

# Thyroid gland cancer in England – trends by sex, age and histological type

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## Introduction

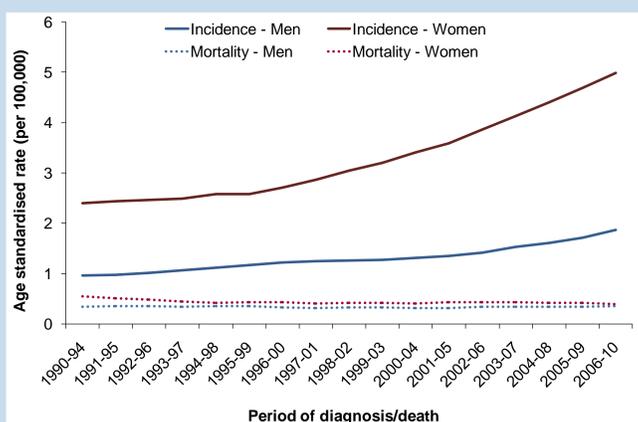
- Thyroid cancer accounts for less than 1% of all new cancer diagnoses in England. Although it is rare, it is the most common form of endocrine tumour.
- Thyroid cancer is around three times more common in women than in men.
- Patients under 45 years of age and those aged 45 or over can have different prognosis for tumours of similar characteristics<sup>1</sup>.
- An increasing incidence of thyroid cancer has been reported in many countries. We examined whether similar increase occurred in England, by evaluating the incidence, together with mortality and survival.

## Methods

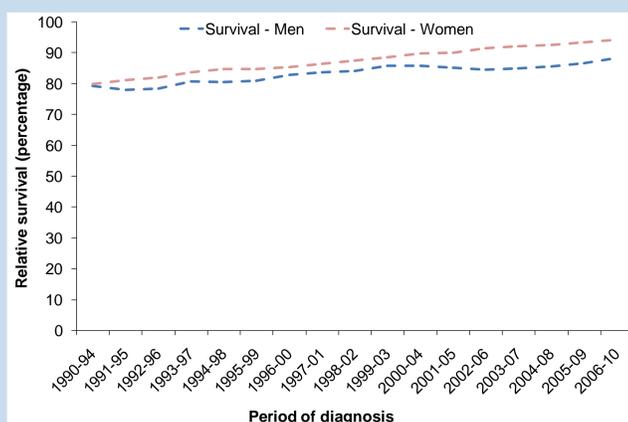
- Using the ONS datasets, incidence, mortality and one-year relative survival were determined for the period 1990-94 to 2006-10.
- To gain a better understanding of changes, data were examined by sex, age (ages 20-44, and 45 and older) and histological type (anaplastic, follicular, hurtle cell carcinoma, medullary, papillary, and other or unspecified).

## Results

### Sex



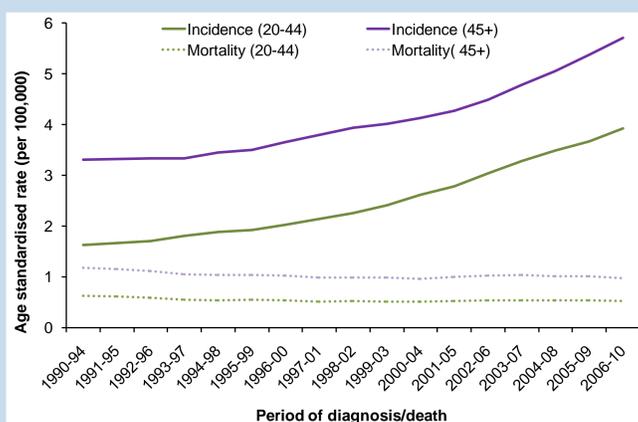
**Figure 1:** Trends in incidence and mortality by sex, England 1990-94 to 2006-10



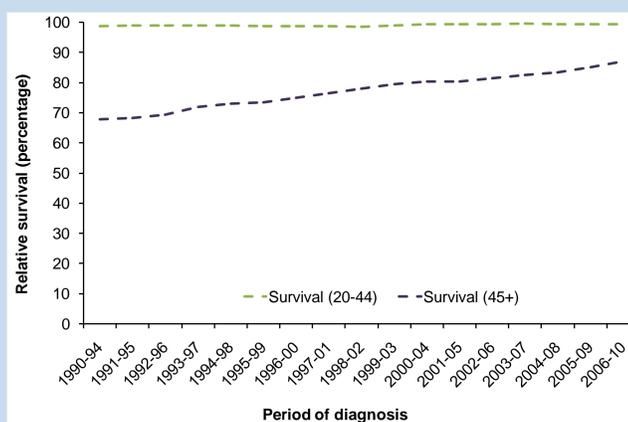
**Figure 2:** Trends in one-year survival by sex, England 1990-94 to 2006-10

- Thyroid cancer incidence for men and women approximately doubled in the study period (Figure 1).
- There were around three times more cancers in women than in men, with 671 average cases per year for women and 233 for men (1990-94) rising to 1427 and 521 respectively (2006-10).
- The death rate significantly decreased in women (30%), but did not change in men (Figure 1).
- A significant improvement was recorded in one-year relative survival for both men and women (Figure 2). For men, survival increased from 79.2% (1990-94) to 88.3% (2006-10) and for women from 79.9% to 94.3%.

### Age



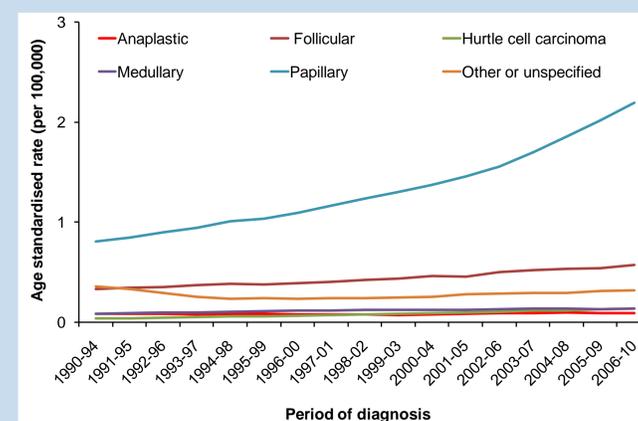
**Figure 3:** Trends in incidence and mortality by select age groups, England 1990-94 to 2006-10



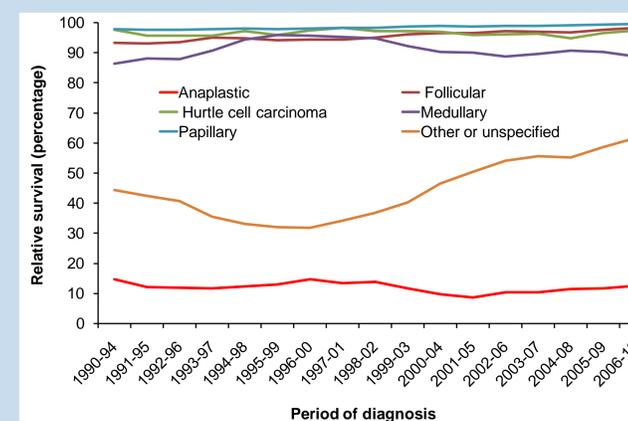
**Figure 4:** Trends in one-year survival by select age groups, England 1990-94 to 2006-10

- Throughout the study period, incidence and mortality were significantly lower for the age group 20 to 44 than for those aged 45 or older (Figure 3).
- The incidence rate for the younger age group increased by 140% between 1990-94 and 2006-10, compared to a 72% increase for the older age group.
- The death rate fell significantly for both age groups by more than 15%.
- One-year survival for those aged 20-44 at diagnosis was very high throughout the study period (Figure 4). For those aged 45 and over, one-year relative survival improved significantly from 67.8% (1990-94) to 86.9% (2006-10).

### Histological type



**Figure 5:** Trends in incidence by histological type, England 1990-94 to 2006-10



**Figure 6:** Trends in one-year survival by histological type, England 1990-94 to 2006-10

- The most common form of thyroid cancer was the papillary sub-type (Figure 5).
- Between 1990-94 and 2006-10 the incidence rate of papillary thyroid cancer increased by 170%.
- Papillary tumours had the highest one-year survival rate and this significantly increased from 97.7% (1990-94) to 99.5% (2006-10). The lowest one-year survival rate was for anaplastic thyroid cancers and this remained largely unchanged at about 15% throughout the study period (Figure 6).
- Thyroid cancers that were of other or unspecified type showed the largest improvement in one-year survival increasing from 44% in 1990-94 to 61% in 2006-10.

## Conclusions

- The incidence of thyroid cancer for men and women in England approximately doubled between 1990-94 and 2006-10. This trend is similar to that observed in many other parts of the world<sup>2</sup>.
- Most of the increase in incidence has been in one sub type known as papillary cancer, which has the best prognosis.
- The steep rise in the incidence is speculated to be largely due to the increased detection of small papillary cancers associated with the more widespread use of ultrasound and fine needle biopsies<sup>3</sup>.
- There may also have been a 'real' increase in thyroid cancer in patients previously treated for other cancers with neck or chest radiotherapy.

## References

- Haymart M.R. Understanding the Relationship Between Age and Thyroid Cancer. *The Oncologist* 2009; 14: 216-221.
- Kilfoy B.A. et al. International patterns and trends in thyroid cancer incidence, 1973-2002. *Cancer Cause Control* 2009; 20: 525-531.
- Davis L. and Welch H.G. Increasing Incidence of Thyroid Cancer in the United States, 1973-2002. *Journal of the American Medical Association* 2006; 295: 2164-2167.