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

NCIN Data Briefing

KEY MESSAGE:

The difference in lung cancer incidence and survival between urban and rural areas can largely be explained by differences in socioeconomic deprivation, which is most likely to be related to tobacco smoking.

Background

Previous studies have investigated socioeconomic deprivation or urbanisation in relation to lung cancer incidence and survival. We investigated the joint association between socioeconomic deprivation, urbanisation and lung cancer incidence and survival in England.

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. A high proportion of urban areas in England were classified as deprived and rural areas were mostly affluent.

Incidence

Figure 3 shows the variation in lung cancer incidence among males and females jointly by socioeconomic deprivation and urbanisation. Incidence of lung cancer was higher in males than in females in all groups. The incidence of lung cancer was higher in deprived areas than in affluent areas.

Figure 1: Map of England highlighting areas of affluence and deprivation based on the income domain of Indices of Deprivation 2007
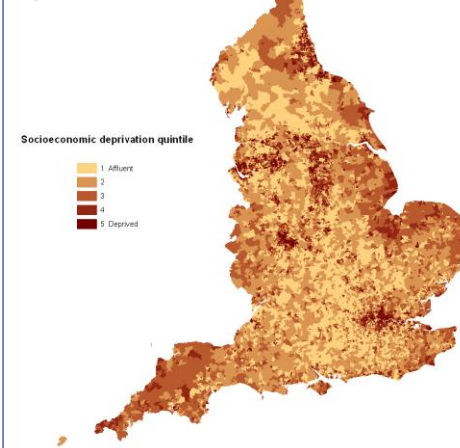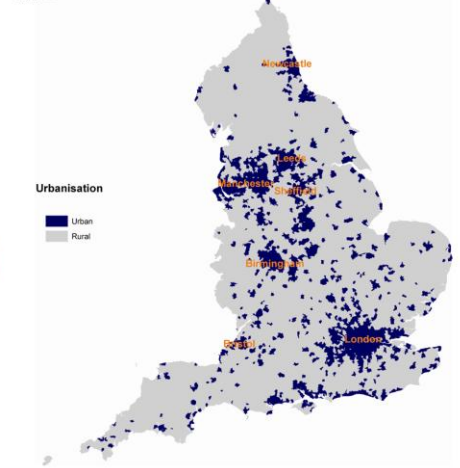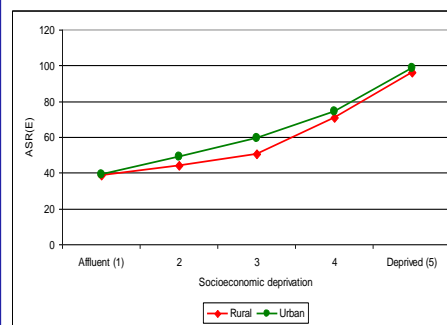
Socioeconomic deprivation quintile
1 Affluent
2
3
4
5 Deprived

Figure 2: Map of England highlighting urban and rural areas

Urbanisation
Urban
Rural

Figure 3: Incidence of lung cancer between 2003 and 2007 in urban and rural areas in England, by socioeconomic deprivation and sex
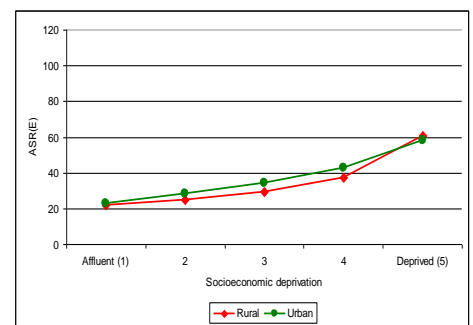
a) Males

b) Females

Within each socioeconomic deprivation group the difference between urban and rural populations was small.

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Socioeconomic deprivation quintile	Males					Females				
	Urbanisation									
	Urban		Rural			Urban		Rural		
	Survival (%)	95% CI[a]	Survival (%)	95% CI[a]	P-value[b]	Survival (%)	95% CI[a]	Survival (%)	95% CI[a]	P-value[b]
1 (Affluent)	27	(26-28)	29	(28-31)	0.01	31	(30-32)	32	(30-34)	0.75
2	26	(25-27)	26	(25-28)	0.58	29	(28-30)	29	(28-31)	0.68
3	25	(25-26)	25	(24-26)	0.54	29	(28-30)	28	(26-30)	0.15
4	26	(25-26)	25	(23-27)	0.23	28	(27-29)	26	(24-28)	0.04
5 (Deprived)	26	(25-26)	25	(21-28)	0.67	28	(27-29)	27	(23-31)	0.63

Table 1. One-year lung cancer survival in males and females by urbanisation and socioeconomic deprivation, England, 2003-2007.

a Confidence interval
b log rank test

Survival

Survival from lung cancer was slightly higher in affluent areas than in deprived areas (Table 1). Survival from lung cancer in urban and rural areas was similar within socioeconomic deprivation quintiles.

Methods

We extracted data on patients diagnosed with lung cancer (ICD-10 C33-C34) in England between 2003 and 2007. We assigned patients to an urbanisation score and to a socioeconomic quintile based on their postcode of residence at the time of diagnosis. We calculated age-standardised incidence rates by sex, urbanisation and socioeconomic deprivation group. We used Kaplan-Meier survival analysis to compare the survival of patients from urban and rural areas by socioeconomic deprivation.

Conclusion

The difference in lung cancer incidence and survival between urban and rural areas can largely be explained by the differences in socioeconomic deprivation, which is likely to be ultimately linked to tobacco smoking.

Acknowledgement

FIND OUT MORE:

Thames Cancer Registry
Thames Cancer Registry is the lead Cancer Registry for lung cancer and mesothelioma

http://www.tcr.org.uk

Other useful resources within the NCIN partnership:
Cancer Research UK CancerStats – Key facts and detailed statistics for health professionals

http://info.cancerresearchuk.org/cancerstats/

The National Cancer Intelligence Network is a UK-wide initiative, working to drive improvements in standards of cancer care and clinical outcomes by improving and using the information collected about cancer patients for analysis, publication and research. Sitting within the National Cancer Research Institute (NCRI), the NCIN works closely with cancer services in England, Scotland, Wales and Northern Ireland. In England, the NCIN is part of the National Cancer Programme.

www.ncin.org.uk/databriefings

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