



Surgical Treatment of Thyroid Cancer: Updates to the ATA Guidelines

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Disclosures

- None



ATA DTC Consensus Guidelines

“Traditional Paradigm”

One Size Fits All

- Total thyroidectomy
- RAI remnant ablation
- TSH Suppression
- Unified follow up plan

“Risk Adapted Paradigm”

Individualized risk assessment

- Preoperative imaging
- Tailored operation
- Selective RAI use
- Risk-based TSH suppression and follow-up

What Risks?

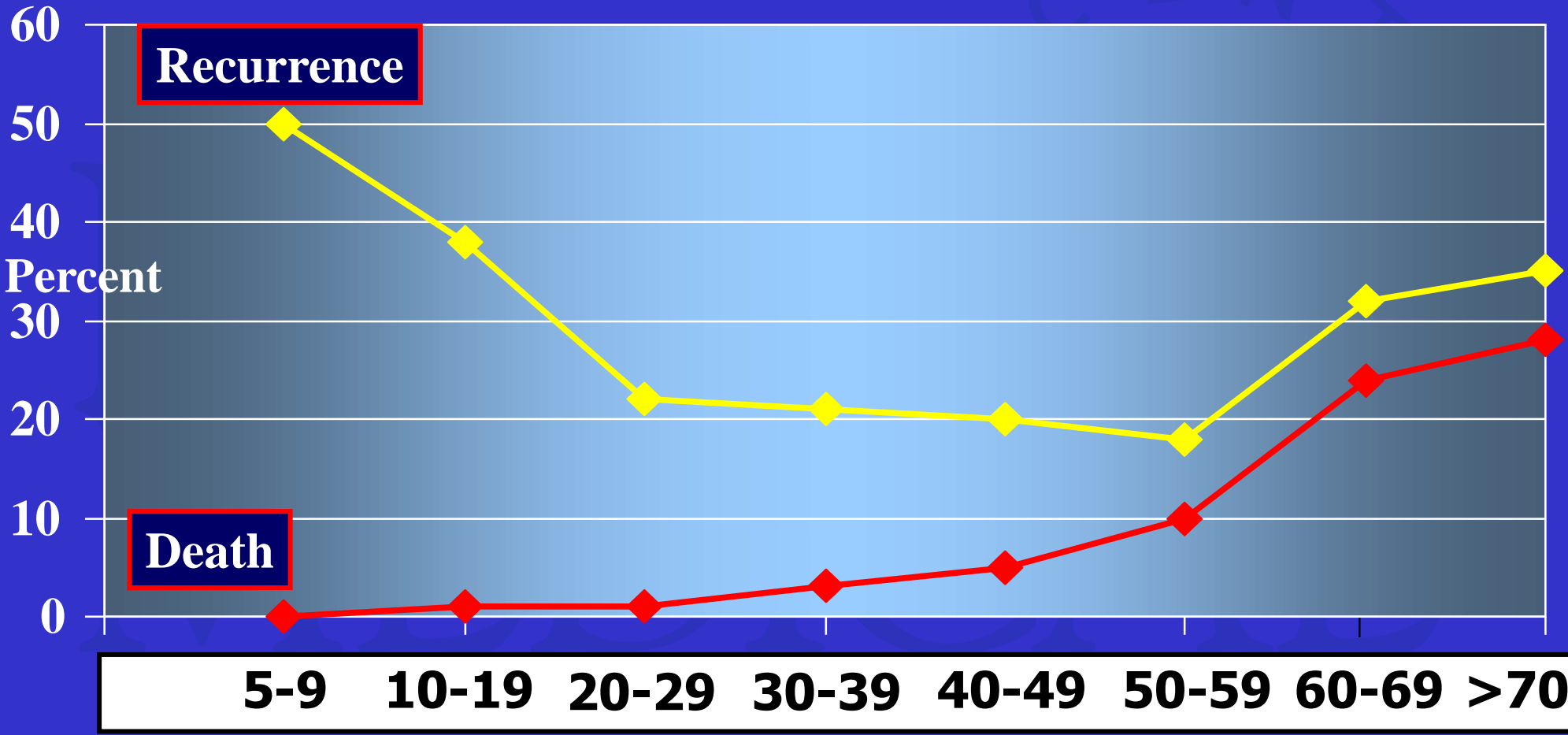
Death

Recurrence

Persistence

Failing initial therapy

Risk-adapted Management



Age (yrs) at time of initial therapy

Risk-adapted Management

ATA Update - Estimating Risk of Recurrence

Low Risk

- Classic PTC
- No local or distant mets
- N0 or <5 node micromets
- Complete resection
- No tumor invasion
- No vascular invasion
- If given, no RAI uptake outside thyroid bed

Intermediate Risk

- Microscopic ETE
- Gross node mets or >5 micromets
- Aggressive Histology
- Vascular invasion

High Risk

- Macroscopic gross ETE
- Incomplete tumor resection
- Node met > 3 cm
- Distant Mets
- Inappropriate Tg elevation

Risk of Structural Disease Recurrence

(In patients without structurally identifiable disease after initial therapy)

High Risk

*Gross extrathyroidal extension,
incomplete tumor resection, distant metastases,
or lymph node >3 cm*

Intermediate Risk

*Aggressive histology, minor extrathyroidal
extension, vascular invasion,
or > 5 involved lymph nodes (0.2-3 cm)*

Low Risk

*Intrathyroidal DTC
≤ 5 LN micrometastases (< 0.2 cm)*

FTC, extensive vascular invasion (≈ 30-55%)

pT4a gross ETE (≈ 30-40%)

pN1 with extranodal extension, >3 LN involved (≈ 40%)

PTC, > 1 cm, TERT mutated ± BRAF mutated* (>40%)

pN1, any LN > 3 cm (≈ 30%)

PTC, extrathyroidal, BRAF mutated* (≈ 10-40%)

PTC, vascular invasion (≈ 15-30%)

Clinical N1 (≈20%)

pN1, > 5 LN involved (≈20%)

Intrathyroidal PTC, < 4 cm, BRAF mutated* (≈10%)

pT3 minor ETE (≈ 3-8%)

pN1, all LN < 0.2 cm (≈5%)

pN1, ≤ 5 LN involved (≈5%)

Intrathyroidal PTC, 2-4 cm (≈ 5%)

Multifocal PMC (≈ 4-6%)

pN1 with extranodal extension, ≤ 3 LN involved (2%)

Minimally invasive FTC (≈ 2-3%)

Intrathyroidal, < 4 cm, BRAF wild type* (≈ 1-2%)

Intrathyroidal unifocal PMC, BRAF mutated*, (≈ 1-2%)

Intrathyroidal, encapsulated, FV-PTC (≈ 1-2%)

Unifocal PMC (≈ 1-2%)



Updates

- “Dose” of surgery for thyroid cancer
- Utility of Central Neck Dissection
- Interaction of operative plan with adjuvant strategy

Initial Surgery

- A) For patients with thyroid cancer >4 cm, or with gross extrathyroidal extension (clinical T4), or clinically apparent metastatic disease to nodes (clinical N1) or distant sites (clinical M1), the initial surgical procedure should include a near-total or total thyroidectomy and gross removal of all primary tumor unless there are contraindications to this procedure. (Strong Recommendation, Moderate-quality evidence)
- B) For patients with thyroid cancer >1 cm and <4 cm without extrathyroidal extension, and without clinical evidence of any lymph node metastases (cN0), the initial surgical procedure can be either a bilateral procedure (near-total or total thyroidectomy) or a unilateral procedure (lobectomy). Thyroid lobectomy alone may be sufficient initial treatment for low risk papillary and follicular carcinomas; however, the treatment team may choose total thyroidectomy to enable RAI therapy or to enhance follow-up based upon disease features and/or patient preferences. (Strong Recommendation, Moderate-quality evidence)
- C) If surgery is chosen for patients with thyroid cancer <1 cm without extrathyroidal extension and cN0, the initial surgical procedure should be a thyroid lobectomy unless there are clear indications to remove the contralateral lobe. Thyroid lobectomy alone is sufficient treatment for small, unifocal, intrathyroidal carcinomas in the absence of prior head and neck irradiation, familial thyroid carcinoma, or clinically detectable cervical nodal metastases.

Initial Surgery

C) If surgery is chosen for patients with thyroid cancer <1 cm without extrathyroidal extension and cN0, the initial surgical procedure should be a thyroid lobectomy unless there are clear indications to remove the contralateral lobe.

- A) For patients with thyroid cancer (T1-T4), without extrathyroidal extension and cN0, the initial surgical procedure should be a thyroid lobectomy unless there are clear indications to remove the contralateral lobe. This recommendation is based on high quality evidence.
- B) For patients with thyroid cancer (T1-T4), without extrathyroidal extension and cN0, the initial surgical procedure should be a thyroid lobectomy unless there are clear indications to remove the contralateral lobe. This recommendation is based on high quality evidence.

- C) If surgery is chosen for patients with thyroid cancer <1 cm without extrathyroidal extension and cN0, the initial surgical procedure should be a thyroid lobectomy unless there are clear indications to remove the contralateral lobe. Thyroid lobectomy alone is sufficient treatment for small, unifocal, intrathyroidal carcinomas in the absence of prior head and neck irradiation, familial thyroid carcinoma, or clinically detectable cervical nodal metastases.

Initial Surgery

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- B) For patients with small, unifocal, intrathyroidal carcinomas in the absence of prior head and neck irradiation, familial thyroid carcinoma, or clinically detectable cervical nodal metastases, the initial surgical procedure may be a lobectomy.
- C) In the absence of clear indications to remove the contralateral lobe, thyroid lobectomy alone is sufficient treatment for small, unifocal, intrathyroidal carcinomas in the absence of prior head and neck irradiation, familial thyroid carcinoma, or clinically detectable cervical nodal metastases.

B) For patients with thyroid cancer >1 cm and <4 cm without extrathyroidal extension, and without clinical evidence of any lymph node metastases (cN0), the initial surgical procedure can be either a bilateral procedure (near-total or total thyroidectomy) or a unilateral procedure (lobectomy). Thyroid lobectomy alone may be sufficient initial treatment for low risk papillary and follicular carcinomas; however, the treatment team may choose total thyroidectomy to enable RAI therapy or to enhance follow-up based upon disease features and/or patient preferences.

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Factors affecting change

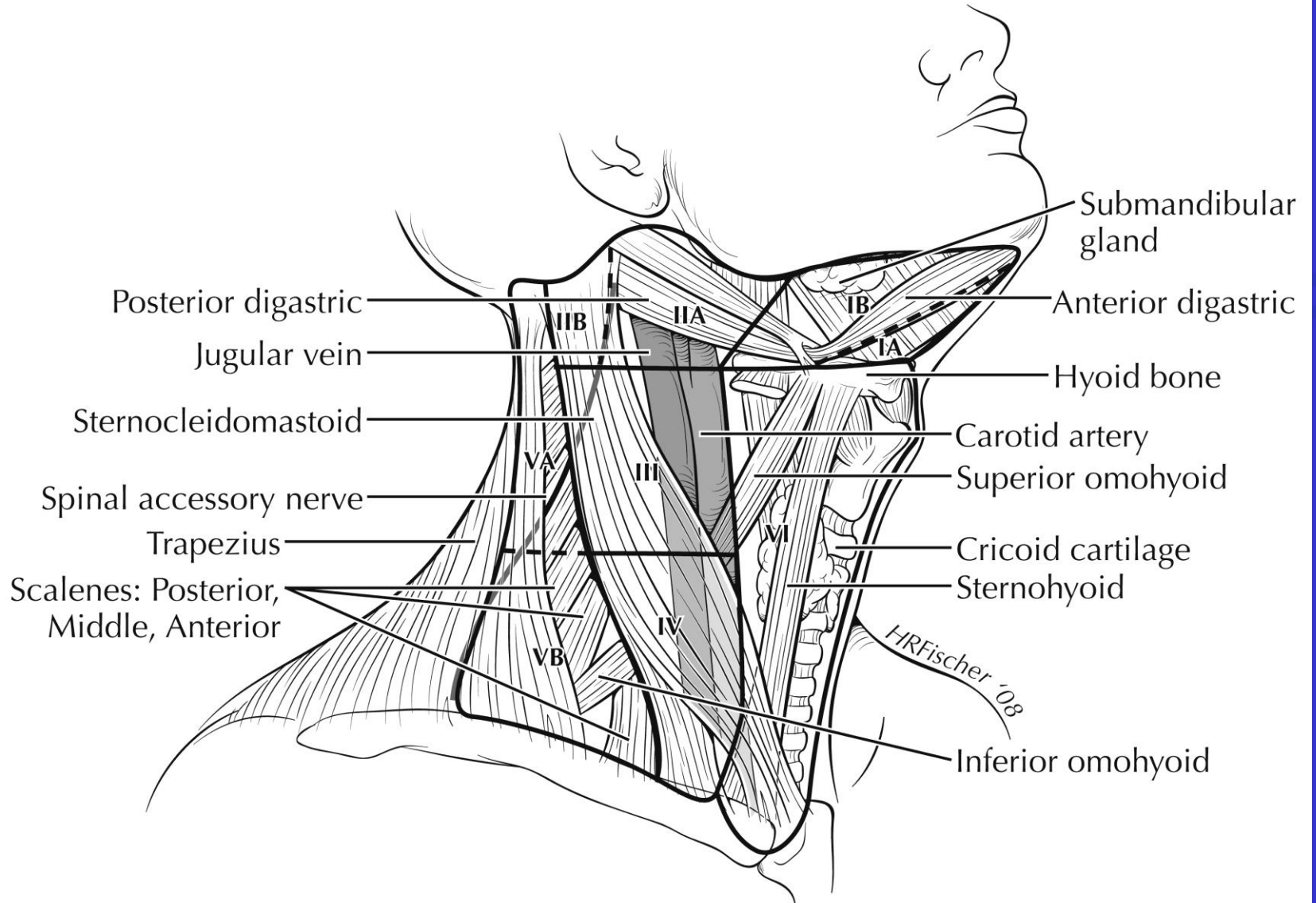
- Recent data on lobectomy
- Reevaluation of Bilimoria NCDB data
- Decreased routine RAI use
- Improved ultrasound exams both pre and post treatment
- Experience with thyroglobulin follow-up after lobectomy



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Central neck dissection



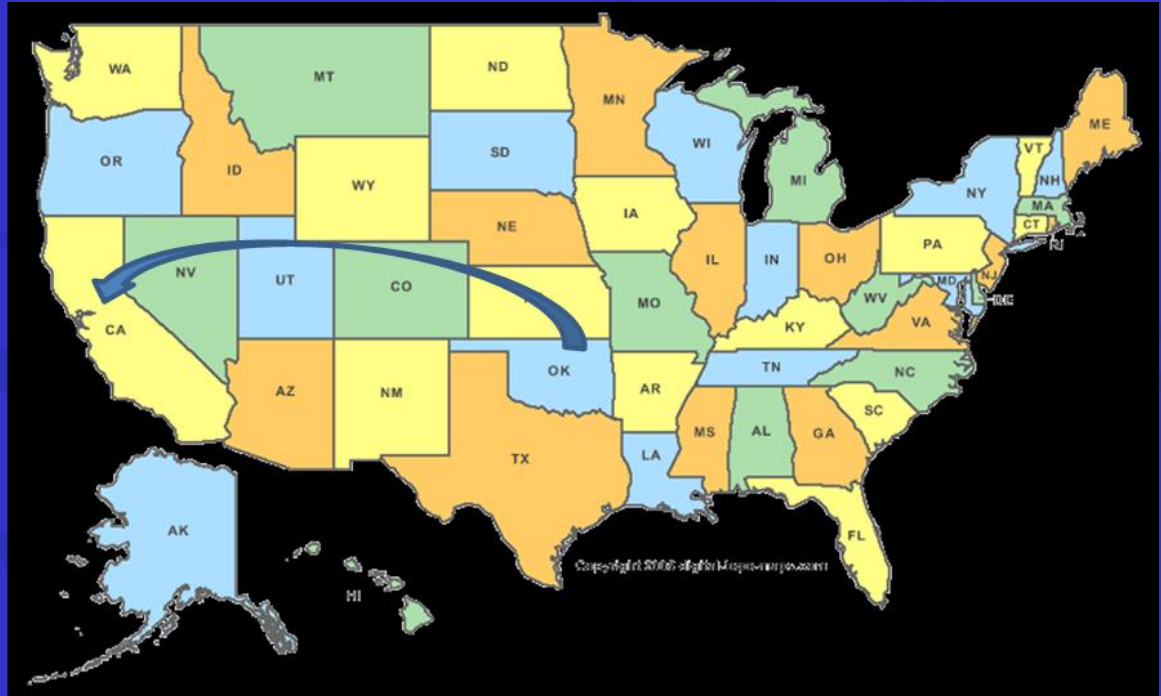
Key Points

- No controversy regarding the value of therapeutic central neck node dissection
- Prophylactic central neck node dissection may be useful in light of some patient characteristics (higher risk) or impact on treatment decisions

Proposed Guidelines ATA Rec 36

- A) Therapeutic central-compartment (level VI) neck dissection for patients with clinically involved central nodes should accompany total thyroidectomy to provide clearance of disease from the central neck.
- B) Prophylactic central-compartment neck dissection (ipsilateral or bilateral) should be considered in patients with papillary thyroid carcinoma with clinically uninvolved central neck lymph nodes (cN0) who have advanced primary tumors (T3 or T4), clinically involved lateral neck nodes (cN1b), or if the information will be used to plan further steps in therapy.
- C) Thyroidectomy without prophylactic central neck dissection may be appropriate for small (T1 or T2), noninvasive, clinically node-negative PTC (cN0) and for most follicular cancer.

Will Rogers Phenomenon



“When the Okies left Oklahoma and moved to California, they raised the average intelligence level in both states.”

Will Rogers

Feinstein AR NEJM 1985

Pathologic N1 Status Recurrence Risk Stratification

Characteristic	Median Recurrence Rate	Range of Recurrence Rate
Clinical N0	2%	0 - 9%
< 5 metastatic nodes	4%	3 - 8%
> 5 metastatic nodes	19%	7 - 21%
Clinical N1	22%	10 - 42%
Clinical N1 with extranodal extension	24%	15 - 32%

Current node paradigm

- Lymph node status is important in DTC
 - Reveals biology of disease
 - Size and number of nodes important
 - Prognosis
 - Recurrence
 - Survival
- Can we alter the course of disease with risk-based therapy?

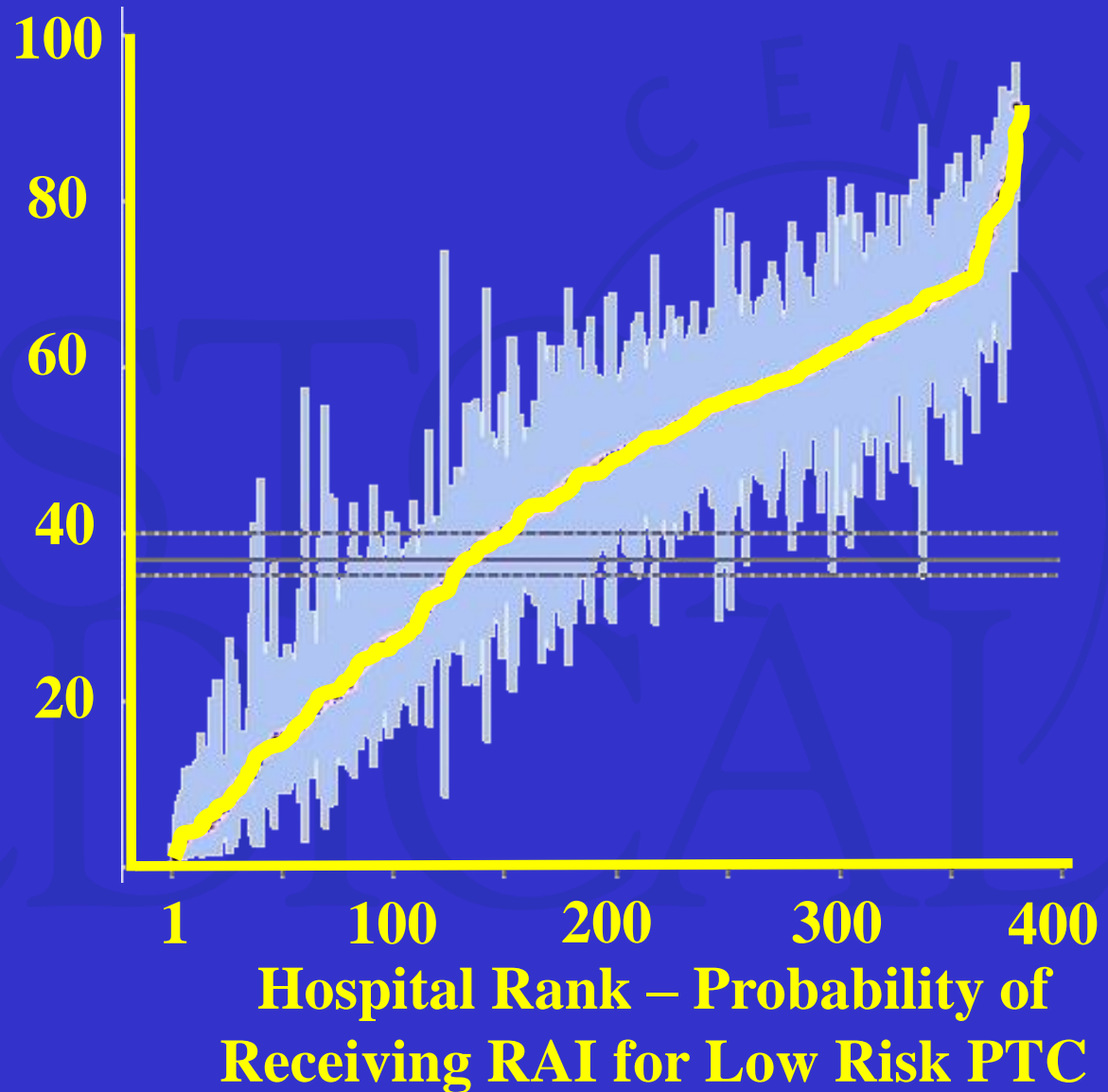


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Variation in Utilization of RAI for Thyroid Cancer

**Estimated
Probability (%)
of Receiving
RAI for
Low Risk PTC**





RAI Risk- Adapted Management

ATA recurrence risk		RAI Improves Disease-Specific Survival?	RAI Improves Disease-Free Survival?	Post-Surgical RAI Indicated?
ATA low risk <i>T1a</i> <i>N0,Nx</i> <i>M0,Mx</i>	Tumor size ≤1cm	No	No	No
ATA low risk <i>T1b,T2</i> <i>N0, Nx</i> <i>M0,Mx</i>	Tumor size 1 - 4 cm	No	Conflicting observational data	Not routine – consider with aggressive histology or vascular invasion (ATA intermediate risk)
ATA low to intermediate risk <i>T3</i> <i>N0,Nx</i> <i>M0,Mx</i>	Tumor size >4 cm	Conflicting data	Conflicting observational data	Consider
ATA low to intermediate risk <i>T3</i> <i>N0,Nx</i> <i>M0,Mx</i>	Microscopic ETE, any tumor size	No	Conflicting observational data	Consider
ATA low to intermediate risk <i>T1-3</i> <i>N1a</i> <i>M0,Mx</i>	Level 6 lymph node metastases	No, except possibly in subgroup of patients ≥ 45 years of age	Conflicting observational data	Consider
ATA low to intermediate risk <i>T1-3</i> <i>N1b</i> <i>M0,Mx</i>	Lateral neck or mediastinal lymph node metastases	No, except possibly in subgroup of patients ≥ 45 years of age	Conflicting observational data	Consider
ATA high risk <i>T4</i> <i>Any N</i> <i>Any M</i>	Gross extra-thyroidal extension	Yes	Yes	Yes
ATA high risk <i>M1</i> <i>Any T</i> <i>Any N</i>	Distant metastases	Yes	Yes	Yes



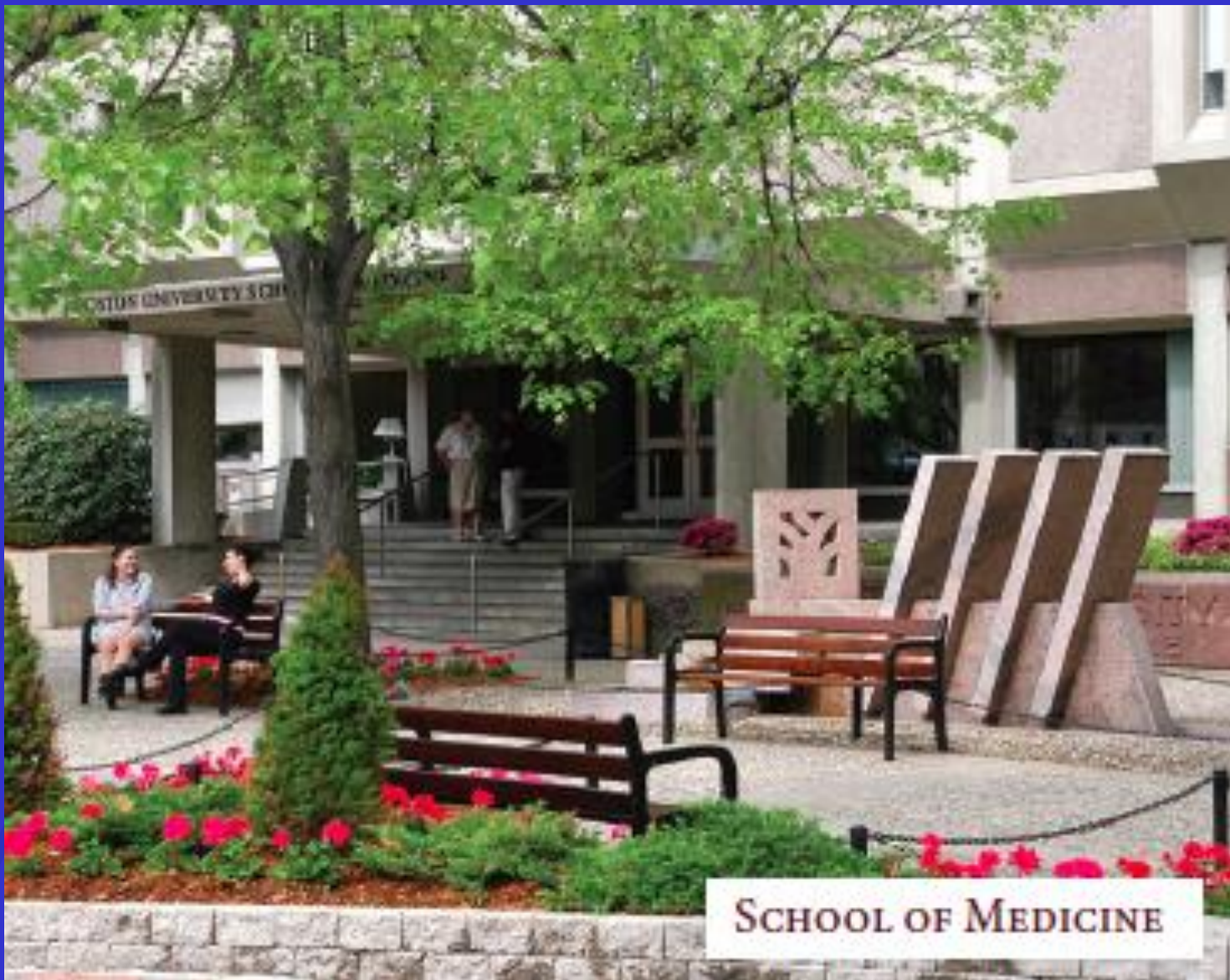
Key Points

- More risk-based judgment on extent of primary treatment
- Less routine radioiodine treatment
- Selective use of prophylactic central neck dissection unchanged

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