

# Thyroid cancer in the United States: Recent increases

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# Background

- ❑ **Increasing rates of thyroid cancer since 1980's**
- ❑ **Improved surveillance often cited as cause**
  - Increased detection
  - Definition of papillary thyroid cancer expanded in 1988
- ❑ **However, rates continue to increase in more recent years**
- ❑ **Combined NPCR/SEER dataset allows for detailed analysis, more information**

# Methods

- ❑ **NPCR/SEER combined data, 1999-2007**
  - States meeting USCS criteria for all years
  - 89.4% population coverage
  - Invasive, microscopically confirmed cancers only
- ❑ **Incidence rates**
  - Expressed per 100,000 persons
  - Age-adjusted to 2000 US Standard Population
  - Calculated using SEER\*Stat 7.0.4
  - 95% Confidence Intervals
- ❑ **Annual Percent Change (APC)**
  - Least squares regression
- ❑ **Variables**
  - Age, Race, Hispanic ethnicity, Sex, US Census Region

# **RESULTS: RACE/ETHNICITY**

## Average annual incidence rates and counts of thyroid cancer by sex & race/ethnicity, US, 1999-2007

|              | Average annual count | Rate per 100,000 | 95% C.I.       |
|--------------|----------------------|------------------|----------------|
| All cases    | 23,895               | 9.14             | (9.11, 9.18)   |
| Sex          |                      |                  |                |
| Male         | 5771                 | 4.65             | (4.61, 4.69)   |
| Female       | 18,124               | 13.51*           | (13.45, 13.58) |
| Race         |                      |                  |                |
| White        | 20,682               | 9.47             | (9.43, 9.51)   |
| Black        | 1543                 | 5.67*            | (5.57, 5.76)   |
| AI/AN        | 111                  | 4.64*            | (4.35, 4.96)   |
| API          | 1117                 | 9.38             | (9.20, 9.58)   |
| Ethnicity    |                      |                  |                |
| Non-Hispanic | 21,450               | 9.30             | (9.26, 9.35)   |
| Hispanic     | 2446                 | 8.45*            | (8.33, 8.57)   |

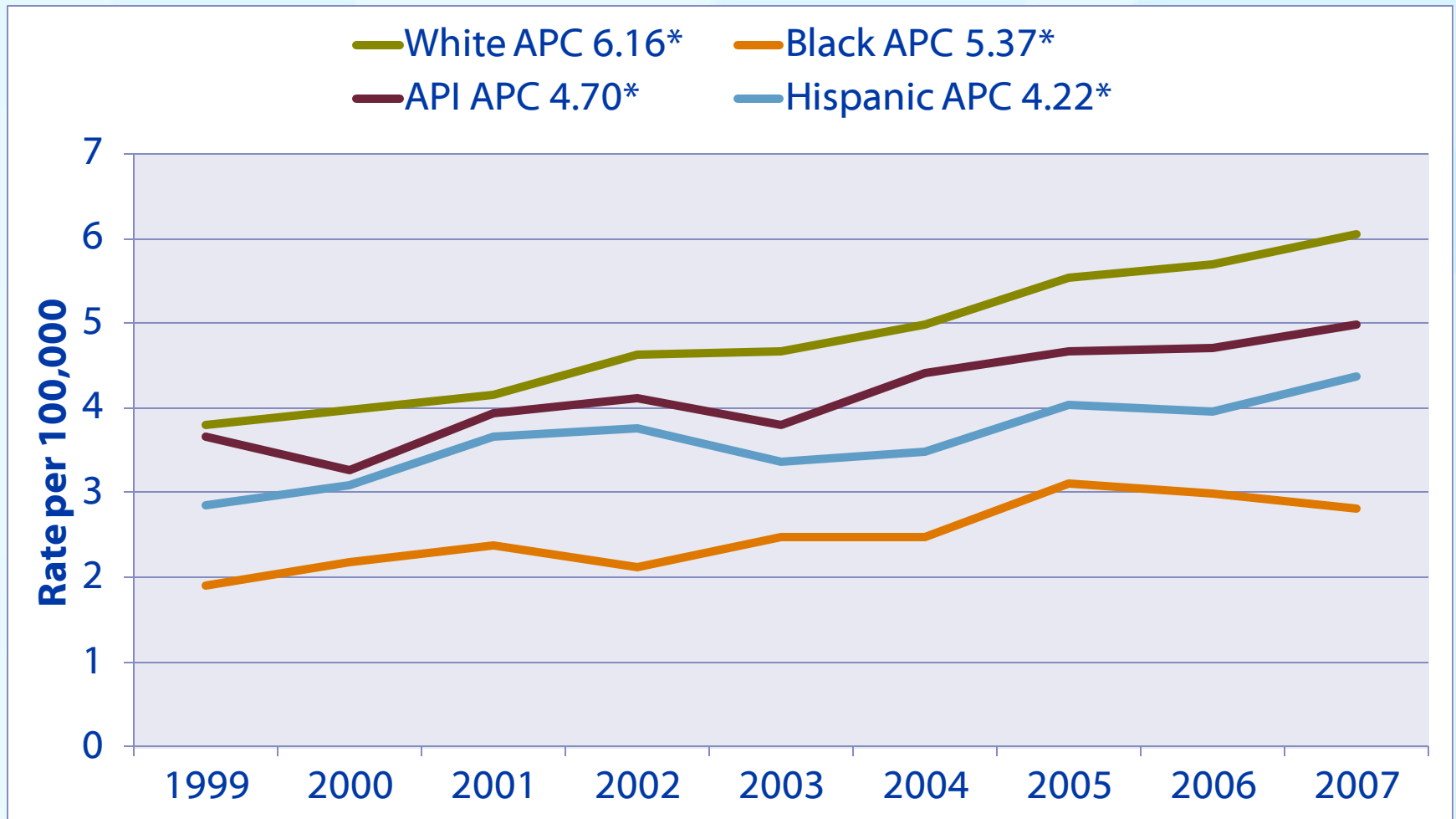
AI/AN=American Indian/Alaska Native

API=Asian/Pacific Islander

Data from NPCR/SEER covering 89.4% of US population

\* Indicates statistical significance (p<0.05; top row referent group)

# Thyroid cancer trends by race/ethnicity, males, US, 1999-2007

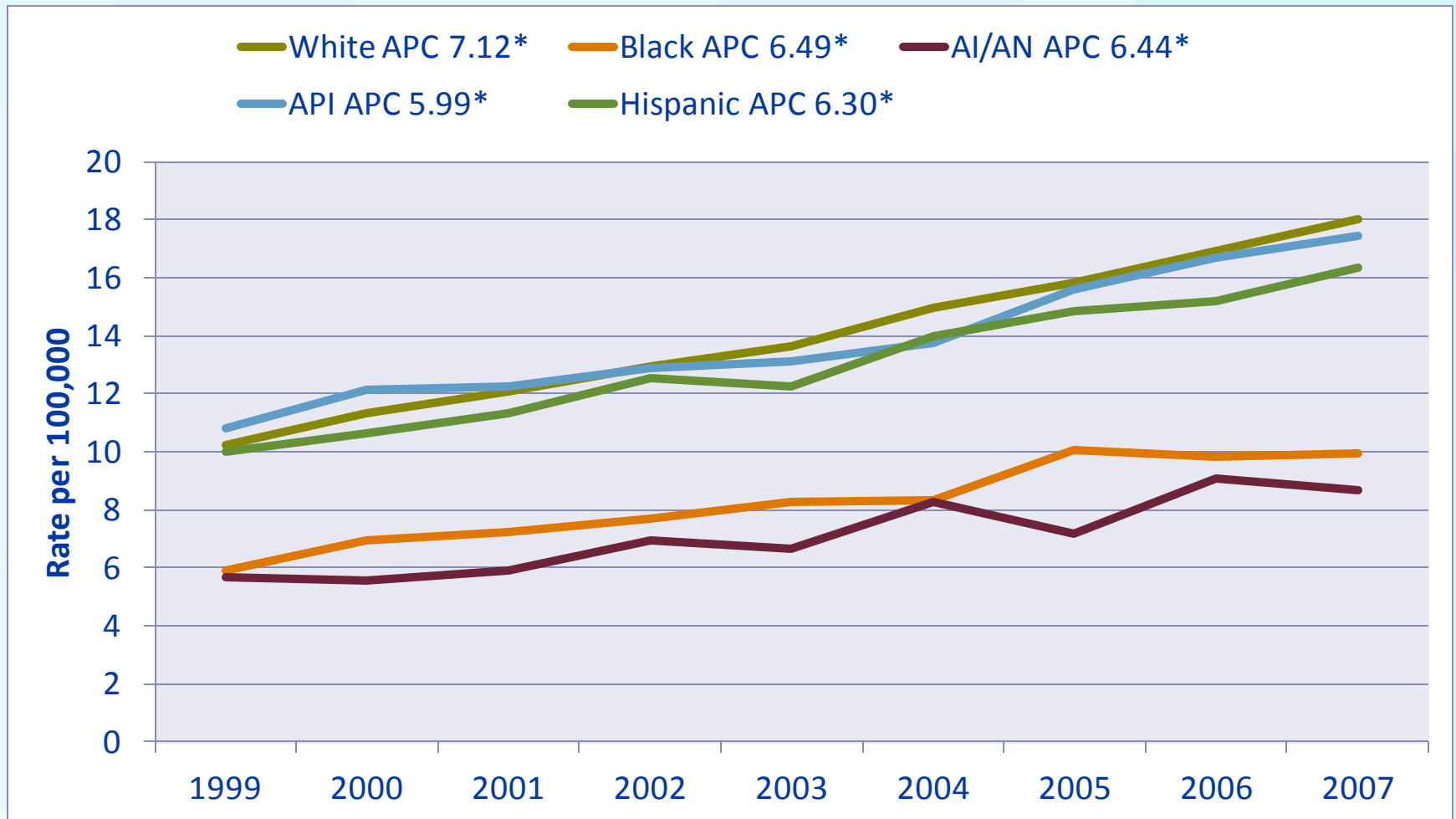


Data from NPCR/SEER covering 89.4% of US population

Hispanic ethnicity and race are not mutually exclusive.

\*APC statistically significant ( $p < 0.05$ ).

# Thyroid cancer trends by race/ethnicity, females, US, 1999-2007



Data from NPCR/SEER covering 89.4% of US population

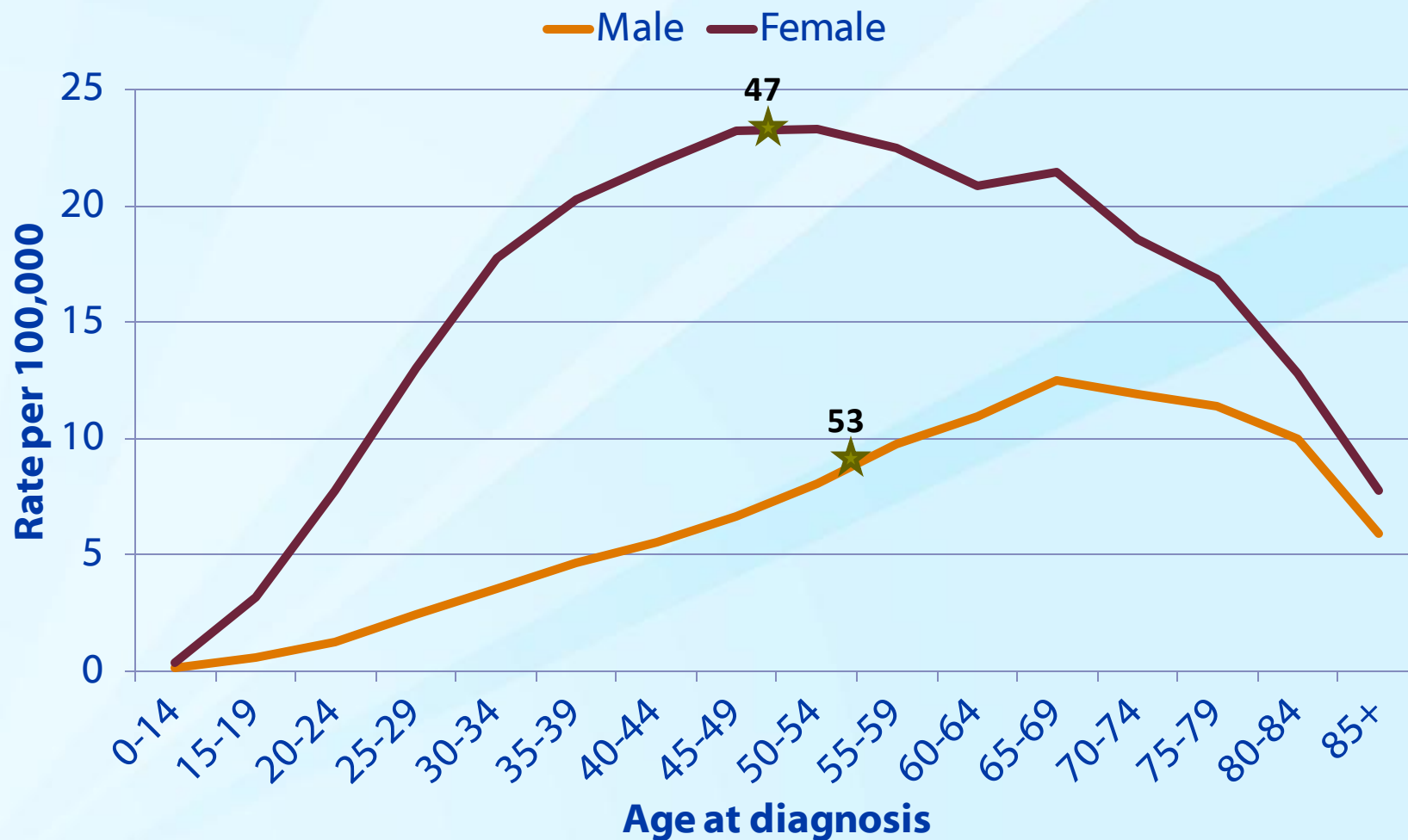
Hispanic ethnicity and race are not mutually exclusive.

\*APC statistically significant ( $p < 0.05$ ).

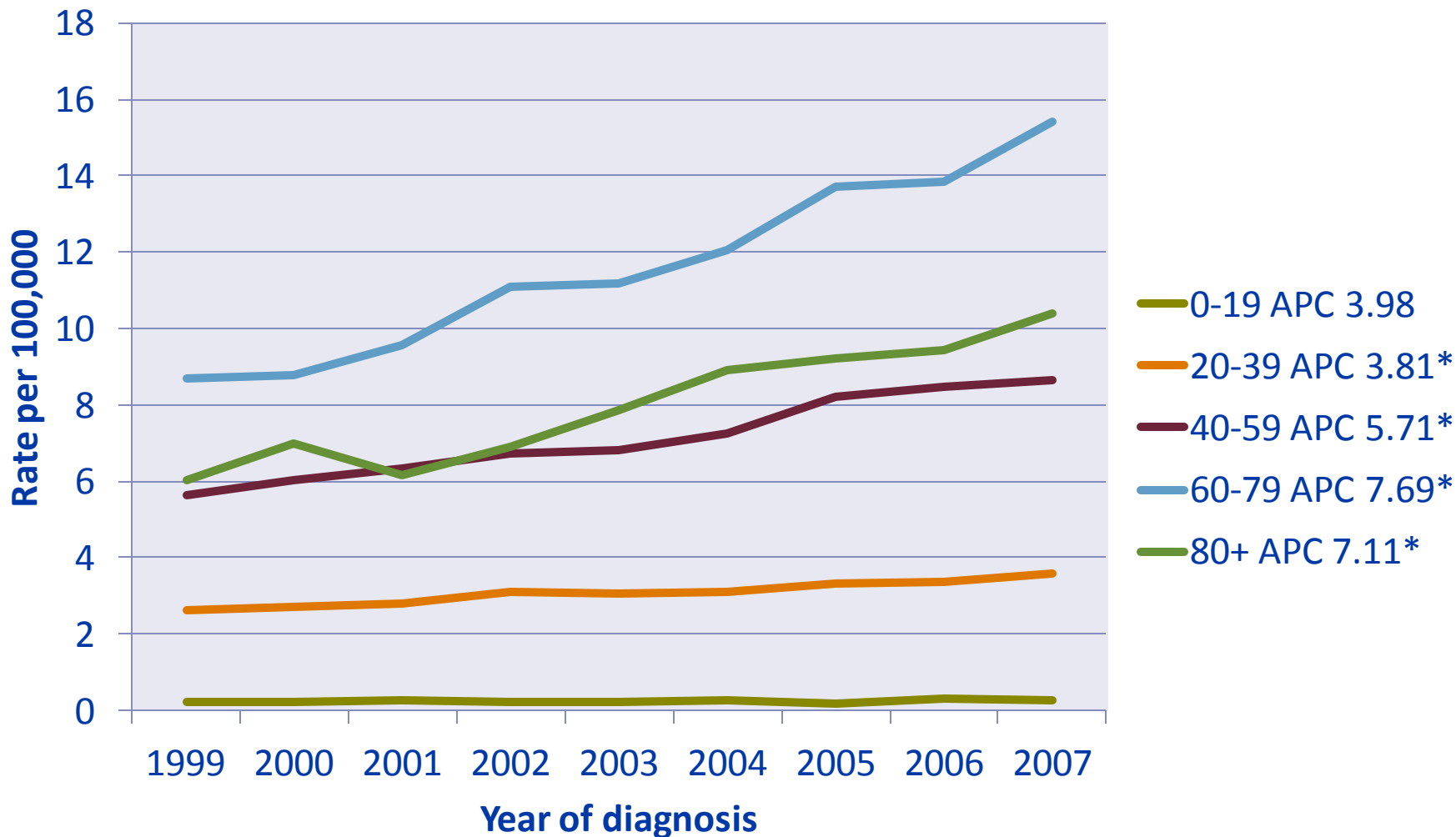
**RESULTS: AGE**



# Age-specific incidence rates of thyroid cancer by sex, US, 1999-2007



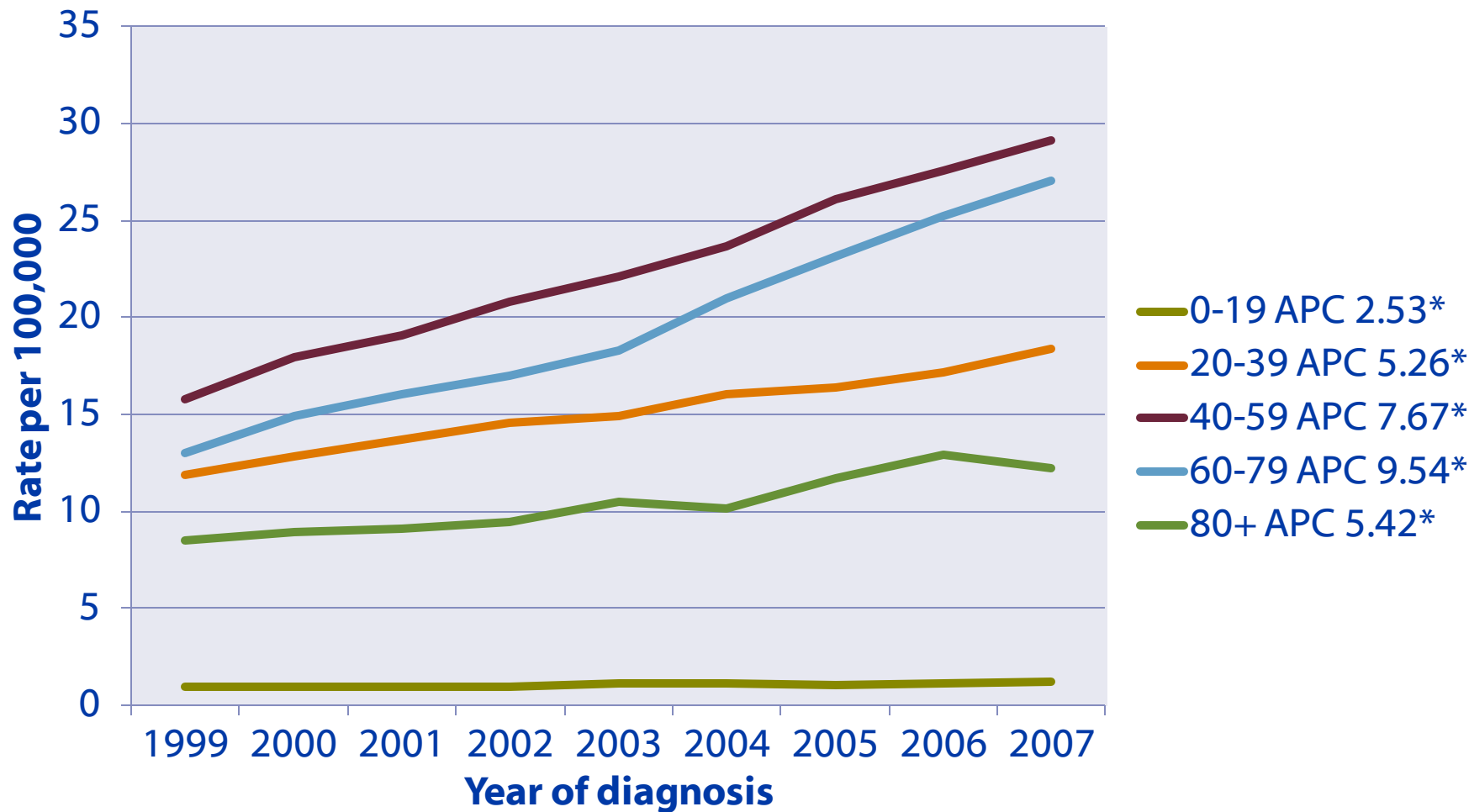
# Thyroid cancer trends by age, males, US, 1999-2007



Data from NPCR/SEER covering 89.4% of US population

\*APC statistically significant ( $p < 0.05$ ).

# Thyroid cancer trends by age, females, US, 1999-2007

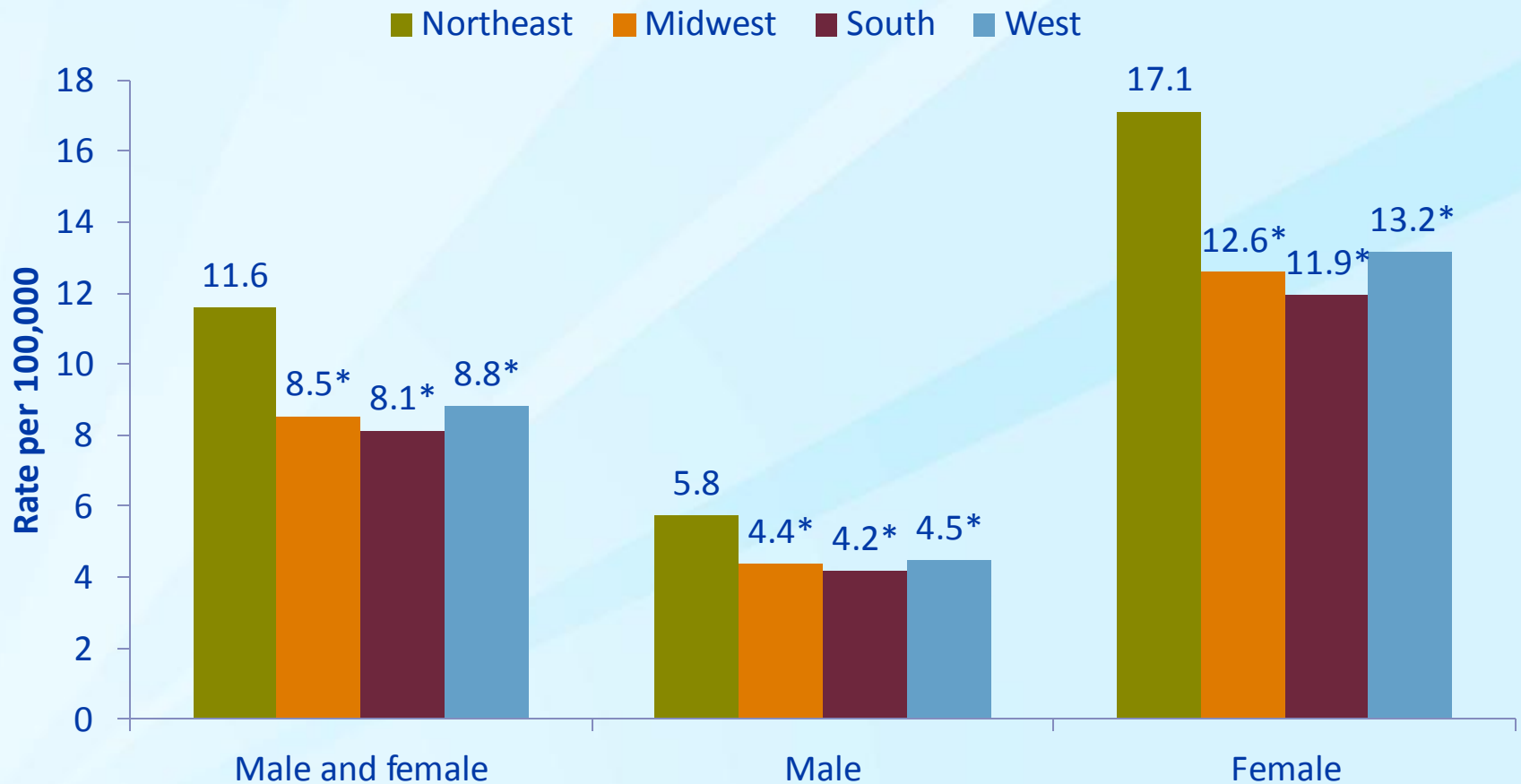


Data from NPCR/SEER covering 89.4% of US population

\*APC statistically significant ( $p < 0.05$ ).

# **RESULTS: US CENSUS REGION**

# Incidence rates of thyroid cancer by US Census Region, US, 1999-2007

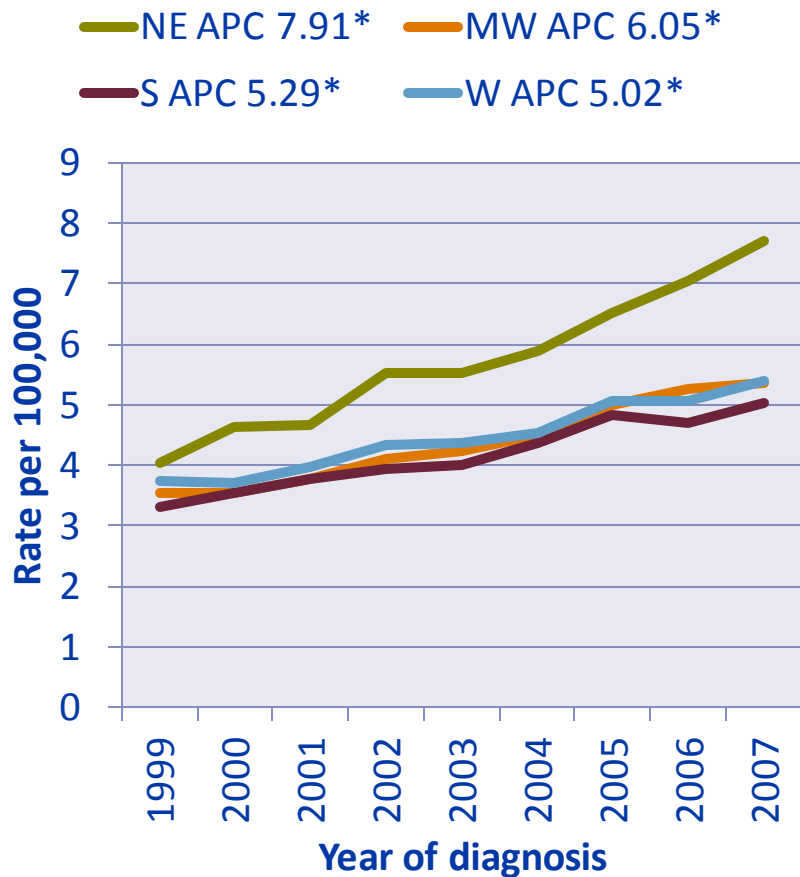


Data from NPCR/SEER covering 89.4% of US population.

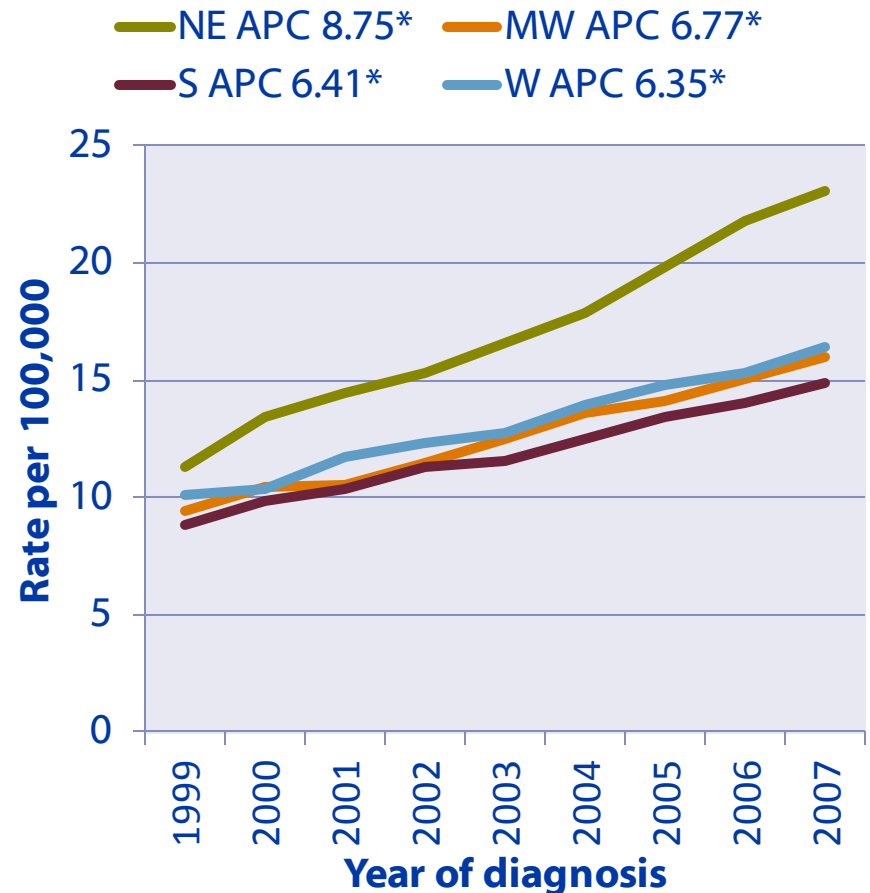
\*Indicates statistical significance ( $p < 0.05$ ; Northeast referent group).

# Thyroid cancer trends by US Census Region, US, 1999-2007

## Male



## Female



Data from NPCR/SEER covering 89.4% of US population

\*APC statistically significant (p<0.05).

## **SUMMARY OF RESULTS**

- ❑ **Rates of thyroid cancer higher:**
  - Females
  - White,API
  - Northeast
  - Younger age distribution for women, older for men
- ❑ **Increases among virtually all groups**

# **CONCLUSION**



# Conclusions

- ❑ **Analysis expands previous findings, with greater precision**
- ❑ **Thyroid cancer continuing to increase among nearly all groups**
  - Increased diagnosis unlikely to be sole reason for increases
  - Survivors require lifelong thyroid replacement therapy, also at increased risk of other cancers
- ❑ **Etiologic research needed**

# Acknowledgements

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