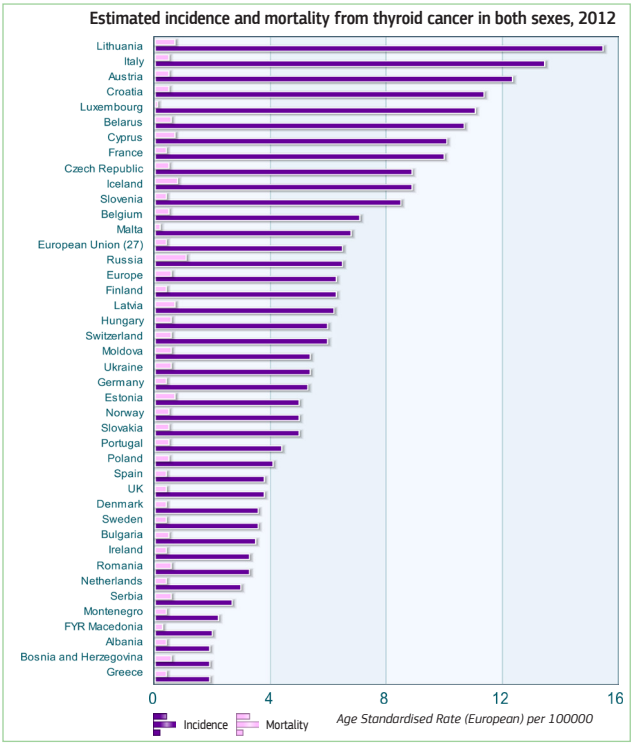
European Network of Cancer Registries

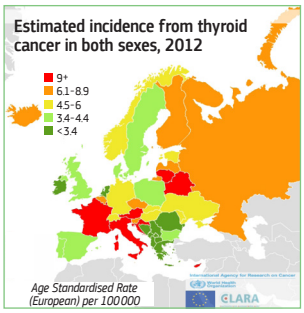
ENCR Factsheets

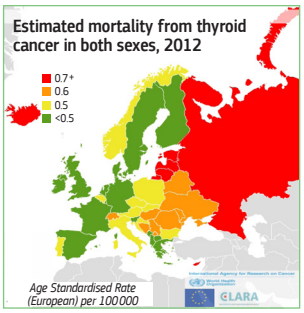
January 2017

Thyroid cancer (TC) Factsheet



- TC occurs in the cells of the thyroid, a butterfly-shaped gland, with a right and a left lobe, located at the base of the neck, just below Adam's apple. The thyroid produces hormones that regulate heart rate, blood pressure, body temperature and weight.[1]
- There are four types of TC: papillary, follicular, medullary, and anaplastic. Papillary is the most common type (about 70%). Anaplastic TC is difficult to cure with current treatment, other types can usually be cured.[2]
- TC incidence has been rising all over the world, mostly due to the widespread use of ultrasound examination which has led to an increased detection of small papillary tumours.
- In 2012, an estimated 52 956 TC cases were newly diagnosed in Europe. In the same year, 6 336 Europeans are estimated to have died of TC.[3,4]
- In 2012, it was estimated that 298 102 new cases of TC were diagnosed worldwide and 39 771 TC deaths were reported.[5]





- Higher incidence rates of TC are observed in the more developed countries compared with less developed countries; the mortality rates however are the same.[5]

Gender differences in Europe in 2012* Estimated incidence and mortality [4]

- Women have a 3-fold higher estimated age standardized rate (ASR-E)* of incidence than men, with 9.3 and 3.1 cases per 100 000 person-years respectively.
- In terms of mortality the ASR-Es are similar, with 0.7 and 0.5 cases per 100 000 person-years for women and men respectively.

Regional differences in Europe in 2012 Estimated incidence and mortality [4]

- In Europe there are wide regional differences in the incidence of TC, but the mortality is similar.
- The average estimated incidence ASR-E was 6.3 cases per 100 000 person-years.
- The countries with the highest estimated incidence ASR-E were Lithuania (15.5), Italy (13.5), Austria (12.4), Croatia (11.4) and Luxembourg (11.1).
- The lowest estimated incidence ASR-E were in Montenegro (2.2), FYR Macedonia (2), and Albania, Bosnia and Herzegovina and Greece (1.9).
- The average European estimated mortality ASR-E was 0.6 deaths per 100 000 person-years.
- The highest mortality ASR-E were seen in Russia (1.1) Iceland (0.8), and Lithuania, Cyprus, Latvia and Estonia (0.7).
- The lowest estimated mortality ASR-E were observed in FYR Macedonia (0.3), Malta (0.2) and Luxembourg (0.1).

The European Cancer Observatory (ECO) estimates refers to the European countries (plus Cyprus), as defined by the United nations.

* ASR-E: age-adjusted rate to the old European population standard (Doll & Cook, Int J Cancer, 1967) to account for the different age structure in various countries.

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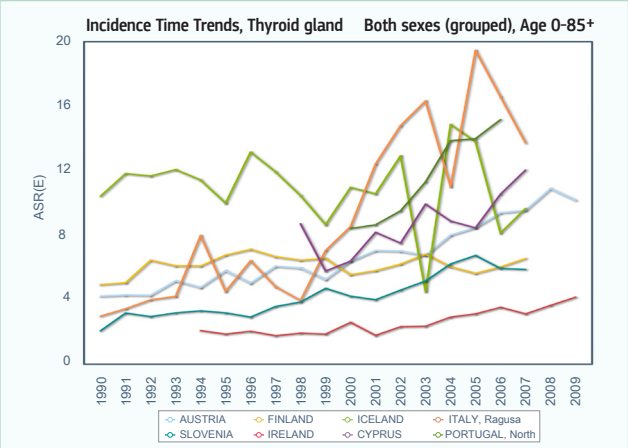
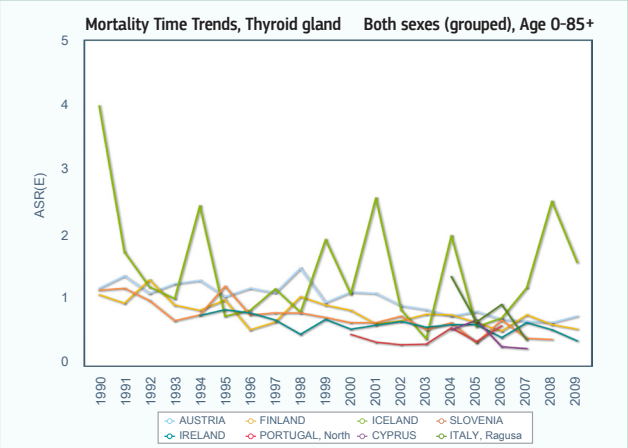
Temporal changes in selected European countries [4, 6-12]

- There has been an overall increase in the incidence rates of TC in most European countries, with a steeper increase observed in the mid '90s.
- In some counties however, the incidence rates increased only mildly or even started decreasing slightly in recent years.
- Regional variability in the incidence of TC was observed within some countries as well.
- The mortality rates have been decreasing over time across Europe.
- The incident aggressiveness of TC in Europe probably reflect medical practices for the diagnoses of thyroid diseases.



Thyroid cancer aetiology [13, 14, 15]

- Ionizing radiation is an established cause of TC in humans, with the risk depending on age at exposure: childhood exposure increases the risk of developing TC.
- The role of high iodine intake has been studied as a risk factor for TC. The studies conducted, however, were rather inconclusive.
- The role of hormones has also been investigated as causal factor for TC or to explain gender differences in incidence, but no causal association has been found.
- Studies investigating the role of obesity in the development of TC have been inconclusive.
- Genetic factors for TC have been investigated as well: Approximately 20% of medullary TCs are attributed to multiple endocrine neoplasia (MEN) of types 2A or 2B, or familial medullary TC. There is no firm evidence however that genetic alterations play a major role in the development of TC.



Screening and prevention [8]

- At this time, there is no standard or routine screening test recommended for TC. [2]

Thyroid cancer survival [16, 17]

- The vast majority of TCs have a good prognosis, with the exception of some rare histological types (poorly differentiated and anaplastic thyroid carcinomas).
- The 5-year relative survival (RS) of TC in Europe ranges from 80-90%.
- Women in Europe seem to have a higher RS than men.
- The younger the patients at diagnosis, the higher is the survival in most European countries.
- Overall survival for TC has improved over time in Europe.
- The role of overdiagnosis (the diagnosis of indolent tumours) has to be considered.

Note

Differential use of diagnostic techniques (ultrasound and fine needle aspiration) between and within countries has increased the proportion of microcarcinomas (<1cm) detect-ed and the incidence of TC in the past decades in most European countries. Caution is needed when making incidence rates comparisons.

Conclusions

- TC has the highest survival of all malignant tumors and a good prognosis.
- Increased incidence is most likely due to the increased detection of subclinical tumours, which may have led to overtreatment, to some extent. [7, 12, 18]
- Increased detection, however, has also resulted in a shift from the detection of more advanced tumours to early stage tumours. [7]
- The overall trends observed in the incidence of TC over time seem to reflect mainly medical diagnostic practices.

A list of references (1-18) is available (in PDF) at this link

The European Cancer Observatory data (http://eco.iarc.fr) were used for the production of this factsheet.