Public Health England

Protecting and improving the nation's health

Consultation on proposed changes to the calculation of smoking-attributable mortality and hospital admissions

21 September 2020 to 3 November 2020

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Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: @PHE_uk
Facebook: www.facebook.com/PublicHealthEngland

Published September 2020
PHE publications
gateway number: GW-1565

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Contents

Reader information

Document purpose	To set out proposed changes to the calculation of smoking-attributable mortality and hospital admissions
Title	Consultation on proposed changes to the calculation of smoking-attributable mortality and hospital admissions
Lead author	Clare Griffiths
Publication date	21 September 2020
Target audience	Users of official and national statistics on smoking-attributable mortality and smoking attributable hospital admissions
Circulation list	Public consultation
Description	A consultation to obtain views on our proposal to update the relative risk of disease among smokers and ex-smokers that are used in calculating smoking-attributable mortality and hospital admissions
Action required	None required. Responses invited to the Survey proposed changes to the relative risks calculation for smoking-attributable mortality and hospital admissions
Timing	Six weeks from issue
Contact details	Public Health England 7th Floor, Wellington House, 133 – 155 Waterloo Road, London SE1 8UG Tel: 020 7654 8308 email: tobacco.profiles@phe.gov.uk

About the document

Background

Smoking remains the biggest single cause of preventable mortality and morbidity in the world and accounts for 1 in 6 of all deaths in England.[1] There are well documented links between smoking and number of diseases such as a variety of cancers, respiratory disease, heart disease and mental ill health. For these conditions, it is possible to calculate the ratio of the probability of them occurring in the exposed group (smokers or ex-smokers) versus the probability them occurring in the non-exposed group (never smoked). This is called a relative risk and is specific to each disease, age group and sex. In some cases, risk differs for smokers and ex-smokers. These relative risks are combined with smoking prevalence information to create a smoking attributable fraction, which is the proportion of a disease that can be attributed to smoking. These are used to calculate various indicators for smoking-attributable mortality and hospital admissions.

The current relative risks used for the calculation of smoking attributable fractions are based on data from 'The Health Consequences of Smoking: A Report of the Surgeon General'[2] using data from 1982 to 1988. PHE propose to update the list of relative risks to a subset of those in the report published by the Royal College of Physicians in 2018[3] which used more up-to-date research from systematic reviews of the associations between smoking and various diseases along with meta-analyses of effect sizes.

This is a public consultation and anyone is welcome to contribute.

Ways to respond

If you have concerns or comments that you would like to raise on the process itself, please write to:

Clare Griffiths
Public Health England
7th Floor, Wellington House
Waterloo Road
London SE1 8UG
e-mail: clare.griffiths@phe.gov.uk

Consultation responses can be submitted anonymously using the online survey or emailed to tobacco.profiles@phe.gov.uk

After the consultation

PHE will publish a summary of the consultation findings, together with PHE's response.

Confidentiality and data protection

PHE may contact you in the future to discuss your response regarding this consultation or to contact you about other consultations. Please let us know if you do not want to receive these communications by emailing: tobacco.profiles@phe.gov.uk

PHE are keen to receive your feedback on this proposal. We aim to be open and transparent, we will publish a summary of the findings, however comments will not be attributed to specific organisations or individuals. We will list all the organisations that participated in this consultation. All responses to consultations are subject to release under the Freedom of Information Act, although no personal information will be released in such instances.

Quality assurance

This consultation has been carried out in accordance with the government's consultation principles.

Rationale for change

Why PHE are considering changing the relative risks

The current relative risks are based on data from 1982 to 1988 taken from The Health Consequences of Smoking: A Report of the Surgeon General (Table 7-1.1 Age-adjusted relative risks of death from smoking-related diseases from the Cancer Prevention Study (CPS) I and CPS-II, stratified by gender)[2]. Since then a variety of studies been undertaken that examine to what extent smoking is a risk factor for a number of conditions. In June 2018 the Royal College of Physicians (RCP) published a report Hiding in plain sight: Treating tobacco dependency in the NHS[3] which included a review of relative risks based on a meta-analysis of the most up-to-date literature available. PHE propose to use the list in the RCP report to update the relative risks for smoking related diseases used in the calculation of smoking-attributable mortality and hospital admissions.

Proposed changes

PHE propose to use the relative risks included in the RCP report, as listed in Tables 1a-1f, with some exceptions. Two conditions from the report cannot be included for the following reasons:

- there is no specific ICD-10 code available to be used in the dataset (for example bone fractures are coded for each specific bone rather than one ICD-10 code being available for all bone fractures)
- conditions with relative risks related to maternity and pregnancy outcomes may be coded in the mortality and HES datasets to the child rather than the mother, or where they are coded to the mother a large proportion of women are under the age of 35 – they would therefore not be included in the calculation of the smoking-attributable mortality and hospital admissions indicators which are calculated for age 35 years and over

Table 1a. Relative risks* related to cancers

Disease type	ICD-10 Code		Age	Male Relative Risk				Female Relative Risk			
				Currently used		Proposed		Currently used		Proposed	
	Currently used	Proposed		Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker
Upper respiratory sites	C00-C14	C10	35+	10.89	3.40	3.43	1.40	5.08	2.29	3.43	1.40
		C11 & C30-C31	35+			1.95	1.39			1.95	1.39
		C14	35+			6.76	2.28			6.76	2.28
Oesophagus	C15	C15	35+	6.76	4.46	2.50	2.03	7.75	2.79	2.50	2.03
Stomach	C16	C16	35+	1.96	1.47	1.74	1.18	1.36	1.32	1.74	1.18
Colorectal	-	C18-C20	35+	-	-	1.20	1.20	-	-	1.20	1.20
Liver	-	C22	35+	-	-	1.51	1.12	-	-	1.51	1.12
Pancreas	C25	C25	35+	2.31	1.15	1.90	1.13	2.25	1.55	1.90	1.13
Larynx	C32	C32	35+	14.60	6.34	6.98	4.65	13.02	5.16	6.98	4.65
Trachea, Lung, Bronchus	C33-C34	C33-C34	35+	23.26	8.70	10.92	3.85	12.69	4.53	10.92	3.85
Breast	-	C50	35+	-	-	-	-	-	-	1.07	1.08
Cervical	C53	C53	35+	-	-	-	-	1.59	1.14	1.83	1.26
Kidney and Renal Pelvis	C64-C66, C68	C64	35+	2.50	1.70	1.52	1.25	1.40	1.10	1.52	1.25
		C65-66	35+			2.77	1.72			2.77	1.72
Bladder	C67	C67	35+	3.27	2.09	3.14	1.83	2.22	1.89	3.14	1.83
Unspecified site	C80	-	35+	4.40	2.50	-	-	2.20	1.30	-	-
Myeloid Leukaemia	C92	C92	35+	1.80	1.40	1.36	1.21	1.20	1.30	1.36	1.21
Malignant melanoma	-	C43-C44	50+	-	-	1.70	1.40	-	-	-	-

** the relative risk here is a ratio of the probability of a smoker developing the disease versus the probability of a non-smoker developing the same disease – it does not provide the absolute risk of developing the disease, but rather the higher or lower likelihood of a smoker developing the disease compared to a non-smoker*

Table 1b. Relative risks related to cardiovascular diseases

Disease type	ICD-10 Code		Age	Male Relative Risk				Female Relative Risk			
				Currently used		Proposed		Currently used		Proposed	
	Currently used	Proposed		Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker
Other heart disease	I00-I09, I26-I51		35+	1.78	1.22	-	-	1.49	1.14	-	-
Ischaemic heart disease	I20-I25	I20-I25	35-54	4.2	2	3.18	1.59	5.3	2.6	3.93	1.48
			55-64	2.5	1.6	3.18	1.59	2.8	1.1	3.93	1.48
			65-74	1.8	1.3	1.96	1.16	2.1	1.2	1.95	1.37
			75+	1.4	1.1	1.96	1.16	1.4	1.2	1.95	1.37
Venous thromboembolism	-	I26, I80–I82	35+	-	-	1.23	1.1	-	-	1.23	1.1
Cerebrovascular disease	I60-I69		35-54	4.4	1.1			5.4	1.3		
			55-64	3.1	1.1			3.7	1.3		
			65-74	2.2	1.1			2.6	1.3		
			75+	1.6	1.1			1.3	1		
Stroke		I60-I67	35+			1.57	1.08			1.83	1.17
Aortic aneurysm	I71	I71	35+	6.21	3.07	2.41		7.07	2.07	2.41	
Atherosclerosis	I70	-	35+	2.44	1.33	-	-	1.83	1	-	-
Other arterial disease	I72-I78	-	35+	2.07	1.01	-	-	2.17	1.12	-	-
Peripheral arterial disease	-	I73.9	35+	-	-	2.71	1.67	-	-	2.71	1.67

Table 1c. Relative risks related to maternal and pregnancy outcomes *(not included in calculations)*

Disease type	ICD-10 Code		Age	Male Relative Risk				Female Relative Risk			
				Currently used		Proposed		Currently used		Proposed	
	Currently used	Proposed		Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker
Miscarriage	O03	O03	35+	-	-	-	-	1.28		1.32	
Placenta previa	-	O44	35+	-	-	-	-	-	-	1.58	
Placenta abruption	-	O45	35+	-	-	-	-	-	-	1.62	
Ectopic pregnancy	-	O00	35+	-	-	-	-	-	-	1.77	
Premature rupture of membranes	-	O42	35+	-	-	-	-	-	-	1.7	

Table 1d. Relative risks related to respiratory diseases

Disease type	ICD-10 Code		Age	Male Relative Risk				Female Relative Risk			
				Currently used		Proposed		Currently used		Proposed	
	Currently used	Proposed		Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker
Tuberculosis	-	A15-A19	35+	-	-	1.57		-	-	1.57	
Obstructive sleep apnoea	-	G47.3	35+	-	-	1.97				1.97	
Pneumonia, influenza	J10-J18		35-64	2.5	1.4			4.3	1.1		
	J10-J18		65+	2	1.4			2.2	1.1		
Influenza – microbiologically confirmed		J09, J10	35+			5.69				5.69	
Influenza – clinically diagnosed		J11	35+			1.34				1.34	
Pneumonia		J12-J18	35+			2.18				2.18	
Chronic obstructive pulmonary disease	J40-J43	J40-J44, J47	35+	17.1	15.64	4.01	3.13	12.04	11.77	4.01	3.13
	J44		35+	10.58	6.8			13.08	6.78		
Adult asthma	-	J45-46	35+	-	-	1.61		-	-	1.61	
Idiopathic Pulmonary fibrosis	-	J84.1	35+	-	-	1.58		-	-	1.58	

Table 1e. Relative risks related to mental health

Disease type	ICD-10 Code		Age	Male Relative Risk				Female Relative Risk			
				Currently used		Proposed		Currently used		Proposed	
	Currently used	Proposed		Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker
Azheimer's disease	-	G30	35+	-	-	1.4	1.04	-	-	1.4	1.04
Vascular dementia	-	F01	35+	-	-	1.38	0.97	-	-	1.38	0.97
All-cause dementia	-	F02, F03	35+	-	-	1.3	1.01	-	-	1.3	1.01
Depression	-	F32, F33	35+	-	-	1.62		-	-	1.62	
Psychosis	-	F28, F29	35+	-	-	2.18		-	-	2.18	
Schizophrenia	-	F20–F25	35+	-	-	2.24		-	-	2.24	
Bulimia	-	F50.2	35+	-	-	2.32		-	-	2.32	
Binge-eating disorder	-	F50.81	35+	-	-	1.79	1.79	-	-	1.79	1.79

Table 1f. Relative risks related to other diseases

Disease type	ICD-10 Code		Age	Male Relative Risk				Female Relative Risk			
				Currently used		Proposed		Currently used		Proposed	
	Currently used	Proposed		Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker
Diabetes	-	E11	35+	-	-	1.37	1.14	-	-	1.37	1.14
Cataract	H25		45+	1.54	1.11			1.54	1.11		
		H25	35+			1.47	1.19			1.47	1.19
Age-related macular degeneration	-	H35.3–H52.4	35+	-	-	1.86		-	-	1.86	
Hearing loss	-	H90, H91	35+	-	-	1.97		-	-	1.97	
Periodontal disease	K05	-	35+	3.97	1.68	-	-	3.97	1.68	-	-
Barrett's oesophagus	-	K22.7	35+	-	-	1.42	1.42	-	-	1.42	1.42
Stomach/duodenal ulcer	K25-K27	-	35+	5.40	1.80	-	-	5.50	1.40	-	-
Crohn's disease	K50	K50	35+	2.10		1.76	1.00	2.10		1.76	1.00
Psoriasis	-	L40	35+	-	-	1.78	1.62	-	-	1.78	1.62
Rheumatoid arthritis	-	M05-M06	35+	-	-	2.02		-	-	2.02	
Systemic lupus erythematosis	-	M32	35+	-	-	1.56	1.23	-	-	1.56	1.23
Low back pain	-	M54.5	35+	-	-	1.16		-	-	1.16	
Chronic kidney disease	-	N18 (excl. N18.5)	35+	-	-	1.34	1.15	-	-	1.34	1.15
End-stage renal disease	-	N18.5	35+	-	-	1.91	1.44	-	-	1.91	1.44
Hip fracture	S720-S722		55-64	1.17	1.02			1.17	1.02		
			65-74	1.41	1.08			1.41	1.08		
			75+	1.76	1.14			1.85	1.22		
		S720-S722	35+			-	-			1.30	1.02
Surgical site infection	-	Y83, T81.4	35+	-	-	1.79		-	-	1.79	

Impact of the changes

PHE has assessed the impact of changing to these relative risks on the rates of smoking-attributable mortality and hospital admissions. By calculating the smoking attributable fractions using both the current and proposed relative risks with the same smoking prevalence estimates, it was possible to use these to calculate the indicators and assess the impact of changes to the relative risks.

Note: this analysis is for illustrative purposes only and figures and/or graphs may not exactly match published figures.

These results are based on analyses that exclude conditions which are less common in adults among smokers (i.e. the relative risk is less than 1) following the standard method used for previously published indicators. Therefore, ulcerative colitis (ICD10 K51) and Parkinson's disease (ICD10 G20) as listed in the Royal College of Physicians (RCP) report[3] are not included.

Smoking-attributable mortality

Using the updated relative risks showed an overall reduction of 15% which equals around 35,000 smoking attributable deaths or 38 per 100,000 population (persons age 35+) compared with the current relative risks. A similar difference was seen in each of the 3 most recent time periods calculated, as shown in Table 2.

Table 2. smoking-attributable mortality, comparison of rates per 100,000 population age 35+ years (persons)

	Time period	No. of attributable deaths	Mortality rate per 100,000 (age 35+)	LCL	UCL
Current RR	2014-16	244,457	272.0	270.9	273.1
	2015-17	240,087	262.6	261.6	263.7
	2016-18	232,859	250.2	249.2	251.2
Proposed RR	2014-16	211,107	234.9	233.9	235.9
	2015-17	204,872	224.1	223.1	225.1
	2016-18	197,202	211.9	210.9	212.8
Difference	2014-16	-33,350	-37.1	-37.0	-37.2
	2015-17	-35,215	-38.5	-38.5	-38.6
	2016-18	-35,657	-38.3	-38.3	-38.4

A larger drop between rates calculated using the current relative risks and the proposed relative risks is seen in mortality rates for men (Table 3a) than women (Table 3b). This is mainly due to the larger decrease in the relative risk for lung cancer (ICD-10 C33-C34) for men from 23.26 in male current smokers and 12.69 in female current smokers to 10.92 in both sexes. This has decreased substantially because the previous relative risk was based on a single study rather than a meta-analysis as in the RCP report.

Table 3a. smoking-attributable mortality comparison of rates per 100,000 population age 35+ years (males)

	Time period	No. of attributable deaths	Mortality rate per 100,000 (age 35+)	LCL	UCL
Current RR	2014-16	148,390	382.6	380.6	384.6
	2015-17	145,483	366.5	364.6	368.4
	2016-18	141,686	348.4	346.6	350.3
Proposed RR	2014-16	116,556	302.9	301.1	304.7
	2015-17	113,741	288.8	287.1	290.5
	2016-18	109,762	272.0	270.3	273.6
Difference	2014-16	-31,834	-79.7	-79.5	-79.9
	2015-17	-31,742	-77.7	-77.4	-77.9
	2016-18	-31,924	-76.5	-76.3	-76.7

Table 3b. smoking-attributable mortality comparison of rates per 100,000 population age 35+ years (females)

	Time period	No. of attributable deaths	Mortality rate per 100,000 (age 35+)	LCL	UCL
Current RR	2014-16	95,809	188.4	187.2	189.6
	2015-17	94,220	182.8	181.6	183.9
	2016-18	90,784	174.7	173.6	175.8
Proposed RR	2014-16	94,552	182.8	181.6	183.9
	2015-17	91,131	174.0	172.9	175.2
	2016-18	87,439	165.6	164.5	166.7
Difference	2014-16	-1,257	-5.6	-5.6	-5.6
	2015-17	-3,089	-8.7	-8.7	-8.8
	2016-18	-3,345	-9.1	-9.0	-9.1

This large decrease in the relative risk of lung cancer (ICD-10 C33-C34) for male smokers is also demonstrated in Table 4. This shows that the condition type with the biggest contribution to the decrease in smoking-attributable mortality was cancers, accounting for a decrease of almost 25 per 100,000 population (age 35+) which represents decrease of around 25%. Respiratory diseases also accounted for a decrease of around 20 per 100,000 (age 35+) due to a large decrease in the relative

risks for various conditions (Table 4). This represents a decrease of a third of smoking attributable deaths from respiratory diseases.

The inclusion of mental health conditions in the proposed relative risks added around 8,500 smoking attributable deaths, equalling almost 10 per 100,000 population (age 35+, Table 4).

Table 4. smoking-attributable mortality in 2016-2018 comparison of rates per 100,000 population age 35+ years (persons) by condition

	Condition group	ICD10*	No. of attributable deaths	Mortality rate per 100,000 (age 35+)	LCL	UCL
Current RR	Cancers	C33-C34, C00-C14, C15, C32, C53, C67, C64-66, C68, C16, C25, C80, C92	108,975	117.4	116.7	118.1
	Respiratory Diseases	J40-J43, J44, J10-J18	74,644	80.2	79.7	80.8
	Circulatory diseases	I00-I09, I26-I51, I20-I25, I72-I78, I60-I69, I71, I70	46,546	49.7	49.2	50.1
	Other diseases	K25-K27, K50, K05, H25, S720-S722, O03	2,306	2.5	2.4	2.6
	Mental health	Not previously included	0	0.0	0.0	0.0
Proposed RR	Cancers	C33-C34, C11, C30-C31, C10, C14, C32, C15, C16, C25, C22, C18-C20, C64, C65-C66, C67, C50, C53, C92, C43-C44	85,996	92.7	92.1	93.3
	Respiratory Diseases	J40-J44,J47, J45-J46, A15-A19, J12-J18, J09-J10, J11, J84.1, G47.3	56,121	60.3	59.8	60.8
	Circulatory diseases	I20-I25, I60-I67, I73.9, I71, I26, I80–I82	44,461	47.6	47.1	48.0
	Other diseases	E11, H25, M54.5, L40, M05-M06, N18, M32, H35.3–H52.4, K50, K22.7, H90, H91, S720-S722, Y83, T81.4, O03, O44, O45, O00, O42	2,073	2.2	2.1	2.3
	Mental health	G30, F01, F02, F03, F32, F33, F28, F29, , F20–F25, F50.2, F50.81	8,551	9.1	8.9	9.3
Difference	Cancers	-	-22,979	-24.7	-24.7	-24.8
	Respiratory Diseases	-	-18,523	-19.9	-19.8	-20.0
	Circulatory diseases	-	-2,085	-2.1	-2.1	-2.1
	Other diseases	-	-233	-0.2	-0.2	-0.2
	Mental health	-	8,551	9.1	8.9	9.3

**** note some conditions have age restrictions applied***

The relative risks for respiratory diseases (ICD-10 J40-44) in Table 5 have decreased substantially because the previous relative risk was based on a single study rather than a meta-analysis as in the RCP report[3].

Table 5. comparison of current and proposed relative risks for respiratory diseases J40-J44, by sex**

Condition	ICD-10 Code	Current RR				Proposed RR	
		Males		Female		Both sexes	
		Current smoker	Ex-smoker	Current smoker	Ex-smoker	Current smoker	Ex-smoker
Chronic obstructive lung disease	J40-J43	17.10	15.64	12.04	11.77	4.01	3.13
Chronic airway obstruction	J44	10.58	6.80	13.08	6.78	4.01	3.13

***this table does not include all respiratory diseases in the report (see table 1d for full list)*

Smoking attributable hospital admissions

Using the new relative risks showed an overall reduction in smoking attributable hospital admissions of around 12% which equals 60,000 or almost 200 per 100,000 population (age 35+) as shown in Table 6.

Table 6. smoking attributable hospital admissions comparison of rates per 100,000 population age 35+ years (persons)

	Time period	No. of hospital admissions	Rate of hospital admissions per 100,000 (age 35+)	LCL	UCL
Current RR	2016/17	513,191	1682.3	1677.7	1686.9
	2017/18	507,980	1636.9	1632.4	1641.5
	2018/19	508,361	1612.5	1608.0	1616.9
Proposed RR	2016/17	459,523	1508.3	1503.9	1512.6
	2017/18	451,453	1456.4	1452.2	1460.7
	2018/19	445,747	1414.8	1410.7	1419.0
Difference	2016/17	-53,669	-174.0	-173.8	-174.3
	2017/18	-56,527	-180.5	-180.3	-180.8
	2018/19	-62,614	-197.6	-197.4	-197.9

Again, a larger decrease is seen in the rates for smoking attributable hospital admissions for males than females with a decrease of around 17% in the most recent data for males, or 360 per 100,000 populations (age 35+) compared with 5% for females, or 55 per 100,000 population (age 35+) (Table 7a, Table 7b).

Table 7a. smoking attributable hospital admissions comparison of rates per 100,000 population age 35+ years (males)

	Time period	No. of hospital admissions	Rate of hospital admissions per 100,000 (age 35+)	LCL	UCL
Current RR	2016/17	318,798	2263.4	2255.4	2271.3
	2017/18	313,321	2180.3	2172.6	2188.0
	2018/19	312,437	2132.8	2125.2	2140.3
Proposed RR	2016/17	269,072	1915.6	1908.3	1922.9
	2017/18	262,970	1834.0	1826.9	1841.1
	2018/19	259,216	1772.6	1765.8	1779.5
Difference	2016/17	-49,726	-347.8	-347.1	-348.4
	2017/18	-50,351	-346.3	-345.7	-347.0
	2018/19	-53,221	-360.1	-359.4	-360.8

Table 7b. smoking attributable hospital admissions comparison of rates per 100,000 population age 35+ years (females)

	Time period	No. of hospital admissions	Rate of hospital admissions per 100,000 (age 35+)	LCL	UCL
Current RR	2016/17	194,393	1189.6	1184.3	1194.9
	2017/18	194,659	1174.0	1168.8	1179.2
	2018/19	195,924	1166.1	1160.9	1171.3
Proposed RR	2016/17	190,451	1166.0	1160.8	1171.3
	2017/18	188,483	1137.5	1132.3	1142.7
	2018/19	186,531	1110.8	1105.7	1115.9
Difference	2016/17	-3,943	-23.6	-23.5	-23.6
	2017/18	-6,177	-36.5	-36.4	-36.6
	2018/19	-9,393	-55.3	-55.2	-55.4

In smoking attributable hospital admissions, larger decreases between rates calculated using the current relative risks compared with the proposed relative risks were seen in circulatory diseases than were seen for mortality (Table 8). This is because there are more hospital admissions for circulatory diseases that don't result in as many deaths as for cancers.

There was a difference between the 2 methods of around 50,000 smoking attributable hospital admissions or 161 per 100,000 population related to circulatory diseases, which is a decrease of 40% in the latest period. This was due to the less specific ICD-10 codes (I68-I69) and other arterial diseases (I72-I78) no longer being included in the calculation and compares to a decrease of 5% in cancers and 22% in respiratory diseases (Table 8).

Although included in the calculations for table 6, table 7a and table 7b, we are aware that the Hospital Episode Statistics data will not fully capture all hospital admissions related to mental health illness. The extent to which they impact the smoking attributable hospital admissions can be seen in table 8. For consideration are the following options:

- include these conditions as per the calculations in this document with clear caveats
- exclude mental health conditions from the calculations
- explore further data sources for mental health conditions to be included in the calculations, increasing the complexity of the calculations

Table 8. smoking attributable hospital admissions in 2018/19 comparison of rates per 100,000 population age 35+ years (persons) by condition

	Condition group	ICD10*	No. of attributable hospital admissions	Hospital admissions per 100,000 (age 35+)	LCL	UCL
Current RR	Cancers	C33-C34, C00-C14, C15, C32, C53, C67, C64-66, C68, C16, C25, C80, C92	175,416	559.0	556.4	561.6
	Respiratory Diseases	J40-J43, J44, J10-J18	155,688	493.9	491.5	496.4
	Circulatory diseases	I00-I09, I26-I51, I20-I25, I72-I78, I60-I69, I71, I70	128,083	403.8	401.6	406.0
	Other diseases	K25-K27, K50, K05, H25, S720-S722, O03	49,174	155.7	154.3	157.1
	Mental health	Not previously included				
Proposed RR	Cancers	C33-C34, C11, C30-C31, C10, C14, C32, C15, C16, C25, C22, C18-C20, C64, C65-C66, C67, C50, C53, C92, C43-C44	167,383	533.0	530.5	535.6
	Respiratory Diseases	J40-J44,J47, J45-J46, A15-A19, J12-J18, J09-J10, J11, J84.1, G47.3	121,320	384.9	382.8	387.1
	Circulatory diseases	I20-I25, I60-I67, I73.9, I71, I26, I80–I82	76,881	242.8	241.1	244.6
	Other diseases	E11, H25, M54.5, L40, M05-M06, N18, M32, H35.3–H52.4, K50, K22.7, H90, H91, S720-S722, Y83, T81.4, O03, O44, O45, O00, O42	76,702	243.1	241.4	244.8
	Mental health	G30, F01, F02, F03, F32, F33, F28, F29, , F20–F25, F50.2, F50.81	3,460	10.9	10.6	11.3
Difference	Cancers	-	-8,033	-26.0	-25.9	-26.0
	Respiratory Diseases	-	-34,368	-109.0	-108.7	-109.3
	Circulatory diseases	-	-51,202	-161.0	-160.5	-161.5
	Other diseases	-	27,529	87.4	87.1	87.8
	Mental health	-	3,460	10.9	10.6	11.3

**** note some conditions have age restrictions applied***

Questions raised

1. Do you agree with the proposal to update the relative risks in this way?
2. Do you agree with the rationale for inclusion and exclusion of particular conditions within our analysis aligned to the Royal College of Physicians report?
3. Which of the 3 options for mental health would you prefer:
    - include Mental Health conditions as per the calculations in this document with clear caveats
    - exclude mental health conditions from the calculations
    - explore further data sources for mental health conditions to be included in the calculations, increasing the complexity of the calculations
4. Do you have any other comments or points that you would like us to consider?

Implementation

Subject to the responses received, PHE will implement this new method for the calculation of smoking-attributable mortality and hospital admissions by Spring 2021, including a recalculation of the current published back-series. This will affect the following indicators in the Local Tobacco Control Profiles:

- smoking-attributable mortality
- smoking attributable deaths from heart disease
- smoking attributable deaths from stroke
- potential years of life lost due to smoking related illness
- smoking attributable hospital admissions

NHS Digital also publish smoking-attributable mortality and hospital admissions in their publication Statistics on Smoking in England [1]. The changes will be made to their future publications to align methodologies used in the production of official statistics. The changes are expected to be implemented in 2021.

Conclusion

PHE propose to update the data source and calculations for smoking relative risks, smoking-attributable mortality and hospital admissions, based on the work carried out by the Royal College of Physicians[3]. Subject to the consultation outcomes, the changes will be introduced in Spring 2021. PHE welcomes your views on the proposed changes (see page 4 for ways to respond).

References

[1] NHS Digital (2019) Statistics on Smoking in England 2019 [Accessed 21 July 2020]; Available at https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-smoking/statistics-on-smoking-england-2019/part-1-smoking-related-ill-health-and-mortality

[2] Office of the Surgeon General (US), Office on Smoking and Health (US). The Health Consequences of Smoking: A Report of the Surgeon General. 2004 [Accessed 09 March 2020]; Available at: https://www.ncbi.nlm.nih.gov/pubmed/20669512.

[3] Royal College of Physicians. Hiding in plain sight: Treating tobacco dependency in the NHS. 2018 [Accessed 09 March 2020]; Available at: https://www.rcplondon.ac.uk/projects/outputs/hiding-plain-sight-treating-tobacco-dependency-nhs.