HSE
Health and Safety Executive

The burden of occupational cancer in Great Britain

Technical Annex 2: Sinonasal cancer

Prepared by **Imperial College London** and
the **Health and Safety Laboratory**
for the Health and Safety Executive 2007

RR595
Technical Annex 2

HSE
Health and Safety Executive

The burden of occupational cancer in Great Britain

Technical Annex 2: Sinonasal cancer

Lesley Rushton & Sally Hutchings
Imperial College London
Department of Epidemiology and Public Health
Faculty of Medicine
St Mary's Campus
Norfolk Place
London W2 1PG

Terry Brown
Health and Safety Laboratory
Harpur Hill
Buxton SK17 9JN

The aim of this project was to produce an updated estimate of the current burden of occupational cancer specifically for Great Britain. The primary measure of the burden of cancer used was the attributable fraction (AF), ie the proportion of cases that would not have occurred in the absence of exposure. Data on the risk of the disease due to the exposures of interest, taking into account confounding factors and overlapping exposures, were combined with data on the proportion of the target population exposed over the period in which relevant exposure occurred. Estimation was carried out for carcinogenic agents or exposure circumstances that were classified by the International Agency for Research on Cancer (IARC) as Group 1 or 2A carcinogens with strong or suggestive human evidence. Estimation was carried out for 2004 for mortality and 2003 for cancer incidence for cancer of the bladder, leukaemia, cancer of the lung, mesothelioma, non-melanoma skin cancer (NMSC), and sinonasal cancer.

The proportion of cancer deaths in 2004 attributable to occupation was estimated to be 8.0% in men and 1.5% in women with an overall estimate of 4.9% for men plus women. Estimated numbers of deaths attributable to occupation were 6,259 for men and 1,058 for women giving a total of 7,317. The total number of cancer registrations in 2003 attributable to occupational causes was 13,338 for men plus women. Asbestos contributed the largest numbers of deaths and registrations (mesothelioma and lung cancer), followed by mineral oils (mainly NMSC), solar radiation (NMSC), silica (lung cancer) and diesel engine exhaust (lung and bladder cancer). Large numbers of workers were potentially exposed to several carcinogenic agents over the risk exposure periods, particularly in the construction industry, as farmers or as other agricultural workers, and as workers in manufacture of machinery and other equipment, manufacture of wood products, land transport, metal working, painting, welding and textiles. There are several sources of uncertainty in the estimates, including exclusion of other potential carcinogenic agents, potentially inaccurate or approximate data and methodological issues. On balance, the estimates are likely to be a conservative estimate of the true risk. Future work will address estimation for the remaining cancers that have yet to be examined, together with development of methodology for predicting future estimates of the occupational cancers due to more recent exposures.

This report and the work it describes were funded by the Health and Safety Executive (HSE). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect HSE policy.

HSE Books

First published 2007

ACKNOWLEDGEMENTS

Funding was obtained from the Health and Safety Executive (HSE) and managed through the Health and Safety Laboratory. We would like to thank Damien McElvenny for initiating the project and Gareth Evans for his management role. Andy Darnton from the HSE was responsible for the work on mesothelioma. The contributions to the project and advice received from many other HSE and HSL staff is gratefully acknowledged. Two workshops were held during the project bringing together experts from the UK and around the world. We would like to thank all those who participated and have continued to give advice and comment on the project.

CONTENTS

Table 9: Results for nasal cancer and formaldehyde exposure

Occupational exposure		*Formaldehyde*													
'Best study' for RR estimate	Reference	*Mannetje et al. (1999)*	*Mannetje et al (1999)*	*Coggan et al. (2003)*					*Mannetje et al. (1999)*	*Mannetje et al. (1999)*					
	Type of study	*Pooled population-based case-control studies*	*Pooled population-based case-control studies*	*UK industry cohort*					*Pooled population-based case-control studies*	*Pooled population-based case-control studies*					
	Sex	*Male*							*Female*						
	Exposure level		*Higher*	*Lower + Background*				TOTAL		*Higher*	*Lower + Background*				TOTAL
Independent data:	Industry Sectors	TOTAL	G-Q	C-E	F	G-Q	Total		TOTAL	G-Q	C-E	F	G-Q	Total	
	CAREX numbers exposed		1,337	65,248	4,466	212	69,926	71,263		1,635	20,604	45	260	20,909	22,544
	CAREX adjustment factor		0.9	1.4	1.0	0.9				0.8	1.5	0.7	0.8		
	Annual employment turnover		0.11	0.09	0.13	0.11				0.15	0.14	0.16	0.15		
	Numbers exposed in the REP (1955 - 1994)		5,029	315,606	21,886	799	338,291	343,319		7,827	171,228	192	1,243	174,774	176,209
Study data	Exposed cases	229							15						
	Total cases	451							104						
	Proportion of controls exposed	0.34							0.17						
Proportion of the population exposed			0.0003		0.001		0.018	0.018		0.000		0.000		0.008	0.008
Proportion of cases exposed		0.51							0.14						
Relative risks		1.66	1.66		1		1		0.83	1		1		1	1
Attributable fraction	**Levin's**		0.00017		0		0	**0.0002**		0		0		0	**0**
	'Random error' 95% confidence interval		[0.0001 - 0.0003]		[-0.001 - 0.002]		[-0.016 - 0.036]	[0.0001 - 0.0003]		[0.000 - 0.000]		[0.000 - 0.000]		[-0.005 - 0.006]	[-0.005 - 0.006]
Attributable deaths			**0**		**0**		**0**	**0**		**0**		**0**		**0**	**0**
Attributable registrations			**0**		**0**		**0**	**0**		**0**		**0**		**0**	**0**
Attributable fraction	**Miettinen's**	**0.20**							**0**						
	'Random error' 95% confidence interval	[0.10 - 0.29]							[-0.15 - 0.08]						
Attributable deaths		**14**							**0**						
Attributable registrations		**44**							**0**						