



Lung cancer in England: An analysis by socioeconomic deprivation and urbanisation

Sharma P Riaz, Marie Horton, Vivian Mak, Jagdip Kang, Henrik Møller

THAMES CANCER REGISTRY



Introduction

Lung cancer is the most common cancer and accounts for 1.3 million deaths per year world wide.^[1] In 2006, around 39,000 people were diagnosed with lung cancer in the UK.^[2] 5-year survival from lung cancer is around 9% for males and 7% for females.^[3]

Objective

To investigate the association between socioeconomic deprivation and urbanisation, and lung cancer incidence in England.

Method

We extracted data on 161,822 patients diagnosed with lung cancer (ICD-10 C33-C34) between 2003 and 2007 who were resident in England. From this we excluded 1504 patients who had missing date of diagnosis or date of birth. We assigned each patient to a socioeconomic deprivation quintile and urban/rural indicator at lower super output area level, based on their postcode of residence. Urban areas are characterised by high population densities. We then calculated age-specific rates and age-standardised incidence rates (per 100,000 European standard population) by socioeconomic deprivation, urbanisation and sex.

We presented the results as graphs to enable us to compare the differences in the incidence of lung cancer between urban and rural areas by socioeconomic deprivation and sex.

Figure 1: Map of England highlighting areas of affluence and deprivation based on the income domain of Indices of Deprivation 2007

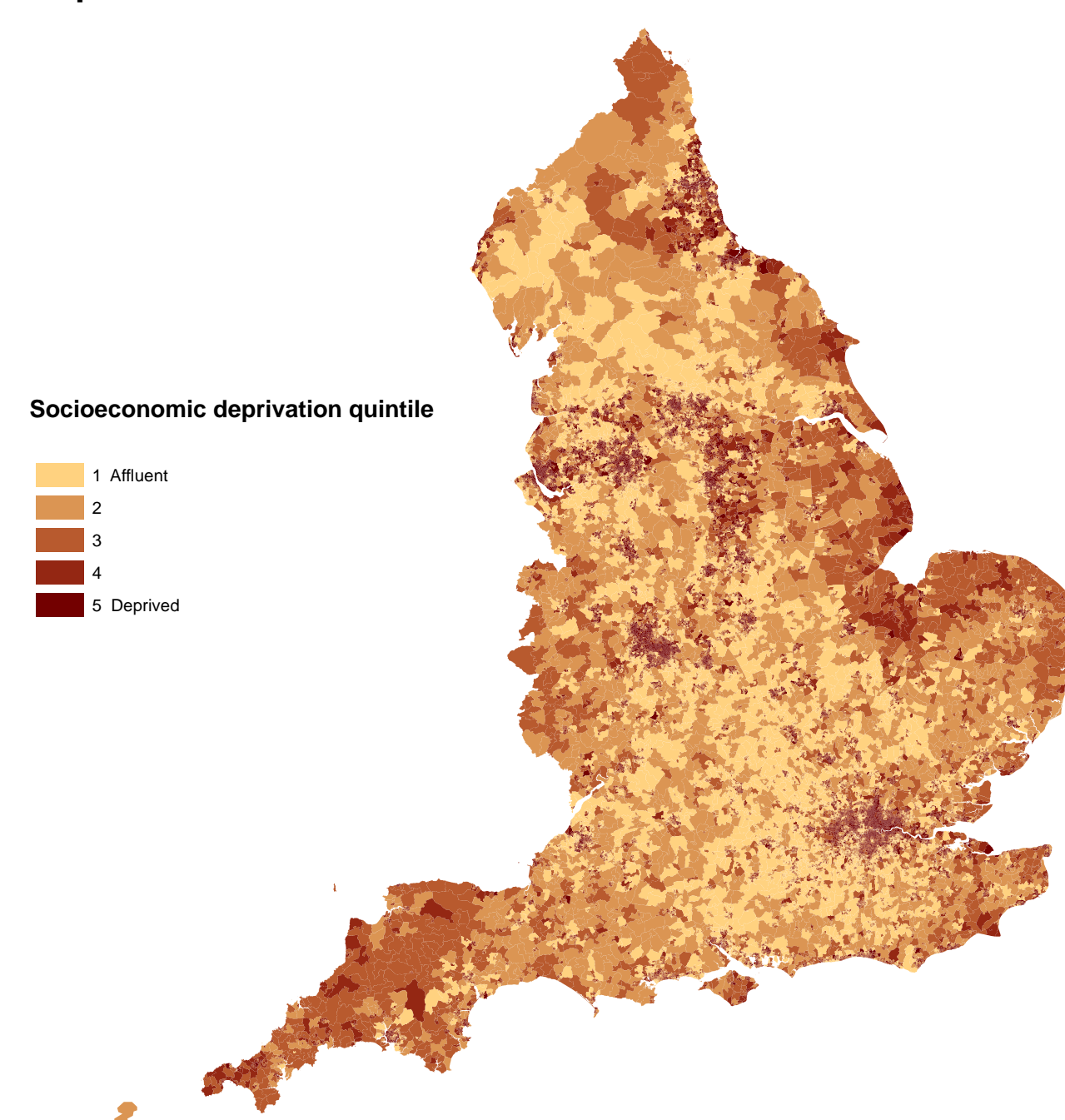


Figure 2: Map of England highlighting urban and rural areas

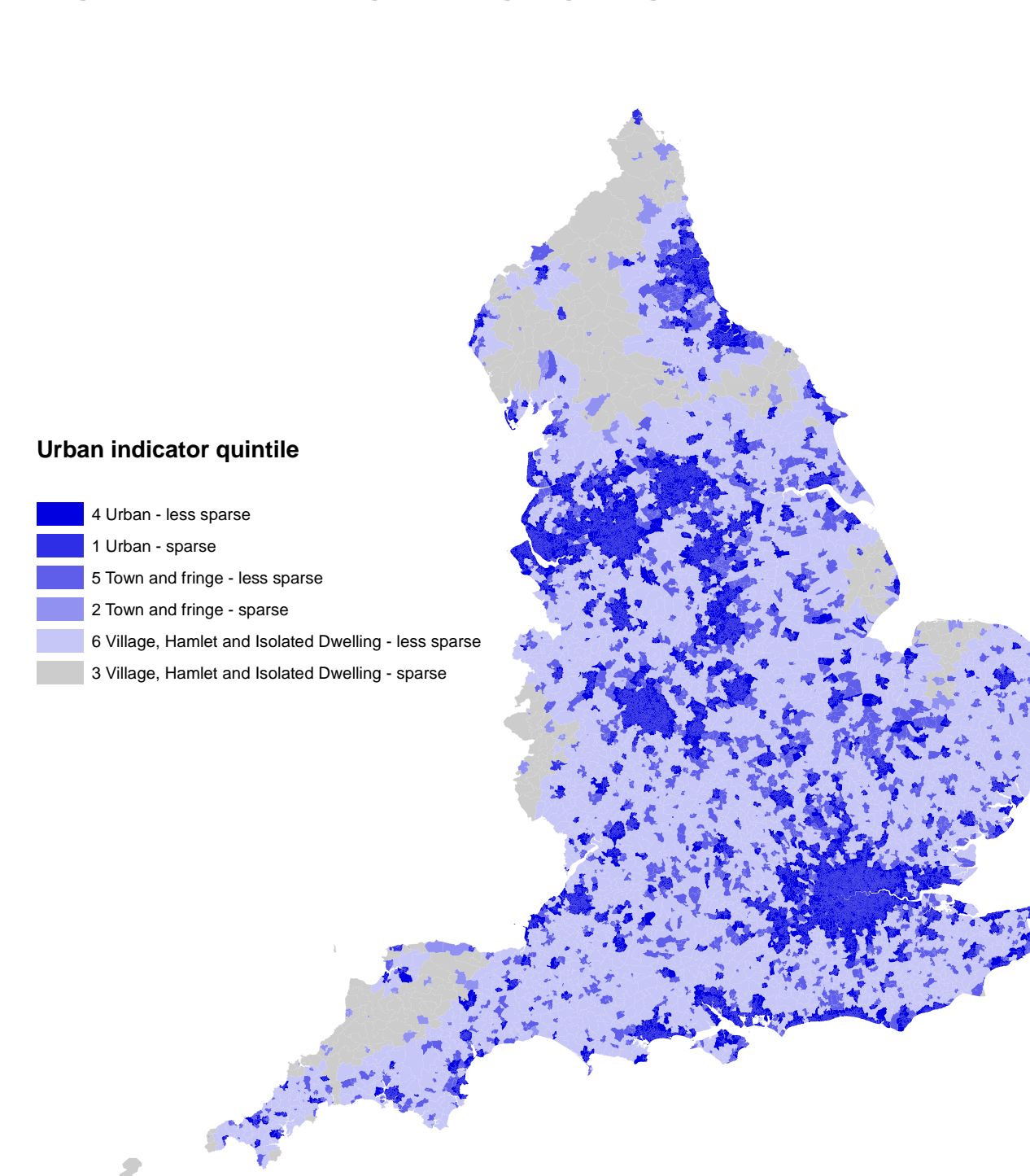


Figure 3 shows the incidence rates of lung cancer by socioeconomic deprivation in the urban and rural areas.

Lung cancer incidence was higher in males than in females. It was also higher in the deprived areas compared to the affluent areas.

The incidence of lung cancer in urban areas was similar to those in the rural areas for both males and females, after considering socioeconomic deprivation.

Conclusion

Previous studies ^[4] ^[5] have suggested that pollution plays a role in lung cancer. Our results would seemed to suggest that air pollution plays a minor role in the risk of developing lung cancer compared to factors associated with socioeconomic deprivation.

Reference

1. Cancer. World Health Organisation.2010. <http://www.who.int/mediacentre/factsheets/fs297/en/index.html> (2nd June, 2010, date last accessed).
2. CancerStats Key Facts. May, 2010. Cancer Research UK. http://info.cancerresearchuk.org/prod_consump/groups/cr_common/@nre/@sta/documents/generalcontent/crukmg_1000ast-2972.pdf (2nd June 2010, data last accessed).
3. Cancer survival, England, patients diagnosed 2001-2006 and followed up to 2007: one-year and five year survival for 21 common cancers, by sex and age. 20 March, 2009. http://www.statistics.gov.uk/downloads/theme_health/cancer-survival-Eng-2001-2006.pdf (2nd June 2010, data last accessed).
4. Cohen AJ, Pope CA 3rd.Lung cancer and air pollution. Enviromental Health Perspectives. 1995 November, 103 (Suppl 8): 219-224.
5. Lung cancer - risk factors. 8th January 2010. Cancer Research UK. <http://info.cancerresearchuk.org/cancerstats/types/lung/riskfactors/index.htm> (2nd June 2010, data last accessed).

Results

Figure 1 shows the geographic distribution of socioeconomic deprivation in England with darker areas indicating higher levels of deprivation.

Figure 2 shows the geographic distribution of urbanisation in England with darker areas representing higher levels of urbanisation.

Figure 3: Incidence of lung cancer for diagnosis period between 2003 and 2007 in urban and rural areas in England, by socioeconomic deprivation and sex

