Latest Trends in Thyroid Cancer Incidence in Females by Race/Ethnicity in the United States and Los Angeles County

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Outline

1) Introduction: Thyroid anatomy, physiology, and histology
2) Importance
3) Overall Incidence trends
4) Age-Specific
5) Race/Ethnicity
6) Overdiagnosis and Overtreament
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Anatomy and Physiology

- Butterfly-shaped gland in front of the trachea
- Uses iodine from food to produce thyroid hormones T4 and T3
- Involved in metabolism and calcium absorption
Thyroid Cancer Histologies

Well-Differentiated Thyroid Cancers (DTC):

1. **Papillary thyroid cancer** – 70-80% of all thyroid cancers; Most common type and occurs at any age

2. **Follicular thyroid cancer** – 10-15% of all thyroid cancers; More likely than papillary cancer to spread to distant organs

**Medullary thyroid cancer** - ~2% of all thyroid cancers; Approximately 25% of all cases are familial

**Anaplastic thyroid cancer** – Less than 2% of all thyroid cancers; Most aggressive type and has poor response to treatment
Histology

AAIR Thyroid Cancer in California Ages 15+ by Histology

Rate per 100,000

Year of Diagnosis

Papillary
Follicular
Anaplastic
Medullary
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Importance

- Increasing worldwide over the past few decades
- Most rapidly increasing cancer in the United States
- Increased detection may be contributing to the rise in incidence
- Some recent reports suggest stabilization of incidence rates in recent years
- While prognosis and survival tend to be very good, rate of recurrence can reach up to 30%
Risk Factors

• History of thyroid nodules or goiter
• Family history of thyroid cancer
• Genetic conditions that raise thyroid cancer risk
• Exposure to radiation
• Female

(Unidentified risk factors causing increase in thyroid rates??)
Rates of New Thyroid Cancer Cases in the U.S. 2009-2013

Women are three times more likely to develop thyroid cancer than men.

Rate of new cancer cases by Sex, All Races/Ethnicities
Rate per 100,000 people
View data as:  

Rates of New Thyroid Cancer Cases in the U.S. 2009-2013

Rate of new cancer cases by Sex and Race/Ethnicity
Rate per 100,000 people

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<th>Sex</th>
<th>Race/Ethnicity</th>
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Thyroid Cancer Incidence Trends
AAIR United States

New Cases, Deaths and 5-Year Relative Survival

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<td>Deaths</td>
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<td>10</td>
<td>15</td>
<td>20</td>
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<tr>
<td>5-Year Relative Survival</td>
<td>92.3%</td>
<td>92.8%</td>
<td>92.6%</td>
<td>95.5%</td>
<td>95.8%</td>
<td>96.3%</td>
<td>97.3%</td>
<td>98.6%</td>
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Thyroid Cancer Incidence Trends

Overall

AAIR Thyroid Cancer in the U.S. Ages 15+

Year of Diagnosis

Overall Rate per 100,000
 Thyroid Cancer Incidence Trends

Overall

AAIR Thyroid Cancer in Los Angeles County Ages 15+
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Thyroid Cancer Incidence Trends

Age

AAIR Thyroid Cancer in the U.S.
Thyroid Cancer Incidence Trends

Age

AAIR Thyroid Cancer in Los Angeles County

Rate per 100,000

Year of Diagnosis


Ages 15-39

Ages 40+
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Thyroid Cancer Incidence Trends
Race/Ethnicity
Thyroid Cancer Incidence Trends
Race/Ethnicity – Asian Subgroups

AAIR Thyroid Cancer in Los Angeles County Ages 15-39 by Race/Ethnicity

AAIR Thyroid Cancer in Los Angeles County Ages 40+ by Race/Ethnicity
Thyroid Cancer in Adolescents and Young Adults (AYA)

One of the top five AYA cancers

Risks associated with Thyroid Cancer diagnosis before age 40:

• Hypertension
• Carditis
• Osteoporosis

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Overdiagnosis:
Is overdiagnosis caused by increasing medical surveillance and use of new diagnostic techniques?

Overtreatment:
Majority undergo total thyroidectomy and frequently radiotherapy

International Agency for Research on Cancer (IARC)

Encapsulated follicular variant of papillary thyroid carcinoma (EVPTC)

Noninvasive follicular thyroid neoplasm with papillary-like nuclear features (NIFTP)

“Epidemic of diagnosis”

Original Investigation

August 2016

Nomenclature Revision for Encapsulated Follicular Variant of Papillary Thyroid Carcinoma
A Paradigm Shift to Reduce Overtreatment of Indolent Tumors

Yuri E. Nikiforov, MD, PhD; Raja R. Seethala, MD; Giovanni Tallini, MD; et al

Summary

• Produces hormones and helps regulate metabolism, calcium absorption, and other processes

• Asia has the highest rates worldwide

• Overall rates in the U.S and Los Angeles are similar

  AYAs trends↑ in LAC

• Overdiagnosis and overtreatment acknowledged
Future Aims

• Revision of nomenclature to decrease overdiagnosis in certain indolent tumors
• Investigate why Asian populations are at higher risk
• Explore emerging risk factors
• Active surveillance
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