Smoking prevalence projections for England, Scotland, Wales, and Northern Ireland, based on data to 2018/19

February 2020

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Reference

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Executive summary

Purpose

Smoking prevalence in the UK and its constituent nations has been declining overall for some decades, but in 2018 there were still around 7.2 million UK smokers, and in 2015 smoking caused around 115,000 UK deaths. Smoking – and its catastrophic impact on health – remains more common within poorer communities.

The UK and Scottish Governments have set smoke-free ambitions: to achieve 5% average adult smoking prevalence by 2030 in England, and by 2034 in Scotland. Wales and Northern Ireland have yet to do so, but CRUK recommends they set smoke-free ambitions for 2030 and 2035 respectively based on the findings of this report – particularly their capacity to reach these targets if the pace of change is accelerated.

In this report we estimate whether those ambitions are likely to be realised based on current trends. We have projected adult smoking prevalence for the UK's constituent nations until 2050, both for the population on average and for each deprivation quintile separately. These projections use smoking prevalence data from the Office for National Statistics' Annual Population Survey (England and Wales data), Scottish Government's Scottish Health Survey, and Department of Health Northern Ireland's Health Survey Northern Ireland.

Key Findings

As the robustness of any projection decreases the further into the future it looks – because of unforeseen changes to policy and other environmental factors – we report specific-year projections only until 2040. Results for 2041-49 are reported as 'the early/mid/late 2040s' and everything after is reported as 'after 2050', to reflect the inherent uncertainty of projections this far ahead.

Comparisons between UK nations should not be made because the results are based on different surveys for each nation, which vary in sampling and analysis approach.

Our projections indicate that England will not achieve its smoke-free ambition of 5% average adult smoking prevalence by 2030, if current smoking prevalence trends continue.

- Average adult smoking prevalence in England will reach 5% in 2037.
- To reach average adult smoking prevalence of 5% by 2030 in England, the pace of change needs to be around 40% faster than projected.
- Only the least deprived quintile in England will achieve 5% adult smoking prevalence by 2030, while the most deprived quintile will not do so until the mid-2040s.
- If England achieves 5% average adult smoking prevalence by 2030, there will be around 2.4 million smokers in England in 2030; this is around 1.3 million fewer smokers than projected for 2030 if current smoking prevalence trends continue, and around 3.4 million fewer smokers than projected for 2020.

Our projections indicate that Scotland will not achieve its smoke-free ambition of 5% average adult smoking prevalence by 2034, if current smoking prevalence trends continue.

- Average adult smoking prevalence in Scotland will reach 5% after 2050.
- Only the least deprived quintile in Scotland will achieve 5% smoking prevalence by 2034.
- If current smoking prevalence trends continue, average adult smoking prevalence in Scotland will be 12% in 2034 – seven percentage points short of the Scottish Government's target.
- To reach average adult smoking prevalence of 5% by 2034 in Scotland, the pace of change needs to be almost twice as fast as projected.
- If Scotland achieves 5% average adult smoking prevalence by 2034, there will be around 237,000 smokers in Scotland in 2034; this is around 318,000 fewer smokers than projected for 2034 if current smoking prevalence trends continue, and around 585,000 fewer smokers than projected for 2020.

Our projections indicate that Wales will not achieve 5% average adult smoking prevalence by 2030, if current smoking prevalence trends continue.

- Average adult smoking prevalence in Wales will reach 5% in 2037 and 14% in 2020.
- To reach average adult smoking prevalence of 5% by 2030 in Wales, the pace of change needs to be around 40% faster than projected.
- If Wales achieves 5% average adult smoking prevalence by 2030, there will be around 130,000 smokers in Wales in 2030; this is around 76,000 fewer smokers than projected for 2030 if current smoking prevalence trends continue, and around 222,000 fewer smokers than projected for 2020.

Our projections indicate that Northern Ireland will not achieve 5% average adult smoking prevalence by 2035, if current smoking prevalence trends continue.

- Average adult smoking prevalence in Northern Ireland will reach 5% in the late 2040s.
- Only the least deprived quintile in Northern Ireland will achieve 5% average adult smoking prevalence by 2035. The most deprived quintile will not do so until after 2050. The remaining deprivation quintiles will achieve adult smoking prevalence between those years.
- To reach average adult smoking prevalence of 5% by 2035 in Northern Ireland, the pace of change needs to be around 50% faster than projected.
- If Northern Ireland achieves 5% average adult smoking prevalence by 2035, there will be around 81,000 smokers in Northern Ireland in 2035; this is around 71,000 fewer smokers than projected for 2035 if current smoking prevalence trends continue, and around 180,000 fewer smokers than projected for 2020.

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Introduction

Background

Currently around 3 in 20 (15%) UK adults smoke cigarettes, and this proportion (known as smoking prevalence) is falling overall.[1] Smoking prevalence in the UK is among the lowest in Europe.[2] However smoking prevalence is higher and is falling slower within more deprived (poorer) groups.[1,3,4] There is also significant variation in smoking prevalence between UK constituent nations.[1] Smoking is the leading cause of cancer in the UK,[5] and one of the biggest causes of avoidable deaths[6] so, it is crucial that these declines in smoking prevalence continue.

In 2019, the UK Government set a smoke-free ambition to reduce average adult smoking prevalence to 5% by 2030 in England,[7] and an interim ambition to reduce average adult smoking prevalence to 12% by the end of 2022 in England.[8] In 2013, the Scottish Government set a smoke-free ambition to reduce average adult smoking prevalence to 5% by 2034 in Scotland.[9] The Welsh Government has committed to achieving 16% average adult smoking prevalence (measured using National Survey for Wales) in Wales in 2020.[10] The Northern Ireland Executive has not committed to any specific smoking prevalence target for Northern Ireland. For Wales and Northern Ireland, CRUK recommends a smoke-free ambition to reduce average adult smoking prevalence to 5% by 2030 and 2035 respectively, based on the findings of this report – particularly their capacity to reach these targets if the pace of change is accelerated.

In order to achieve 5% average adult smoking prevalence without exacerbating existing inequalities, it will be vital to prioritise reducing smoking prevalence in groups with the highest smoking rates. Projecting smoking prevalence based on current trends – for the population as a whole and for each deprivation quintile separately – helps to understand the future resources needed for tobacco control and where they should be targeted.

Study Objectives

We aim to estimate future smoking prevalence for each UK constituent nation, for the population on average and for each deprivation quintile separately, to answer the following questions:

1) Based on current adult smoking prevalence trends, what year will each UK constituent nation reach:
    a) 5% average adult smoking prevalence
    b) 5% adult smoking prevalence across all deprivation quintiles
2) What increase to the pace of change in average adult smoking prevalence is needed to reach 5% average adult smoking prevalence by 2030 (in England and Wales), by 2034 (in Scotland) and by 2035 (in Northern Ireland)?
3) How many fewer smokers would there be in 2030 (in England and Wales), 2034 (in Scotland) and 2035 (in Northern Ireland) if 5% average adult smoking prevalence were reached?

Methods

Data collection

We conducted an analysis of published health survey data. The criteria for selecting the appropriate health survey were as follows:

- Availability of nationally representative adult smoking prevalence trends data with a minimum 7 years of data.
- Availability of adult smoking prevalence trends data by deprivation (quintiles of income domain of indices of multiple deprivation [IMD]).
- Data is used to inform policy in each of the UK nations.

Table 1. Data sources

Country	Health Survey	Years available	Deprivation
England	Annual Population Survey (APS)[11]	2011-2018	Quintiles of income domain of IMD
Scotland[a]	Scottish Health Survey (SHeS)[12]	2011-2018	Quintiles of income domain of Scottish IMD (SIMD)
Wales[b]	Annual Population Survey (APS)1	2011-2018	Not used
Northern Ireland	Health Survey Northern Ireland (HSNI)[13]	2010/11-2018/19	Quintiles of income domain of IMD

[a] Scotland's Tobacco Control Strategy published in 2013 states 'We will monitor progress through the Scottish Household Survey'; however Scottish Health Survey is now the preferred source for the Scottish Government's National Indicator on smoking (https://www2.gov.scot/Resource/0052/00523937.pdf)

[b] Wales uses National Survey for Wales (NSW) to inform smoking policy. However NSW started collecting smoking data in 2016, therefore provides only 3 years of data so far, which is insufficient for projections. Prior to NSW, Wales smoking prevalence data were obtained from the Welsh Health Survey (WHS); this ceased in 2015, and WHS and NSW data cannot be treated as a continuous time series. Annual Population Survey (APS) is therefore the only viable data source for Wales smoking projections; no deprivation breakdown projections were created as APS is not the preferred data source for Wales. It is important to note that our projections are for age 18+ because this is the age group for APS, whereas Wales may set ambitions for age 16+ because this is the age group for NSW.

Statistical Analyses

Statistical Principles

Statistical analyses were performed in R software version 3.6.0 or later. All applied tests were two sided and p-values less than 0.05 was deemed statistically significant. No p-value adjustments were performed for multiple comparisons. Due to the nature of the models, for each UK constituent nation, the assumption of auto-collinearity was tested. Results show we did not violate this assumption and are available upon request.

Question 1: Based on current adult smoking prevalence trends, what year will each UK constituent nation reach:

a) 5% average adult smoking prevalence

Each UK constituent nation has a separate model. A univariate beta regression model was fitted with year as the predictor variable. Beta regression was used because the outcome variable was smoking prevalence (percentage; value between 0 and 1). Using the add_predictions package in R, the models were used to project average adult smoking prevalence from 2019 to 2050 in each UK constituent nation.

b) 5% adult smoking prevalence across all deprivation quintiles?

England, Scotland and Northern Ireland have separate models; there is no model for Wales as deprivation data are not available for Wales' preferred data source. A bivariate beta regression model was fitted with year and deprivation as the predictors. The outcome variable was smoking prevalence (percentage; value between 0 and 1). Using the add_predictions package in R, the models were used to project adult smoking prevalence from 2019 to 2050 for each deprivation quintile for England and Scotland and prevalence from 2018 to 2050 for each deprivation quintile for Northern Ireland.

Question 2: What increase to the pace of change in average adult smoking prevalence is needed to reach 5% average adult smoking prevalence by 2030 (in England and Wales), by 2034 (in Scotland) and by 2035 (in Northern Ireland)?

For each UK constituent nation, we calculated the ratio of the projected total percentage-point change in average adult smoking prevalence between 2019 and 2030/2034/2035 (as appropriate for each nation), and the total percentage-point change required to achieve 5% average adult smoking prevalence in 2030/2034/2035 (as appropriate for each nation).

Question 3: How many fewer smokers would there be in 2030 (in England and Wales), 2034 (in Scotland) and 2035 (in Northern Ireland) if 5% average adult smoking prevalence were reached?

Using population projections from the Office for National Statistics,[14] we calculated the difference between the estimated number of adult smokers based on projected average adult smoking prevalence, and the estimated number of adult smokers if average adult smoking prevalence were 5%, in 2030/2034/2035 (as appropriate for each nation).

Sensitivity analysis

To explore whether including age in the projections would alter the results, we conducted a sensitivity analysis. We used a beta-regression model with age (18-24, 25-34, 35-44, 45-54, 65+) and year as predictor variables. Smoking prevalence (percentage; value between 0 and 1) was the outcome variable. Using the R package add_predictions and the model we projected smoking prevalence for these age bands for 2019-2050.

Projected smoking prevalence was applied to population projections from the Office for National Statistics,[14] to obtain the estimated total number of smokers in each age band each year. Those figures were then summed to obtain the total number of adult smokers each year, and that number was divided by the total adult population each year to obtain average adult smoking prevalence.

Results

Based on current adult smoking prevalence trends, what year will each UK constituent nation reach a) 5% average adult smoking prevalence, and b) 5% adult smoking prevalence across all deprivation quintiles?

For all the models, both year and deprivation quintile[3] are significant predictors of smoking prevalence. The models were used to project a) average adult smoking prevalence and b) smoking prevalence in each deprivation quintile.

As the robustness of any projection decreases the further into the future it looks – because of unforeseen changes to policy and other environmental factors – we report specific-year projections only until 2040. Results for 2041-49 are reported as 'the early/mid/late 2040s' and everything after is reported as 'after 2050', to reflect the inherent uncertainty of projections looking this far ahead.

Comparisons between UK nations should not be made, because the results are based on different datasets for each nation.

In Figures 1-7, solid lines denote observed values, broken lines denote projections. Projections 2041 onwards (shown with longer dashes) should be interpreted with caution. Horizontal and vertical lines denote 5% smoking prevalence, and year for which smoke-free ambition is set.

Results of the beta regressions are in the Appendix.

[3] No projections by deprivation quintile for Wales

England

Figure 1. Observed (solid line) and projected (broken line) smoking prevalence, adults aged 18+, England, 2011-2050.

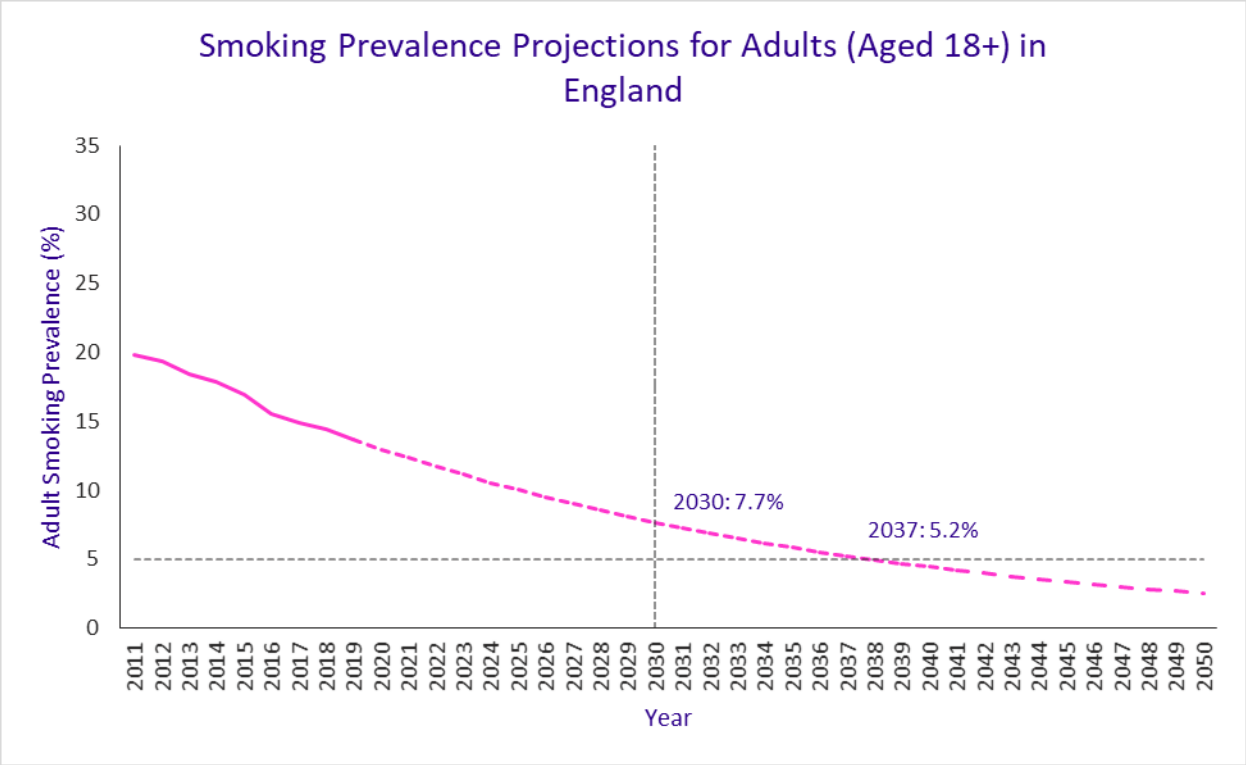
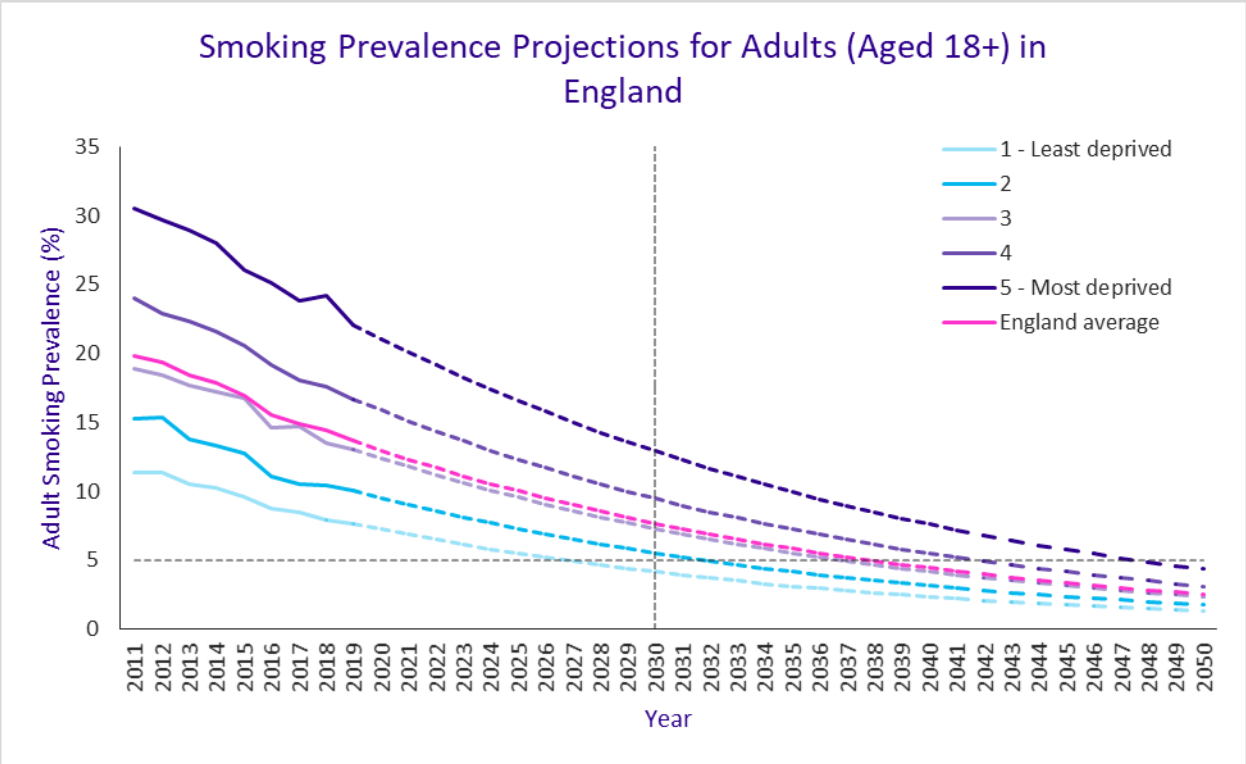


Figure 2. Observed (solid lines) and projected (broken lines) smoking prevalence by deprivation quintiles, adults aged 18+, England, 2011-2050.



England continued

- If current smoking prevalence trends continue, average adult smoking prevalence in England will reach 5% in 2037.
- If current smoking prevalence trends continue, average adult smoking prevalence in England will be 12% by 2022 (the conclusion of the current Tobacco Control Delivery Plan for England).
- If current smoking prevalence trends continue, only the least deprived quintile in England will achieve 5% adult smoking prevalence by 2030, while the most deprived quintile will not do so until the mid-2040s. The remaining deprivation quintiles will achieve 5% adult smoking prevalence between those years.
- If current smoking prevalence trends continue, adult smoking prevalence in the least deprived quintile will be 6% and in the most deprived quintile will be 19% in England in 2022. The remaining three deprivation quintiles will achieve adult smoking prevalence between those levels in 2022.
- If current smoking prevalence trends continue, the deprivation gap in adult smoking prevalence in England will be around 20 years: the least deprived quintile will achieve 5% smoking prevalence in 2025, while the most deprived quintile will not do so until the mid-2040s.

Scotland

Figure 3. Observed (solid line) and projected (broken line) smoking prevalence, adults aged 16+, Scotland, 2003-2050.

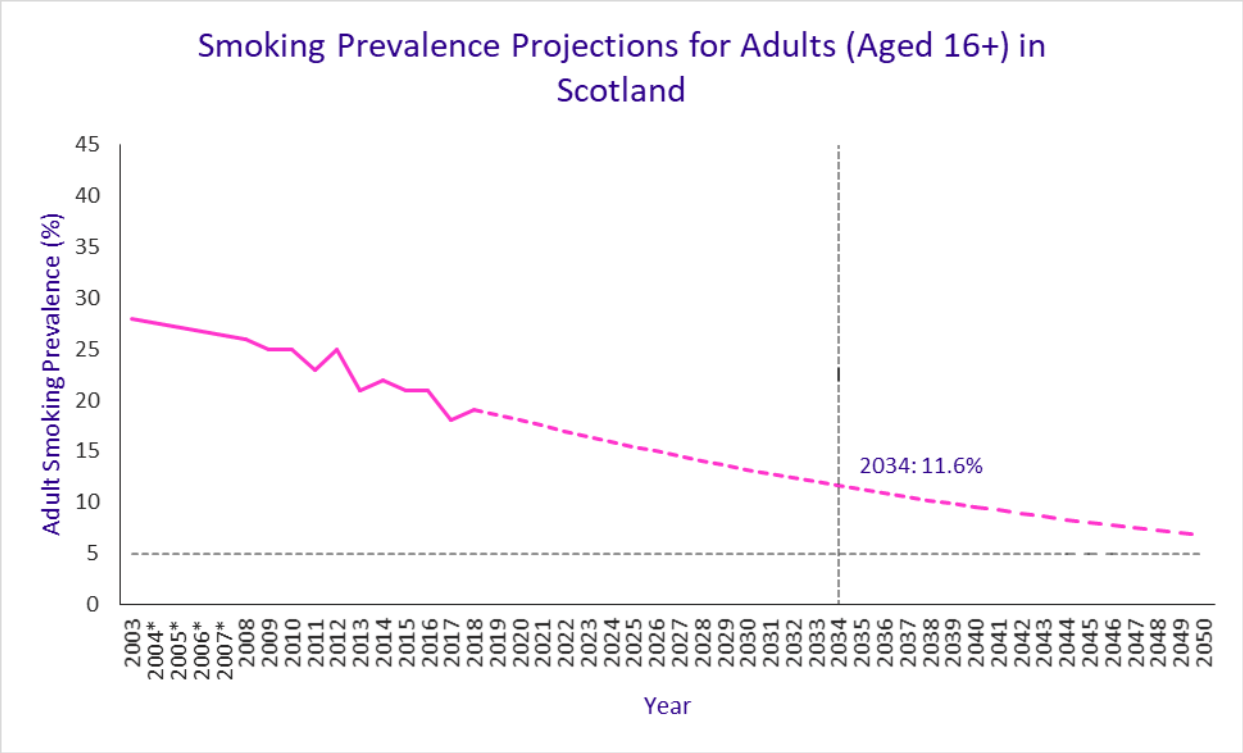
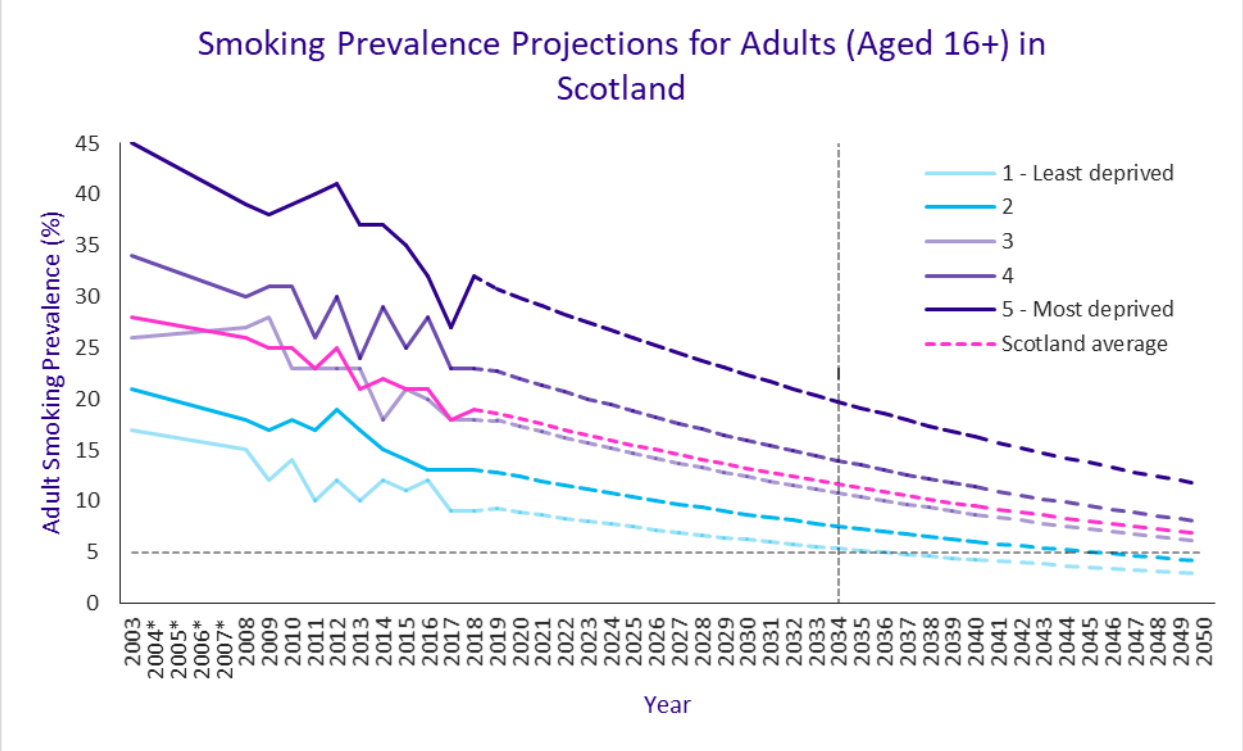


Figure 4. Observed (solid lines) and projected (broken lines) smoking prevalence by deprivation quintiles, adults aged 16+, Scotland, 2003-2050.

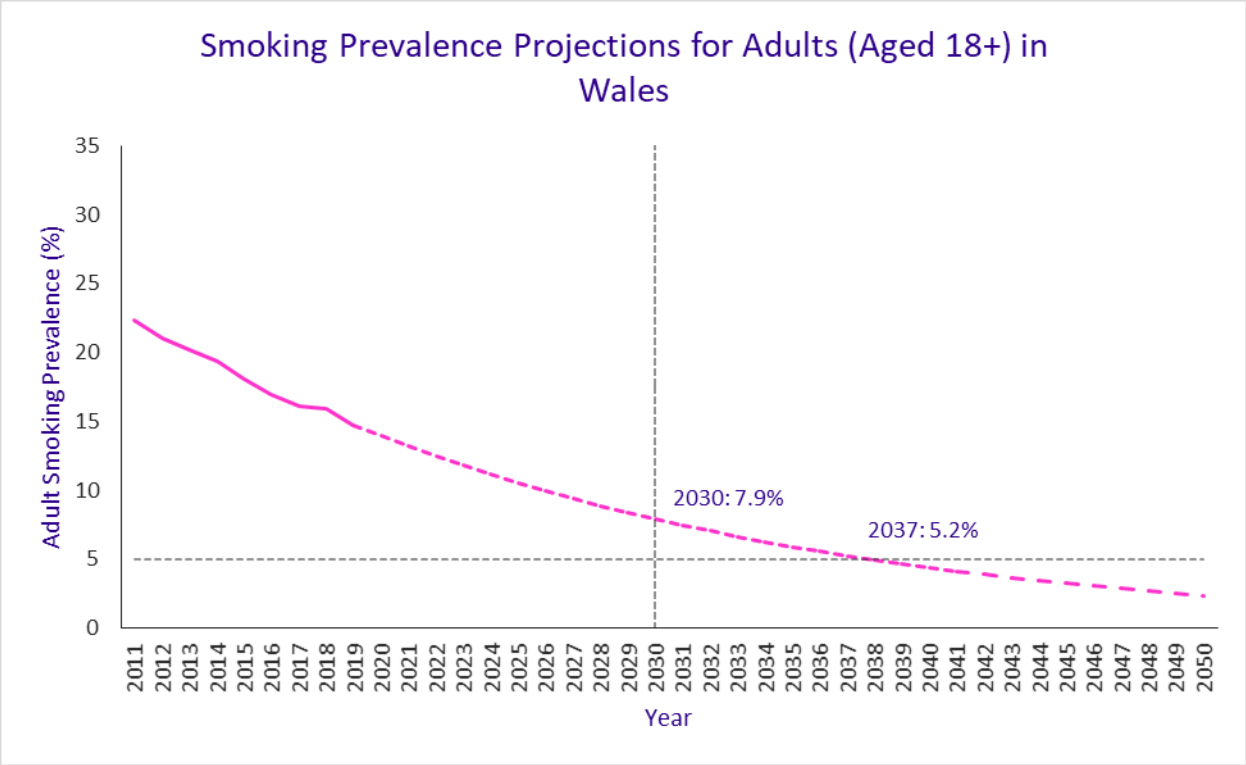


Scotland continued

- If current smoking prevalence trends continue, average adult smoking prevalence in Scotland will reach 5% after 2050.
- If current smoking prevalence trends continue, average adult smoking prevalence in Scotland will be 12% in 2034.
- If current smoking prevalence trends continue, average adult smoking prevalence in Scotland will be 18% in 2021 (a milestone of 12% was set out in Scotland's Tobacco Control Action Plan[9]).
- If current smoking prevalence trends continue, only the least deprived quintile in Scotland will achieve 5% adult smoking prevalence by 2034.
- If current smoking prevalence trends continue, adult smoking prevalence in the least deprived quintile will be 5% and in most deprived quintile will be 20%, in Scotland in 2034. The remaining three deprivation quintiles will achieve adult smoking prevalence between those levels in 2034.
- If current smoking prevalence trends continue, adult smoking prevalence in the least deprived quintile will be 9% and in the most deprived quintile will be 29% in Scotland in 2021. The remaining three deprivation quintiles will achieve adult smoking prevalence between those levels in 2021.
- If current smoking prevalence trends continue, the deprivation gap in adult smoking prevalence in Scotland will be more than 30 years: the least deprived quintile achieved 15% smoking prevalence in 2008, while the most deprived quintile will not do so until the early 2040s.

Wales

Figure 5. Observed (solid line) and projected (broken line) smoking prevalence, Annual Population Survey data, adults aged 18+, Wales, 2011-2050.



- If current smoking prevalence trends observed in Annual Population Survey continue, average adult smoking prevalence in Wales will reach 5% in 2037.
- If current smoking prevalence trends observed in Annual Population Survey continue, average adult smoking prevalence in Wales will reach 8% in 2030.
- If current smoking prevalence trends observed in Annual Population Survey continue, average adult smoking prevalence in Wales will be 14% in 2020
    - A target of 16% was set out in the Tobacco Control Action Plan for Wales.[10] This target was informed by – and success will be assessed against – smoking prevalence measured in National Survey for Wales. Smoking prevalence has been 1-3 percentage points higher in National Survey for Wales compared with Annual Population Survey since 2016/17.
- *No projections by deprivation quintile for Wales.*

Northern Ireland

Figure 6: Observed (solid line) and projected (broken line) smoking prevalence, adults aged 16+, Northern Ireland, 2010-2050.

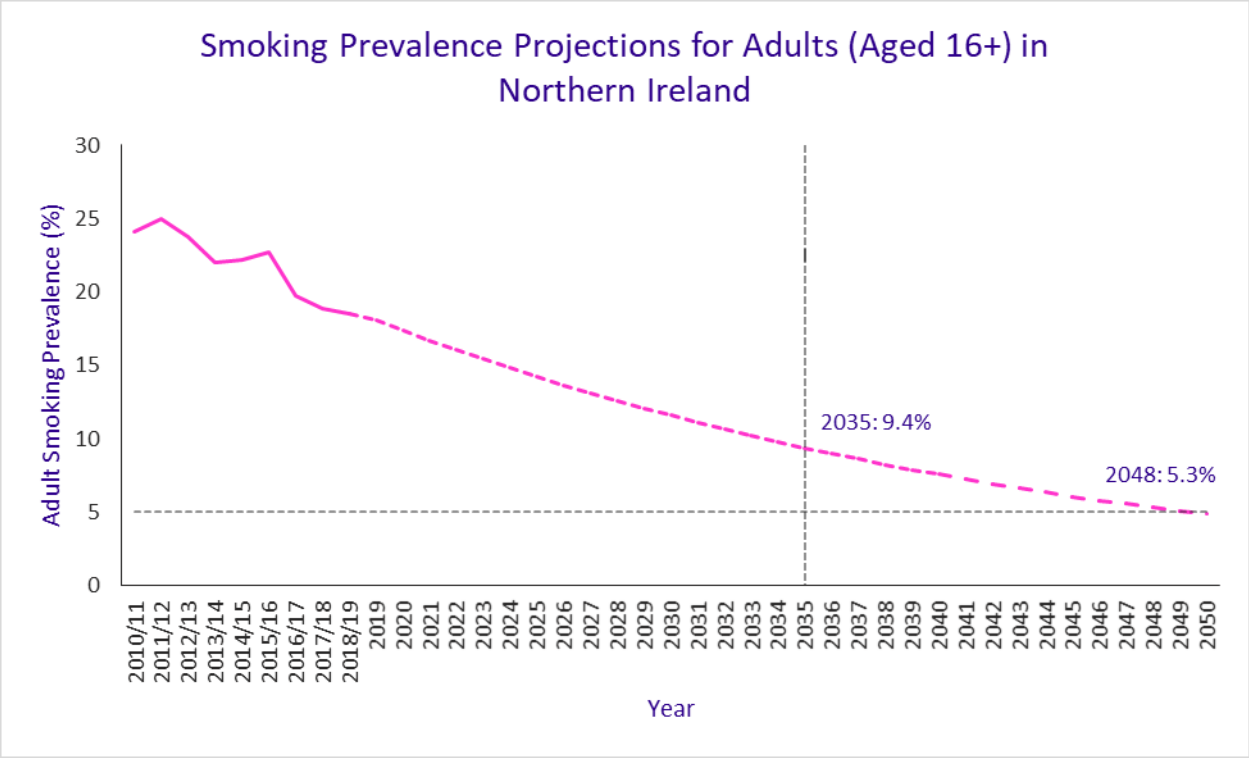
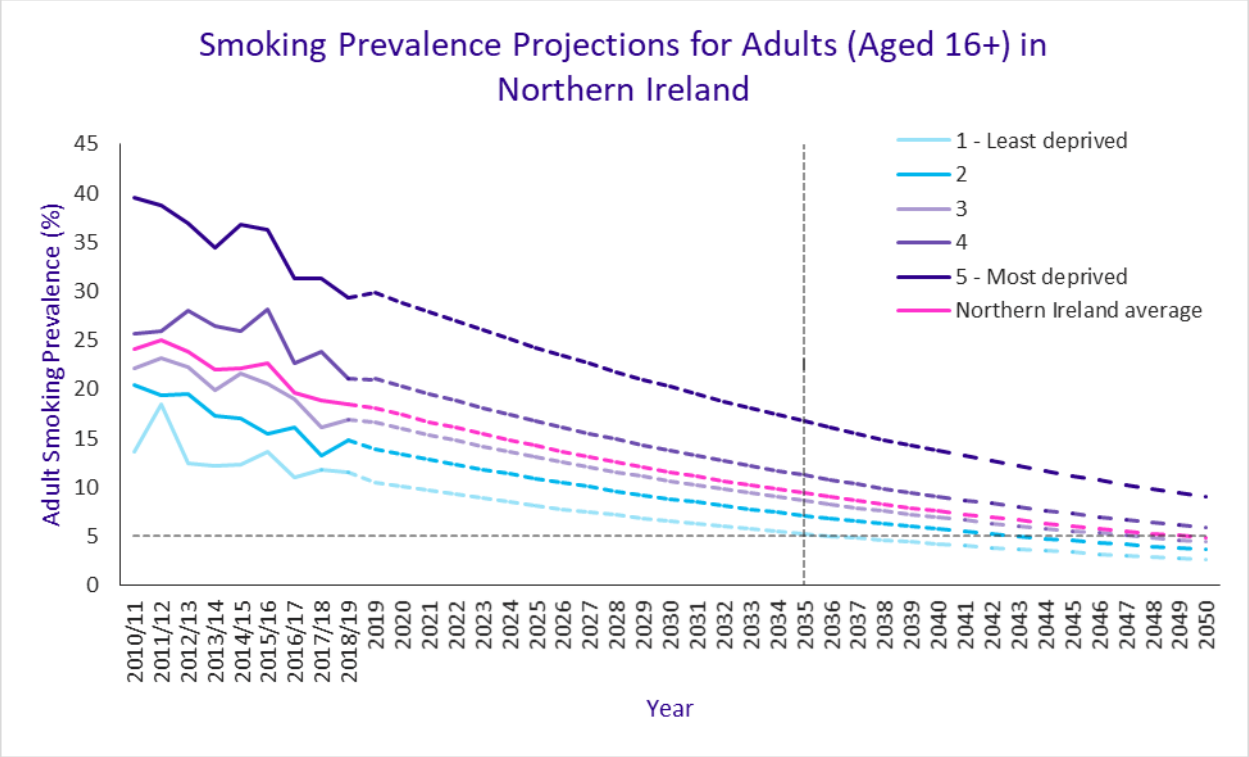


Figure 7. Observed (solid lines) and projected (broken lines) smoking prevalence by deprivation quintiles, adults aged 16+, Northern Ireland, 2010-2050.



Northern Ireland continued

- If current smoking prevalence trends continue, average adult smoking prevalence in Northern Ireland will reach 5% in the late 2040s.
- If current smoking prevalence trends continue, average adult smoking prevalence in Northern Ireland will be 9% in 2035.
- If current smoking prevalence trends continue, average adult smoking prevalence in Northern Ireland will be 16% in 2022.
- If current smoking prevalence trends continue, only the least deprived quintile in Northern Ireland will achieve 5% adult smoking prevalence by 2035, while the two most deprived quintiles will not do so till after 2050. The remaining deprivation quintiles will achieve adult smoking prevalence between those years.
- If current smoking prevalence trends continue, adult smoking prevalence in the least deprived quintile will be 9% and in the most deprived quintile will be 27%, in Northern Ireland in 2022. The remaining three deprivation quintiles will achieve adult smoking prevalence between those levels in 2022.
- If current smoking prevalence trends continue, the deprivation gap in adult smoking prevalence in Northern Ireland will be almost 30 years: the least deprived quintile achieved 14% smoking prevalence in 2010/11, while the most deprived quintile will not do so until 2039.

What increase to the pace of change in average adult smoking prevalence is needed to reach 5% average adult smoking prevalence by 2030 (in England and Wales), by 2034 (in Scotland) and by 2035 (in Northern Ireland)?

To reach average adult smoking prevalence of 5% by 2030 in England, the pace of change needs to be around 40% faster than projected.

To reach average adult smoking prevalence of 5% by 2034 in Scotland, the pace of change needs to be almost twice as fast as projected.

To reach average adult smoking prevalence of 5% by 2030 in Wales, the pace of change needs to be around 40% faster than projected.

To reach average adult smoking prevalence of 5% by 2035 in Northern Ireland, the pace of change needs to be around 50% faster than projected.

Table 2. Projected percentage-point change 2018 versus smoke-free ambition target year, and percentage-point change required to achieve smoke-free ambition, in UK constituent nations

Country	Smoking prevalence (%)		Percentage-point (pp) change from 2018 to smoke-free ambition target year		Difference between projected and required percentage-point change
	2018	Smoke-free ambition target year	Projected	Required to achieve smoke-free ambition	
England	14.4%	7.7%	6.8pp	9.4pp	39%
Scotland	19.0%	11.6%	7.4pp	14.0pp	89%
Wales	15.9%	7.9%	8.0pp	10.9pp	37%
Northern Ireland	18.5%	9.4%	9.1pp	13.5pp	48%

How many fewer smokers would there be in 2030 (in England and Wales), 2034 (in Scotland) and 2035 (in Northern Ireland) if 5% average adult smoking prevalence were reached?

If England achieves 5% average adult smoking prevalence by 2030, there will be around 2.4 million smokers in England in 2030; this is around 1.3 million fewer smokers than projected for 2030 if current smoking prevalence trends continue, and around 3.4 million fewer smokers than projected for 2020.

If Scotland achieves 5% average adult smoking prevalence by 2034, there will be around 237,000 smokers in Scotland in 2034; this is around 318,000 fewer smokers than projected for 2034 if current smoking prevalence trends continue, and around 585,000 fewer smokers than projected for 2020.

If Wales achieves 5% average adult smoking prevalence by 2030, there will be around 130,000 smokers in Wales in 2030; this is around 76,000 fewer smokers than projected for 2030 if current smoking prevalence trends continue, and around 222,000 fewer smokers than projected for 2020.

If Northern Ireland achieves 5% average adult smoking prevalence by 2035, there will be around 81,000 smokers in Northern Ireland in 2035; this is around 71,000 fewer smokers than projected for 2035 if current smoking prevalence trends continue, and around 180,000 fewer smokers than projected for 2020.

Table 3. Estimated number of smokers in UK constituent nations in their smoke-free ambition years (England & Wales 2030, Scotland 2034, Northern Ireland 2035)

Country	Number of smokers			Number fewer smokers in smoke-free ambition target year if...	
	2020 if current trends continue	Smoke-free ambition target year if current trends continue	Smoke-free ambition target year if ambition achieved	Smoke-free ambition achieved vs current trends continue	Smoke-free ambition achieved vs 2020
England	5.8 million	3.6 million	2.4 million	1.3 million	3.4 million
Scotland	822,520	555,490	237,137	318,353	585,384
Wales	351,939	205,881	129,963	75,918	221,976
Northern Ireland	260,494	149,886	80,773	71,019	179,721

Sensitivity analysis

Including age in the model had only a minor effect on the results. Projected 2030 smoking prevalence was 0.2 percentage points lower in the with-age (sensitivity analysis) model versus the without-age (main analysis) model. Projected year of achieving 5% smoking prevalence was one year earlier in the with-age model versus the without-age model.

Discussion

Summary of results

Smoking is the leading cause of cancer in the UK,[5] and one of the biggest causes of avoidable deaths.[6] The proportion of UK adults smoking is falling overall, but remains higher and is falling slower in more deprived groups.[1,3,4] **Smoke-free ambitions – to reduce average adult smoking prevalence to 5% by a specific year – have been set by the UK and Scottish governments; Wales and Northern Ireland are yet to set such ambitions.**[7,9] To help understand the future resources needed for tobacco control in order to achieve these smoke-free ambitions, we projected future adult smoking prevalence in the UK's constituent nations, based on a continuation of current trends. These projections provide an estimated trajectory of smoking prevalence if there are no changes to the current environment around smoking.

The results indicate that if current adult smoking prevalence trends continue, none of the UK constituent nations will achieve their smoke-free ambitions (or for Wales and Northern Ireland, the ambitions CRUK recommends they set). For England and Wales, smoke-free ambitions could be missed by several years; for Northern Ireland and Scotland they could be missed by a decade or more. The most-deprived quintiles in each of the nations are expected to be furthest away from achieving those smoke-free ambitions. To achieve their smoke-free ambitions, the rate of decline in smoking prevalence needs to be markedly faster for all the UK constituent nations – ranging from 9% faster in Wales to almost twice faster in Scotland.

Strengths and limitations

To project smoking prevalence we applied inferential statistics to published health survey data. We used established statistical methods[15], explored alternative methods (e.g. linear versus quadratic models), and conducted a sensitivity analysis.

For any projections, the key limitation is the assumption past trends will continue in future, and the inability to predict changes in the environment around smoking. Projections are dependent on data availability: a longer data series may capture fluctuations in past smoking prevalence trends better and therefore produce more robust projections for future trends; however for all but one UK constituent nation the most policy-relevant data series have run for less than a decade. **The further into the future projections look, the more uncertain they become; we feel 2040 is a sensible point at which to interpret the results with more caution.**

Our models do not take into account other factors that relate to smoking prevalence, such as age, sex, and ethnic group. It is relevant to do this where the population structure has changed/is expected to change markedly on these variables within the observed and projected data period. Our sensitivity analysis indicates that factoring in age does not substantially affect the results. However, smoking prevalence data by deprivation and ethnicity was not readily available. Nonetheless, future research should explore the impact of such demographic factors on projections.

Policy recommendations

All four nations should sustain, and where necessary, strengthen action to reducing smoking rates. Particular attention should be given to interventions that have been shown to be effective at reducing smoking rates amongst more deprived groups, which are, as this report shows, the furthest away from achieving smoke-free ambitions.

With this in mind, we make the following recommendations.

UK-wide and England

The UK Government should:

- Set out and consult on its proposals to achieve a smoke-free England by 2030, as soon as possible
- Restore funding for multi-channel public education campaigns to encourage smokers to quit and discourage youth uptake
- Restore funding for Stop Smoking Services, which give smokers the best chances of quitting successfully
- Fund regional functions (such as FRESH) across England, to coordinate and deliver regional-level mass media campaigns and enforcement of tobacco regulation.

To pay for the above in England and for additional programmes to support quit attempts and reduce uptake in the devolved nations, the UK Government should:

- Legislate to impose a fixed annual charge on the tobacco industry, paid by each tobacco manufacturer in the UK in proportion to their market share on tobacco sales.

In addition, the UK Government should:

- Ensure delivery of smoking cessation interventions through NHS primary and secondary care – including the commitment to roll out the Ottawa Model for Smoking Cessation to all trusts by 2023/24, as set out in the NHS England Long Term Plan
- Implement greater reductions in affordability of tobacco products, through increased taxation, to take effect across the UK.

Scotland

The Scottish Government should:

- Urgently evaluate the 2018 Tobacco Control Action Plan to prioritise the implementation of actions and interventions that will help Scotland reach a smoke-free generation quicker
- Ensure the delivery across each NHS board of structured programmes of recording of smoking status, providing prompt provision of specialist smoking cessation and ongoing support across all healthcare settings – beyond existing service guidelines – in a similar manner to the Ottawa Model for Smoking Cessation. Additional resources should be provided to ensure the delivery of this, with ongoing monitoring and evaluation
- Increase funding for national mass media campaigns to reduce uptake and encourage smokers to quit

Wales

The Welsh Government should:

- Set a 2030 target for reaching a smoke-free generation, in line with similar existing ambitions in England and Scotland
- Develop and publish a new tobacco control strategy for 2021 onwards
- Increase access to and quality of data on smoking prevalence, with focus on deprived communities, pregnant women, young people, and other high-risk groups
- Implement the Ottawa Model for Smoking Cessation across each local health board in Wales, learning from local projects as well as the CURE Project in Greater Manchester
- Continue to invest in innovative, well-funded mass media campaigns to prevent uptake and encourage current smokers to access Help Me Quit
- Commission an independent evaluation of Help Me Quit, with view for a public report containing recommendations on what can be done to improve and promote the service
- Monitor the impact of smoking cessation services moving to local health boards, including compliance towards the target of treating 5% of their local population
- Evaluate the impact of smoke-free hospital grounds, with a report to be made available to the public

Northern Ireland

The Northern Ireland Department of Health should:

- Commit to developing and publishing a new tobacco control strategy for 2022 onwards
- Set an achievable 2035 target for reaching a smoke-free generation, in line with similar existing ambitions in England and Scotland
- Monitor locally driven projects in South Eastern Health and Social Care Trust seeking to implement the Ottawa Model for Smoking Cessation, with a view for implementation of structured programmes of recording smoking status, prompt referral to specialist support and ongoing support across multiple healthcare settings in Northern Ireland
- Explore what potential legislative interventions can be taken to reduce uptake, discourage smoking, and support current smokers to quit
- Invest in innovative, well-funded mass media campaigns to prevent uptake and encourage current smokers to access smoking cessation services

Conclusion

Projections based on continuation of current trends indicate that smoking prevalence will continue to fall in the UK's constituent nations, but not fast enough to achieve the smoke-free ambitions set out. Without changes to the environment around smoking, it appears more deprived groups will continue to have higher smoking prevalence even if/when 5% average adult smoking prevalence is achieved.

CRUK encourages all four UK nations to sustain, and where necessary strengthen, action to reducing smoking rates, with particular attention given to interventions that have been shown to be successful for those from more deprived groups.

Appendix

The univariate models for each nation show that year is a significant predictor of smoking prevalence.

Table 3. Univariate beta regression with year as the predictor variable and smoking prevalence as outcome variable

Country	Predictor	Estimate	z-value	p-value	Log-likelihood (3)	Pseudo R^2
England	Intercept	117.23	17.29	<0.001	31.85	0.98
	Year	-0.06	-17.52	<0.001		
Scotland	Intercept	73.04	9.02	<0.001	37.99	0.87
	Year	-0.04	-9.17	<0.001		
Wales	Intercept	125.82	24.87	<0.001	36.72	0.99
	Year	-0.06	-25.16	<0.001		
Northern Ireland	Intercept	93.59	7.70	<0.001	30.75	0.88
	Year	-0.05	-7.81	<0.001		

The bivariate models for each nation show that year and deprivation are significant predictors of smoking prevalence. There is also a significant difference in the smoking prevalence of the most deprived quintile versus the least deprived quintile.

Table 4. Bivariate beta regression with year and deprivation as predictor variables and smoking prevalence as the outcome variable [Deprivation 1= Most Deprived, Deprivation 5= Least Deprived]

Country	Predictor	Estimate	z-value	p-value	Log-likelihood (7)	Pseudo R^2
England	Intercept	119.25	29.86	<0.001	151	0.99
	Year	-0.06	-30.20	<0.001		
	Deprivation 1	Ref	-	-		
	Deprivation 2	-0.08	-6.67	<0.001		
	Deprivation 3	-0.26	-21.67	<0.001		
	Deprivation 4	-0.36	-28.80	<0.001		
	Deprivation 5	-0.49	-38.55	<0.001		
Scotland	Intercept	77.21	12.40	<0.001	161.00	0.97
	Year	-0.04	-12.72	<0.001		
	Deprivation 5	Ref	-	-		
	Deprivation 4	0.36	7.45	<0.001		
	Deprivation 3	0.76	16.28	<0.001		
	Deprivation 2	1.05	23.22	<0.001		
	Deprivation 1	1.47	33.18	<0.001		
Northern Ireland	Intercept	92.31	9.18	<0.001	127.9	0.96
	Year	-0.05	-9.36	<0.001		
	Deprivation 5	Ref	-	-		
	Deprivation 4	0.32	6.89	<0.001		
	Deprivation 3	0.53	11.60	<0.001		
	Deprivation 2	0.82	18.61	<0.001		
	Deprivation 1	1.29	30.09	<0.001		

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