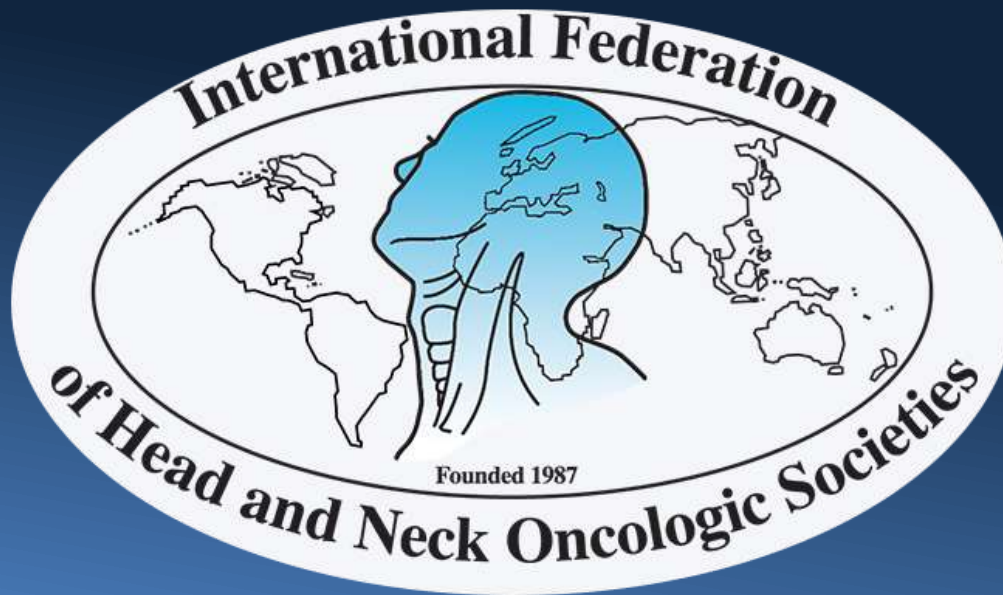




The International Federation of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017



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The International Federation
of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017

Risk Adapted Strategies in the Treatment of Thyroid Cancer

Jatin P. Shah

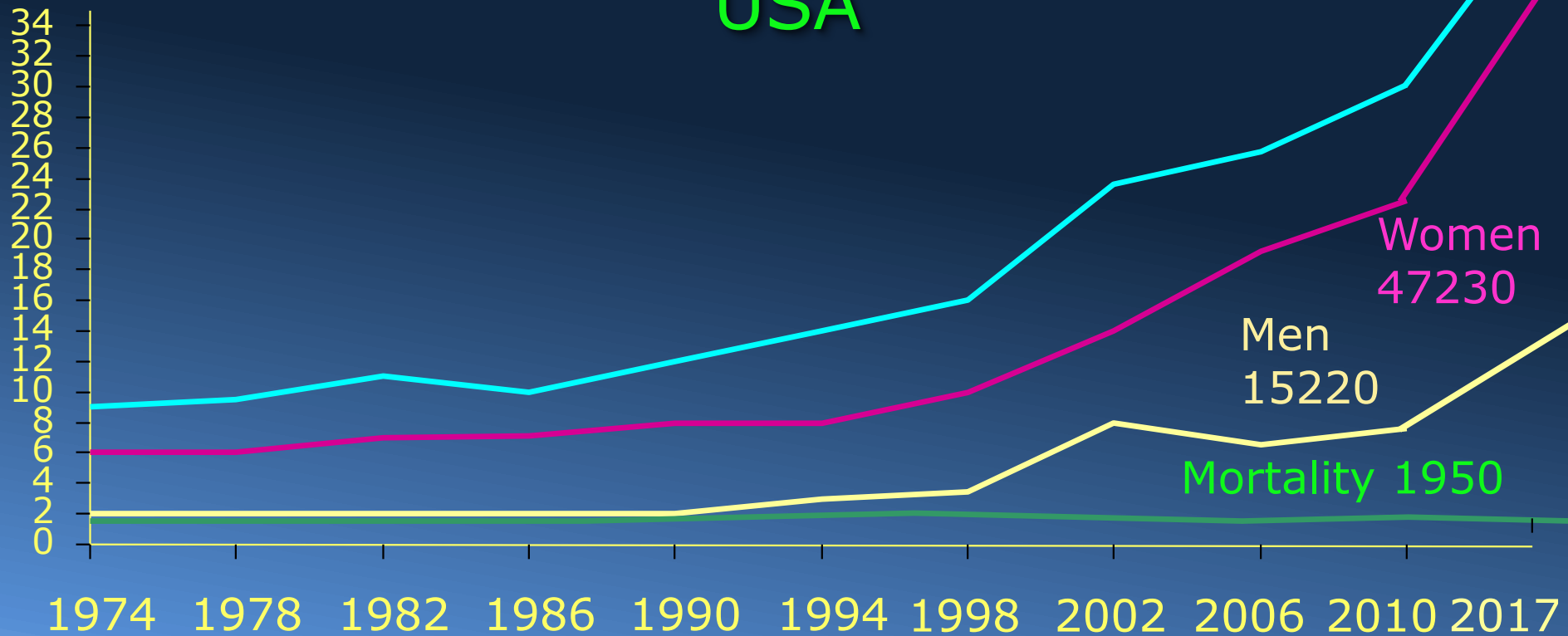
Thyroid Cancer

Incidence & Mortality

1974 to 2017

USA

Thousands
60



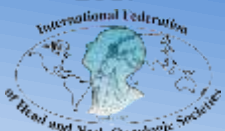
Overall
62450

Women
47230

Men
15220

Mortality 1950

2017



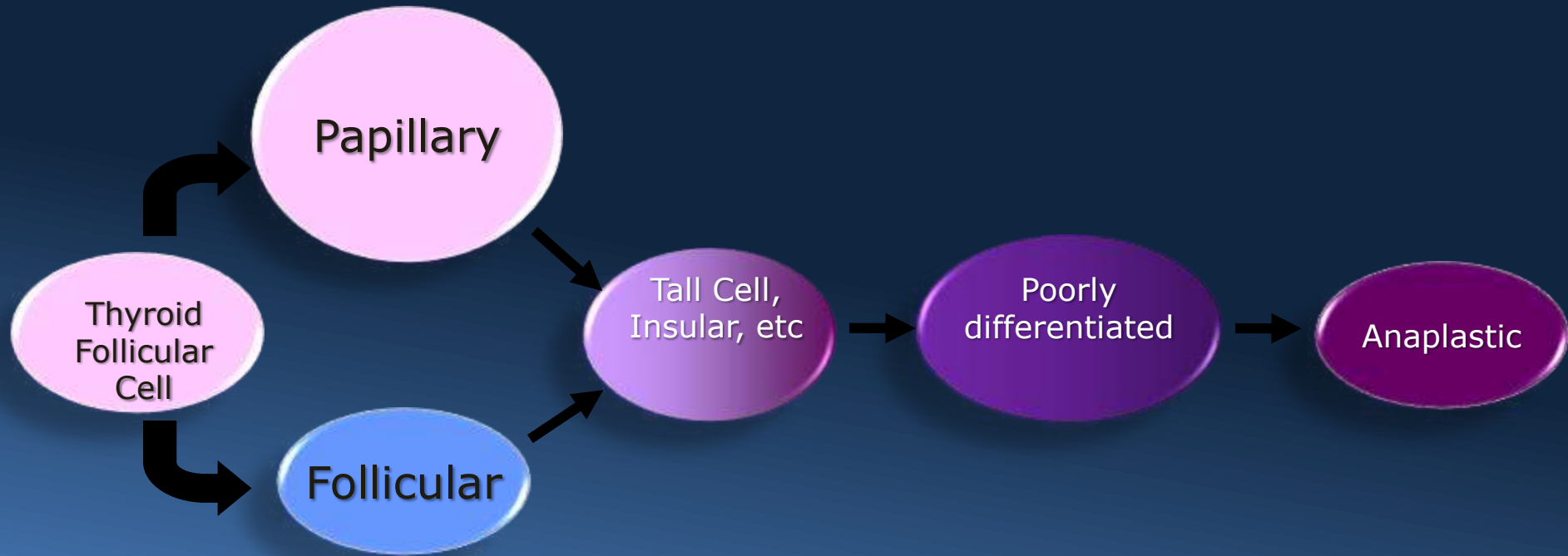
- Overall Incidence
- Incidence in Women
- Incidence in Men
- Mortality

Misconceptions about Thyroid Cancer

- All patients need subtotal or near total Thyroidectomy
- All patients need Post Operative
Radio Active Iodine ablation
- Post operative TSH should be brought down to '0'
- Follow up requires annual whole body radio active scans

Pathology - Biology

Cancer of the Thyroid



Prognosis → **Good**

Bad

Ugly

~85%

~14%

<1%

Prognosis in Thyroid Cancer

A very small proportion $\sim 10\%$ of Papillary carcinomas will undergo progression to more aggressive variants



Prognosis in Thyroid Cancer



Thyroid Cancer

- **Well Differentiated**
- **Nearly All Curable**

- **Poorly Differentiated**
- **Need Aggressive Rx**
- **Majority Curable**

- **Anaplastic**
- **Rarely Curable**

Differentiated Thyroid Cancer

Prognostic Factors

Mayo

AGES

Age
Grade

Extension

Size

Lahey

AMES

Age
Metastases

Extension

Size

Mayo

MACIS

Metastases
Age
Completeness
Of resection

Invasion

Size

Karolinska

DAMES

DNA
Age
Metastases

Extension

Size

MSKCC

GAMES

Grade
Age
Metastases

Extension

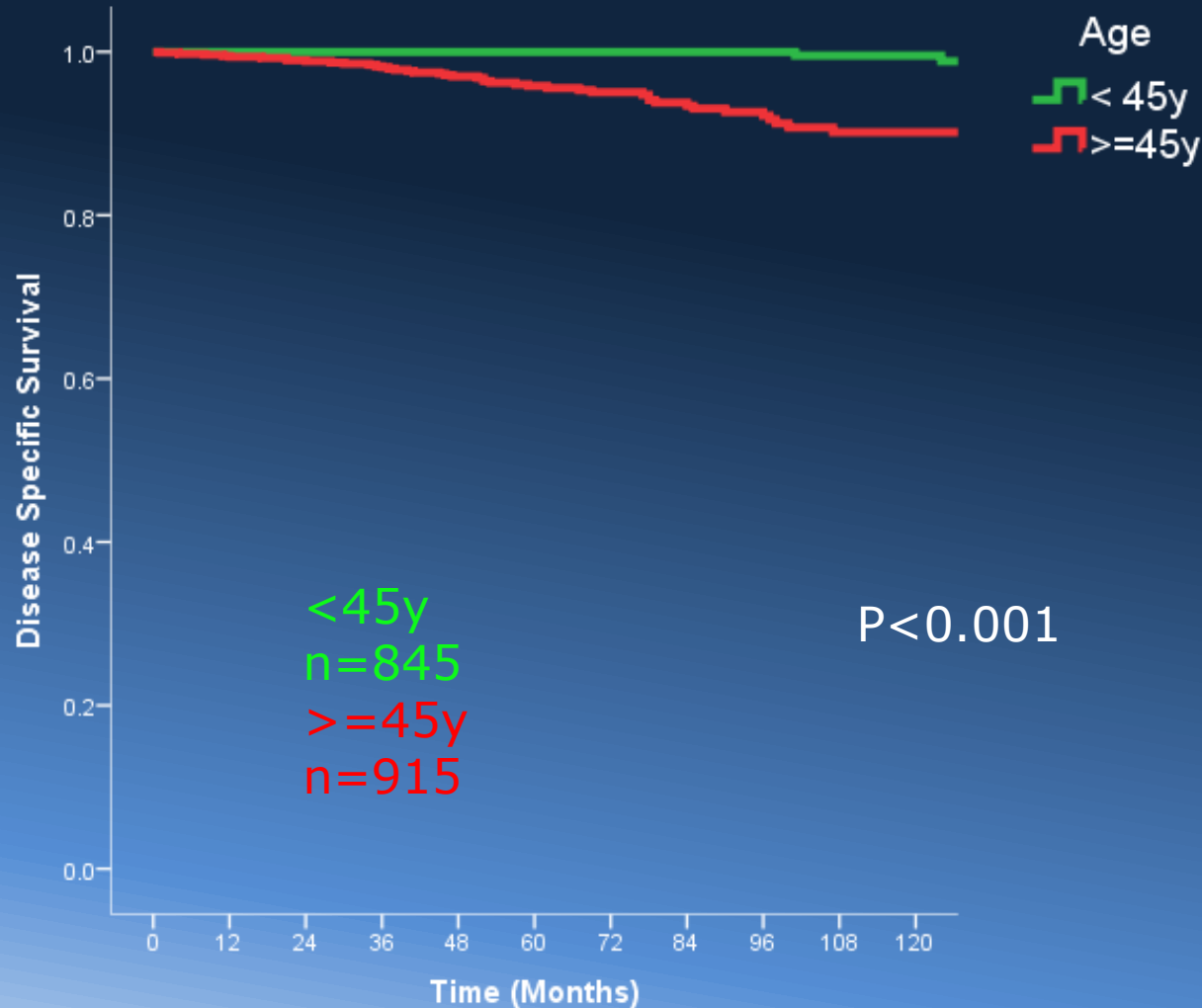
Size

Importance of Prognostic factors

- Allows Risk Group Stratification
- Permits selective surgical treatment
- Permits selective use of Radio active Iodine
- Permits appropriate follow up strategies
- Delivers cost effective evidence based treatment
- Allays anxiety on the part of the patient
- Delivers excellent outcomes

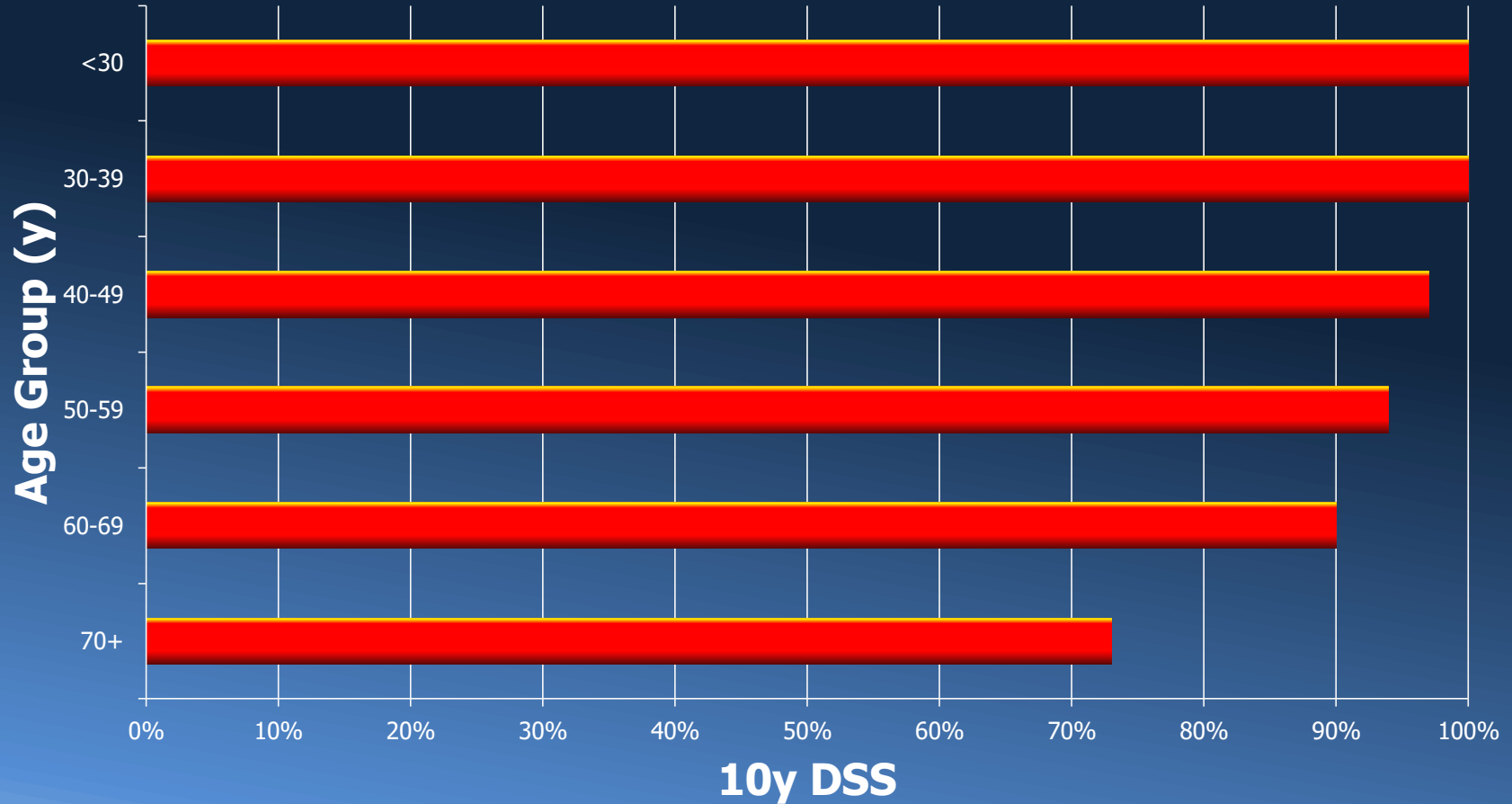
Differentiated Cancer of the Thyroid

Survival - Age



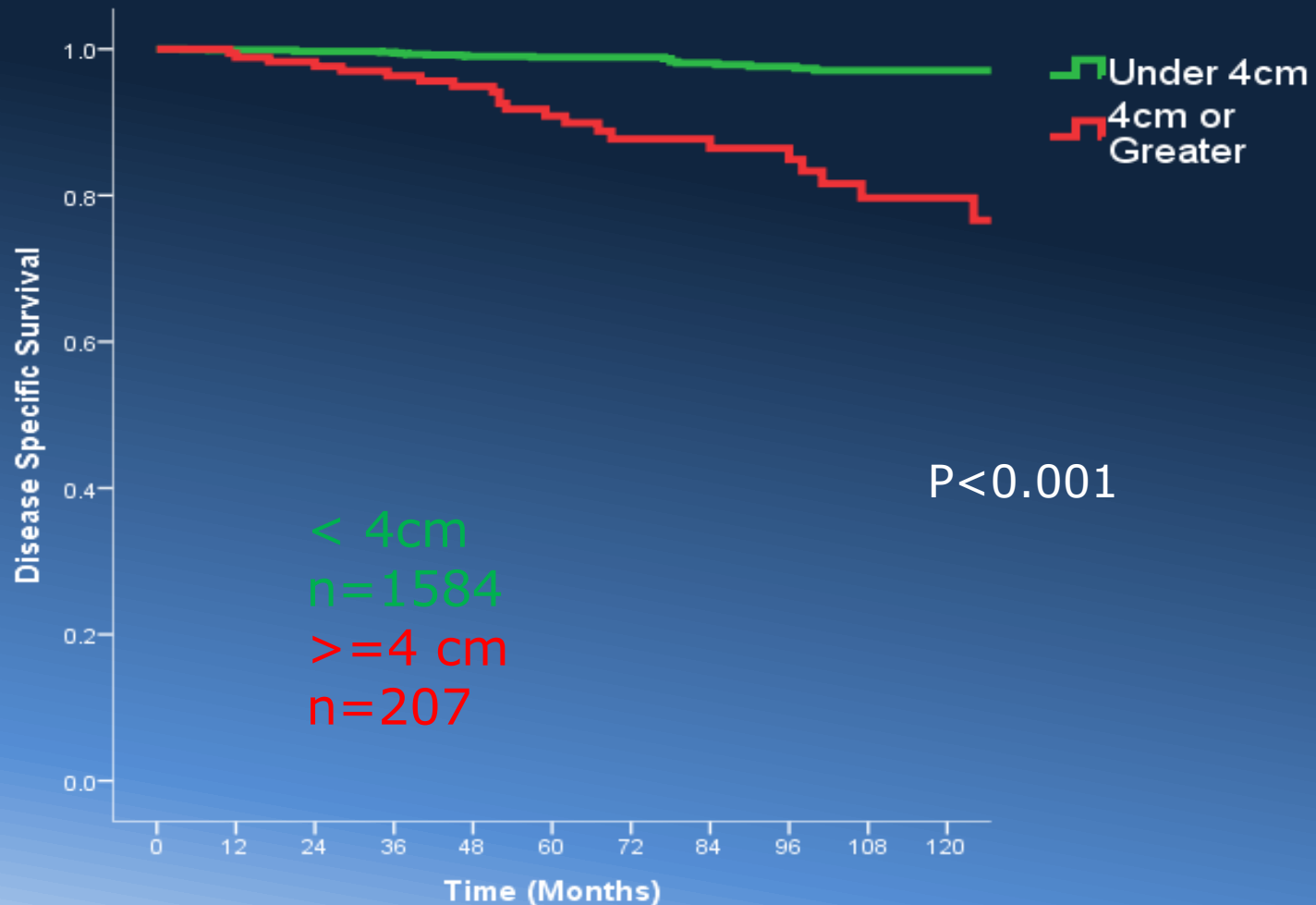
Differentiated Cancer of the Thyroid

Disease Specific Survival by Age



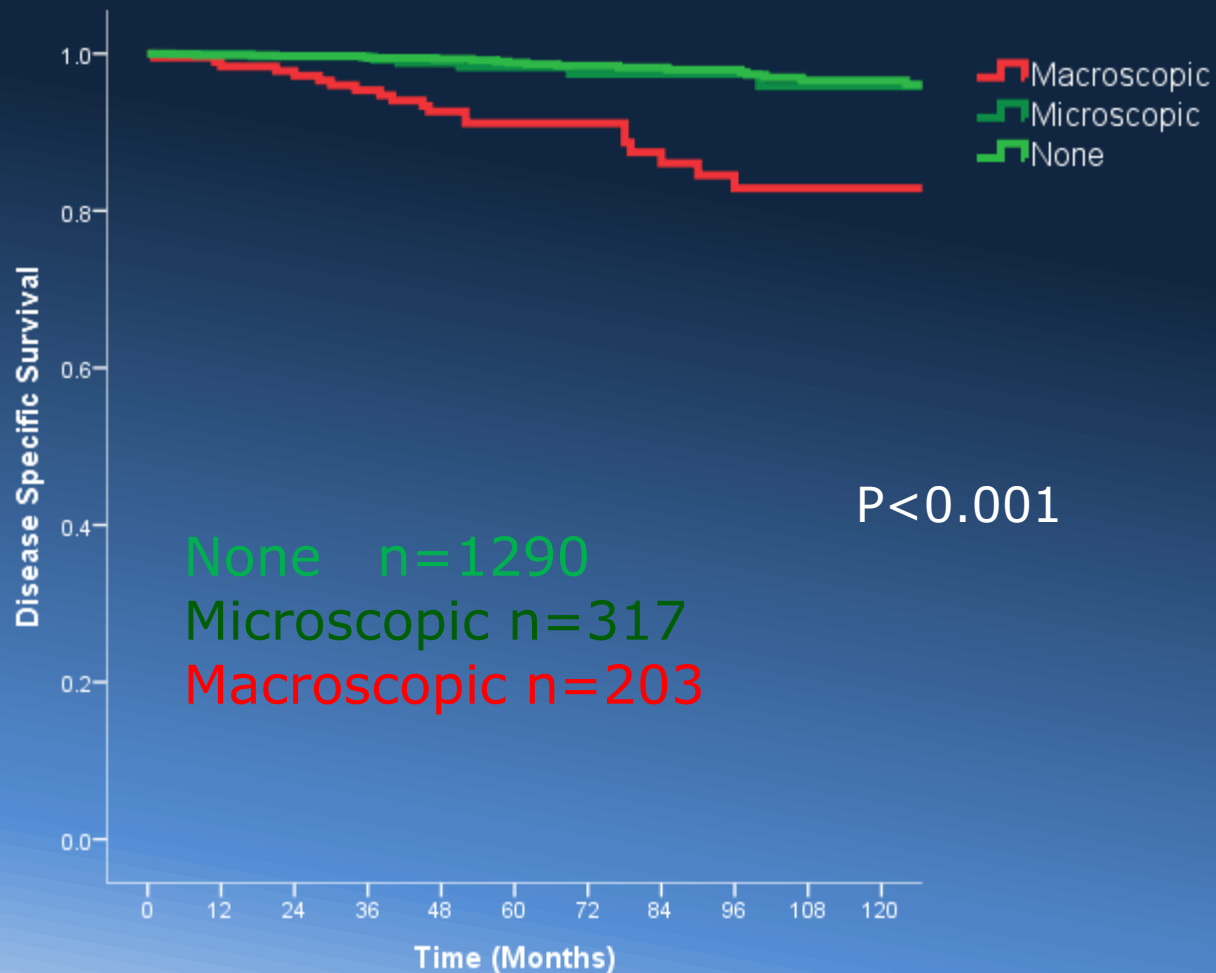
Differentiated Cancer of the Thyroid

Survival – Size – T Stage (T1,T2 vs T3,T4)



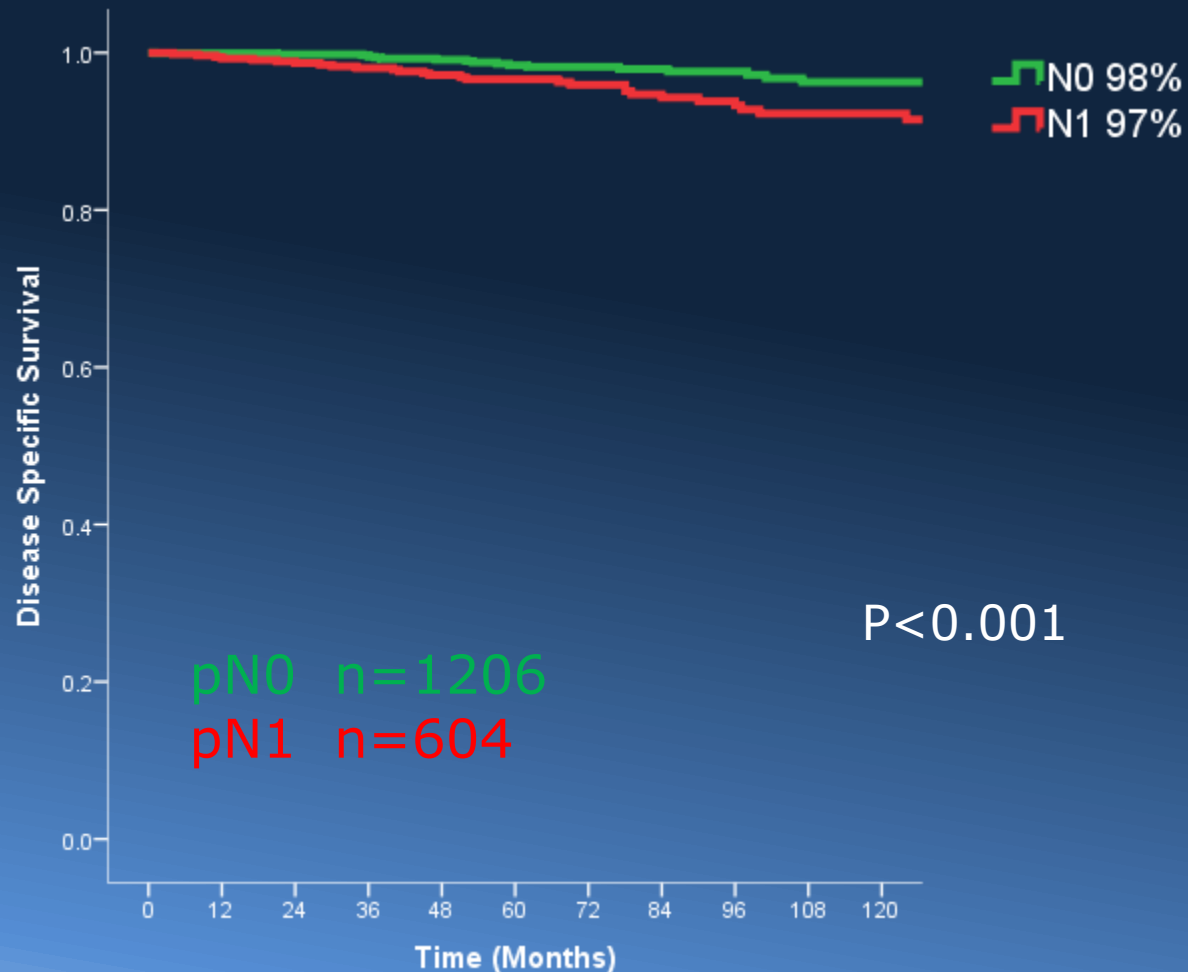
Differentiated Cancer of the Thyroid

Survival – Extra Thyroid Extension



Differentiated Cancer of the Thyroid

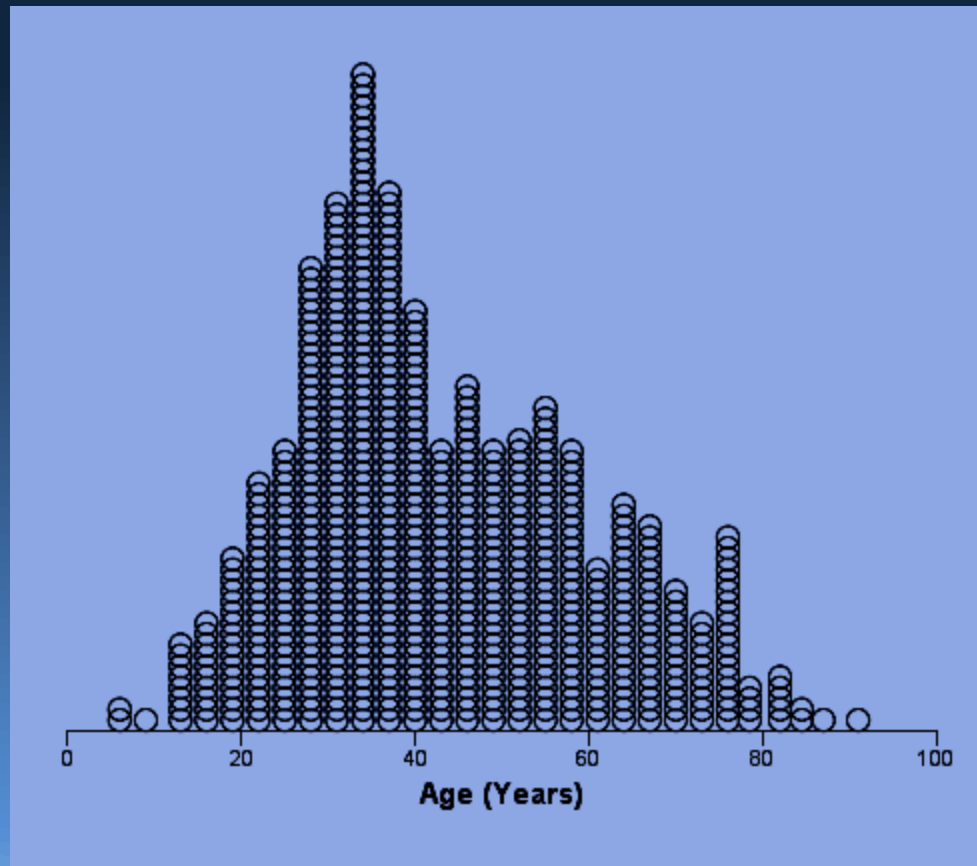
Survival – p N Stage



5 year outcomes shown

Differentiated Cancer of the Thyroid

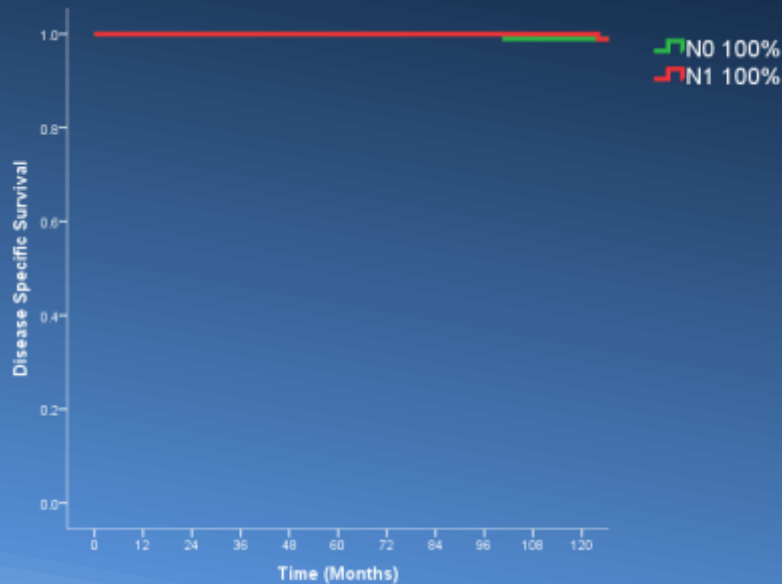
Age Distribution of N+ Patients



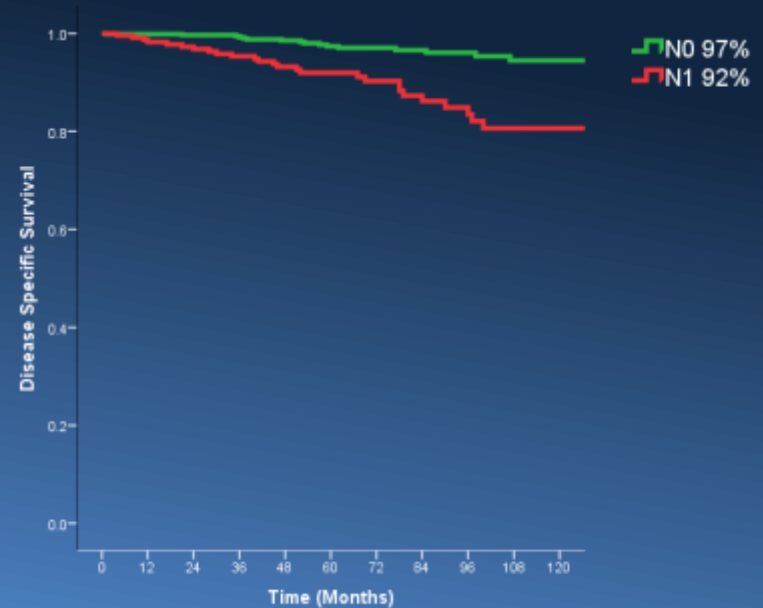
Differentiated Thyroid Cancer

Survival – N Status

Age < 45



Age > 45

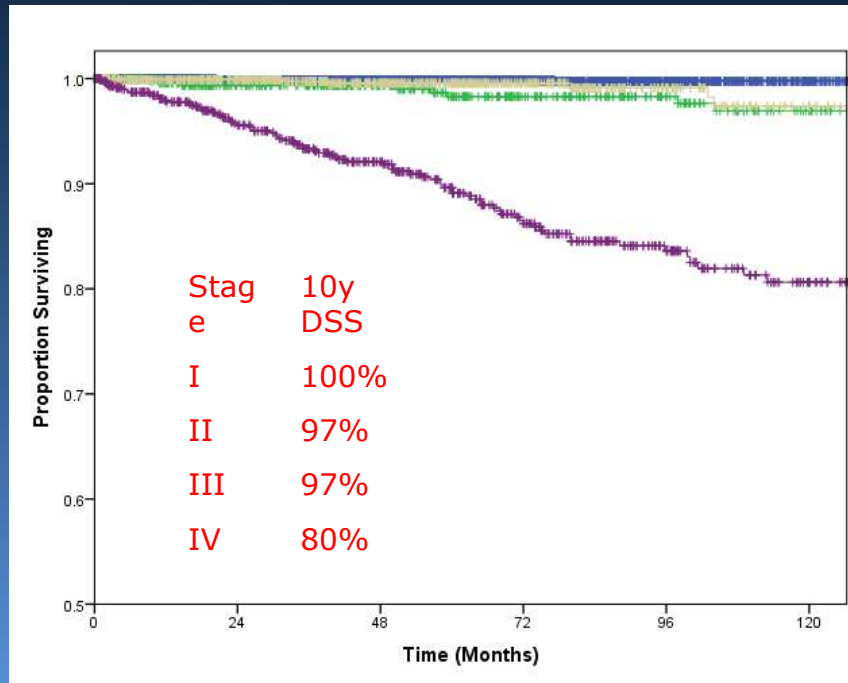


2017

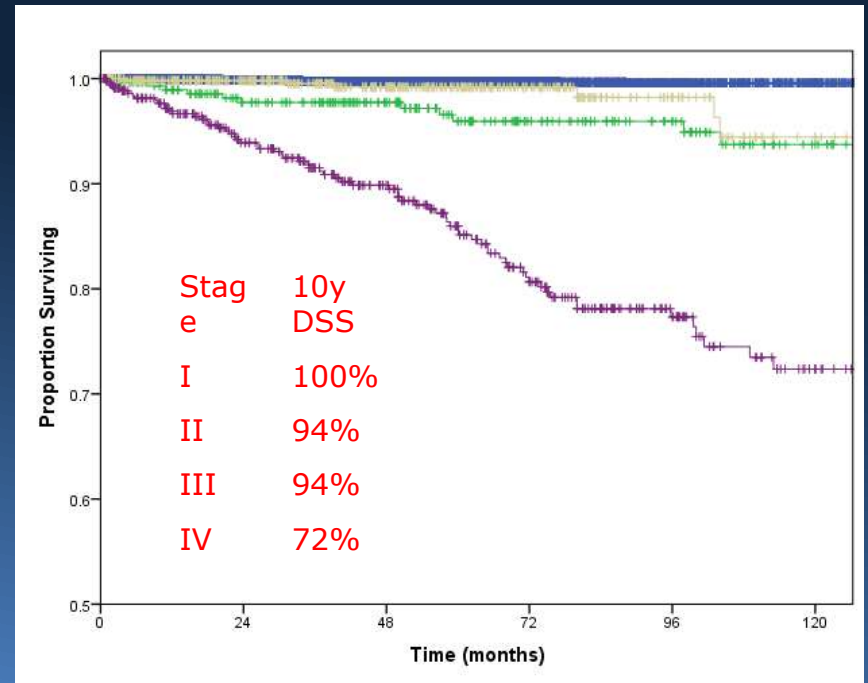


Disease Specific Survival

Age 45 years cut off

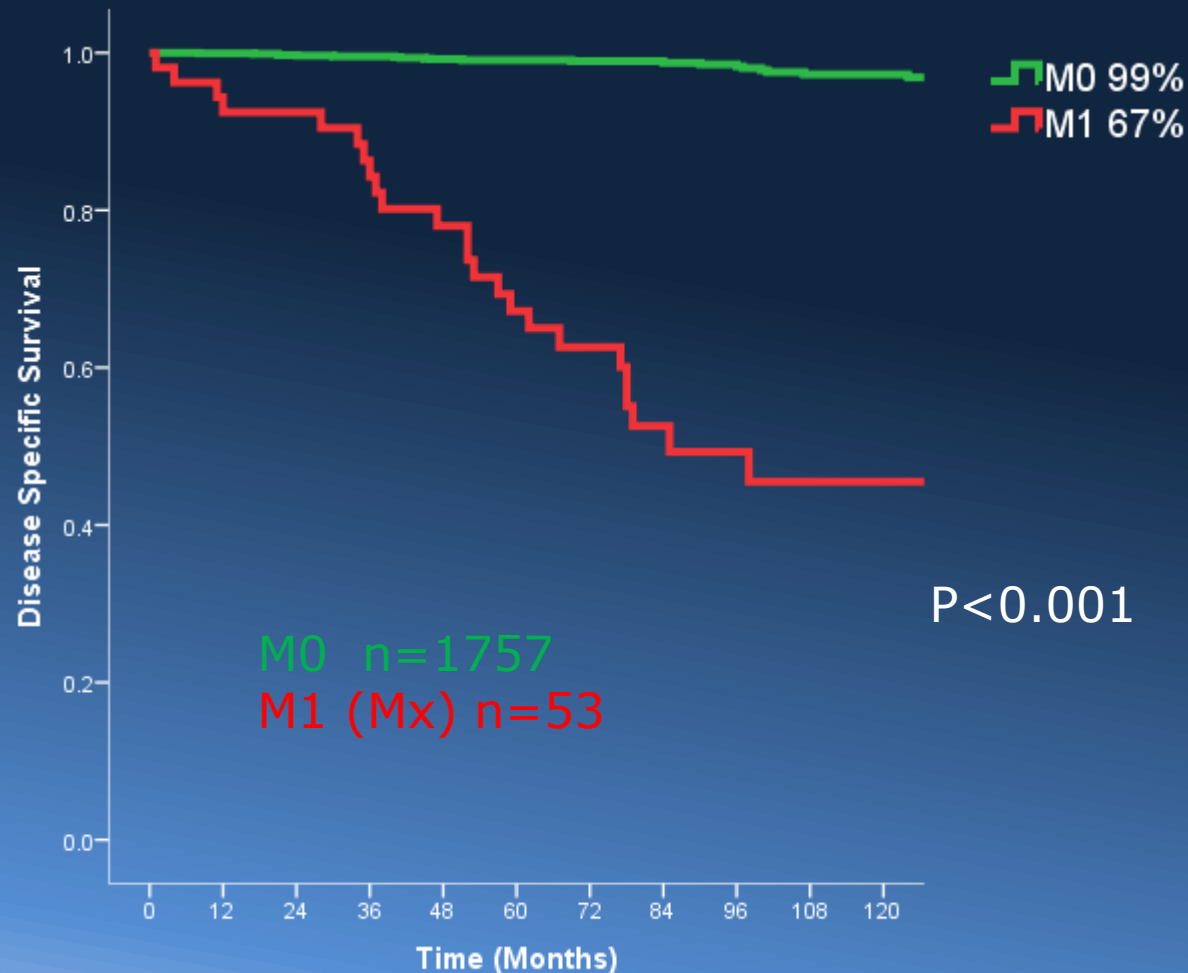


Age 55 years cut off



Differentiated Cancer of the Thyroid

Survival – M Stage



5 year outcomes shown

Differentiated Cancer of the Thyroid

Prognostic
Factors



Age

Risk Groups (GAMES)

Low

Intermediate

High

<45

>45

<45

>45

Gender

Size

Extent

Grade

Dist. Mets.

Female
< 4 cms.

Intraglandular

Low

Absent

Male
> 4 cms.

Extraglandular

High

Present



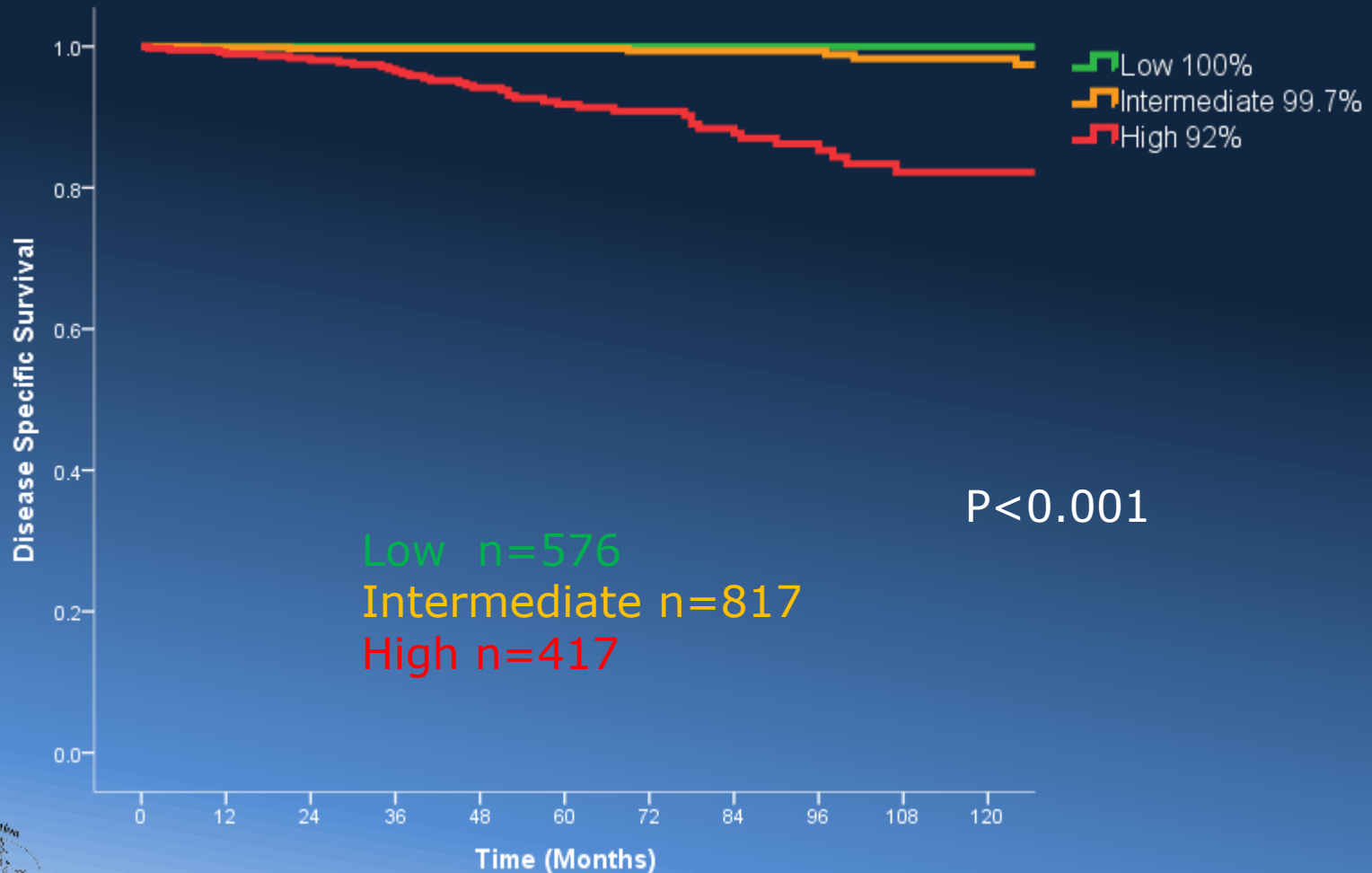
Risk Group Stratification

Based on Prognostic Factors

Risk Group Stratification is the most important clinical parameter for selection of the extent of initial surgery, the need for adjuvant therapy, the degree of rigorous follow up, and for the assessment of over all prognosis, for local , regional, or distant failure and Survival.

Differentiated Cancer of the Thyroid

Disease specific Survival – Risk Groups (GAMES)



5 year outcomes shown

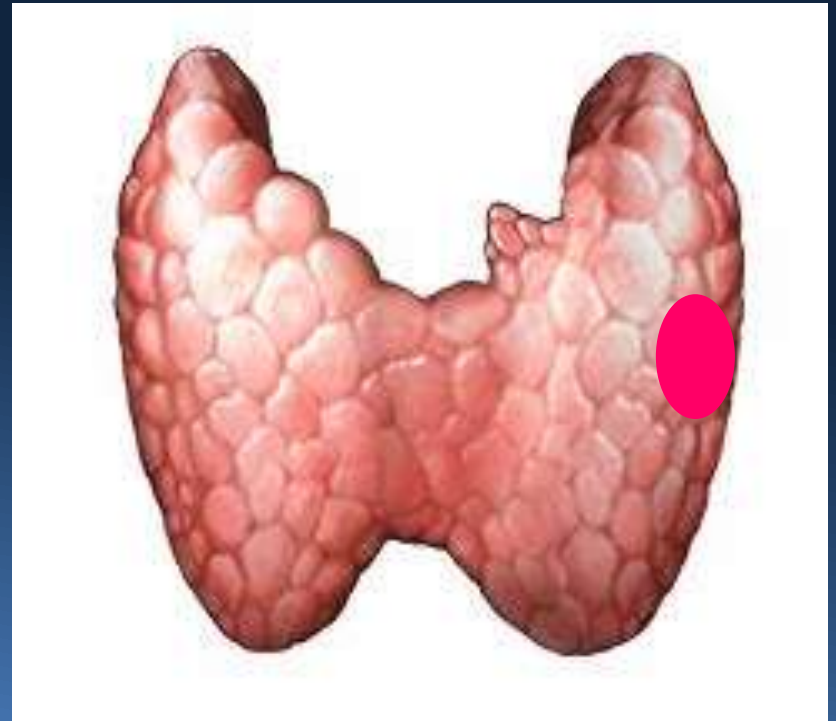
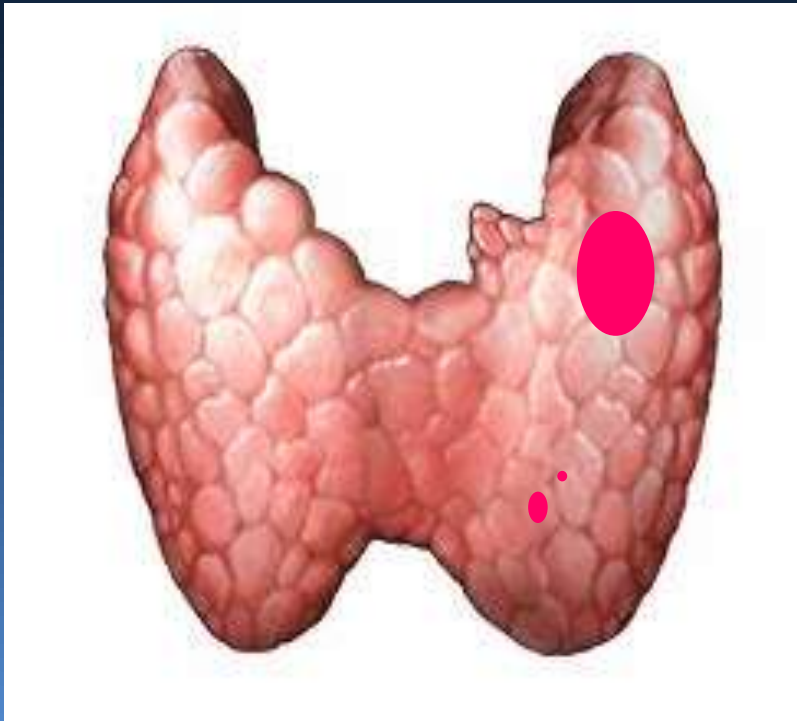
Extent of Thyroidectomy for Cancer

- All thyroid operations done for proven or suspected Cancer should be **“Extra capsular”**
- **“Subtotal Thyroidectomy”** and **“Near Total Thyroidectomy”** transgress thyroid tissue, and therefore are not Cancer operations, and should not be done
- There are only two Oncologic operations:
“Lobectomy” or **“Total Thyroidectomy”**

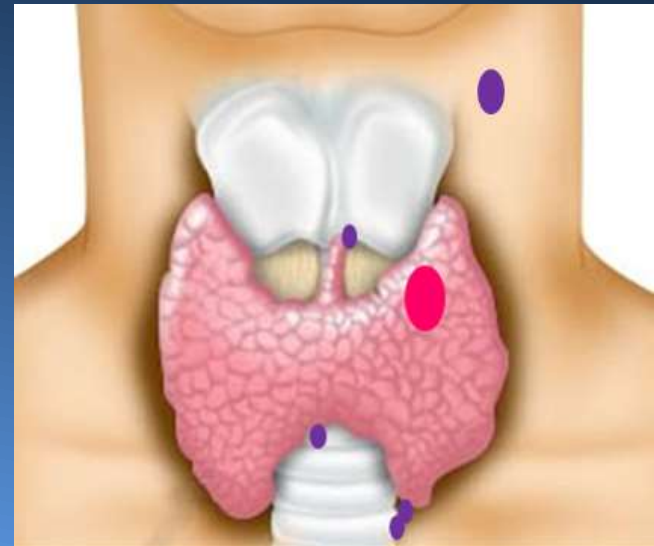
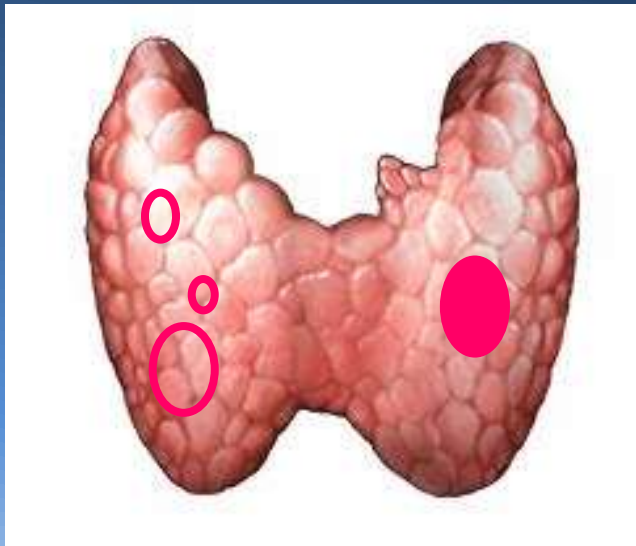
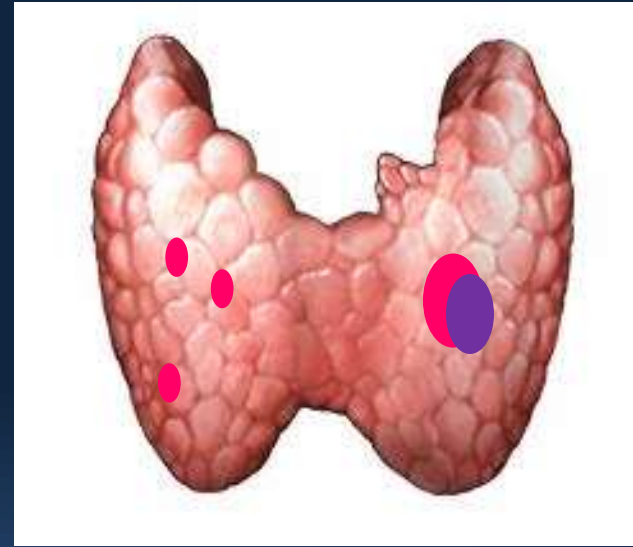
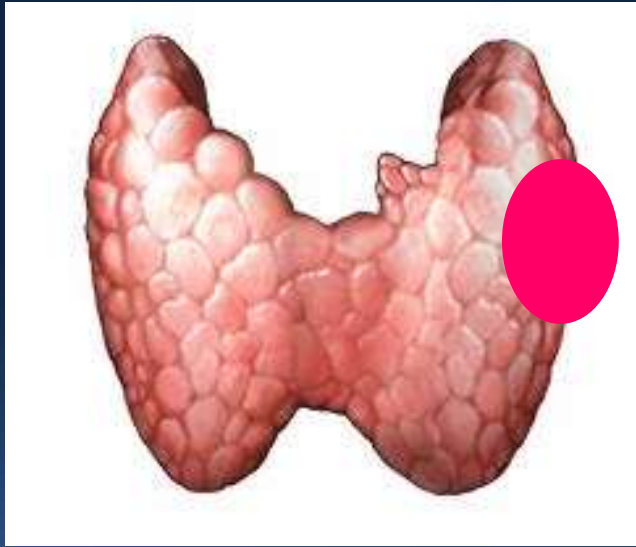
Extent of Thyroidectomy for Cancer

- “Extra capsular” operations leave no residual thyroid tissue behind, and thus avoid the need for RAI ablation
- Pay special attention to the upper pole, pyramidal lobe and the region of the cricothyroid membrane
- Following an “extracapsular total thyroidectomy”, TgB is not measurable at 6 weeks, and thus it allows biochemical follow up

Lobectomy

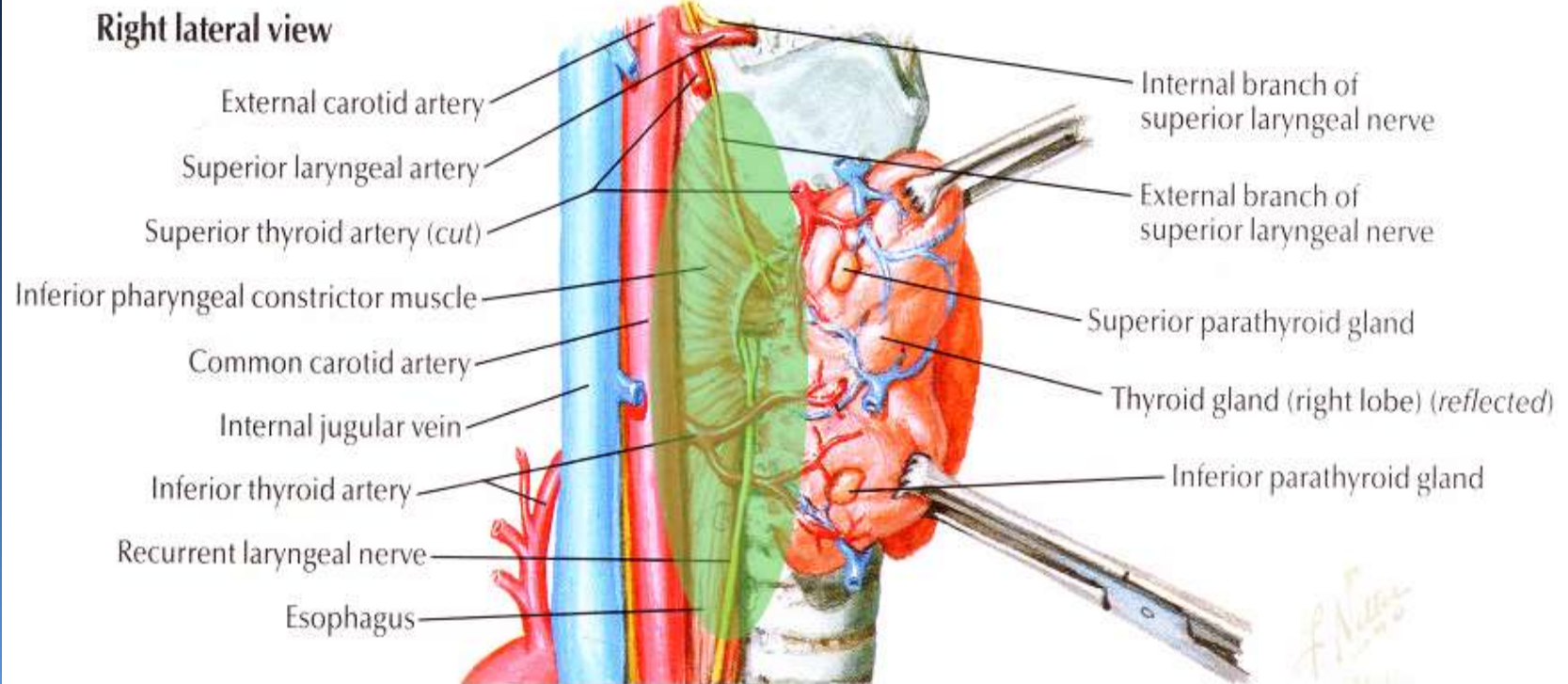


Total Thyroidectomy



Extra Thyroid Extension

Most important factor impacting on the extent of Surgery



Differentiated Cancer of the Thyroid

Extra Thyroid Extension

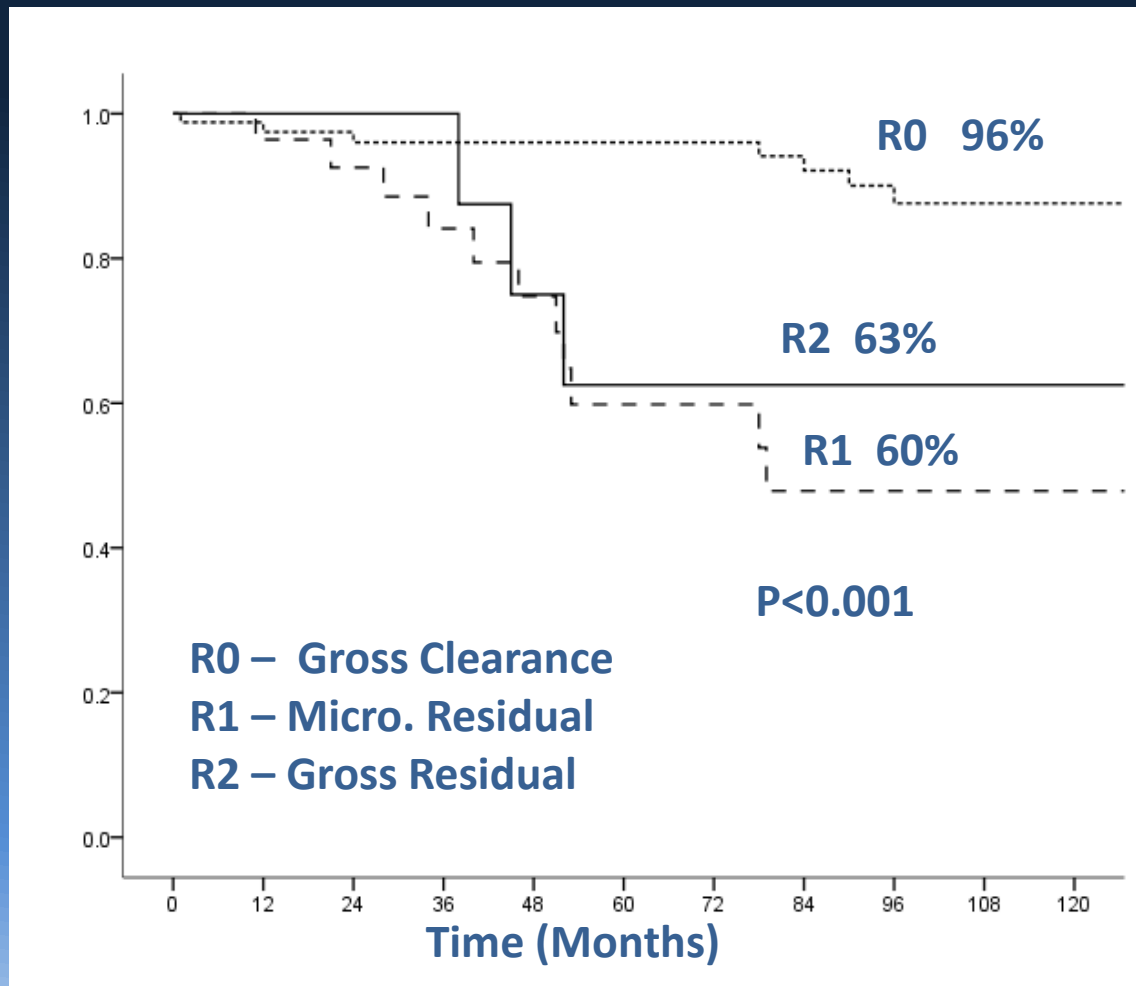
Microscopic: Not Staged (No impact)

Minor: • Strap muscles
T3 • Soft tissues

Major: • Trachea
T4A • Larynx
• Esophagus
• Recurrent laryngeal nerve

Extra Thyroid Extension – T4a

Disease specific Survival
by completeness of Resection (R Stage)



Extrathyroid Extension

Principles of Surgery

- All gross tumor should be removed
- Preserve functioning structures
- Preserve vital structures
- Balance between tumor control and best functional results
- Use adjuvant treatments - RAI, and/or RT

Cervical Lymph Nodes

- Micro metastases are common >50%
- Occult metastases have no impact on prognosis in low risk patients
- Elective node dissection is not recommended in low risk patients
- Therapeutic neck dissection is indicated for metastatic nodes identified clinically, on imaging studies or intra operatively
- “Berry picking” is not recommended
- Lymph node dissection should be compartmental and comprehensive

Patterns of Neck Metastases

For differentiated cancer of
the Thyroid gland



AJCC/UICC 2009 Staging

Nodal Staging for Thyroid Cancer

N_x – regional lymph nodes cannot be assessed

N_0 – No regional lymph node metastases

N_1 – Regional lymph node metastases

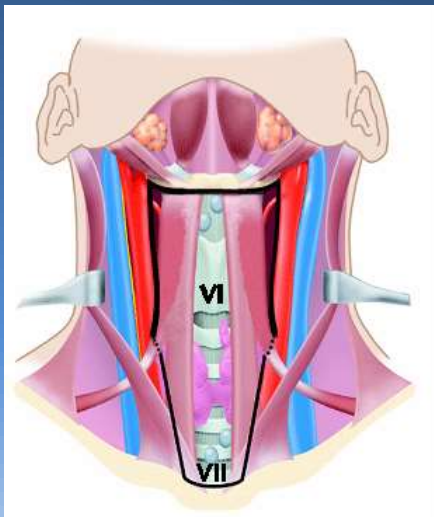
N_{1a}

Metastases to Level VI
pretracheal,
paratracheal,
prelaryngeal,
delphian

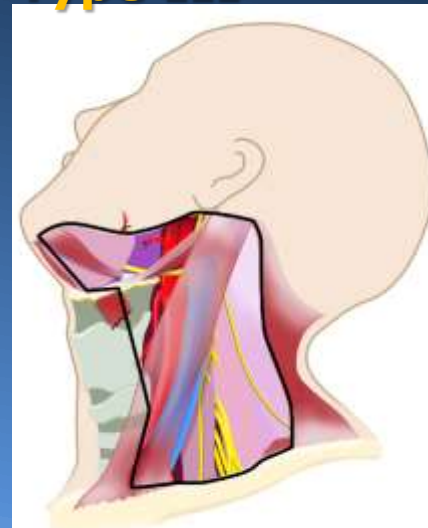
N_{1b}

Metastases to
unilateral, bilateral
or contralateral
cervical or superior
mediastinal
lymph nodes

Central Compartment Node Dissection Level VI & VII



Modified Neck Dissection – Type III



Lymph node dissection

- Level I – not usually
- Level II - V

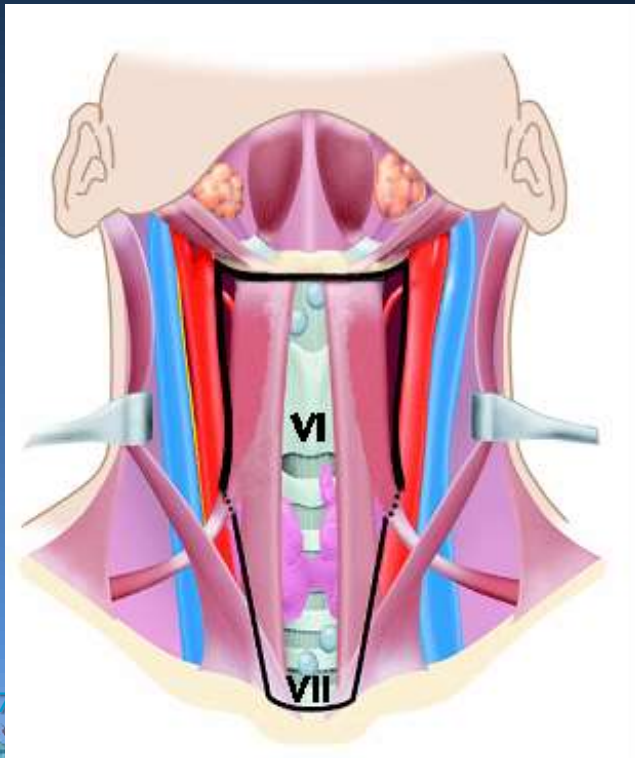
Structures preserved

Submandibular gland
Internal jugular

vein

- Sternocleidomastoid
- Spinal Accessory

Central Compartment Node Dissection



Lateral Neck Dissection



Distant Metastases



- Radio active Iodine
- External Radiotherapy (selected cases)
- Surgery (Palliative)
- Chemotherapy ??
- Targeted Therapy (Investigational)
- Agents under study:
Sorafenib, Lenvatinib, Selumetinib,
Pazopanib, Vandetinib, Cabozantinib,
other...

Differentiated Cancer of the Thyroid Mortality

- 1810 patients (1985 -2005)
- Excluded M1 and unresectable
- N=1752
- Median f/u = 100 months
- 165 deaths
 - 17 died of disease
 - 6 died from unknown causes with disease
- Disease specific mortality 1.3%

Differentiated Cancer of the Thyroid

Trends in Mortality

Author	Year	Death Rate	Central Neck Disease
Tollefsen	1964	10%	>40% 
Smith	1988	7%	36%
Shaha	1996	9%	10%
Kobayashi	1996	5%	<28%
Ronga	2002	4%	12%
**Nixon	2012	1%	0% ** 

* Locoregional recurrence **was a common** cause of death

** Locoregional recurrence **is a rare** cause of death



Thank You