

Profile of head and neck cancers in England: secular and geographical trends in the incidence, mortality and survival of laryngeal and oropharyngeal cancers



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Background

- Head and neck squamous cell carcinoma (HNSCC) is the fifth most common cancer and the sixth most common cause of cancer mortality in the world¹.
- The relative risk of developing HNSCC is 3 to 12 times higher for smokers than for non-smokers¹. The risk increases in a dose-response relationship with duration and extent of smoking. While the risk decreases with time from cessation of exposure, it never reaches the level of never smokers¹.
- Between 4% and 10% of patients with HNSCC do not smoke. This group differs from patients who smoke, and are typically younger and more likely to be female¹.
- Although the importance of decreasing smoking trends is clear for HNSCC, reductions in the incidence are not consistent across all sub-sites within the head and neck cancer group. The strongest association between smoking and HNSCC has been reported for laryngeal cancer, whereas growing epidemiological evidence supports the role of human papilloma virus (HPV) in a subset of head and neck cancers, especially in oropharyngeal cancer¹.

Objectives

- To examine secular and geographical trends in the incidence, mortality and survival of laryngeal and oropharyngeal cancers in England.
- To assess the trends in relation to changes in smoking prevalence in the years preceding the study period and in conjunction with spatial differences in smoking throughout England.

Methods

- Incidence, mortality, and 1- and 5-year relative survival data have been extracted from the National Cancer Information Service (NCIS) for laryngeal (ICD-10 C32) and oropharyngeal (ICD-10 C01, C09, C10) cancers for the period 1990-2006.
- All data have been examined for England and additionally by Cancer Network (CN) for incidence and mortality.
- The trends in cigarette smoking in Great Britain (1948-2006) have been based on the General Household Survey (GHS). Smoking prevalence (2003-2005), estimated from the Health Survey for England (HSE), has been mapped by Strategic Health Authority (SHA).

Results

- Laryngeal cancer incidence has declined by 20% since 1990 but the rate has levelled off in the last five years. Laryngeal cancer mortality fell by around 33% over the study period. The 1-year relative survival from laryngeal cancer has shown a small but significant increase between the earliest and latest cohorts from 82.7% to 85.1%; 5-year relative survival rates remain unchanged.
- The incidence of oropharyngeal cancer has more than doubled in the study period. Oropharyngeal cancer mortality has shown an increase. An increase of 13-14% in 1- and 5-year relative survival has been observed for oropharyngeal cancer over the study period.
- There is a geographical variation in the incidence and mortality for both HNSCC sites, with the north of England having predominantly higher rates.

Conclusions

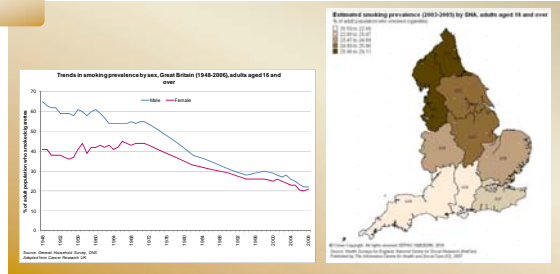
- The observed fall in laryngeal cancer incidence reflects the reduction in smoking over the preceding years. Geographical variation further adds to the findings, as high smoking rates are reported for the northern areas. The downward trend in laryngeal cancer mortality reflects a decrease in the incidence over the study period, but also changes in stage at presentation and in treatment may be relevant.
- Although the improvement in 1-year relative survival for laryngeal cancer is small, and the 5-year relative survival remains unchanged, there is evidence of improved quality of life with advances such as surgical voice restoration.
- Despite the falling trends in smoking, the incidence of oropharyngeal cancer has increased. These findings support the role of HPV in oropharyngeal cancer. The observed increase in the mortality from oropharyngeal cancer is less marked than the rise in the incidence. Greater treatment efficacy, including use of combined therapy, may explain the difference in trends, but any changes in stage at diagnosis also need to be taken into account.
- The improvement in 1- and 5-year relative survival rates for oropharyngeal cancer potentially reflects the younger population affected. The use of more aggressive and effective treatments could also be contributory, although these changes may be too recent to be reflected in the study period. A better prognosis for oncogenic HPV-positive oropharyngeal cancers has been also suggested to play a role.

¹Goon PKC, Stanley M, Ebmeyer J, Steinstrasser L, Upple T, Jerjes W, Bernai-Sprekelsen M, Gömer M and Sudhoff HH: HPV & Head and Neck Cancer: a Descriptive Update. *Head Neck Oncology* 2009, 1 (1): 36.

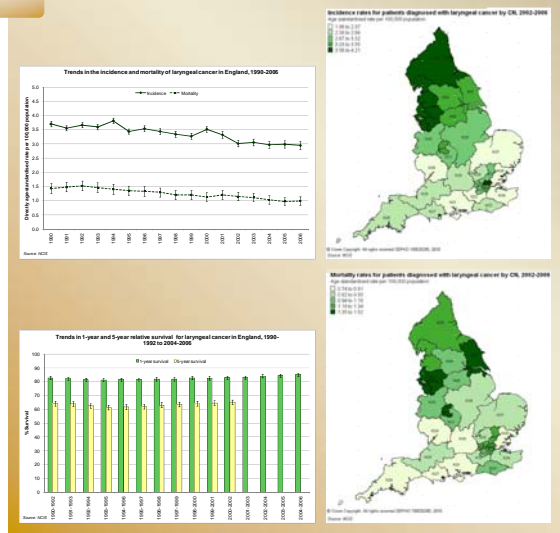
²Pylinia KB, Grant JR, Etzel CJ, Roberts DB, Wei Q and Sturgis EM. Matched-Pair Analysis of Survival of Never Smokers and Ever Smokers With Squamous Cell Carcinoma of the Head and Neck. *Journal of Clinical Oncology* 2004, 22 (19): 3981-86.

³Sturgis EM and Cincipini PM: Trends in Head and Neck Cancer Incidence in Relation to Smoking Prevalence. *Cancer* 2007, 110 (7): 1429-35.

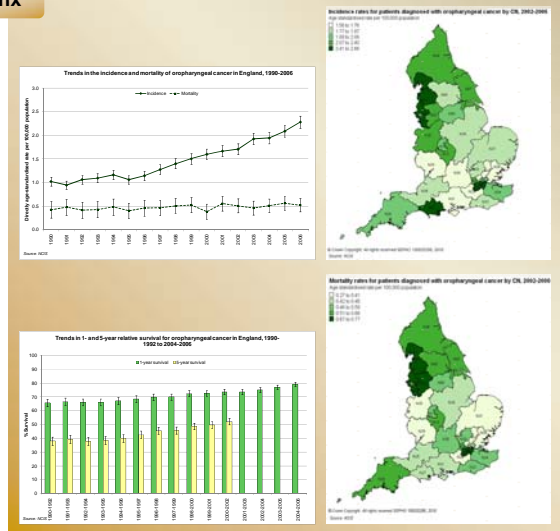
Smoking



Larynx



Oropharynx



Guide to maps

Strategic Health Authorities

- O30 North East
- O31 North West
- O32 Yorkshire and The Humber
- O33 East Midlands
- O34 West Midlands
- O35 East of England
- O36 London
- O37 South East Coast
- O38 South Central
- O39 South West

Cancer Networks

- N01 Lancashire and South Cumbria
- N02 Greater Manchester and Cheshire
- N03 Merseyside and Cheshire
- N06 Yorkshire
- N07 Humber and Yorkshire Coast
- N08 North Trent
- N11 Plan Birmingham
- N12 Arden
- N20 Mount Vernon
- N21 West London
- N22 North London
- N23 North East London
- N24 South East London
- N25 South West London
- N26 Peninsula
- N27 Dorset
- N28 Avon, Somerset and Wiltshire
- N29 3 Counties
- N30 Thames Valley
- N31 Central South Coast
- N32 Surrey, West Sussex and Hampshire
- N33 Sussex
- N34 Kent and Medway
- N35 Greater Midlands
- N36 North of England
- N37 Anliffe
- N38 Essex
- N39 East Midlands