# Lung cancer incidence and survival in ethnic groups in South East England

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THAMES CANCER REGISTRY

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## Objectives

Differences in cancer incidence between ethnic groups have often been examined in the UK by using name analysis or country of birth as markers of ethnicity. The availability of self-assigned ethnicity information from Hospital Episode Statistics data has improved the completeness of ethnicity information in cancer registry records. This study aimed to use all available ethnicity data to describe the patterns of lung cancer incidence and survival in different ethnic groups in South East England.

## Methods

Records on 28,145 male and 18,257 female patients diagnosed with lung cancer (ICD-10 codes C33-C34) in South East England between 1998 and 2003 were analysed. The number and proportion of female and male patients in each ethnic group are shown in Table 1. Results are reported for White, Indian, Pakistani, Bangladeshi, Black Caribbean, Black African and Chinese groups, apart from the female survival results where the broader White, South Asian (Indian, Pakistani, Bangladeshi and Asian Other) and Black (Black Caribbean, Black African and Black Other) groups were analysed.

**Table 1** Number and percentage of lung cancer patients diagnosed 1998-2003, South East England by sex and ethnic group

| | Females | | Males | |
|---|---|---|---|---|
| | n | % | n | % |
| White | 11,211 | 61.4 | 17,412 | 61.9 |
| Indian | 61 | 0.3 | 153 | 0.5 |
| Pakistani | 12 | 0.1 | 44 | 0.2 |
| Bangladeshi | 11 | 0.1 | 97 | 0.3 |
| Asian Other | 15 | 0.1 | 35 | 0.1 |
| Black Caribbean | 62 | 0.3 | 240 | 0.9 |
| Black African | 28 | 0.2 | 59 | 0.2 |
| Black Other | 18 | 0.1 | 44 | 0.2 |
| Chinese | 19 | 0.1 | 55 | 0.2 |
| Other Groups | 290 | 1.6 | 516 | 1.8 |
| Not Known | 6,530 | 35.8 | 9,490 | 33.7 |
| Total | 18,257 | 100.0 | 28,145 | 100.0 |

Population data from the 2001 Census were available by age, sex, ethnic group and socioeconomic deprivation (using the income domain of the Indices of Deprivation 2000). Incidence rate ratios were calculated using Poisson regression, adjusting for age and socioeconomic deprivation. White men and women were used as the baseline groups. Overall survival was analysed using Cox regression, with patients followed up until 31 December 2006. Results were both adjusted for age, and fully adjusted for age, socioeconomic deprivation, stage of disease and treatment received. Patients registered with information from a death certificate only were excluded from the survival analysis.

## Results

The incidence rate ratios adjusted for age and socioeconomic deprivation are shown in Figure 1 for men and Figure 2 for women. White and Bangladeshi men had higher rates than other ethnic groups. Indian, Pakistani, Black Caribbean, Black African and Chinese men all had statistically significantly lower rate ratios than the baseline of White men, with the lowest in Indian men (0.31, 95% confidence interval: 0.27-0.37).

White women had a much higher incidence rate than the other ethnic groups studied. The lowest incidence rate ratio was found in Indian women, and the highest was in Chinese women, although this was only 0.41 (95% confidence interval: 0.26-0.64). The differences between the White baseline and other ethnic groups were larger for women than for men.

**Figure 1** Incidence rate ratios (IRR) and 95% confidence intervals for male lung cancer diagnosed 1998-2003, South East England by ethnic group. Adjusted for age and socioeconomic deprivation, White men as baseline

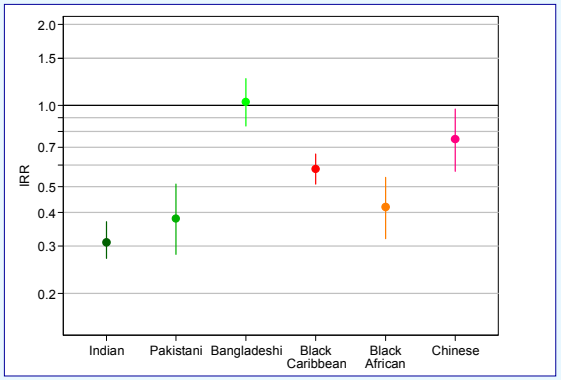
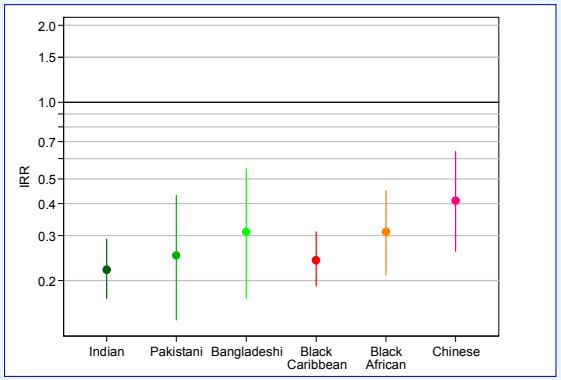



**Figure 2** Incidence rate ratios (IRR) and 95% confidence intervals for female lung cancer diagnosed 1998-2003, South East England by ethnic group. Adjusted for age and socioeconomic deprivation, White women as baseline




Results for the overall survival analyses are shown in Figure 3 for men and Figure 4 for women. Bangladeshi men had the best survival in both models. Black African men also had statistically significantly better survival than White men in the fully adjusted model. South Asian and Black women had similarly better survival than White women in the fully adjusted model.

**Figure 3** Hazard ratios (HR) and 95% confidence intervals for overall survival in male patients diagnosed with lung cancer 1998-2003, South East England. Adjusted for age, and fully adjusted for age, socioeconomic deprivation, stage of disease and treatment, White men as baseline

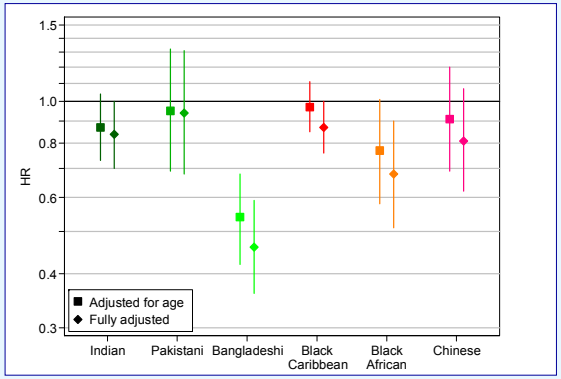
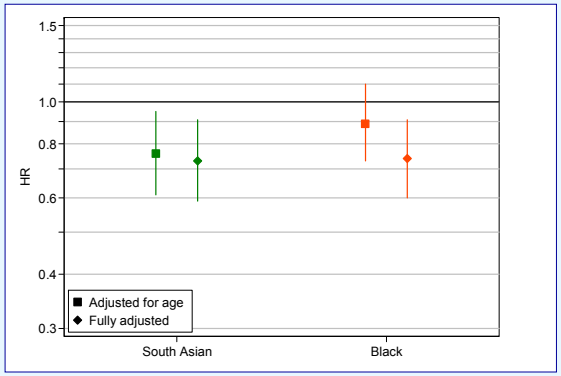



**Figure 4** Hazard ratios (HR) and 95% confidence intervals for overall survival in female patients diagnosed with lung cancer 1998-2003, South East England. Adjusted for age, and fully adjusted for age, socioeconomic deprivation, stage of disease and treatment, White women as baseline




## Conclusions

Lung cancer incidence is closely related to smoking, and prevention messages need to be targeted for different ethnic groups taking into account language and relevancy to ensure no groups are excluded. The apparent better survival of South Asian and Black patients was surprising, and more detailed follow-up studies are needed to verify these results.