Evolving Trends in Thyroid Cancer Management and Demographics: A SEER-Based Analysis

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INTRODUCTION

- Thyroid cancer management has evolved alongside changes in diagnostic practices, staging, and treatment guidelines.
- National trends in stage, demographics, and treatment remain incompletely characterized.
- **Objective:** Evaluate U.S. thyroid cancer trends from **2000–2022**.

METHODS

- Retrospective population-based **SEER analysis**
- Malignant thyroid cancers diagnosed **2000–2022**
- Evaluated demographics, stage at presentation, and treatment modality (radiation included radioactive iodine therapy)
- Temporal trends assessed using **Joinpoint regression** with annual percent change (APC) and 95% CI

RESULTS

- **385,934 patients** were included; **74.9% were female** and **64.9% resided in metropolitan counties**.
- Patients aged **60–69 years increased over time** (**APC +2.24%; p<0.001**).
- **Non-Hispanic White representation decreased** (**APC −1.16%**), while **Hispanic (+2.39%)** and **Asian/Pacific Islander (+2.24%)** representation increased (**all p<0.001**).
- **Localized disease decreased** (**APC −0.37%**), while **regional nodal disease increased** (**APC +3.85%; p<0.001**).

KEY FINDINGS

- ↑ **Regional nodal disease:** APC +3.85%
- ↑ **Surgery alone:** APC +0.96%
- ↓ **Surgery + radiation:** APC −4.04% after 2013
- **Changing demographics:** ↑ Hispanic and Asian/Pacific Islander representation

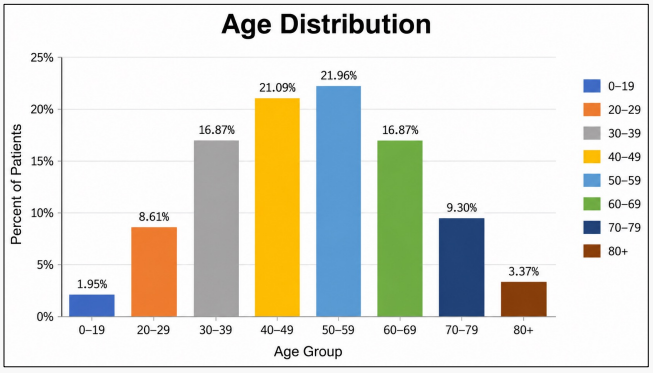

Figure 1. Distribution of Age

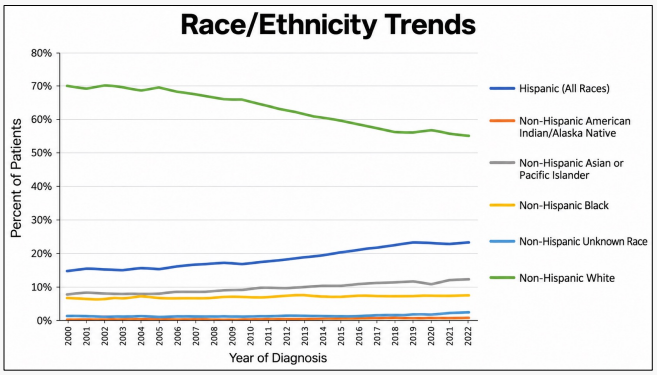

Figure 2. Trends in Race/Ethnicity

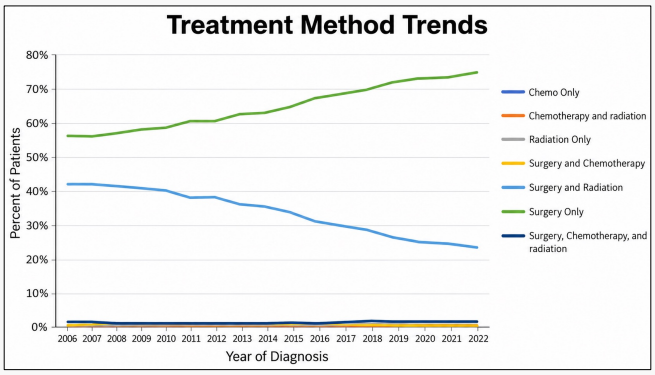

Figure 3. Trends in Treatment Methods

DISCUSSION

- Increasing use of **surgery alone** and decreasing use of **surgery plus radiation** are consistent with a shift toward more **risk-adapted, treatment-de-escalated thyroid cancer management**.
- Declining radiation use may reflect reduced use in low-risk disease and growing emphasis on avoiding overtreatment
- The increase in **regional nodal disease** alongside declining localized disease may reflect changes in **diagnostic practices, surveillance, and staging** over time.
- Observed demographic shifts likely parallel changes in the U.S. population but warrant continued evaluation for potential **disparities in thyroid cancer diagnosis and treatment**.
- Interpretation of longitudinal trends should account for **changes in staging systems and treatment guidelines** during the 2000–2022 study period.
- Limitations include the **retrospective registry design** and lack of data regarding **recurrence and subsequent metastasis**.

CONCLUSION

National thyroid cancer management changed substantially from 2000–2022, with increasing use of surgery alone and decreasing use of combined surgery and radiation. Concurrent changes in patient demographics and stage at diagnosis highlight the evolving population and clinical context of thyroid cancer care.

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