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Sources and uses of data on cancer among ethnic groups

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Abstract This paper identifies the data sources available in OPCS on cancer among ethnic groups, shows some of the findings of previous analyses and outlines the potential for further analyses and data collection. The main source of data comes from the registration of deaths in which country of birth of the deceased is recorded. Other sources of data include the General Household Survey (GHS) which enables analyses of risk factors such as smoking, alcohol and contraception. Data on cancer incidence among ethnic groups is currently limited. However in the future, both the Longitudinal Study and cancer registration data should provide measures of cancer incidence among ethnic groups.

Introduction

This paper describes the national sources of data available in OPCS for the analysis of cancer mortality and cancer incidence among ethnic groups in England and Wales. It focuses on the main data source which comes from the registration of deaths and presents findings to illustrate the uses of these data. Information on incidence of cancer among ethnic groups is limited. We briefly discuss the potential of the Longitudinal Study (LS) for both mortality and incidence analysis and show how the General Household Survey (GHS) can be used to examine the distribution of risk factors among minority ethnic groups. Finally we outline future research and identify the gaps in information which need to be addressed.

Although most of the data presented are by country of birth, the inclusion of a question on ethnic origin in the 1991 Census provides new opportunities for epidemiological research. In the 1991 Census, 6% of the population of England and Wales was recorded as belonging to an ethnic group.[1] Table I shows ethnic distributions of English regions, Wales and Scotland.

Cancer mortality data

Studies such as that of Polish-born migrants in England and Wales and of Asians in Australia, have shown that migrant populations often experience a shift in risks of disease away from those in their countries of origin and towards those of the host country.[2,3] Such work has assisted in estimating the contributions of environmental factors and genetic predisposition in the aetiology of cancers. We present some of the recent data on cancer mortality among ethnic groups and highlight some of the methodological issues concerning the use of the available data.

Country of birth

Country of birth is recorded at death registration and in the decennial censuses. In cancer mortality analyses, this is the best proxy available for ethnic origin. Mortality analyses around the 1971 and 1981 Censuses showed variations in cancer mortality among ethnic groups in England and Wales.[4,5] Figure 1 shows sex specific standardised mortality ratios (SMR) at ages 20-69 for deaths in 1979-83 from each of the four cancers (lung ICD9 162, melanoma of the skin ICD9 172, breast ICD9 174, cervix ICD9 180) specified in the Health of the Nation (HoN) targets (ICD refers to International Classification of Diseases). The groups identified are Indian, Caribbean, African and Irish migrants. The Irish are included as they are the largest migrant group and their health needs are relatively under-researched. The striking feature of Figure 1 is the lower mortality from these cancers for Indians, Caribbeans and Africans. In contrast, mortality of Irish men and women from lung cancer and Irish men from malignant melanoma is relatively high. Raised lung cancer ratios are likely to reflect the relatively higher smoking levels among Irish men and women.[6] Both Caribbean and Irish women showed higher mortality from cervical cancer.

It should be stressed that, in spite of these variations among the groups, cancer of the lung, breast and cervix remain important as they account for large numbers of deaths from cancers (Table II). Also the lower mortality from Health of the Nation cancers among Indians and Africans should not overshadow their higher mortality from other cancers. Figure 2 shows higher mortality from liver cancer (ICD9 155) for Indian, Caribbean, African and Irish men. Indian and African women show small excesses and Caribbean and Irish women small deficits in mortality. However, mortality from gallbladder and extra-hepatic cancers (ICD9 156) are raised for both men and women from the Indian subcontinent

Table I Ethnic distribution in England & Wales by region, and in Scotland at the 1991 Census

Area	N (100%)*	White	Black Caribbean	Black African	Black Other	Indian	Pakistani	Bangladeshi	Chinese	Other Asian	Other
England & Wales	49,890,277	94.1	1	0.4	0.4	1.7	0.9	0.3	0.3	0.4	0.6
Regions of England											
North	3,026,732	98.7	0	0	0.1	0.3	0.3	0.1	0.2	0.1	0.2
Yorks & Humberside	4,836,524	95.6	0.4	0.1	0.2	0.8	2.0	0.2	0.2	0.2	0.4
East Midlands	3,953,372	95.2	0.6	0.1	0.3	2.5	0.4	0.1	0.2	0.2	0.4
East Anglia	2,027,004	97.9	0.2	0.1	0.4	0.3	0.3	0.1	0.2	0.2	0.4
South East	17,208,264	90.1	1.9	1.0	0.6	2.6	0.8	0.6	0.5	0.8	1.0
South West	4,609,424	98.6	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3
West Midlands	5,150,187	91.8	1.5	0.1	0.4	3.1	1.9	0.4	0.2	0.2	0.5
North West	6,243,697	96.1	0.3	0.1	0.3	0.9	1.2	0.2	0.3	0.1	0.4
Wales	2,835,073	98.5	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.3
Scotland	4,998,567	98.7	0	0.1	0.1	0.2	0.4	0	0.2	0.1	0.2

*All figures unadjusted for coverage. Source: OPCS (1993). 1991 Census, Ethnic Group and Country of Birth, Vol 2. HMSO: London

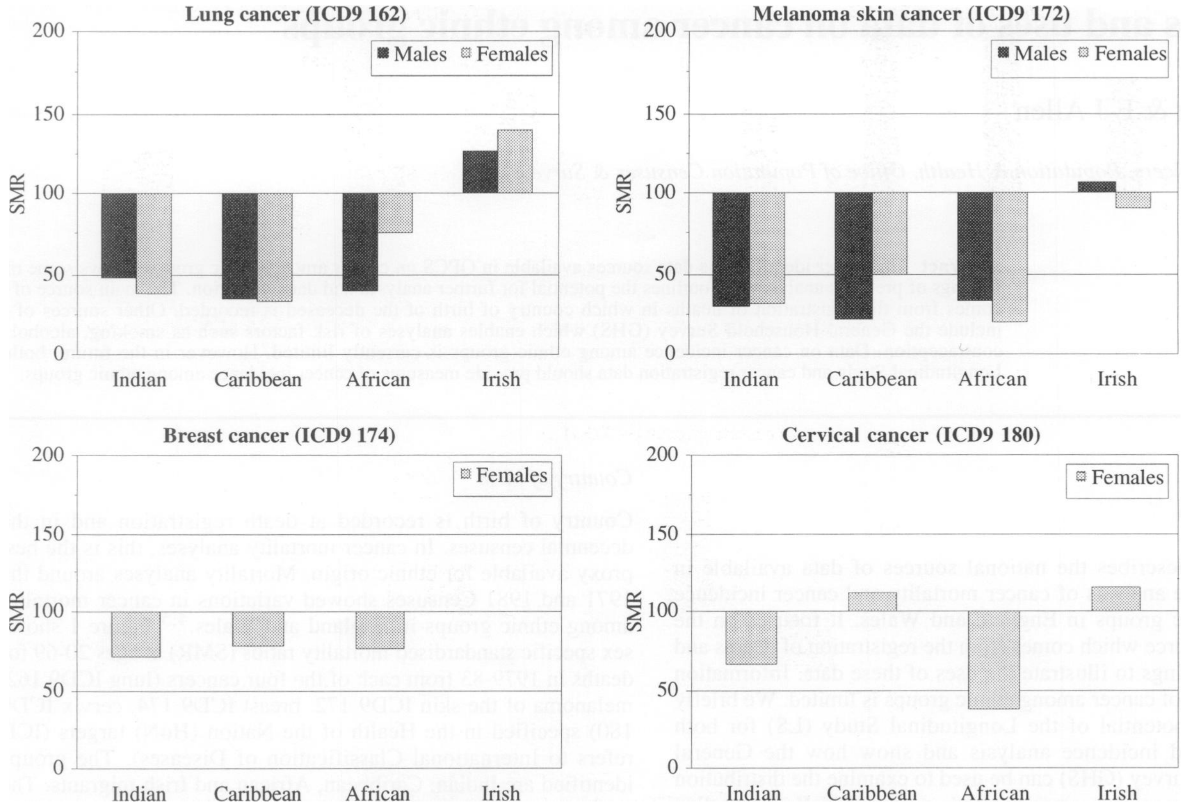

Figure 1 Standardised Mortality Ratios (SMR) at ages 20-69 (1979-83) for Health of the Nation cancers by country of birth (England & Wales = 100)

Table II Number of deaths and standardised mortality ratios (SMR) for persons aged 20-69 by sex, country of birth and selected cancers(1979-83)

Cause of death (ICD9)	Indian sub-continent		Caribbean Common-wealth		African Common-wealth		All parts of Ireland	
	M	F	M	F	M	F	M	F
All neoplasms (ICD 140-239)								
SMR	59	68	65	71	71	83	123	113
observed	1,183	939	744	590	219	195	5323	4071
Lung cancer (ICD 162)								
SMR	47	38	35	32	39	75	126	139
observed	346	74	151	36	37	19	2195	798
Breast cancer (ICD 174)								
SMR		71		78		77		100
observed		267		191		52		934
Cervical cancer (ICD 180)								
SMR		67		105		32		95
observed		66		112		38		115

and from the Caribbean Commonwealth. The principal cause of liver cancer is possibly viral hepatitis but the variations between men and women may also reflect differences in alcohol intake as a co-factor for these cancers.[7] Indirect support for the role of alcohol is reflected in the raised mortality risks of Indian and African men from chronic liver disease and cirrhosis (ICD9 571, SMR 255 and 236 respectively).[5] However, viral hepatitis is also a risk factor for these diseases. Figure 2 also shows raised mortality from prostate cancers among Irish and Caribbean men.

Ethnic origin

The findings shown so far used country of birth as the best proxy for ethnic origin. We know that this is not ideal as it obscures the heterogeneous composition of these groupings in terms of cultural differences and the area of origin. For example, at the 1991 Census, about 74% of East Africans were of Indian origin.[1] People from the Indian subcontinent also represent a range of cultures. Such detail is important for both the aetiology of cancers and for targeting public health resources.

Figure 3a shows differences in mortality for the period 1970-85 from prostate (ICD9 185) and oral cancers (ICD9 143-145) among East and West Africans.[7] This study was an attempt to examine differences between ethnic Africans and African Indians. Figure 2 showed lower mortality from prostate cancers among Africans but figure 3a shows that this was only true for East Africans. Caribbean men also show higher mortality from prostate cancer. Historically, the descendants of most Caribbeans came from West Africa. The reason for this ethnic variation in prostate cancer is not completely understood but some studies of African American men suggest underlying differences in androgen secretion and metabolism.[8,9] Other similarities between West Africans and Caribbeans included low mortality from cancer of brain/nervous system and very high mortality from liver cancer. Also noted were the variations in mortality from oral cancers among East and West Africans. Betel chewing is common among Indians and may explain the high risks among East Africans.[10] However, this does not explain the high risks among West African females.

Another exercise analysed names and forenames on death certificates for the years 1975-77, and classified people born in the Indian sub-continent by area of origin.[11] Punjabis, Gujuratis, Southerners and Moslems were identified. Figure 3b shows that proportional mortality ratios for all cancers, including lung cancer, were highest for Moslems and lowest for Punjabis. Generally, Moslems are not vegetarians. Also, smoking prevalence has been shown to be higher among Moslems.[12]

Another study examined cancer incidence and mortality among Vietnamese refugees in England and Wales.[13] Unlike most published migrant data, this used a cohort design. A block of National Health Service numbers were reserved for these refugees, making it easy for them to be identified and followed

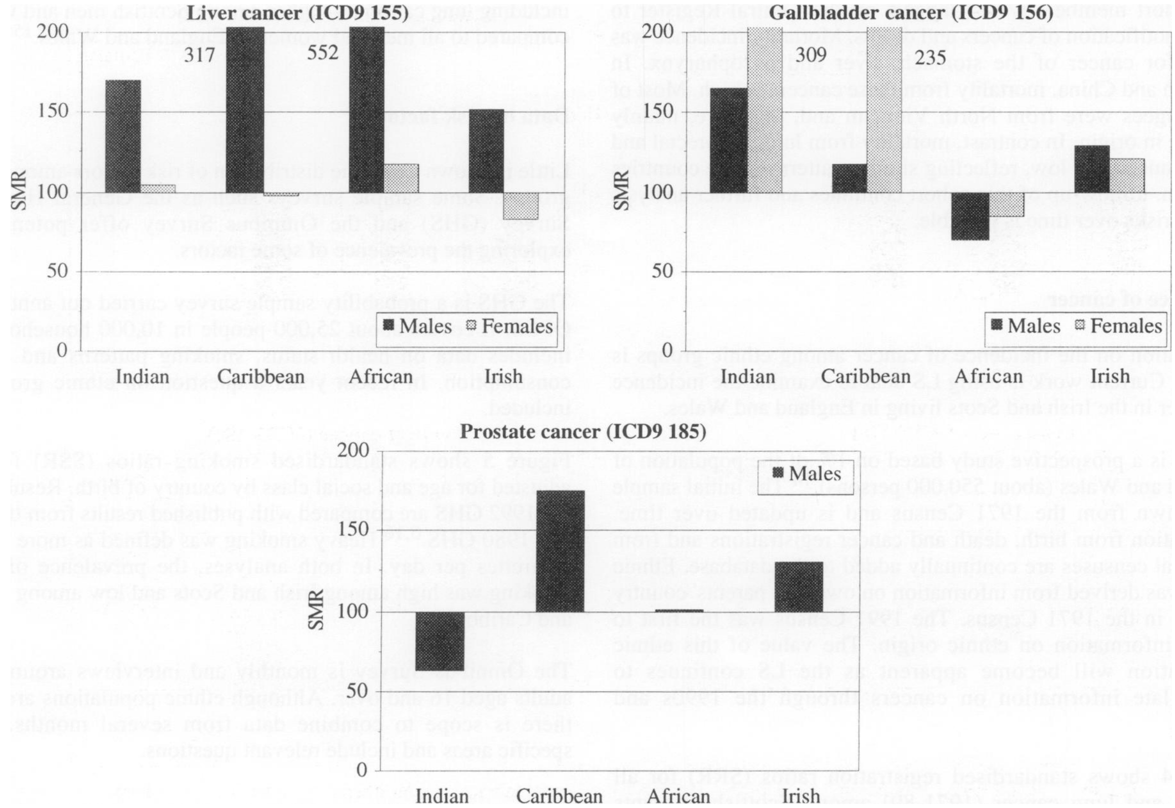

Figure 2 Standardised Mortality Ratios (SMR) at ages 20-69 (1979-83) for selected cancers by country of birth. (England & Wales = 100)

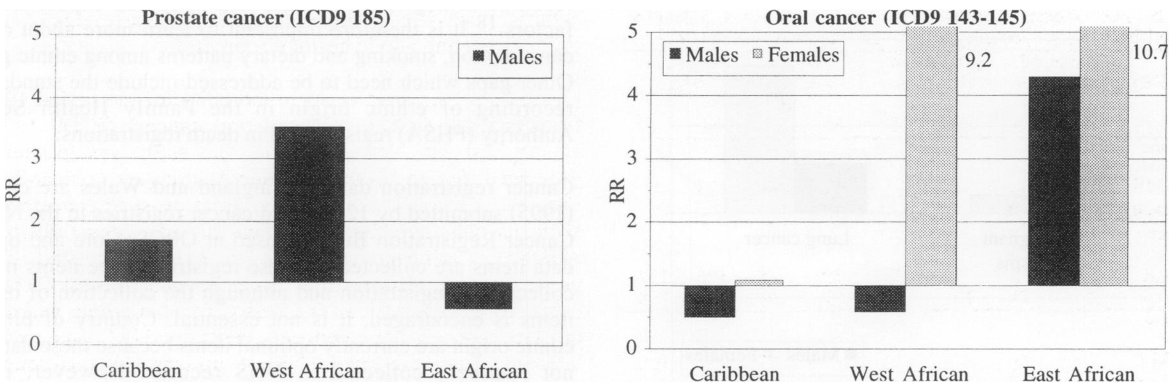

Figure 3a Relative Risk (RR) of cancer mortality in immigrant groups (1970-85) (England & Wales = 1)

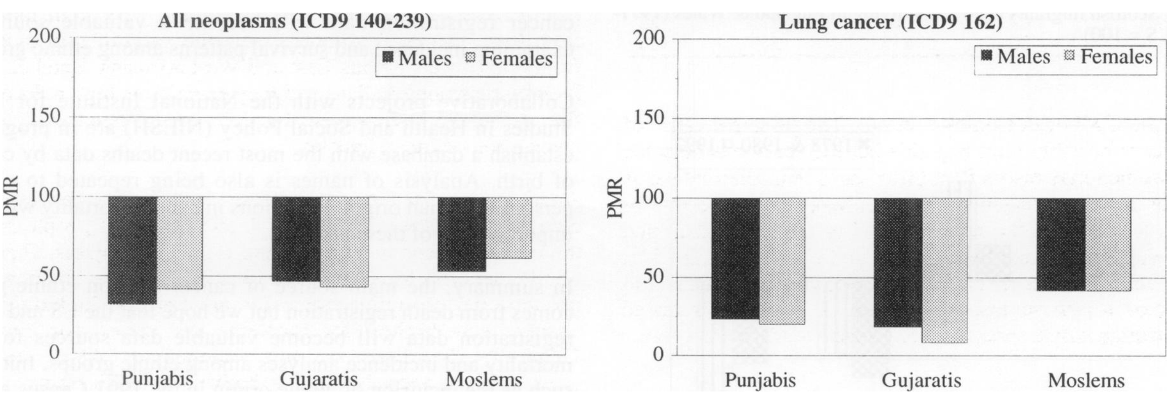

Figure 3b Proportional Mortality Ratios (PMR) by ethnic group from the Indian sub-continent (1975-77) (England & Wales = 100)

up. Cohort members were 'flagged' on the Central Register to enable notification of cancers and deaths. Mortality/incidence was raised for cancer of the stomach, liver and nasopharynx. In Vietnam and China, mortality from these cancers is high. Most of the refugees were from North Vietnam and, therefore, mainly Chinese in origin. In contrast, mortality from lung, colorectal and breast cancer was low, reflecting similar patterns in the countries of origin. Follow-up of this cohort continues and further analysis of their risks over time is possible.

Incidence of cancer

Information on the incidence of cancer among ethnic groups is limited. Current work is using LS data to examine the incidence of cancer in the Irish and Scots living in England and Wales.

The LS is a prospective study based on 1% of the population of England and Wales (about 550,000 persons).[14] The initial sample was drawn from the 1971 Census and is updated over time. Information from birth, death and cancer registrations and from decennial censuses are continually added to the database. Ethnic origin was derived from information on own and parents' country of birth in the 1971 Census. The 1991 Census was the first to collect information on ethnic origin. The value of this ethnic information will become apparent as the LS continues to accumulate information on cancers through the 1990s and beyond.

Figure 4 shows standardised registration ratios (SRR) for all cancers and lung cancer (1971-89) among Scottish migrants living in England and Wales, adjusted for age and yearly registration rate. At ages 15-64, the incidence of all cancers,

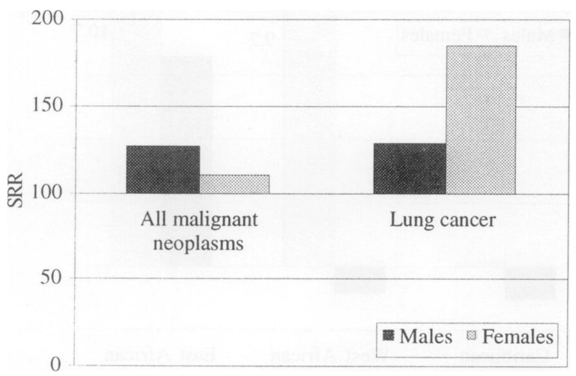

Figure 4 OPCS Longitudinal Study. Standardised Registration Ratios (SRR) for Scottish migrants aged 15-64 living in England & Wales (1971-89). (All LS = 100)

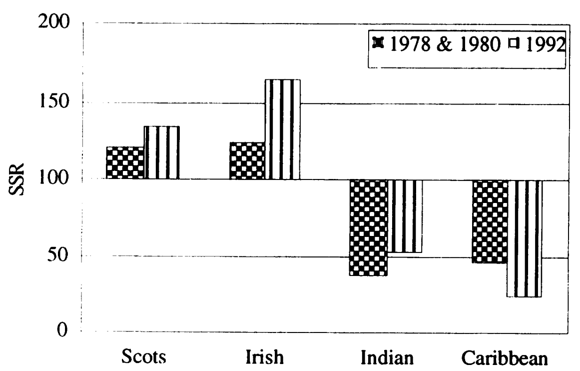

Figure 5 Standardised Smoking Ratios (SSR) for males by country of birth (1979 & 1980*, and 1992). (Great Britain = 100)
*Source: Balarajan R, Yuen P. (1986) British smoking and drinking habits: variations by country of birth. *Community Medicine*;**8**:237-9.

including lung cancer, is higher among Scottish men and women compared to all men and women in England and Wales.[15]

Data on risk factors

Little is known about the distribution of risk factors among ethnic groups. Some sample surveys such as the General Household Survey (GHS) and the Omnibus Survey offer potential for exploring the prevalence of some factors.

The GHS is a probability sample survey carried out annually by OPCS. It covers about 25,000 people in 10,000 households and includes data on health status, smoking patterns and alcohol consumption. In recent years a question on ethnic group was included.

Figure 5 shows standardised smoking ratios (SSR) for men adjusted for age and social class by country of birth. Results from the 1992 GHS are compared with published results from the 1978 and 1980 GHS.[6,16] Heavy smoking was defined as more than 20 cigarettes per day. In both analyses, the prevalence of heavy smoking was high among Irish and Scots and low among Indians and Caribbeans.

The Omnibus Survey is monthly and interviews around 2000 adults aged 16 and over. Although ethnic populations are small, there is scope to combine data from several months, target specific areas and include relevant questions.

Future developments

Some studies predict a rise in the incidence of certain cancers as a result of demographic changes and increased exposure to risk factors.[18] It is therefore important to learn more about alcohol consumption, smoking and dietary patterns among ethnic groups. Other gaps which need to be addressed include the standardised recording of ethnic origin in the Family Health Services Authority (FHSA) registers and in death registrations.

Cancer registration data for England and Wales are currently (1995) submitted by 12 regional cancer registries to the National Cancer Registration Bureau based at OPCS. Core and optional data items are collected by these registries. Core items must be collected at registration and although the collection of optional items is encouraged, it is not essential. Country of birth and ethnic origin are currently optional items because these data were not routinely collected in NHS records. However, routine recording of ethnic origin on all patients admitted to NHS hospitals began in April 1995.[17] This means that, in future, cancer registration data will become a valuable source for examining incidence and survival patterns among ethnic groups.

Collaborative projects with the National Institute for Ethnic Studies in Health and Social Policy (NIESH) are in progress to establish a database with the most recent deaths data by country of birth. Analysis of names is also being repeated to classify persons of Indian origin. Variations in cancer mortality will be an important part of these analyses.

In summary, the main source of cancer data on ethnic groups comes from death registration but we hope that the LS and cancer registration data will become valuable data sources for both mortality and incidence analyses among ethnic groups. Initiatives such as the inclusion of ethnic origin in the 1991 Census and the recording of ethnicity in NHS records will also provide opportunities, currently limited, for examining ethnic variations in cancer epidemiology.

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