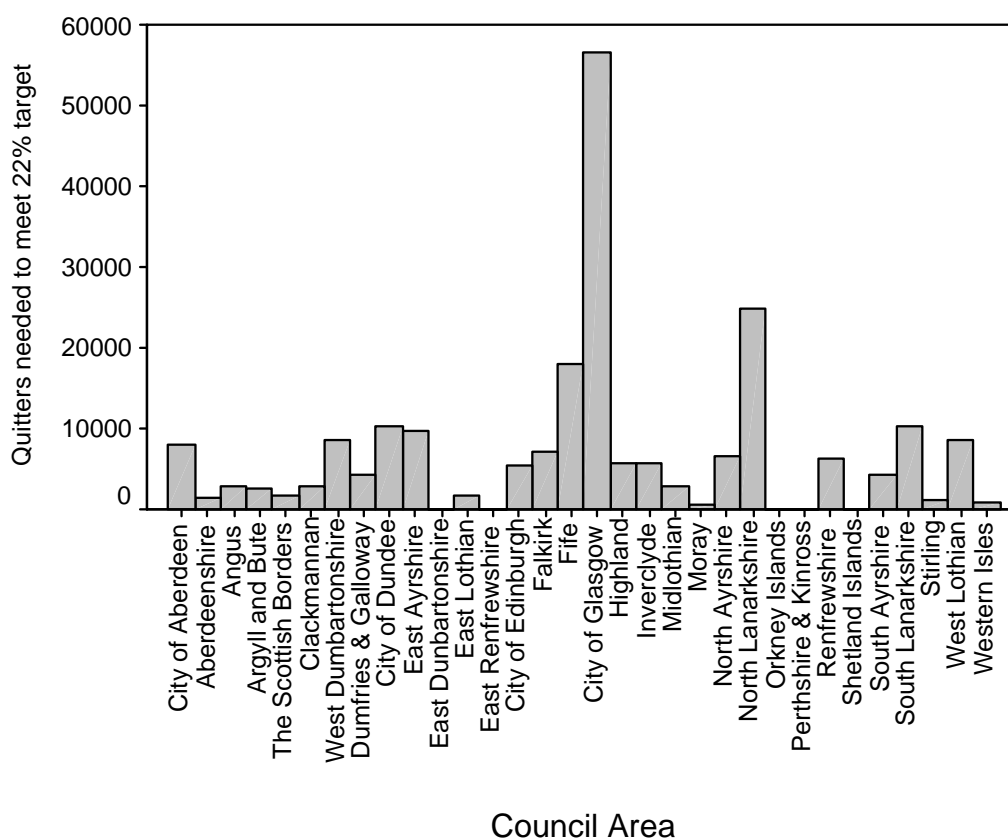
| Area | Maximum prevalence | | Minimum prevalence | |
|------------------------------------|--------------------|---------------------|--------------------|---------------------------------|
| | % | Name | % | Name |
| Health Board Areas | 30.2 | Greater Glasgow | 21.7 | Orkney |
| | 29.3 | Lanarkshire | 22.5 | Shetland |
| | 28.9 | Ayrshire & Arran | 23.9 | Borders |
| Council Areas | 34.0 | City of Glasgow | 18.6 | East Dunbartonshire |
| | 33.3 | Dunbartonshire | 19.2 | East Renfrewshire |
| | 32.1 | East Ayrshire | 21.7 | Orkney Islands |
| Scottish Parliament Constituencies | 40.1 | Glasgow Shettleston | 19.2 | Eastwood |
| | 39.0 | Glasgow Springburn | 19.6 | West Aberdeenshire & Kincardine |
| | 37.3 | Glasgow Maryhill | 19.8 | Strathkelvin & Bearsden |

A fuller picture of the variation between council areas, Scottish Parliament constituencies and health boards is provided in Appendix A, Figures A1-A3. These map the estimated smoking prevalence rates. Appendix A also provides the relevant credible interval¹ for each estimate, including an additional table by Community Health Partnership. Each map reinforces the suggestion that highest smoking prevalences are to be found in West-Central Scotland, particularly in the Glasgow area. Lower estimated rates characterise the Borders, Highlands and, particularly, Orkney and Shetland. At the same time, low estimates are also evident to the north-east and south-west of Glasgow.

The implications posed by sub-national estimates of smoking prevalence for Scotland's 2010 smoking prevalence **targets** are considered in Figure 3. Working at the council area scale, though analysis would be equally possible at other scales, it is evident that the extent of challenge posed in meeting a target smoking prevalence of 22% by 2010 varies markedly across Scotland. The population that needs to quit to reach the national 22% target is estimated to be disproportionately located in the City of Glasgow; parts of Glasgow will of course be affected by the differential target for deprived areas. North Lanarkshire and, to an extent, Fife also have significant populations that will need to quit smoking if the 2010 target is to be reached. Three further groups of council areas can be distinguished: those where around 10,000 quitters are required, those seeking less than 3,000, and those where, according to the estimates, the target has already been met. The latter group comprises East Dunbartonshire, East Renfrewshire, Perth and Kinross, Orkney. Shetland comes very close. While some areas may have met the target or be close to it, there should be no complacency given the demographics of smoking noted earlier in this Report; the challenge is to maintain and enhance these positions of relative success.

¹ Credible intervals are an equivalent to the more familiar confidence interval. They are explained more fully in the Technical Supplement to this Report.

Figure 3: Progress towards 2010 targets for smoking prevalence



Comparisons. Part of the remit of this Report is to offer comparisons between the present estimates of smoking prevalence and those derived in previous research and from other sources.

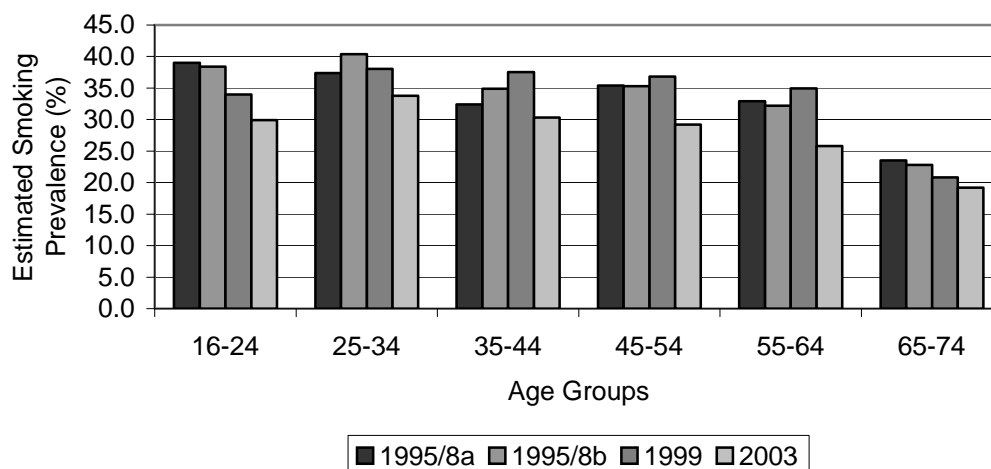
As noted above, the authors of the present Report have compiled earlier estimates of smoking prevalence for sub-national geographies of Scotland using data from the mid to late 1990s. In a separate and independent project using a different methodology, estimates were also made by Dr Jamie Pearce, then of the University of St Andrews.¹⁷ These earlier sets of estimates are referred to as ‘1995/8a’ and 1995/8b (the current authors), and ‘1999’ (Pearce *et al.*). The present estimates are ‘2003’. Table 6 summarises the differences between each set of estimates.

Table 6: Comparison of data used in 1995/8a, 1995/8b, 1999 and 2003 estimates

| | Estimates | | | |
|-------------------|---|---|--|---|
| | 1995/8a | 1995/8b | 1999 | 2003 |
| Individual data | Scottish Health Survey (1995 and 1998) | Scottish Health Survey (1995 and 1998) | Scottish Household Survey 1999 | Scottish Household Survey (2003/4) |
| Area data | 1991 census | 2001 census | 1991 census | 2001 census |
| Analytical Design | Multilevel. People (age, sex, marital status), in census pseudo postcode sector (with associated area characteristics), in council areas. | Multilevel. People (age, sex, marital status), in census area sectors (with associated area characteristics), in council areas. | Multilevel. Census output area (with associated area characteristics) in census pseudo postcode sector | Multilevel. People (age, sex, marital status), in census area sectors (with associated area characteristics), in council areas. |

Figure 4 shows the broad age-related differences between the four sets of estimates, ordered approximately by date. The 1995/8a set indicated a declining estimated prevalence with age, save for a raised rate among people aged 45-54. The 1999 set estimated a lower prevalence among the 16-24 age group and a higher prevalence in the 35-44 group. It also suggested broadly similar prevalences between the ages of 16 and 64. The 1995/8b estimates are generally in line with those for 1995/8a. A clear fall in smoking prevalence is evident in the 2003 estimates. The largest drop has occurred among people aged 16-24 and 25-34, where the rates have fallen by 8.6 and 6.6 percentage points respectively in 2003, but these age bands remain the ones with the highest estimated levels of smoking. A clear implication is that smoking prevalence may have reduced more rapidly in recent years, following a period of limited reduction in the 1990s – a trend, which is broadly consistent with Table 2.

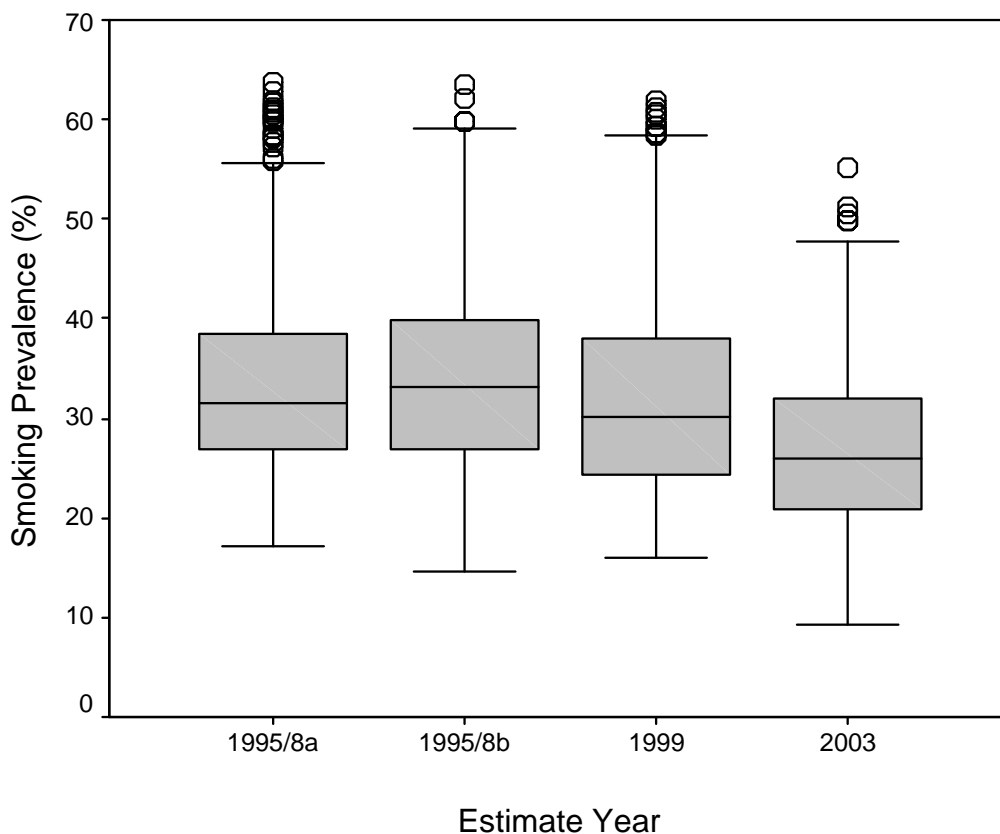
Figure 4: Model-based estimates of smoking prevalence in Scotland, 1995/8a, 1995/8b, 1999 and 2003



It is important not to read too much into Figure 4. The 1995/8a and 1995/8b estimates used the same Scottish Health Survey data from 1995 and 1998, but area data were derived from two different sources: 1991 and 2001 census data. The use of the same individual data was probably the main reason behind the small changes in smoking. Equally, the 1995/8a and 1999 estimates derived individual data from different sources and used different modelling strategies. The 1995/8b and 2003 estimates used the same area data - from the 2001 census - but individual data were from two sources: the Scottish Health Survey (1995 and 1998) and the Scottish Household Survey. Scottish Household Survey and Scottish Health Survey are known to generate marginally different figures for smoking prevalence and, as a consequence of design and sample differences, may not be strictly comparable. Further research is necessary to separate out real change in Figure 4 from design effects.

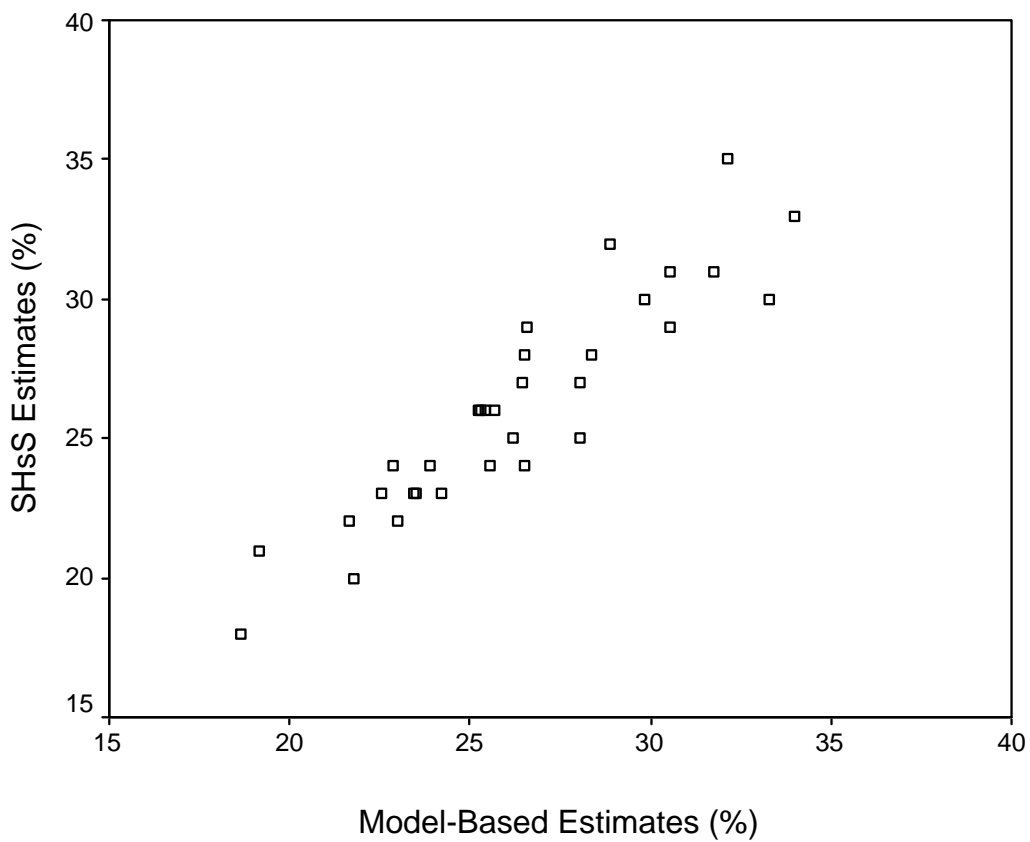
Figure 5 offers a geographical perspective on the comparison between the four sets of estimates. Again the fall in 2003 is evident as is the possible lack of improvement through the 1990s. The figure is compiled at the scale of the census area sector and outlying sectors with prevalences that are significantly high are evident in each set of estimates. The number of outliers decreases for more recent estimates. There are however consistencies within the outliers. With two exceptions they are all in Glasgow. The exceptions were both only in the 1995/8a and 1999 sets of estimates. They were RCC13 (Ferguslie Park) and QPC30 (Craigmillar). Consistent presences as outliers with high estimated smoking prevalences in each estimate set are QSC58 (Easterhouse), QSC34 (Cowlairs) and QSC18 (Drumchapel)

Figure 5: The changing geography of smoking estimates, 1991-2003



It is also possible to draw comparisons between the model-based estimates for larger geographical units and direct estimates drawn from aggregated raw responses to the SHsS. The SHsS is designed to be representative down to the council area for larger councils on an annual basis. The correlation at the council areas level between model-based estimates by age and the equivalent data from the SHsS for men is 0.96; for women it is 0.97. This is indicative of a very close correspondence and reassuring regarding the quality of the estimates. Figure 6 compares the model-based estimates with aggregated SHsS responses for total smoking irrespective of sex at the council area level. The scatter of points is close to the 45° line of equality and the two sets of estimates for most council areas are within two percent of each other with little evidence of systematic over or under-estimation.

Figure 6: Smoking prevalence in Scotland by council area: model-based estimates and Scottish Household Survey 2003/4 estimates



Conclusion

An important summary point must be emphasised. The estimates of smoking prevalence presented in this Report and the accompanying CD represent a reasoned, robust 'best guess' as to smoking prevalence. The estimates of smoking prevalence at local level almost certainly will not mirror precisely any available measures from local studies or surveys. They do however align generally well with past work and commonsense expectations. In the absence of better information, particularly at the small-area level, they provide an adequate basis for further work on smoking prevalence and smoking cessation.

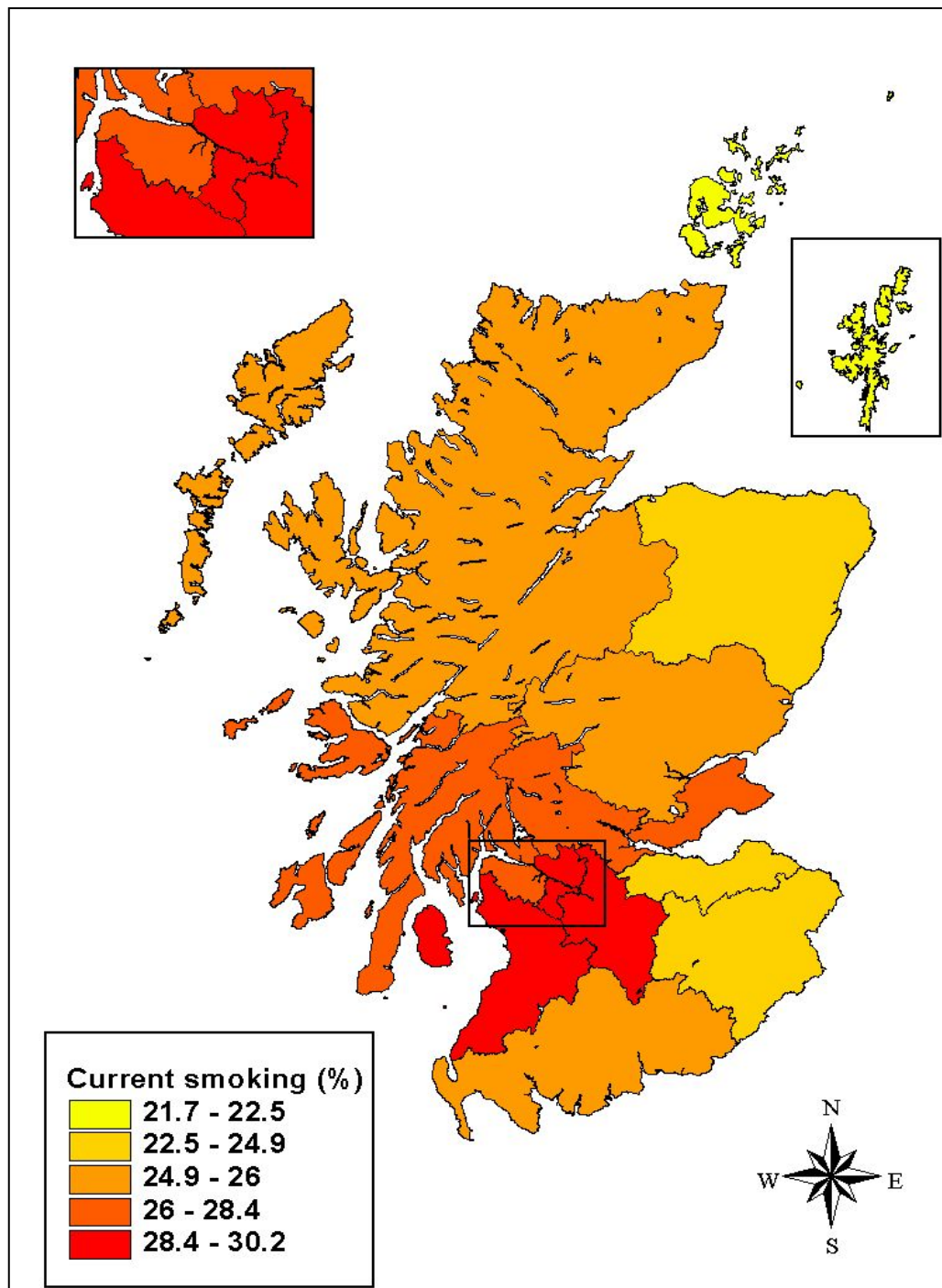
The results from this research and the data on the accompanying CD must be used with caution. The data indicate expected levels of smoking, given the local expression of national associations between key indicators and these target variables. Point prevalences should always be clearly presented as estimates. Comparisons between areas should be made with care particularly where differences are small. Prevalences should always be rounded to the nearest whole number. It is recommended that users adopt the following statements when using the estimates presented in this Report:

- Given the characteristics of the local population and the regional setting, we would expect a smoking prevalence of approximately $x\%$ within *[this area]*;
- Given the characteristics of the local population and regional setting, *[this area]* is estimated to be within the highest (or lowest) 10% (or 5%, 15%, 20% etc) of *[output areas, postcode sectors etc.]* in terms of smoking prevalence.

Appendix A

Estimated current smoking prevalence by higher geographies

Figure A1: Estimated smoking prevalence by NHS Board¹



¹ At the time this report was written the new NHS Board boundaries were not available and thus the tables and maps shown were constructed for the 15 old NHS Boards. However in the main tobacco atlas any Board level tables and maps do relate to the new configuration of 14 NHS Boards.

Table A1: Model-based estimates of current smoking prevalence in Scotland by NHS Board, 2003/04, including credible intervals.

| NHS Board | Estimated Smoking Prevalence (16+) | 95% Credible Interval | |
|-----------------------|---------------------------------------|-----------------------|-------|
| | | Lower | Upper |
| Ayrshire and Arran | 28.9 | 10.2 | 60.4 |
| Argyll and Clyde | 27.8 | 9.1 | 57.5 |
| Borders | 23.9 | 7.4 | 53.4 |
| Dumfries and Galloway | 25.6 | 7.9 | 54.6 |
| Fife | 28.4 | 9.6 | 59.3 |
| Forth Valley | 26.9 | 8.5 | 56.2 |
| Grampian | 24.4 | 7.7 | 53.3 |
| Greater Glasgow | 30.2 | 11.4 | 61.6 |
| Highland | 25.4 | 8.0 | 55.9 |
| Lanarkshire | 29.3 | 10.0 | 61.0 |
| Lothian | 24.9 | 8.2 | 54.2 |
| Orkney | 21.7 | 6.9 | 52.2 |
| Shetland | 22.5 | 6.8 | 50.9 |
| Tayside | 26.0 | 8.2 | 54.3 |
| Western Isles | 25.7 | 8.6 | 57.9 |

Figure A2: Estimated smoking prevalence by Council

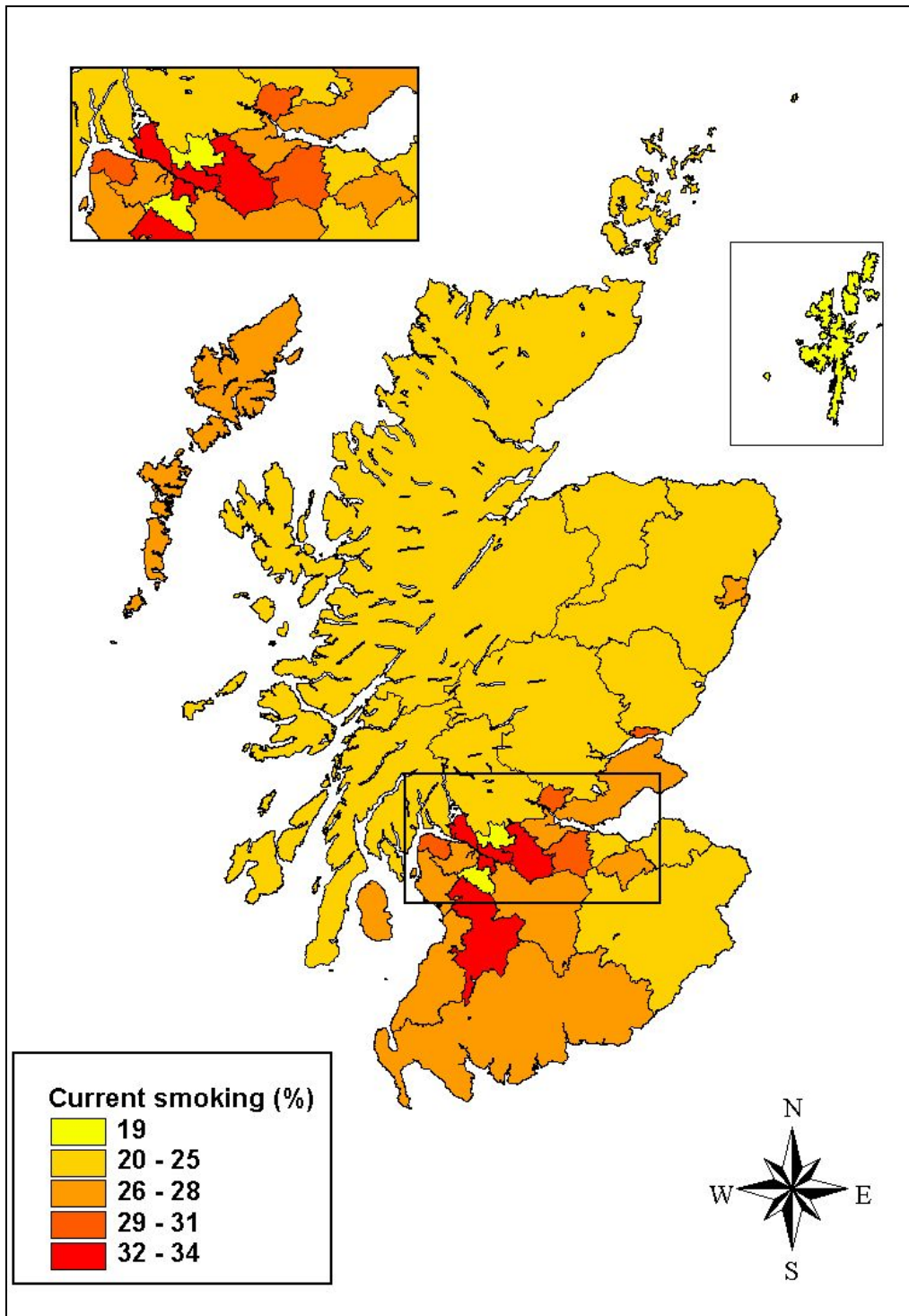


Table A2: Model-based estimates of current smoking prevalence in Scotland by Council, 2003/04, including credible intervals.

| Council | Estimated Smoking | 95% Credible Interval | |
|-----------------------|-------------------|-----------------------|-------|
| | Prevalence (16+) | Lower | Upper |
| City of Aberdeen | 26.5 | 8.2 | 57.3 |
| Aberdeenshire | 22.8 | 7.1 | 53.2 |
| Angus | 25.2 | 8.2 | 57.4 |
| Argyll and Bute | 25.3 | 8.1 | 57.0 |
| The Scottish Borders | 23.9 | 7.4 | 54.5 |
| Clackmannanshire | 29.8 | 9.7 | 61.7 |
| West Dunbartonshire | 33.3 | 11.5 | 66.0 |
| Dumfries and Galloway | 25.6 | 7.5 | 54.7 |
| City of Dundee | 30.5 | 9.7 | 61.7 |
| East Ayrshire | 32.1 | 11.3 | 65.5 |
| East Dunbartonshire | 18.6 | 5.5 | 46.5 |
| East Lothian | 24.2 | 7.2 | 53.8 |
| East Renfrewshire | 19.2 | 5.7 | 47.7 |
| City of Edinburgh | 23.5 | 7.1 | 53.4 |
| Falkirk | 28.0 | 9.4 | 60.8 |
| Fife | 28.4 | 9.1 | 60.0 |
| City of Glasgow | 34.0 | 11.9 | 66.9 |
| Highland | 25.4 | 7.8 | 55.8 |
| Inverclyde | 30.6 | 10.0 | 62.5 |
| Midlothian | 26.5 | 8.9 | 59.5 |
| Moray | 23.0 | 7.0 | 53.0 |
| North Ayrshire | 28.0 | 9.4 | 60.7 |
| North Lanarkshire | 31.7 | 10.8 | 64.5 |
| Orkney Islands | 21.7 | 6.9 | 52.5 |
| Perth and Kinross | 21.8 | 6.0 | 48.9 |
| Renfrewshire | 26.5 | 8.6 | 58.5 |
| Shetland Islands | 22.5 | 6.7 | 51.8 |
| South Ayrshire | 26.5 | 8.2 | 57.2 |
| South Lanarkshire | 26.2 | 8.4 | 57.7 |
| Stirling | 23.5 | 7.3 | 54.0 |
| West Lothian | 28.9 | 9.8 | 62.0 |
| Western Isles | 25.7 | 8.1 | 56.8 |

Figure A3: Estimated smoking prevalence by Scottish Parliament Constituency

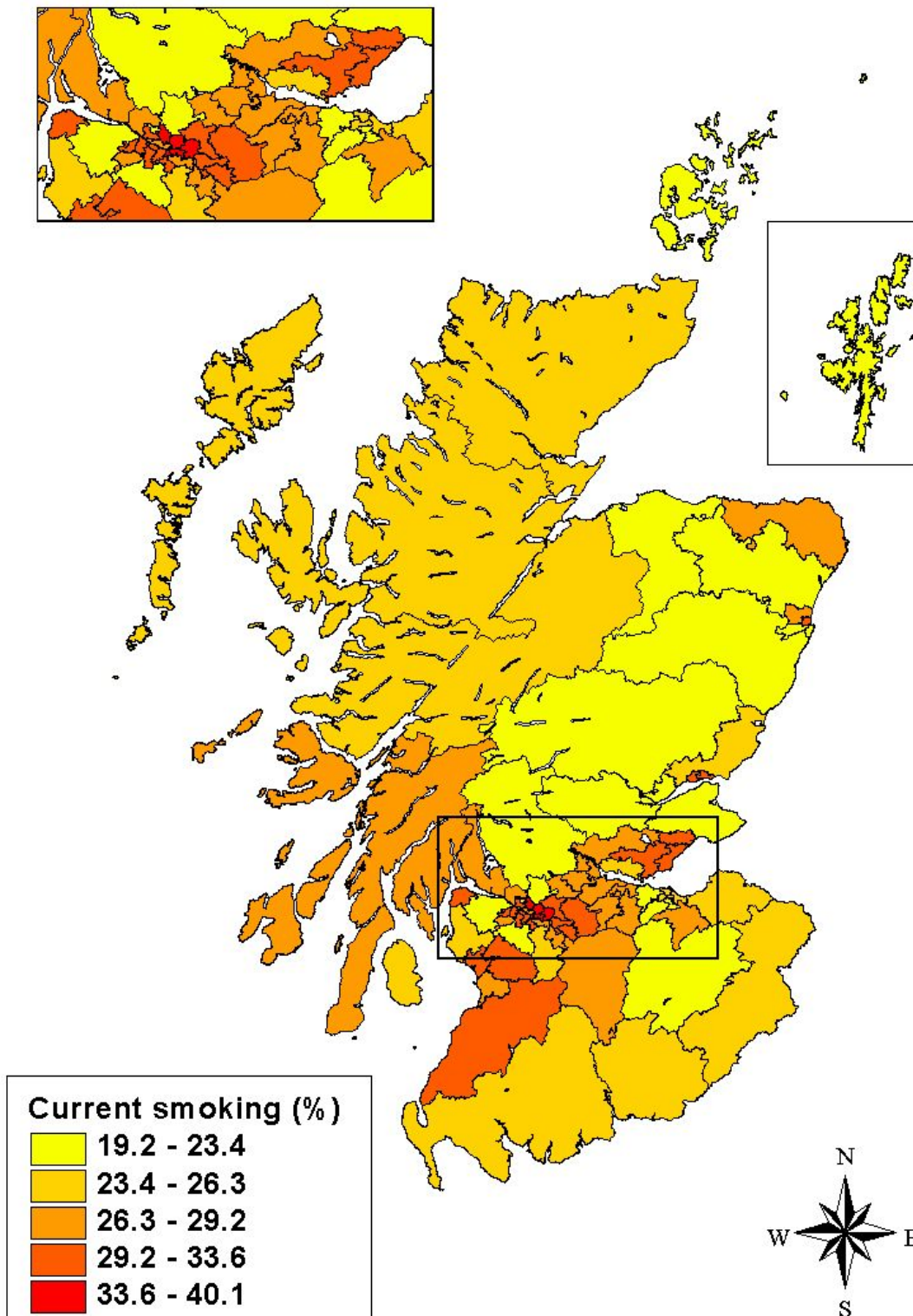


Table A3: Model-based estimates of current smoking prevalence by Scottish Parliamentary Constituency, 2003/04, including credible intervals.

| Scottish Parliamentary Constituency | Estimated Smoking | 95% Credible Interval | |
|---------------------------------------|-------------------|-----------------------|-------|
| | Prevalence (16+) | Lower | Upper |
| Aberdeen Central | 29.9 | 11.4 | 63.7 |
| Aberdeen North | 26.9 | 8.0 | 54.2 |
| Aberdeen South | 22.8 | 7.3 | 48.8 |
| Airdrie and Shotts | 33.0 | 11.9 | 66.3 |
| Angus | 25.0 | 8.6 | 55.8 |
| Argyll and Bute | 27.0 | 8.1 | 55.4 |
| Ayr | 26.8 | 9.9 | 59.3 |
| Banff and Buchan | 27.2 | 8.2 | 56.5 |
| Caithness, Sutherland and Easter Ross | 25.8 | 7.4 | 53.2 |
| Carrick, Cumnock and Doon Valley | 30.4 | 11.1 | 63.3 |
| Central Fife | 32.0 | 10.5 | 62.0 |
| Clydebank and Milngavie | 28.2 | 10.9 | 61.8 |
| Clydesdale | 27.0 | 8.7 | 57.7 |
| Coatbridge and Chryston | 31.4 | 9.7 | 59.3 |
| Cumbernauld and Kilsyth | 26.6 | 8.7 | 57.6 |
| Cunninghame North | 25.5 | 8.2 | 54.1 |
| Cunninghame South | 30.9 | 11.7 | 64.7 |
| Dumbarton | 28.2 | 9.8 | 60.0 |
| Dumfries | 25.8 | 7.5 | 53.3 |
| Dundee East | 30.9 | 10.3 | 58.5 |
| Dundee West | 30.3 | 10.7 | 62.2 |
| Dunfermline East | 31.6 | 11.9 | 65.3 |
| Dunfermline West | 26.1 | 9.3 | 58.8 |
| East Kilbride | 23.8 | 7.6 | 54.3 |
| East Lothian | 24.6 | 7.6 | 53.1 |
| Eastwood | 19.2 | 6.3 | 47.5 |
| Edinburgh Central | 24.4 | 8.9 | 57.9 |
| Edinburgh East and Musselburgh | 26.3 | 8.6 | 56.0 |
| Edinburgh North and Leith | 26.3 | 7.9 | 52.6 |
| Edinburgh Pentlands | 21.9 | 6.6 | 47.1 |
| Edinburgh South | 21.3 | 8.1 | 54.0 |
| Edinburgh West | 20.5 | 5.9 | 46.9 |
| Falkirk East | 27.6 | 9.3 | 59.6 |
| Falkirk West | 28.5 | 10.3 | 61.3 |
| Galloway and Upper Nithsdale | 25.3 | 7.9 | 54.4 |
| Glasgow Anniesland | 31.7 | 11.7 | 62.2 |
| Glasgow Baillieston | 36.2 | 15.0 | 69.1 |
| Glasgow Cathcart | 30.1 | 10.7 | 59.2 |
| Glasgow Govan | 31.9 | 11.1 | 61.7 |
| Glasgow Kelvin | 27.4 | 11.5 | 62.0 |
| Glasgow Maryhill | 37.3 | 14.8 | 70.4 |
| Glasgow Pollok | 33.6 | 11.8 | 65.2 |
| Glasgow Rutherglen | 27.8 | 10.3 | 61.5 |
| Glasgow Shettleston | 40.1 | 17.7 | 75.6 |
| Glasgow Springburn | 39.0 | 14.6 | 69.8 |

Table A3 (continued): Model-based estimates of current smoking prevalence by Scottish Parliamentary Constituency, 2003/04, including credible intervals.

| Scottish Parliamentary Constituency | Estimated Smoking Prevalence (16+) | 95% Credible Interval | |
|-------------------------------------|------------------------------------|-----------------------|-------|
| | | Lower | Upper |
| Gordon | 22.2 | 6.9 | 51.6 |
| Greenock and Inverclyde | 29.7 | 10.8 | 61.8 |
| Hamilton North and Bellshill | 31.6 | 9.9 | 59.9 |
| Hamilton South | 28.7 | 9.9 | 59.9 |
| Inverness East, Nairn and Lochaber | 24.6 | 8.3 | 55.7 |
| Kilmarnock and Loudoun | 30.6 | 10.1 | 61.1 |
| Kirkcaldy | 30.8 | 9.5 | 59.4 |
| Linlithgow | 29.2 | 10.5 | 62.1 |
| Livingston | 28.6 | 9.2 | 58.1 |
| Midlothian | 27.3 | 8.5 | 56.3 |
| Moray | 22.8 | 6.9 | 51.6 |
| Motherwell and Wishaw | 32.1 | 10.7 | 63.7 |
| North East Fife | 21.9 | 6.7 | 50.7 |
| North Tayside | 22.7 | 6.8 | 50.7 |
| Ochil | 26.8 | 8.4 | 55.7 |
| Orkney | 21.7 | 6.3 | 49.2 |
| Paisley North | 30.4 | 12.4 | 64.9 |
| Paisley South | 28.4 | 8.9 | 58.6 |
| Perth | 23.0 | 6.9 | 50.8 |
| Ross, Skye and Inverness West | 26.0 | 7.3 | 52.3 |
| Roxburgh and Berwickshire | 24.8 | 8.0 | 55.9 |
| Shetland | 22.5 | 7.2 | 52.5 |
| Stirling | 23.4 | 6.7 | 49.8 |
| Strathkelvin and Bearsden | 19.8 | 6.4 | 47.5 |
| Tweeddale, Ettrick and Lauderdale | 22.9 | 7.1 | 51.9 |
| West Aberdeenshire and Kincardine | 19.6 | 6.6 | 50.7 |
| West Renfrewshire | 23.2 | 6.9 | 50.0 |
| Western Isles | 25.7 | 8.6 | 57.9 |

Table A4: Model-based estimates of current smoking prevalence by Community Health Partnership, 2003/04, including credible intervals.

| Community Health Partnership | Estimated Smoking Prevalence (16+) | 95% Credible Interval | |
|---|------------------------------------|-----------------------|-------|
| | | Lower | Upper |
| Aberdeen City Community Health Partnership | 26.5 | 8.7 | 58.2 |
| Aberdeenshire Community Health Partnership | 22.8 | 7.3 | 53.3 |
| Angus Community Health Partnership | 25.2 | 8.2 | 56.6 |
| Argyll & Bute Community Health Partnership | 25.3 | 8.3 | 56.7 |
| Clackmannanshire Community Health Partnership | 29.8 | 10.2 | 62.2 |
| Dumfries & Galloway Community Health Partnership | 25.6 | 8.4 | 57.0 |
| Dundee City Community Health Partnership | 30.5 | 10.5 | 62.9 |
| Dunfermline & West Fife Community Health Partnership | 28.9 | 9.8 | 61.1 |
| East Ayrshire Community Health Partnership | 32.1 | 11.2 | 64.6 |
| East Dunbartonshire Community Health Partnership | 18.6 | 5.7 | 47.0 |
| East Glasgow Community Health & Care Partnership | 37.5 | 13.8 | 69.5 |
| East Lothian Community Health Partnership | 24.2 | 7.8 | 55.3 |
| East Renfrewshire Community Health & Care Partnership | 19.2 | 5.9 | 47.9 |
| Edinburgh North Community Health Partnership | 23.5 | 7.5 | 54.2 |
| Edinburgh South Community Health Partnership | 23.5 | 7.5 | 54.2 |
| Falkirk Community Health Partnership | 28.0 | 9.4 | 60.1 |
| Glenrothes & North East Fife Community Health Partnership | 25.4 | 8.3 | 56.8 |
| Inverclyde Community Health & Care Partnership | 30.6 | 10.5 | 63.0 |
| Kirkcaldy & Levenmouth Community Health Partnership | 31.5 | 11.0 | 64.0 |
| Mid Highland Community Health Partnership | 25.9 | 8.5 | 57.5 |
| Midlothian Community Health Partnership | 26.5 | 8.8 | 58.3 |
| Moray Community Health & Social Care Partnership | 23.0 | 7.3 | 53.6 |
| North Ayrshire Community Health Partnership | 28.0 | 9.4 | 60.1 |
| North Glasgow Community Health & Care Partnership | 37.5 | 13.8 | 69.5 |
| North Highland Community Health Partnership | 24.8 | 8.1 | 56.1 |
| North Lanarkshire Community Health Partnership | 31.7 | 11.0 | 64.2 |
| Orkney Community Health Partnership | 21.7 | 6.8 | 51.6 |
| Perth & Kinross Community Health Partnership | 21.8 | 6.9 | 51.8 |
| Renfrewshire Community Health Partnership | 26.5 | 8.8 | 58.3 |
| Scottish Borders Community Health & Care Partnership | 23.9 | 7.7 | 54.8 |
| Shetland Community Health Partnership | 22.5 | 7.1 | 52.9 |
| South Ayrshire Community Health Partnership | 26.5 | 8.8 | 58.3 |
| South East Glasgow Community Health & Care Partnership | 31.3 | 10.8 | 63.7 |
| South East Highland Community Health Partnership | 25.1 | 8.2 | 56.5 |
| South Lanarkshire Community Health Partnership | 26.2 | 8.6 | 57.9 |
| South West Glasgow Community Health & Care Partnership | 34.0 | 12.1 | 66.5 |
| Stirling Community Health Partnership | 23.5 | 7.5 | 54.3 |
| West Dunbartonshire Community Health Partnership | 33.3 | 11.8 | 65.8 |
| West Glasgow Community Health & Care Partnership | 30.3 | 10.4 | 62.7 |
| West Lothian Community Health Partnership | 28.9 | 9.8 | 61.1 |
| Western Isles Community Health Partnership | 25.7 | 8.4 | 57.2 |

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