

Thyroid Cancer: Issues with Screening and Treatment

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Quick Facts

US Incidence in 2014	
Males	6.1 per 100,000
Females	13.4 per 100,000

US 5-Year Survival Rates, 2007-2013	
Males	95.8%
Females	98.8%

Age adjusted rates from source 8

World Incidence in 2012	
Males	1.9 per 100,000
Females	6.6 per 100,000

World Mortality rate 2012	
Males	0.35 per 100,000
Females	0.8 per 100,000

Crude rates from source 5

- In 2014 there were 726,646 people living with thyroid cancer in the US.⁸
- In the US, incidence has increased faster than for any other cancer in the past 10 years while mortality has remained stable.^{4, 8, 10}
- The two most commonly used screening methods are neck palpation and ultrasound.^{1, 2, 9}

Screening and the Thyroid Cancer Epidemic of South Korea

- South Korea is the only country that has implemented a national screening effort for thyroid cancer. Starting in 1999, doctors offered low-cost ultrasound exams of the thyroid.^{1, 4, 9}
- The program resulted in dramatic increases in incidence with no effect on mortality. South Korea has the highest incidence of Thyroid cancer in the world.^{1,9}
- Multiple studies have shown a high correlation between screening and incidence rates.^{1, 4, 6, 7, 9}

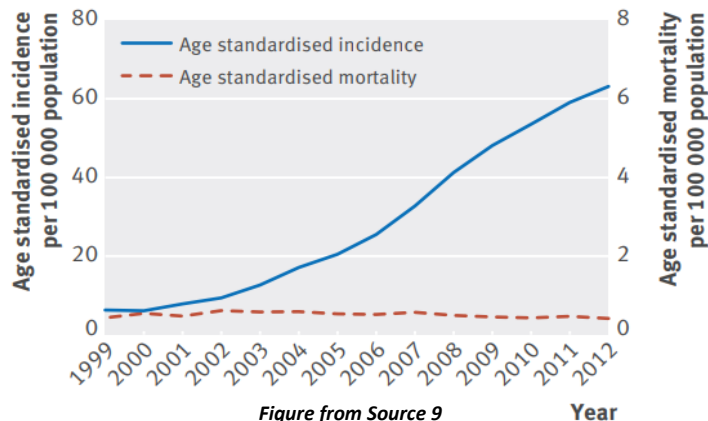


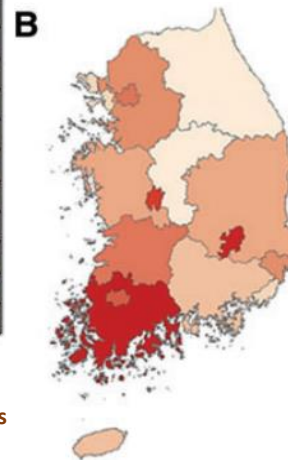
Figure from Source 9



Maps from Source 1

Legend	
Lightest orange	9.4-11.4
Light orange	11.5-11.7
Orange	11.8-12.3
Dark orange	12.4-12.6
Red-orange	12.7-12.9
Red	13.0-13.9
Dark red	14.0-15.4
Very dark red	15.5-15.6
Dark red	15.7-16.2
Darkest red	16.3-22.6

MAP A
Screening rates in different provinces in South Korea



Legend	
Lightest orange	32.9-39.7
Light orange	39.8-42.3
Orange	42.4-47.1
Dark orange	47.2-54.7
Red-orange	54.8-58.6
Red	58.7-69.0
Dark red	69.1-77.4
Very dark red	77.5-81.9
Dark red	82.0-82.4
Darkest red	82.5-87.3

MAP B
Corresponding Incidence Rates

Risk Factors

- Radiation Exposure.
- Female gender and older age.
- Hereditary or other uncommon genetic conditions.
- Family history of thyroid cancer.
- A diet low in iodine.

Based on information from sources 2 and 7.

Who should be screened?

- Adults that exhibit symptoms (such as a lump, swelling or persistent discomfort in the front neck).
- Doctors may recommend genetic testing for patients with a family history of medullary thyroid cancer (MTC) or who have conditions that put them at risk.

Based on information from sources 2, 4 and 10.

Why doesn't screening a population work to decrease deaths?

- In the US 80% of thyroid cancers are papillary cancers which usually grow very slowly.² This trend is similar in most of the world except areas with a history of iodine deficiency.⁶
- Papillary thyroid cancers tend to have very good prognosis, so early detection doesn't lead to smaller tumors and reduced mortality.^{1, 2, 8}
- The phenomenon of diagnosing persons who will probably never experience symptoms is called overdiagnosis. The epidemic of thyroid cancer in South Korea is a dramatic example of such overdiagnosis.

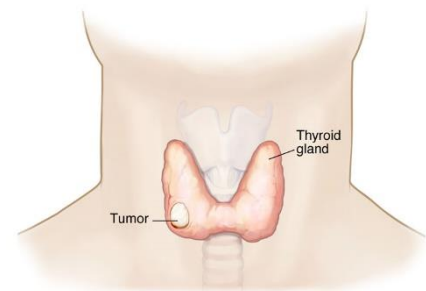


Image from source 11

Potential to Cause Harm

- Overdiagnosis converts persons without symptoms into cancer patients.¹
- Papillary cancers grow very slowly so earlier detection and treatment do not contribute much to improved outcomes and better health.^{1, 6, 7, 9}
- Treatment for patients who are asymptomatic and would have likely remained so without overdiagnosis leads them to experience unnecessary harm.⁶ Besides the immediate physical and psychological hardship faced by patients who undergo treatment for thyroid cancer, those who have surgery will likely need medication for the rest of their lives.^{2, 3}

Treatments for Thyroid Cancer:

- Surgery
- Thyroid Hormones
- Radioactive Iodine Treatment
- Radiation Therapy
- Chemotherapy

Based on sources 2 and 3

Patients treated for thyroid cancer with surgery usually face a lifelong need for medications to replace lost thyroid hormones.³

Recommendations

1. Healthcare professionals should perform screening only on symptomatic adults and those at risk as outlined by the US Preventive Services Task Force (USPSTF).
2. Researchers, doctors and patients should explore using a "watchful waiting" approach to monitor small papillary tumors.⁶ This strategy may be just as effective in preventing mortality without the potential cause for harm and needs further study to perhaps get to a reclassification of small papillary tumors as non-cancerous.

References

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