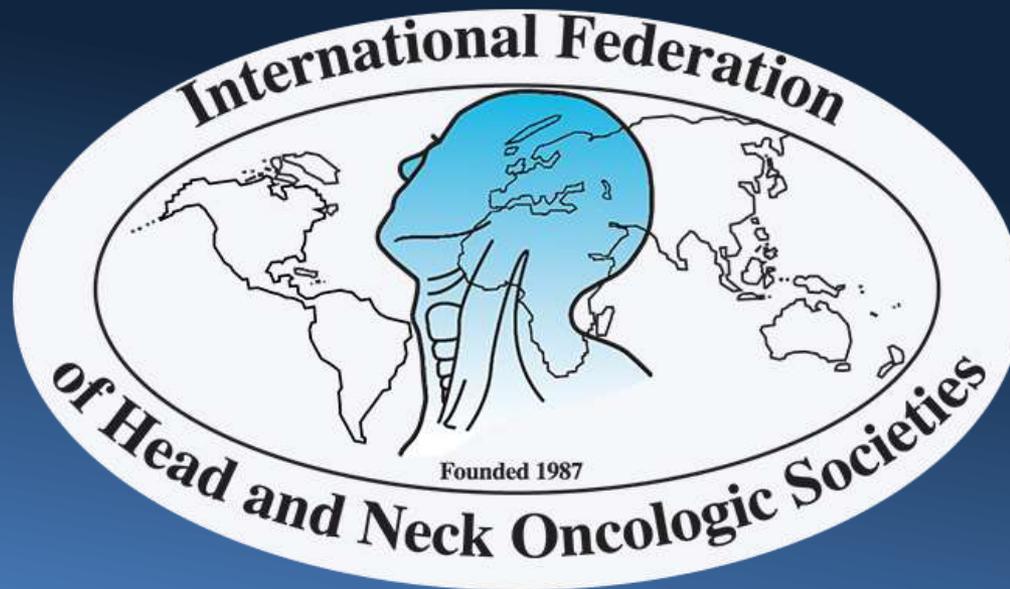




The International Federation of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017



www.ifhnos.net



The International Federation of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017

Head and Neck Cancer Staging: Purpose, Process and Progress

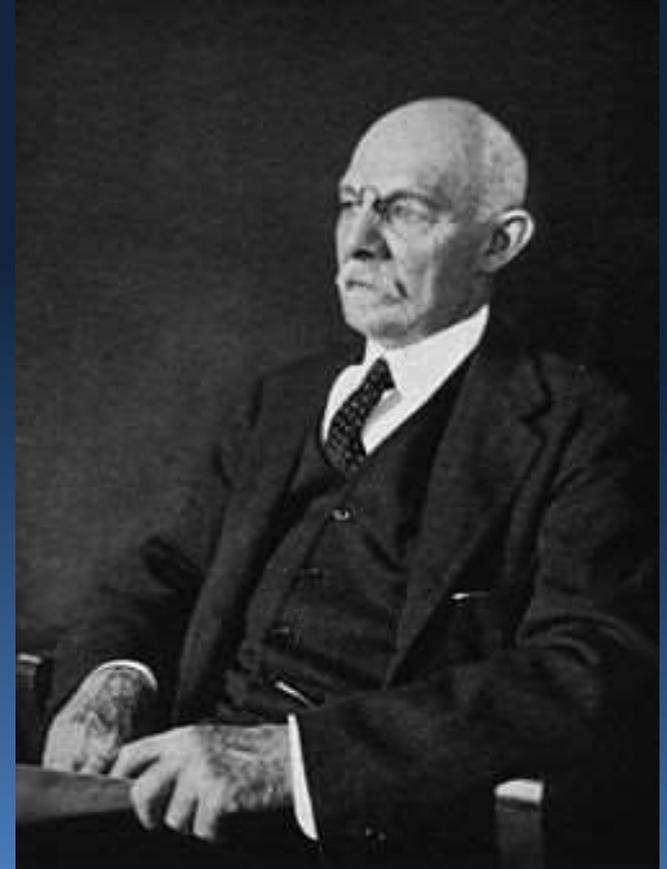
Jatin Shah

Head and Neck Cancer Staging Purpose

- To measure the volume / extent of disease
- To plan selection of treatment
- To assess prognosis
- To compare outcomes of therapy
 - Across geographic regions
 - Among Institutions
 - Among treatment modalities

Sir William Stewart Halstead

- William Stewart Halsted, the father of surgical oncology, theorized that cancer progression follows an orderly step-wise process beginning from primary tumor formation to distant metastasis, passing through regional lymph nodes, using Breast cancer as an example.
- Ann Surg. 1894;20: 497-555.



Early Attempts at Staging

In 1905 , Steinthal in Germany first attempted to clinically stage breast cancer based on Halstead's theory

Tumor, Node, Metastases (TNM) in Staging Cancer

Pierre Denoix (1944)

- Introduced TNM Staging system
- UICC adapts TNM staging system 1954
- AJCC adopts TNM system
- AJCC / UICC collaborate - 1980s



Pierre Denoix

UICC & AJCC

- UICC TNM Committee. 1954
- First organized a meeting on Jan. 9, 1959
- American joint Committee for Cancer Staging and End Results Reporting 1959
- National Cancer Conference on Classification and Staging. 1976
- 1st Edition of Cancer Staging Manual. 1977
- American Joint Committee on Cancer. 1980
- 2nd Edition .1983 (Added more sites)
- Increasing collaboration with UICC since 1980s
- Seven Editions published in the past
- 8th Edition published in Oct. 2016, for implementation on Jan. 1. 2018



Head and Neck Cancer

AJCC / UICC

Now have a uniform globally applicable staging system



AJCC / UICC 8th Edition Revisions

In devising and revising any staging system the following points must be borne in mind.

Complexity
Discrimination
Compliance
The 5% rule

Complexity

A very detailed and complex system will very accurately predict outcome.

- The more the details and the more factors we add to the staging system, the more accurate and precise it will be in predicting outcome
- However, the more complex the system gets it's user friendliness diminishes and compliance declines
- Thus any revision has to be a "compromise", between the Ideal (most accurate and detailed) and the Practical (acceptable compliance)

Discrimination

The data collected should be analyzed to be able to discriminate different groups consistently in predicting outcomes and the groups should be ~equally distributed

- Hazard consistency
- Hazard discrimination
- Outcome prediction
- Balance



Groome P A et al, Cancer 2001;92:1484–94. © 2001 American Cancer Society.

Compliance

High compliance in the utility of the staging system is required to make it meaningful and collect “large Data”

Any staging system must be detailed and accurate enough (complex) to predict the impact of various anatomic and non anatomic factors to make it relevant

However, it should be such (simple) that it would be used widely, throughout the world, and thus user friendly to improve compliance

Therefore, it is a **compromise** between the

“ Ideal and the Practical”

The 5 % Rule

Rare and exceptional observations
and issues should be avoided

Any disease, factor, issue, or
observation which has an
incidence of less than 5 %, is
generally not considered for
entering into the criteria for
staging systems.

A comparison of published head and neck stage groupings in carcinomas of the oral cavity

Patti A Groome, Karleen Schulze, Morten Boysen, et al. (2001)



Patti A Groome

- Tested UICC/AJCC and seven other staging systems for estimation of prognosis and comparison of therapies in oral cancer
- Compared hazard consistency, hazard discrimination, outcome prediction, and balanced distribution
- Suggested TNM staging could be improved using empirically derived schemes

Frequency of Revisions

- Too frequent revisions to the staging system should be avoided, otherwise we will not be able to generate comparative data , to show outcomes of disease and therapy
- On the other hand new discoveries and new knowledge must be incorporated in the revisions to the staging system, to continually improve it and make it more accurate and meaningful
- Again a “Compromise between the Ideal and the Practical”

Progression of T N M Staging

Pierre Denoix -1944 - TNM classification. 1953

American Joint Committee on Cancer Staging
and End results reporting established . 1959

1st Edition – 1977

2nd Edition - 1983

3rd Edition – 1988

4th Edition - 1992

5th Edition – 1997

6th Edition -2002 - (AJCC / UICC)

7th Edition – 2009

8th Edition - 2016

Evolution of the staging system

- TNM staging
- Non Anatomic prognostic factors
- Parallel recording of other Prognostic factors and new info.
- Testing - Validation - Introduction
- Nomograms

Inclusion of comorbidity in a staging system for head and neck cancer

Jay F Piccirillo (1995)



Jay F Piccirillo

- Used conjunctive consolidation to incorporate comorbidity into staging system
- Accounted for performance status, symptom severity, comorbidity
- Adding co-morbidity improved prognostication over TNM staging alone

Is the current TNM System adequate ?

- No
- Is it workable ? Yes.
- Problems : It does not include functional status of the larynx, such as aspiration, incompetent larynx, status of airway and dysphagia
- The TNM system takes into consideration only anatomic factors of the tumor, and not patient related factors, such as smoking, alcohol, pulmonary status, general medical condition (Life style and Co Morbidities)
- The TNM system is "Static" and stages patients only at the time of initial diagnosis
- The TNM system does not include "Response to Therapy", and thus is not dynamic.

AJCC – Head and Neck Task Force

- 28 Members
- Surgeons
- Radiation Oncologists
- Medical Oncologists
- Pathologists
- Radiologists
- Epidemiologists
- Basic research scientists
- Biostatistics, Registrars, Data Managers, Support staff



AJCC – Head and Neck Task Force

Jatin Shah - Chair

- Robert J. Baatenburg deJong, MD, PhD
- Margaret Brandwein-Gensler, MD
- David M. Brizel, MD
- Joseph A. Califano, MD
- Amy Y. Chen, MD, MPH, FACS
- A. Dimitrios Colevas, MD
- Stephen B. Edge, MD, FACS – Editorial Board Liaison
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- Ronald A. Ghossein, MD
- Christine M. Glastonbury, MBBS
- Robert Haddad, MD
- Bruce H. Haughey, MBChB, FACS, FRACS
- Dennis H. Kraus, MD, FACS

Bill Lydiatt - Vice-Chair

- Quynh Thu X. Le, MD
- Anne W.M. Lee, MD
- Suresh K. Mukherji, MD, FACR
- Kishwer S. Nehal, MD
- Brian O'Sullivan, MD, FRCPC – UICC Representative
- Snehal G. Patel, MD
- John A. Ridge, MD, PhD, FACS
- Simon N. Rogers, MD, FRCS
- Chrysalyne Schmults, MD, MSCE
- Raja R. Seethala, MD – CAP Representative
- Erich M. Sturgis, MD, MPH, FACS
- Randal Scott Weber, MD
- Bruce M. Wenig, MD

2017



8th Edition Revisions

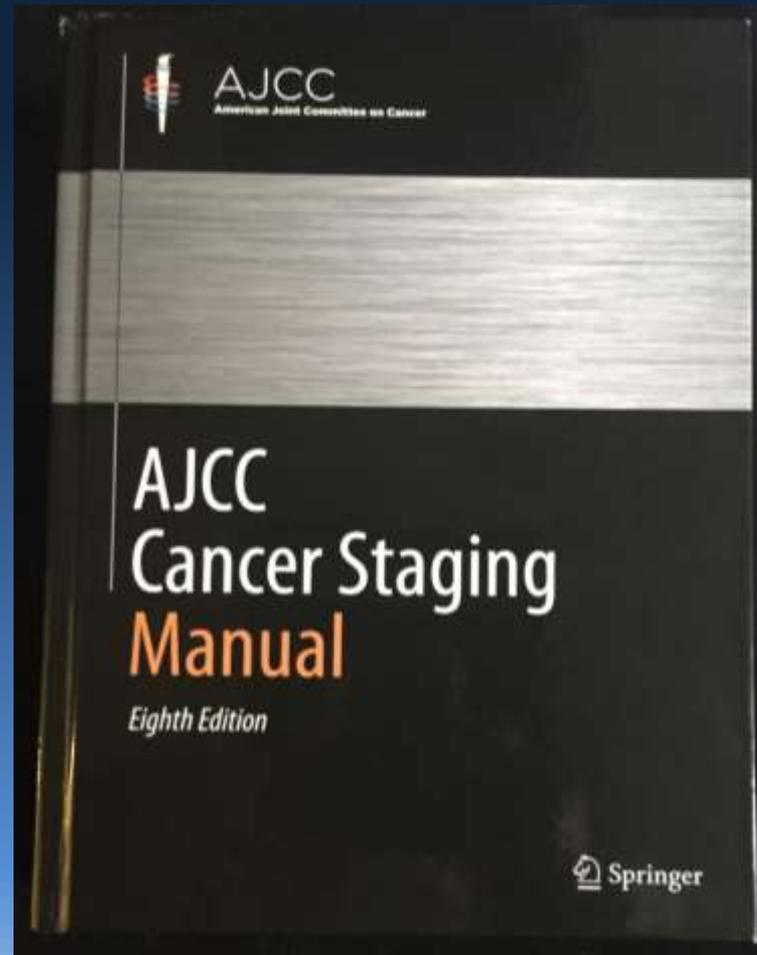
- **Goals:** Global applicability, incremental improvement and Harmony between AJCC and UICC
- A **Compromise** between a highly accurate but complex system , with low compliance, and a simpler, high compliance system, with somewhat diminished predictive capacity

cTNM and pTNM

- Sites that are predominantly treated non surgically such as the Nasopharynx, do not have detailed pathological information available, and are therefore staged by **cTNM**
- Sites that are predominantly treated surgically, such as the oral cavity, have detailed pathological information available, and therefore have both **cTNM** and **pTNM** staging systems available

8th Edition

Published October 2016 – Implement January 2018



Major Changes in 8th Edition Head and Neck Cancer

- Addition of pathologic features of primary tumors in T staging, e.g. Tumor thickness
- Addition of the extent of disease in nodal metastases in N staging, e.g. Extra nodal extension (ENE)
- Separate staging system for HPV + Oropharynx cancer, compared to conventional Oropharynx staging

Changes in TNM Staging 8th Edition

- Skin (SCC)
- Nasopharynx
- Oropharynx
- Oral Cavity
- Thyroid

T staging for Skin Cancer

- Tis Carcinoma in situ
- T1 < 2 cms in diameter
- T2 2 - 4 cms in diameter
- T3 => 4 cms in diameter, or minor bone erosion or, perineural invasion or deep invasion > 6 mms.
- T4 Tumor with gross cortical bone / marrow, skull base invasion and or skull base foramen invasion

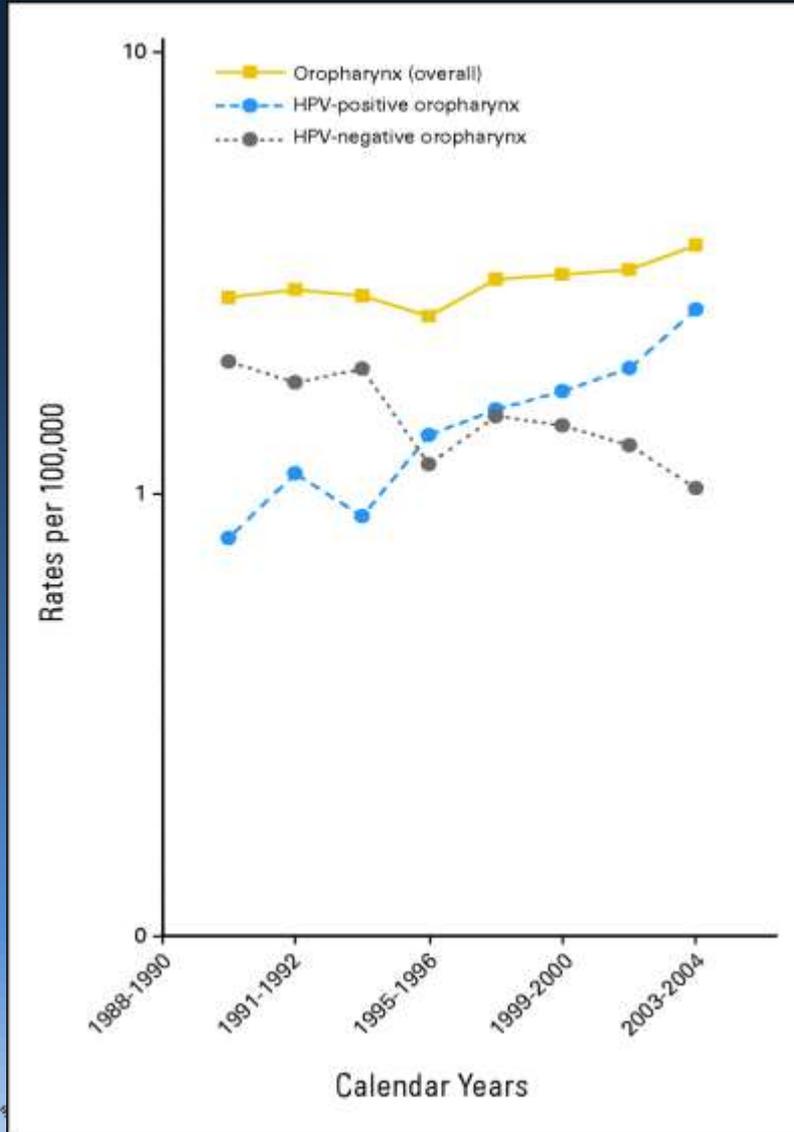
T staging for Nasopharynx Cancer

- T0 No primary tumor but EBV + neck nodes
- T1 Tumor confined to Nasopharynx or extends to oropharynx, nasal cavity without parapharyngeal space invasion
- T2 Tumor with extension to parapharyngeal space and / or adjacent soft tissue involvement (Pterygoids, prevertebral musc)
- T3 Tumor with infiltration of bony skull base, cervical vertebrae, pterygoid plates, or paranasal sinuses
- T4 Tumor with intracranial extension, invasion of cranial nerves, hypophaynx, orbit, parotid, or extensive soft tissue disease lateral to lateral pterygoid muscle

N Staging for Nasopharynx Cancer

- N0 No metastases
- N1 Unilateral nodes < 6 cms above the lower border of cricoid or uni or bilateral retropharyngeal nodes
- N2 Bilateral neck nodes , < 6 cms above lower border of cricoid
- N3 Unilateral or bilateral nodes > 6 cms or extension of nodes caudal to lower border of cricoid.

Oropharynx Cancer



Incidence of Overall, HPV + & HPV - Oropharyngeal Cancers

Chaturvedi A K et al
JCO 2011 29:4294 - 4301

HPV + (p 16 +) Oropharynx Cancer

- A distinct clinical entity
- Younger patients
- Healthier patients
- Non Smokers
- Very responsive to treatment
- Excellent outcomes with even advanced disease
- Natural history is unlike tobacco induced Oropharynx cancer

HPV + Oropharynx Cancer

T Staging

- T categories remain the same as HPV –ve tumors,
except there is no Tis and T4b

N Staging

- N0 No regional lymph node metastasis
- N1 One or more ipsilateral lymph node < 6 cms.
- N2 Contralateral or bilateral nodes, all < 6 cms.
- N3 Any lymph node /s > 6 cms.

Oropharynx Cancer – Stage Groupings

HPV +ve

When T is...	And N is...	And M is...	Then the stage group is...
T0, T1 or T2	N0 or N1	M0	I
T0, T1 or T2	N2	M0	II
T3	N0, N1 or N2	M0	II
T0, T1, T2 T3 or T4	N3	M0	III
T4	N0, N1, N2 or N3	M0	III
Any T	Any N	M1	IV

HPV -ve

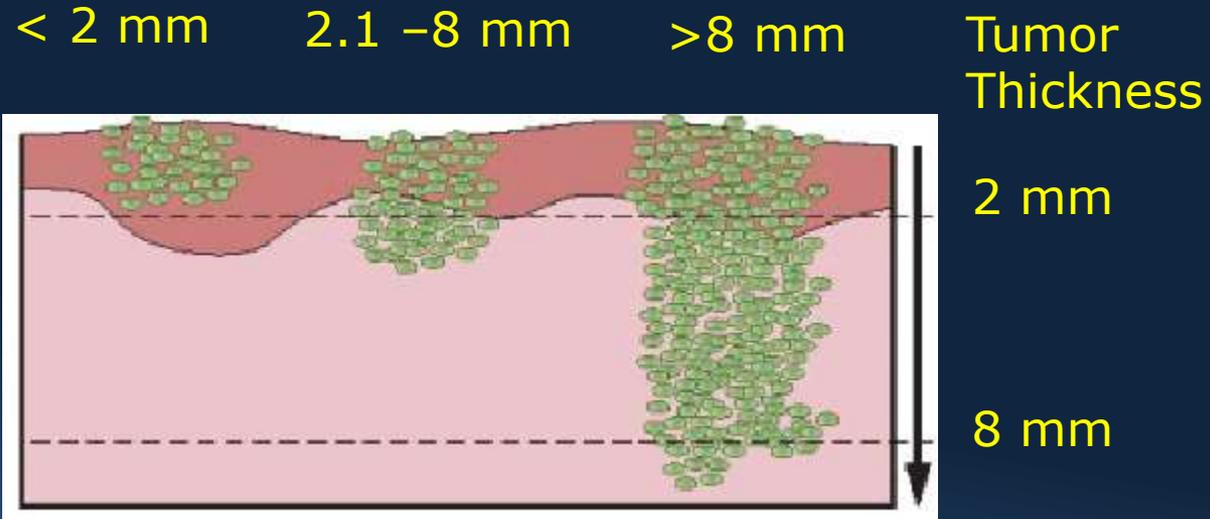
When T is...	And N is...	And M is...	Then the stage group is...
Tis	N0	M0	0
T1	N0	M0	I
T2	N0	M0	II
T3	N0	M0	III
T1, T2, T3,	N1	M0	III
T4a	N0,1	M0	IVA
T1, T2, T3, T4a	N2	M0	IVA
Any T	N3	M0	IVB
T4b	Any N	M0	IVB
Any T	Any N	M1	IVC

Oral Cancer - 7th Edition T Staging

Up until now only surface dimension of the tumor was required for T staging. “Maximum diameter”



Depth of Invasion (DOI) in Oral Cancer

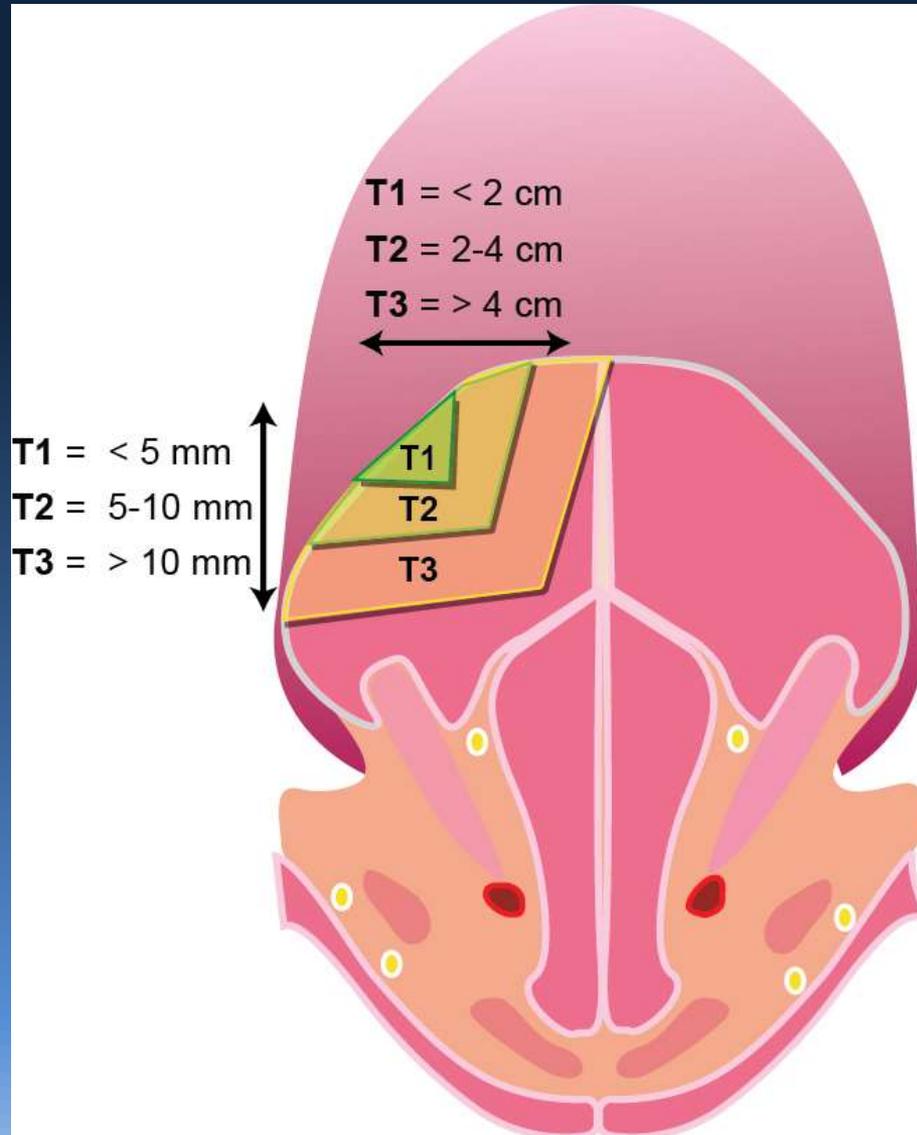


	< 2 mm	2.1 - 8 mm	> 8 mm
Risk of occult nodal metastasis	7 %	26 %	41 %
Overall incidence of nodal metastasis	13 %	46 %	65 %
% Patients died with disease	3 %	17 %	35%

Oral Cancer – 8th Edition T staging

Depth of Invasion (DOI)
is added to the
primary tumor staging (T)
0 - 5, 5 - 10 and > 10
mms

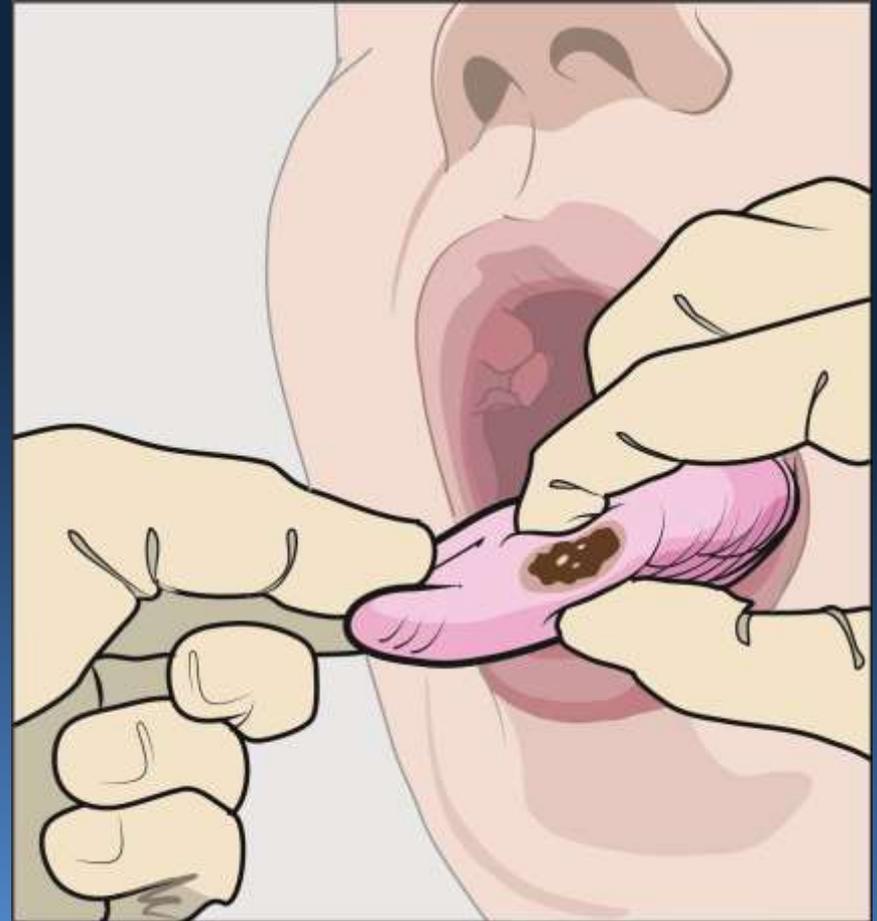
Depth of Invasion in 5 mm increments



Estimate of Depth of Invasion - DOI

Clinicians are expected to palpate the lesion and estimate the DOI as

- Thin - < 5 mms
- Thick - 5 - 10 mms
- Very thick - >10 mms



Depth of Invasion (DOI) for T staging of Primary Tumors of the Oral cavity

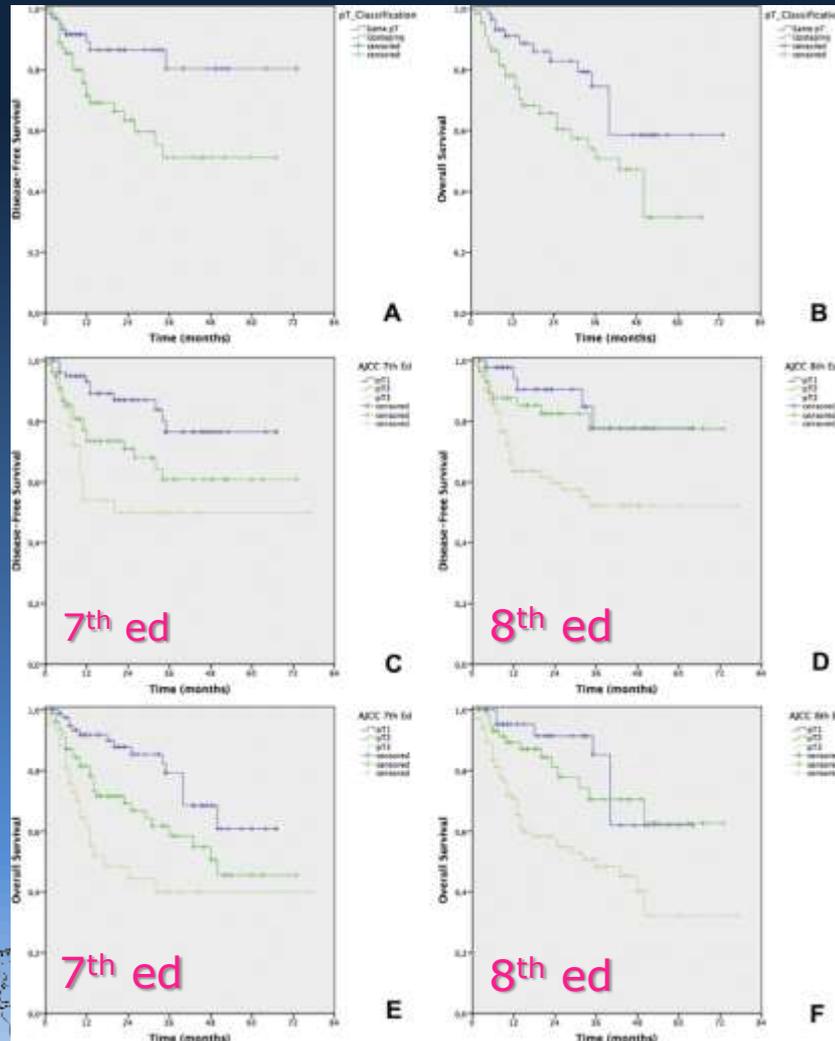
T1 - Tumor \leq 2 cms , DOI \leq 5 mm

T2 - Tumor $>$ 2 cm but \leq 4 cm, and DOI \leq 10 mm or
Tumor \leq 2 cm, DOI $>$ 5 mm \leq 10 mm

T3 - Tumor $>$ 4 cm or tumor of any size and
DOI $>$ 10 mm

T4 - T4a : Locally advanced tumor
T4b : Very advanced tumor

T Stage Migration due to DOI



22.8% Upstaged

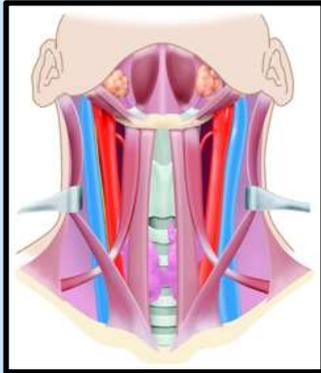
Worse DFS (51.1% vs 80.4%) and OS (31.5% vs 58.6%) in upstaged patients

DFS and OS were similar for pT1 and pT2, but were worse for pT3 according to the 8th edition staging.

External validation of the AJCC Cancer Staging Manual, 8th edition, in an independent cohort of oral cancer patients
 Leandro Luongo Matos a,†, Rogerio Aparecido Dedivitis b, Marco Aurélio Vamondes Kulcsar c, Evandro Sobroza de Mello d, Venâncio Avancini F. Alves e, Claudio Roberto Cernea
 Oral Oncology 71 (2017) 47–53

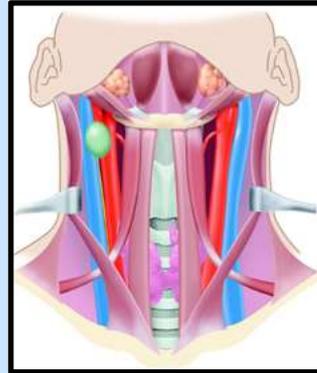
N Staging – 7th Edition

N₀



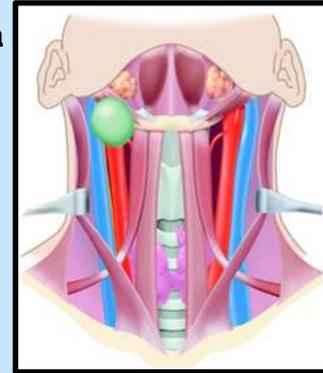
No nodes

N₁



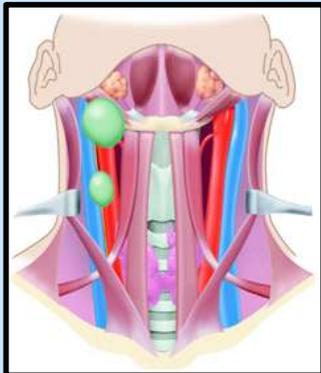
Ipsilateral
<3 cm

N_{2a}



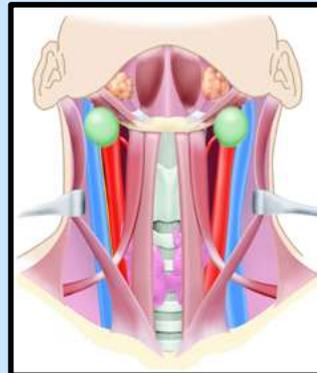
Ipsilateral
>3 cm <6 cm

N_{2b}



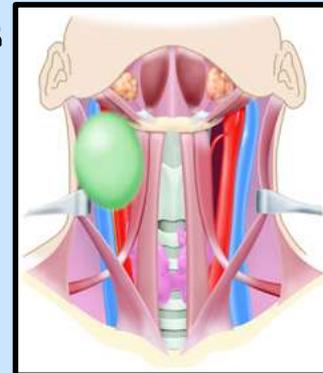
Ipsilateral multiple
<6 cm

N_{2c}



Bilateral/contralateral
<6 cm

N₃



>6 cm

N Staging – 8th Edition

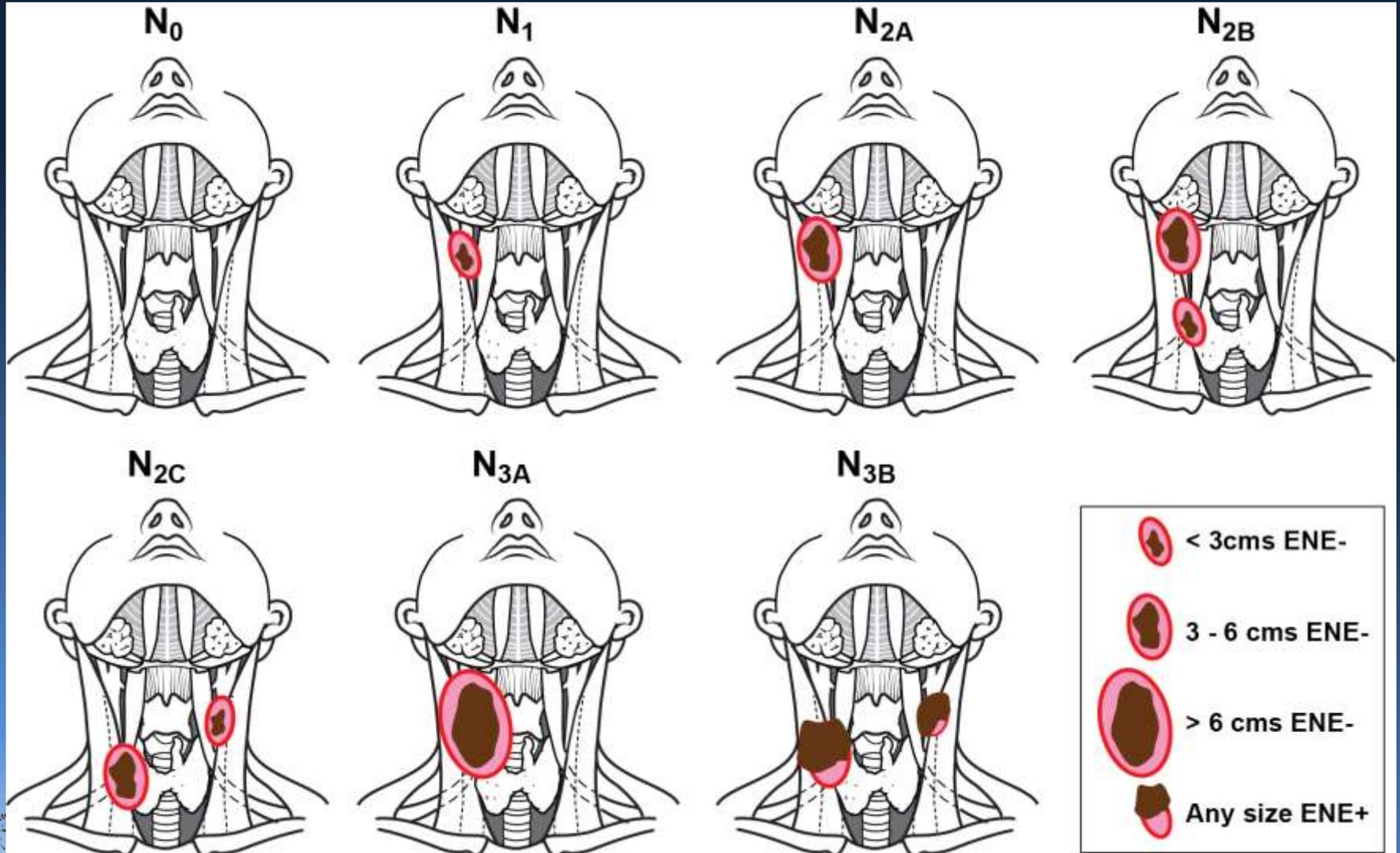
Extra Nodal Extension (ENE) of metastatic disease, is now added for N Staging of Mucosal Squamous Cell Carcinomas of the Upper Aero Digestive Tract.



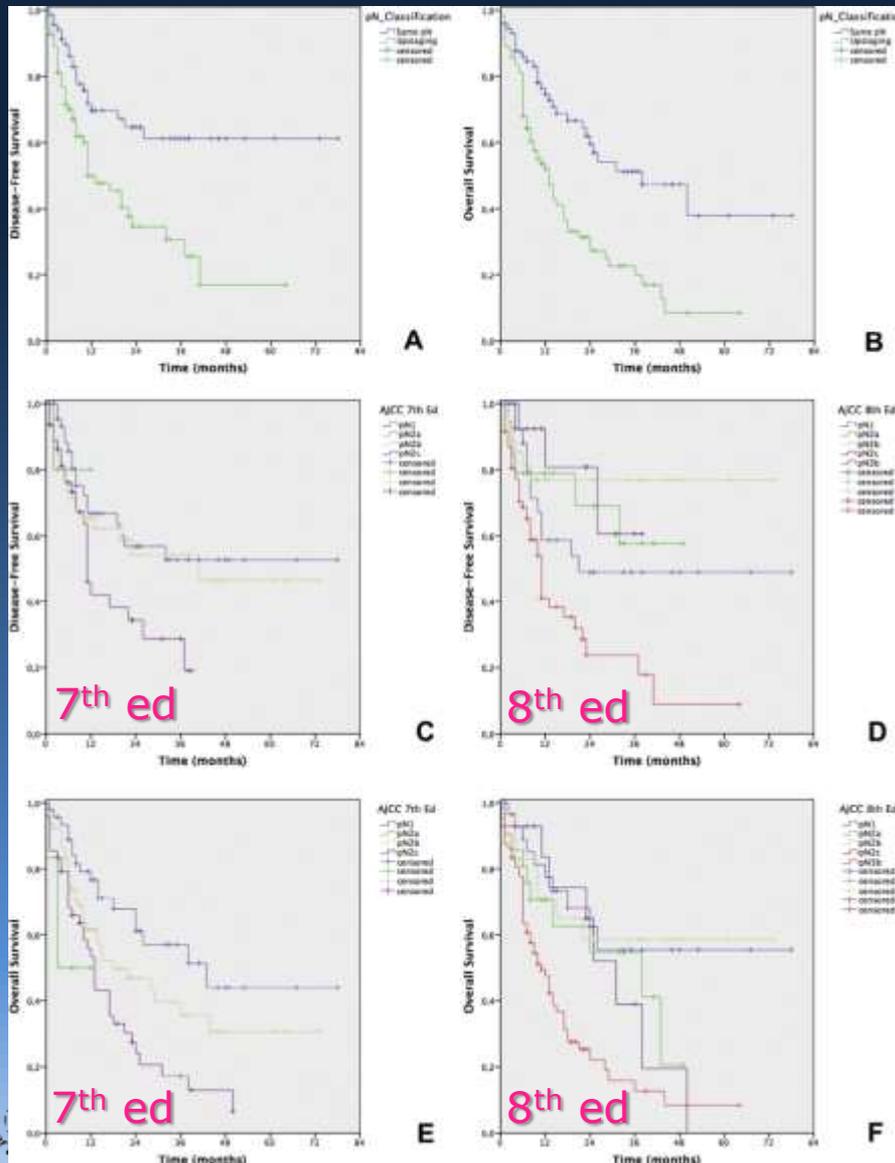
N Staging for Oral cavity, Pharynx, Larynx

- N0 No regional lymph node metastasis
- N1 Metastasis in a single ipsilateral node < 3 cm and ENE –
- N2 Metastasis in a single ipsilateral node 3-6 cm and ENE –
or multiple ipsilateral nodes < 6 cm and ENE –
- N2a Metastasis in a single ipsilateral or contralateral node
3-6 cm and ENE –
- N2b Metastasis in multiple ipsilateral nodes <6cm and ENE –
- N2c Metastasis in contralateral or bilateral nodes <6 cm and
ENE –
- N3a Metastasis in a single node >6cm and ENE –
- N3b Metastasis in a single ipsilateral, multiple ipsilateral,
contralesional or bilateral nodes of any size and ENE +

N Staging – 8th Edition



N stage migration due to ENE



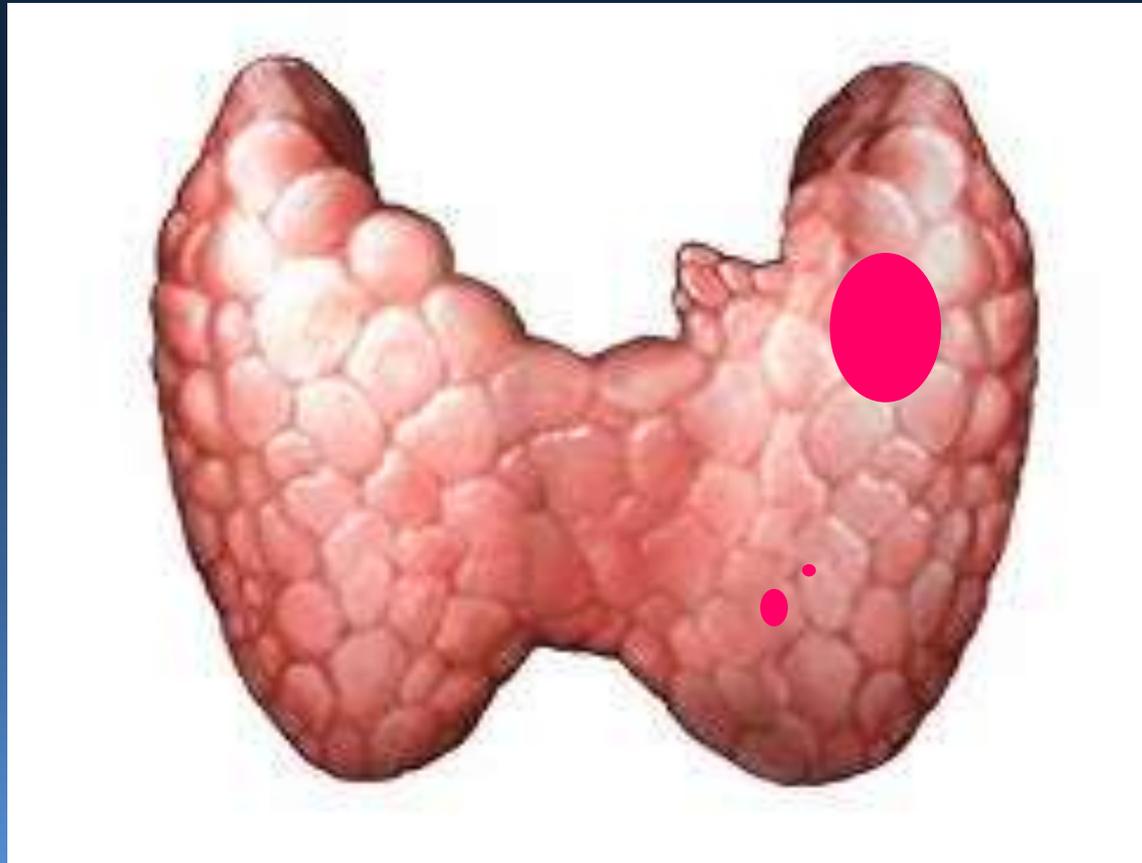
29.2% Upstaged

Worse DFS (17.1% vs 61.2%) and OS (8.5% vs 37.9%) in upstaged patients

DFS and OS for pN1, pN2, a,b,c, and pN3b.
Worse outcomes were seen in patients with pN3b

External validation of the AJCC Cancer Staging Manual, 8th edition, in an independent cohort of oral cancer patients
Leandro Luongo Matos a,†, Rogerio Aparecido Dedivitis b, Marco Aurélio Vamondes Kulcsar c, Evandro Sobroza de Mello d, Venâncio Avancini F. Alves e, Claudio Roberto Cernea
Oral Oncology 71 (2017) 47–53

Differentiated Thyroid Cancer

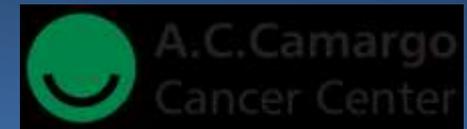


Thyroid Cancer Staging – 8th Edition Changes

- Age
- T staging
- N Staging

Age Cut Off at 55 - Validation

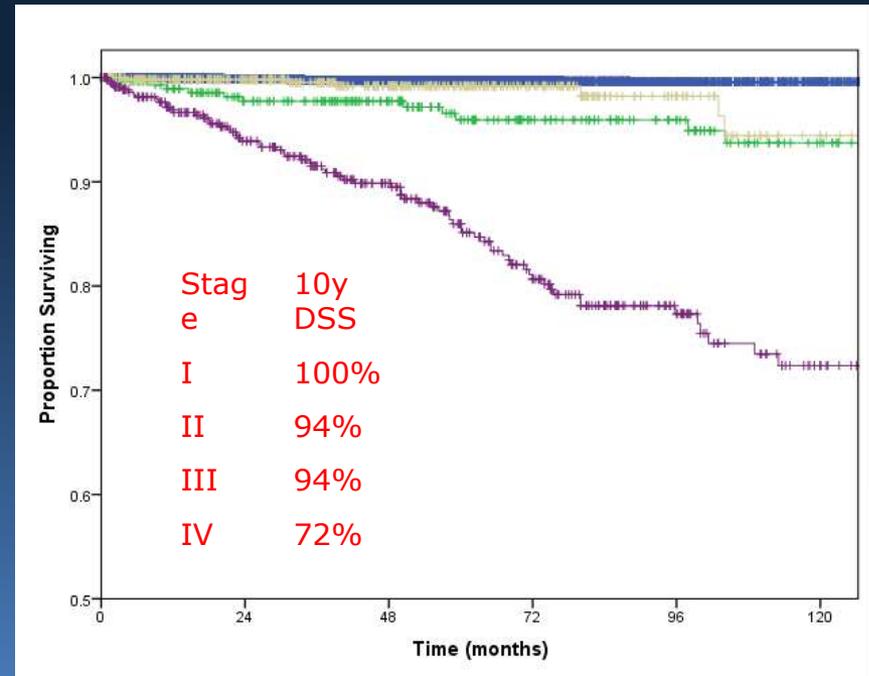
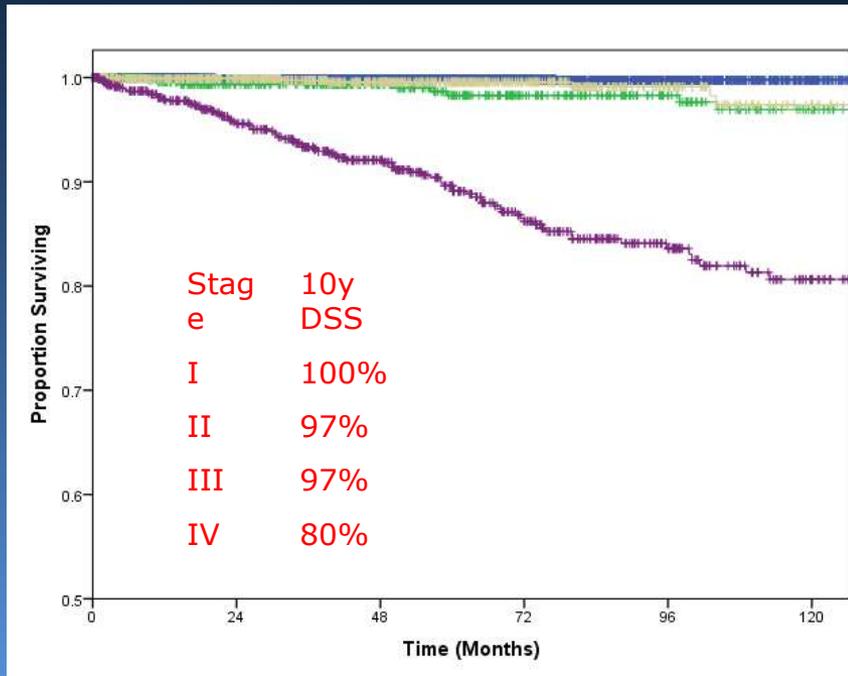
An International Multi-Institutional Validation of Age 55 Years as a Cut off In the AJCC Staging System for Well Differentiated Thyroid Cancer



Disease Specific Survival

Age cut off at 45years

Age cut off at 55 years



Age cut off – 8th Edition

- Age at diagnosis cut off used for staging is increased from **45** to **55** years

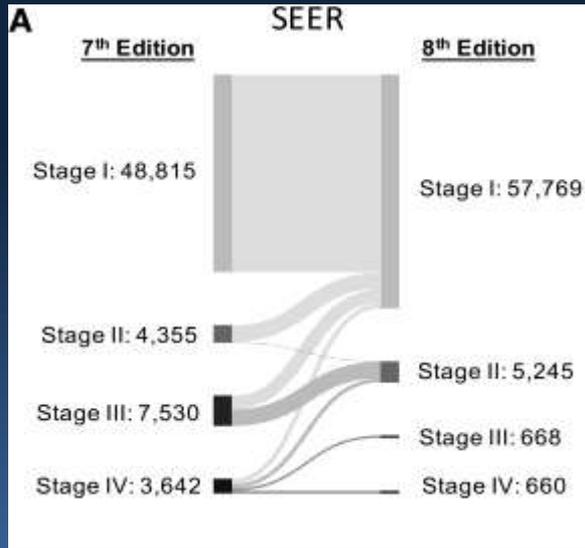
Thyroid Cancer -T Staging - 8th Edition

- Minor extrathyroid extension is removed from the definition of T3, and does not affect T category
- T3a. New category. Tumors > 4cm limited to Thyroid gland
- T3b. New category. Tumor of any size with gross ETE involving strap muscles
- T4a. Gross ETE involving nx, trachea, esophagus, recurrent nerve & soft tissues
- T4b. Gross ETE encasing carotid artery, mediastinal vessels or prevertebral fascia

Thyroid Cancer - N Staging - 8th Edition

- pN0. One or more cytologically or histologically confirmed benign lymph nodes
- N1a. Metastases to level VI or VII lymph nodes. (Pre tracheal, para tracheal, prelaryngeal / Delphian or upper mediastinal)
- N1b. Metastases to unilateral, bilateral or contralateral lateral neck lymph nodes, (Levels I,II,III,IV or V) or retropharyngeal lymph nodes

Stage Migration – 7th to 8th Edition



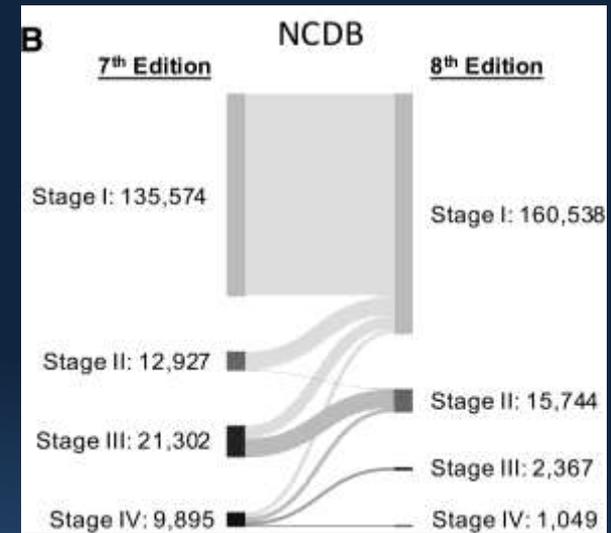
Downstaged

SEER

NCDB

23 %

24 %



Alluvial flow diagram representing the restaging of patient cohorts from the seventh to the eighth edition of the American Joint Commission on Cancer/Union for International Cancer Control (AJCC/UICC) tumor, node, metastasis (TNM) staging system in (A) the Surveillance, Epidemiology, and End Results (SEER) program and (B) the National Cancer Database (NCDB). Numbers represent the absolute number of patients within each stage, with flow line width proportional to the number of patients moving to a new stage classification.

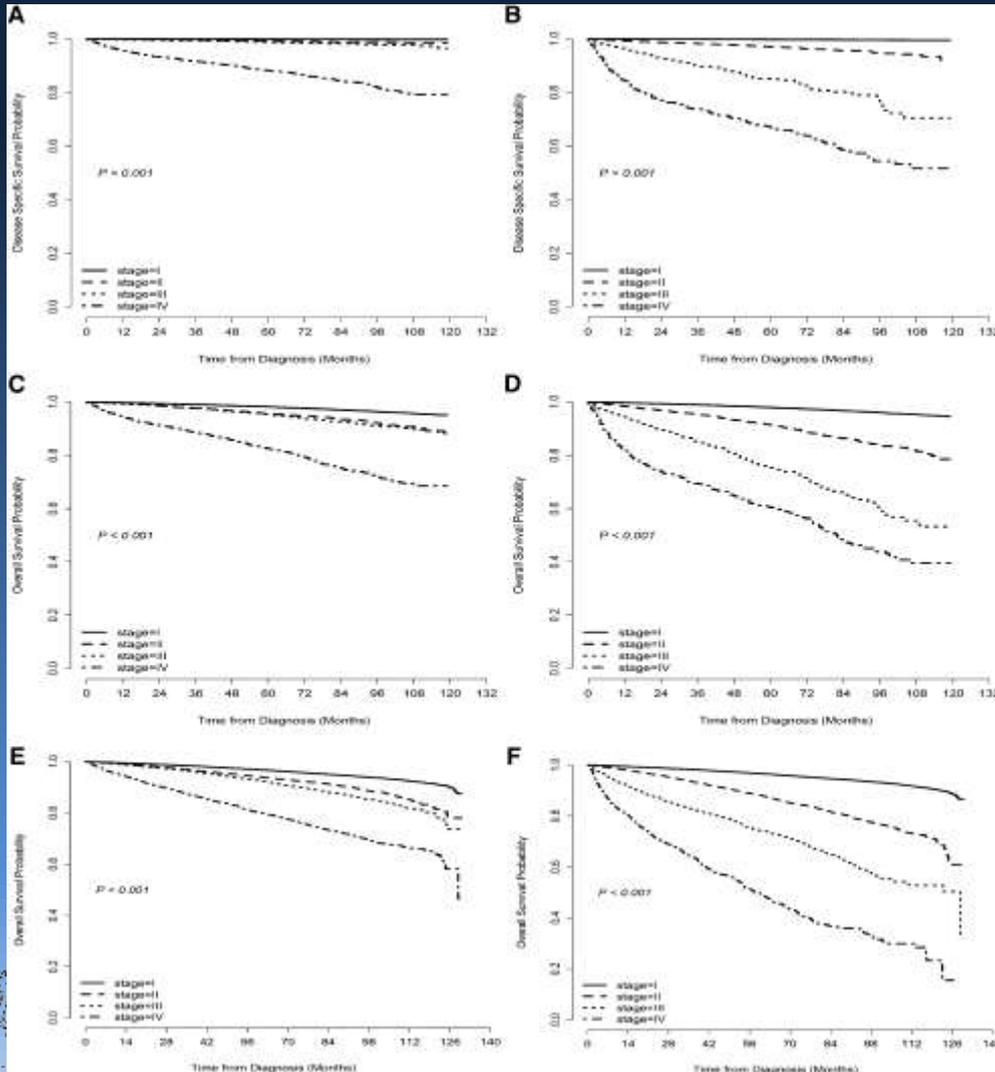
Pontius Lauren N., Oyekunle Taofik O., Thomas Samantha M., Stang Michael T., Scheri Randall P., Roman Sanziana A., and Sosa Julie A.. Thyroid. October 2017



Survival curves – 7th and 8th Edition SEER Database

7th Edition

8th Edition



Unadjusted disease-specific survival (DSS) curves for patients with papillary thyroid cancer (PTC) in the SEER program using the AJCC/UICC TNM staging (A) seventh and (B) eighth edition models. Unadjusted overall survival (OS) curves for patients with PTC in the SEER database using (C) the seventh and (D) the eighth edition models. Similarly, unadjusted OS curves for patients with PTC in the NCDB database using (E) the seventh and (F) the eighth edition models

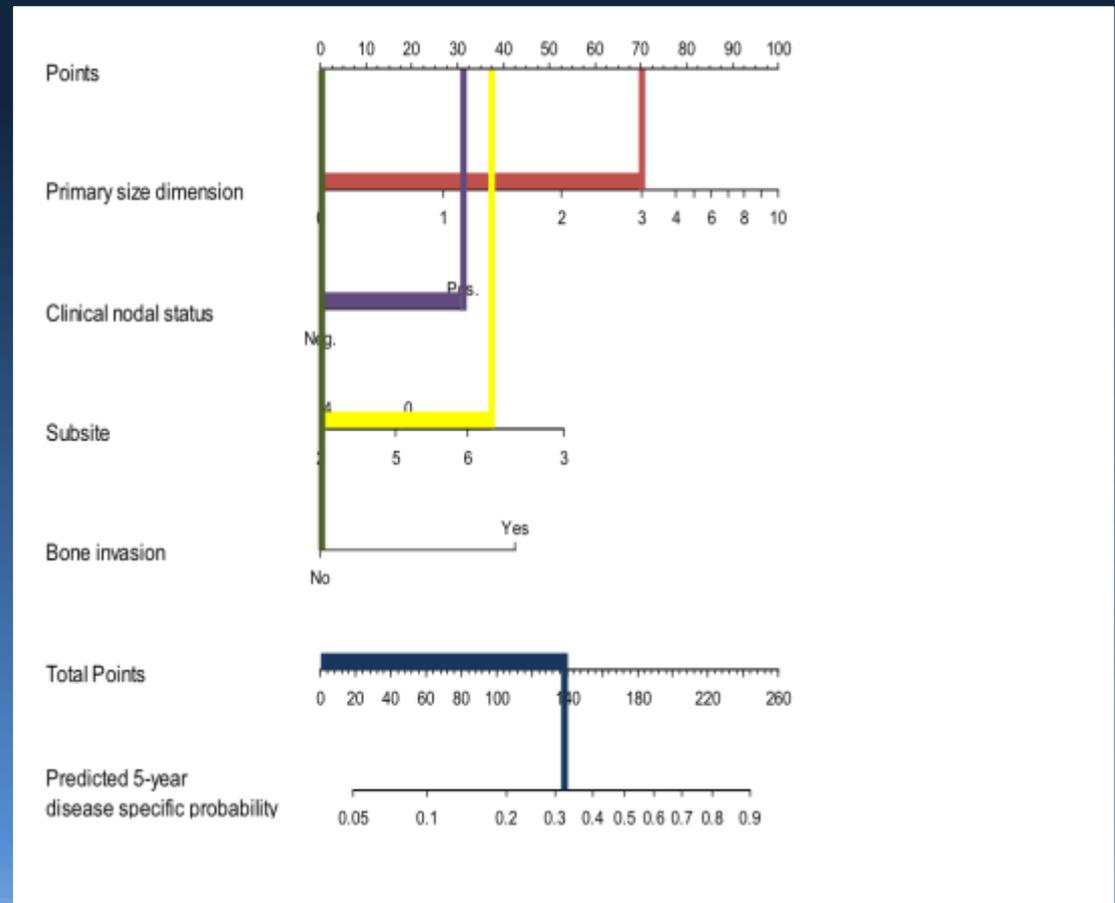
Pontius Lauren N., Oyekunle Taofik O., Thomas Samantha M., Stang Michael T., Scheri Randall P., Roman Sanziana A., and Sosa Julie A. Thyroid. October 2017

Future Directions

- Incorporation of T N M and other tumor parameters such as histo morphological features, molecular markers, non anatomic prognostic factors, SES, life style and comorbidities, as well as response to therapy, in to
- **DYNAMIC PERSONALIZED PROGNOSTIC NOMOGRAMS**

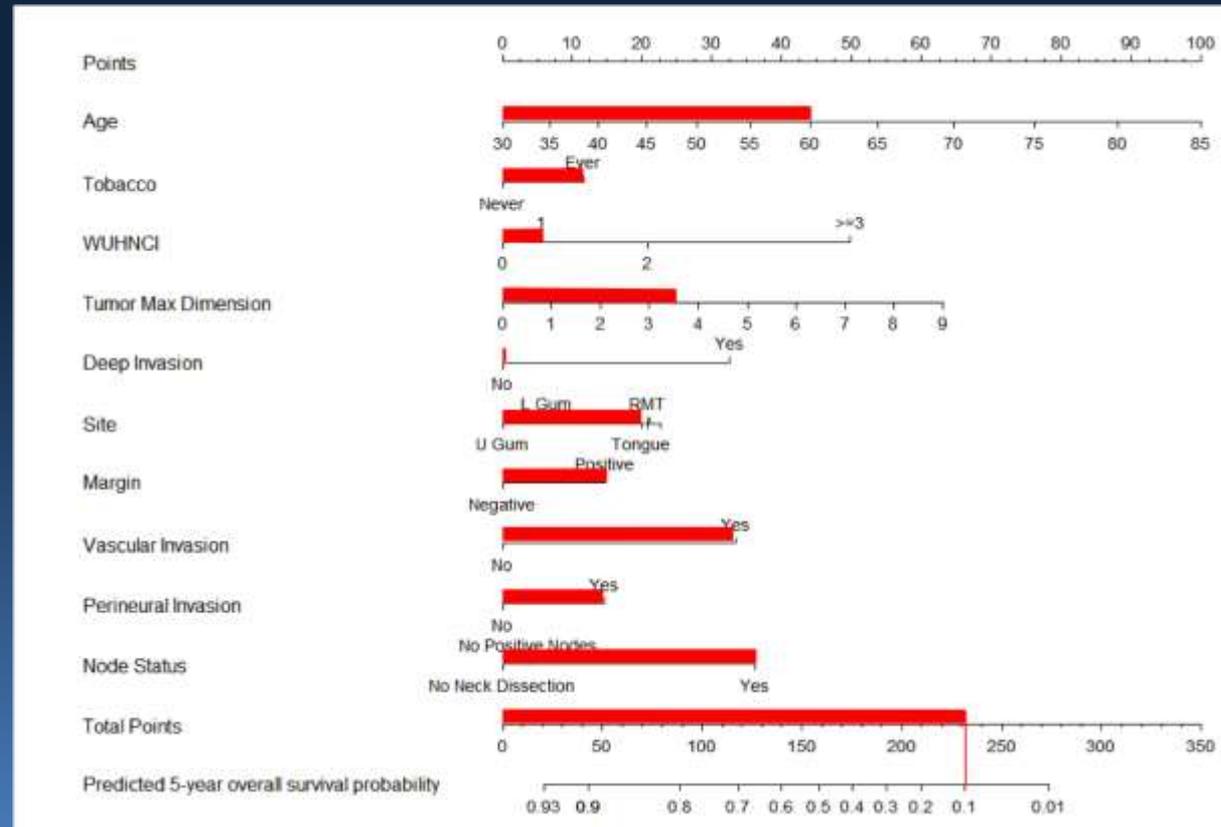
Prognostic Nomogram for Oral Cancer Death Probability

Patient A has a 3cm tumor (red line), clinically positive nodes (purple line), tongue disease (yellow line), and no bone invasion (green line). The total sum of points, 138 (blue line) indicates that patient A has a 32.5% probability of dying of disease by 5 years post surgery.



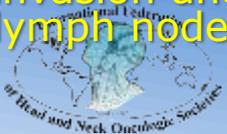
TNM Staging vs Nomogram

A. Tongue Cancer. T2N1, Stage III. Survival probability- 34%



Post-operative prognostic nomogram for patient A. The 5-year predicted overall survival is 10%.

60-year-old white male who was a 20 pack-year smoker. He has diabetes and coronary artery disease and a maximum tumor dimension of 3.5 centimeters. His tongue tumor does not invade deep muscle, but has positive margins, and also has vascular invasion, perineural invasion and positive level II lymph node.

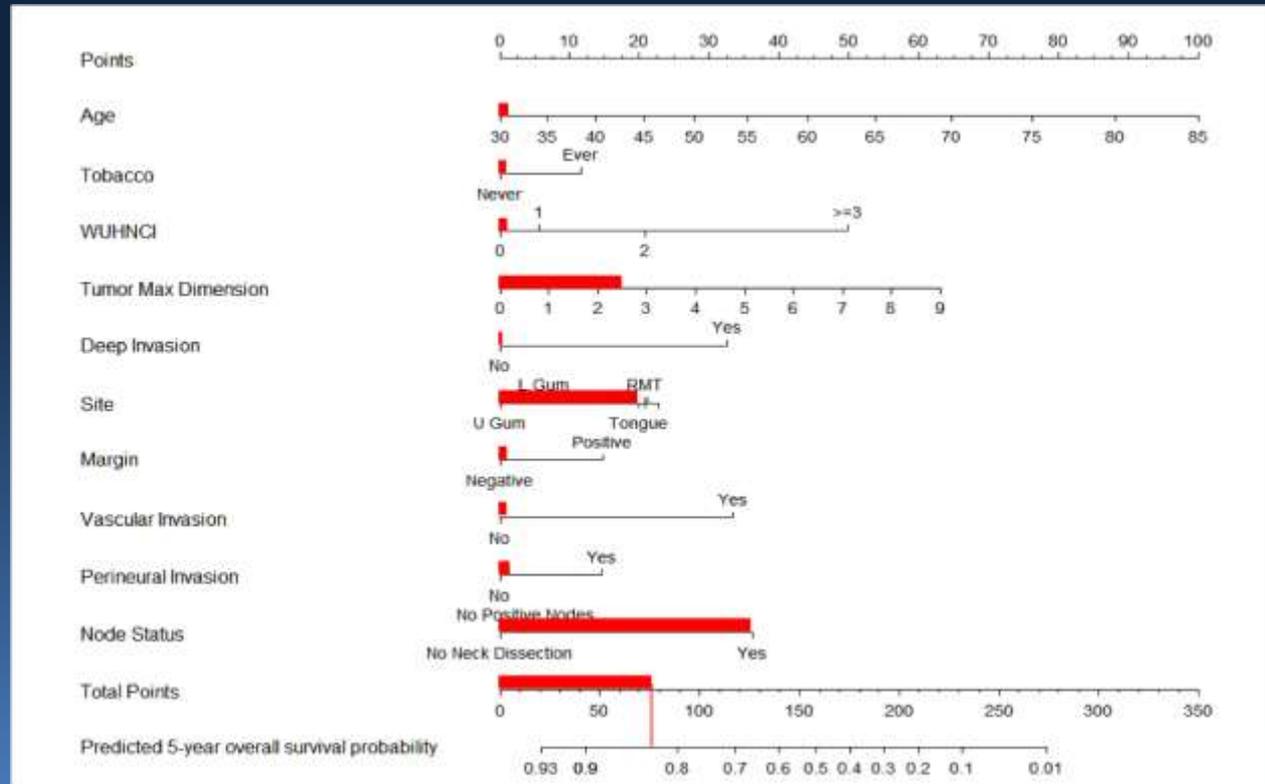


TNM Staging vs Nomogram

B. Tongue Cancer. T2N1 Stage III. Survival Probability – 34%



30-year-old white female non-smoker. She has a 2.5 centimeter tongue cancer but is otherwise healthy. Her tumor does not invade deep muscle and has negative margins. She does not have vascular invasion or perineural invasion, but she has positive level I lymph node.



Post-operative prognostic nomogram for patient B. The 5-year predicted overall survival is 80%.

TNM Staging vs Nomogram

Parameter	Patient A	Patient B
Age	60 years old	30 years old
Tobacco User	20 pack-year smoker	Non-smoker
WUHNCI	1 – DM-2 and CAD	No Comorbidities
Site	Lateral Tongue	Ventral Tongue
Deep Muscle invasion	No	No
Margin	Positive	Negative
Vascular Invasion	Yes	No
Perineural Invasion	Yes	No
Lymph Node Status	Positive Level II LN	Positive Level I LN
TNM Stage	III	III
Staging (5-Year OS)	34.1%	34.1%
Nomogram (5-year OS)	10%	80%



Head and Neck Cancer Staging

It is a continuously evolving and dynamic process incorporating new and valid information to improve accuracy and predictive power

Head and Neck Cancer Staging

Thank You





Intra Thyroidal Tumors (up to 4 cms)



Lobectomy vs Total Thyroidectomy

- 884 consecutive pts
- All Intrathyroidal tumors
- All N 0 patients
- All M 0 patients
- All Differentiated

Characteristics (n=884)	Number (%)
Age	
<45y	421 (48%)
>45y	463 (52%)
Gender	
Male	185 (21%)
Female	699 (79%)
pT Stage	
T1	634 (72%)
T2	250 (28%)
Pathology	
Papillary	798 (90%)
Follicular	50 (6%)
Hurthle Cell	36 (4%)
Risk Group	
Low	370 (42%)
Intermediate	449 (51%)
High	65 (7%)
Surgery	
Lobectomy	362 (41%)
Total Thyroidectomy	522 (59%)

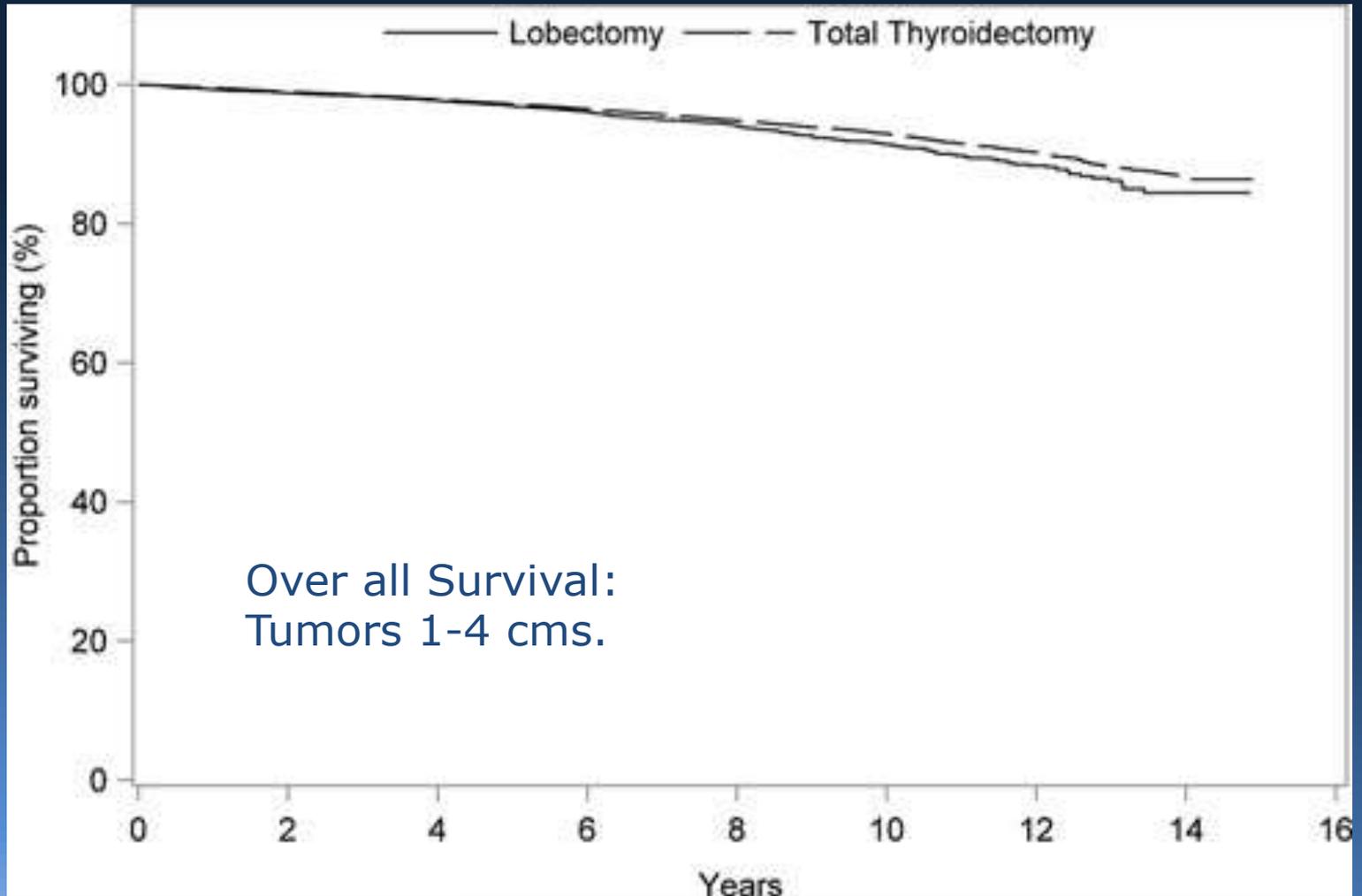
10 Year Survival

Intra Thyroidal Tumors

Outcome	Lobectomy	Total Thyroidectomy	p Value
Local Recurrence Free Survival	100%	100%	NS
Neck Recurrence Free Survival	99.7%	99.2%	NS
Distant Recurrence Free Survival	99.7%	99.4%	NS
Disease Specific Survival	100%	100%	NS
Overall Survival	91%	94%	NS

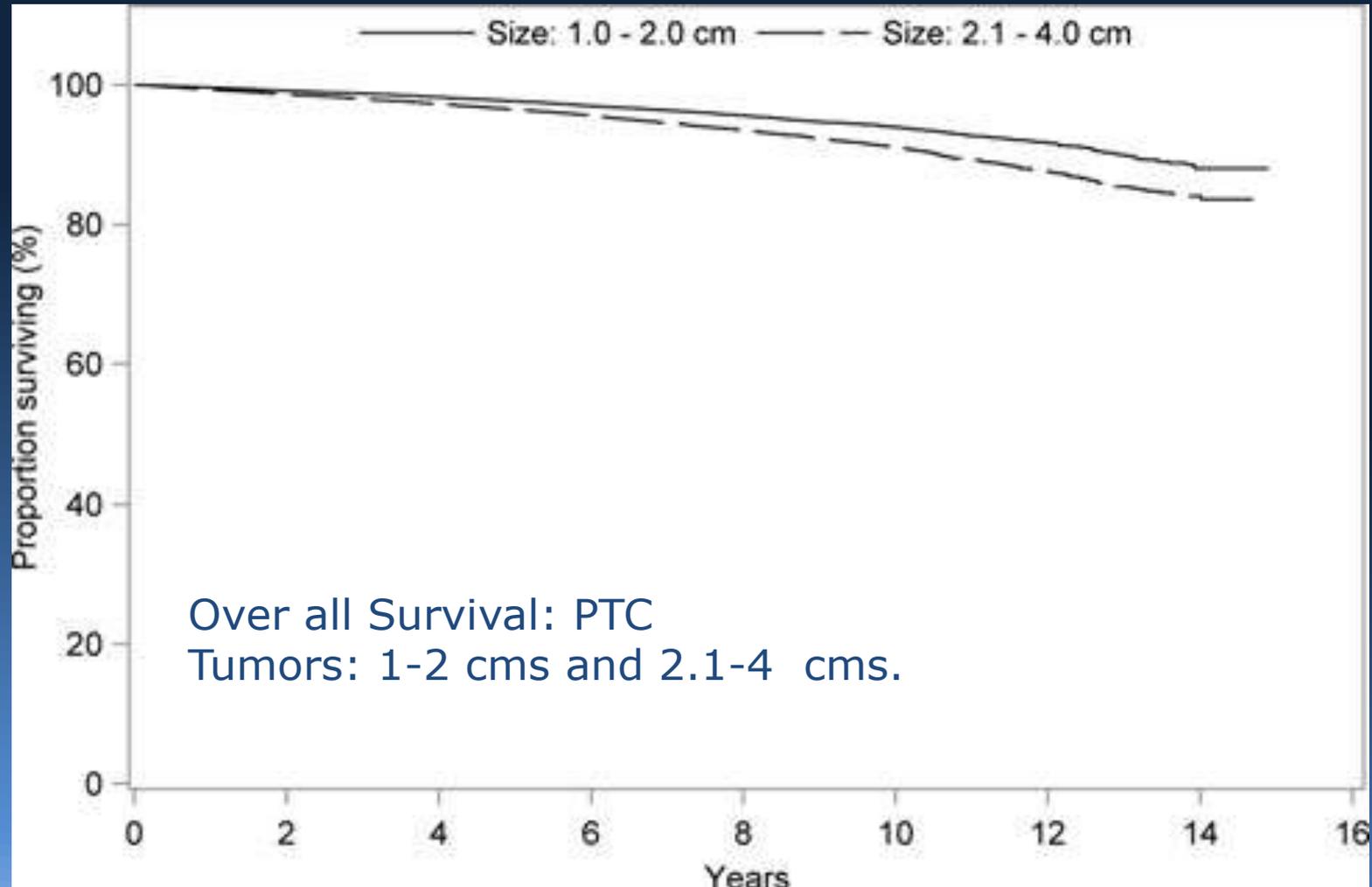
Extent of Surgery for Papillary Thyroid Cancer Is Not Associated With Survival

An Analysis of 61,775 Patients (ACS, NCDB 1998 – 2006)



Extent of Surgery for Papillary Thyroid Cancer Is Not Associated With Survival

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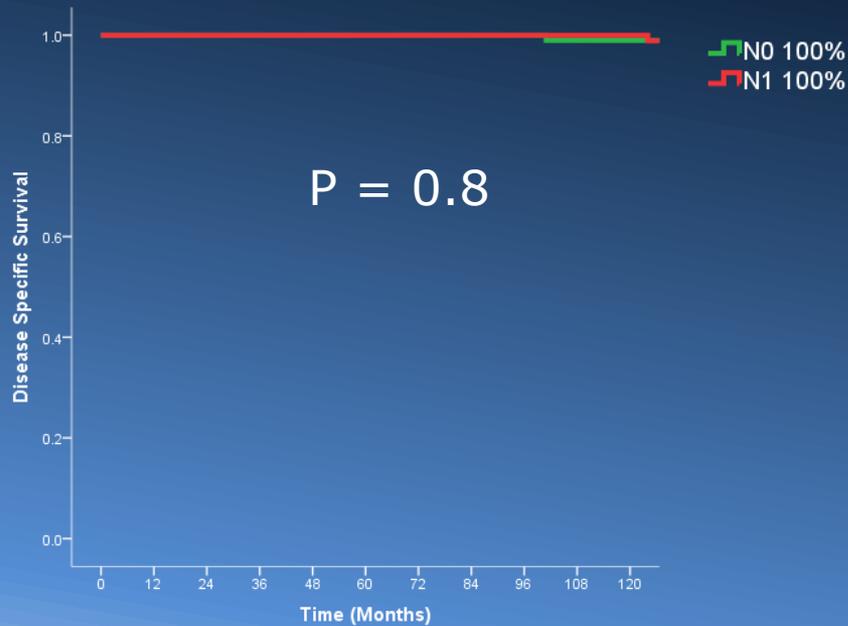


2017

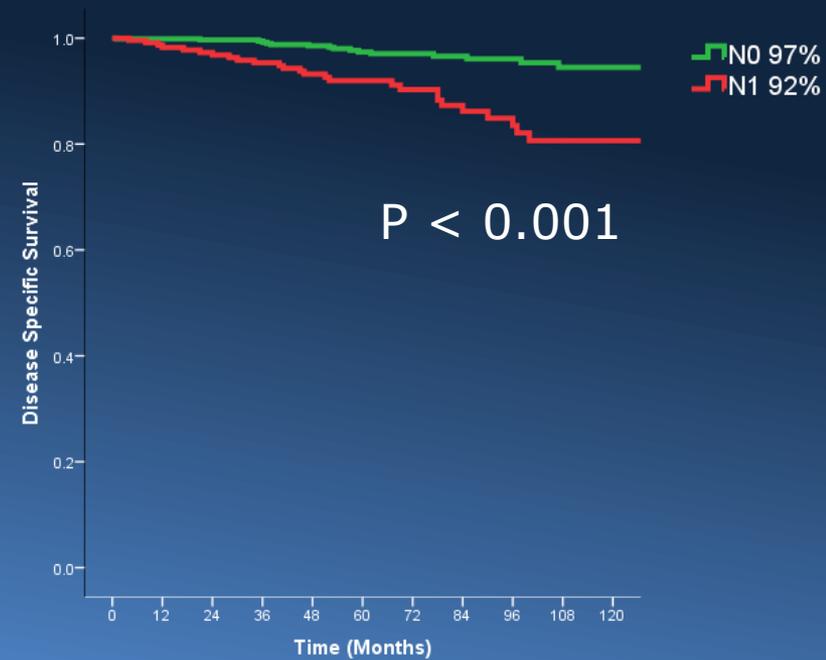
Differentiated Cancer of the Thyroid

Role of Elective Node Dissection

Survival – p N Stage – Age < 45



Survival – p N Stage – Age >



2017

- Elective node dissection **not recommended** in young and low risk patients
- Elective node dissection **may be considered** in older or high risk patients



Challenging Established Paradigms in the Management of Thyroid Cancer

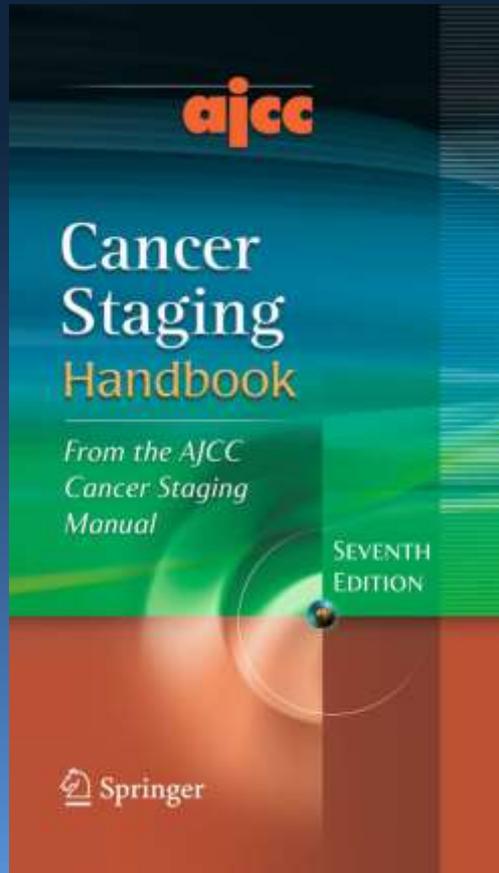
Age 45

is an accurate cut off for Risk Groups

Age is a recognized prognostic risk factor

- EORTC
- AJCC (45)
- MSKCC (45y)
- AGES (40y)
- AMES (40/50y)
- MACIS

AJCC - Age 45y



Stages	<i>Patient age <45 years</i>	<i>Patient age 45 years or older</i>
Stage I	Any T, any N, M0	T1, N0, M0
Stage II	Any T, any N, M1	T2, N0, M0
Stage III		T3, N0, M0
		T1, N1 _a , M0
		T2, N1 _a , M0
		T3, N1 _a , M0
Stage IVA		T4 _a , N0, M0
		T4 _a , N1 _a , M0
		T1, N1 _b , M0
		T2, N1 _b , M0
		T3, N1 _b , N0
		T4 _a , N1 _b , M0
Stage IVB		T4 _b , Any N, M0
Stage IVC		Any T, Any N, M1

2017



Age Cut Off at 55 - Validation



The International Federation of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017

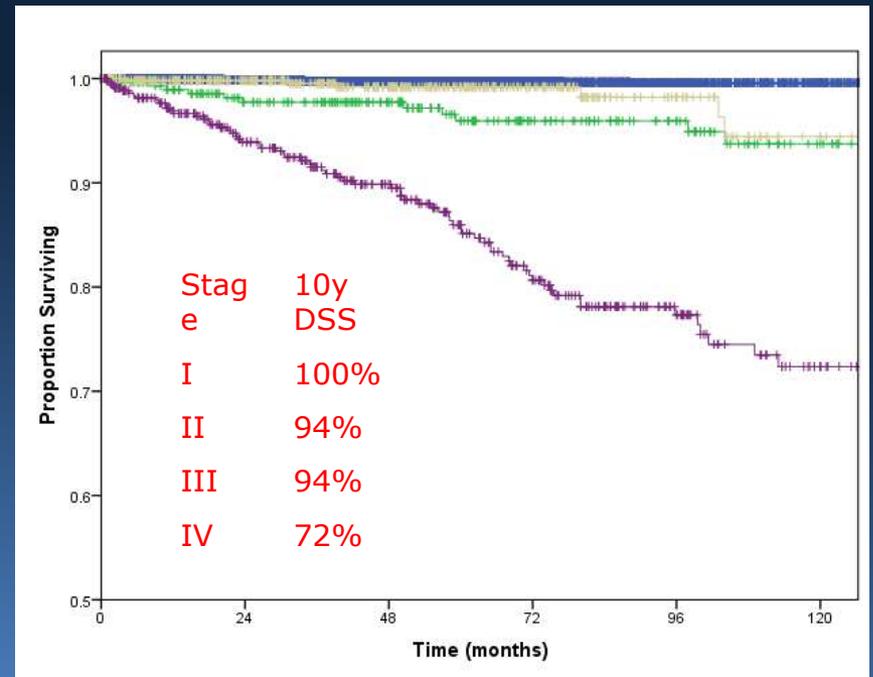
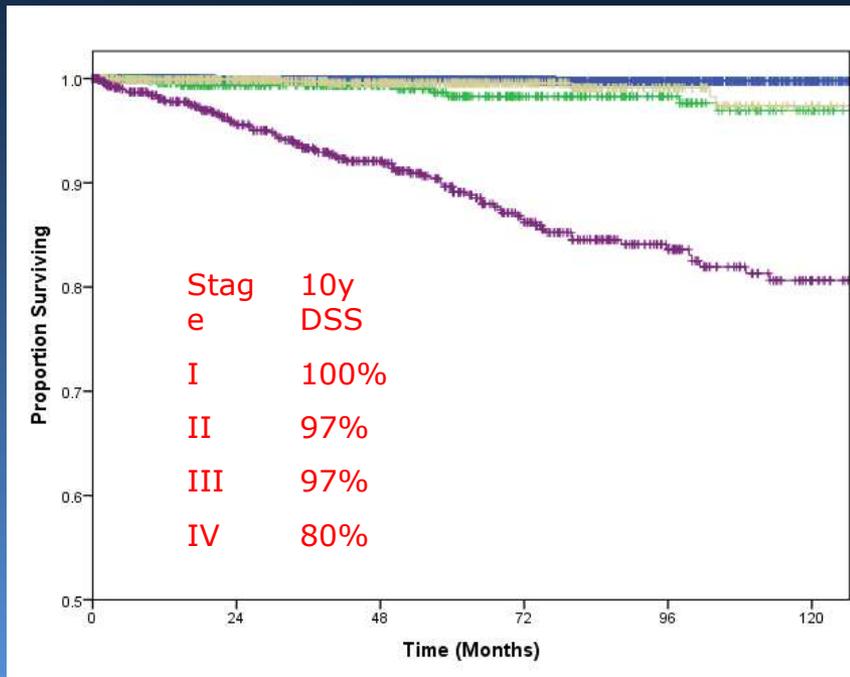
An International Multi-Institutional Validation of Age 55 Years as a Cut off In the AJCC Staging System for Well Differentiated Thyroid Cancer



Disease Specific Survival

Age 45 years cut off

Age 55 years cut off



2017

Impact of Age cut off at 55

- A change in age cut off affects 13% of patients
 - >8000 annually in the USA
- Results in wider distribution of outcomes
 - I-IV 45 – 100 →81%
 - I-IV 55 - 100 →72%

AJCC / UICC will adapt 55 year age cut off in the 7th Edition of Staging manual , starting 2017

Challenging Established Paradigms in the Management of Thyroid Cancer

Staging of T1a and T1b tumors is valid

AJCC TNM classification for differentiated thyroid cancer (DTC) subdivides T1 into

- T1a ($\leq 1\text{cm}$)
 - T1b (1-2cm)
- The ATA guidelines recommend
 - Total Thyroidectomy for all tumors $>1\text{cm}$
 - Possibility of Lobectomy for tumors $\leq 1\text{cm}$

Aims of comparison study

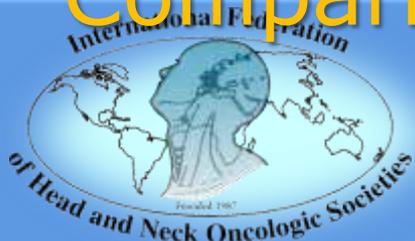
Do AJCC T1b tumors have poorer

1. overall survival
2. disease specific survival
3. recurrence free survival

compared to T1a tumors?

Comparison Study between T1a and T1b

The International Federation
of Head and Neck Oncologic Societies



Current Concepts in

urgery

17

3664 patients
MSKCC
1986-2010

Inclusion
(pT1pN0/XM0)
n = 1522

Exclusion

n = 2142

Tumor size >2cm

E7E

pN1 nodal disease

M1 disease

T1a
(≤1cm)
n = 899

T1b
(1-2cm)
n = 623

Patient and Treatment Characteristics

Comparison of T1a and T1b patient, tumor and treatment variables

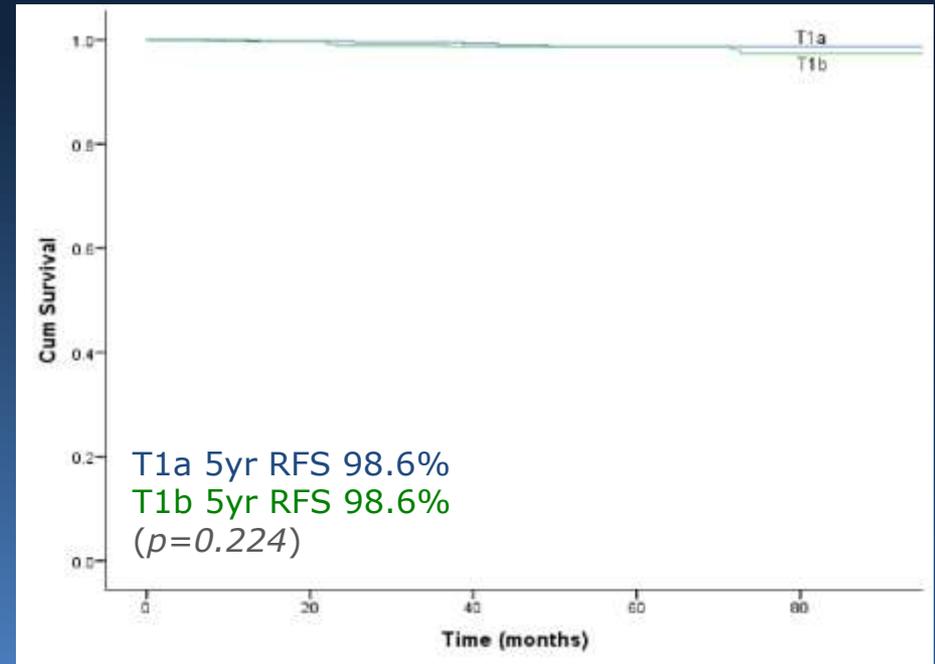
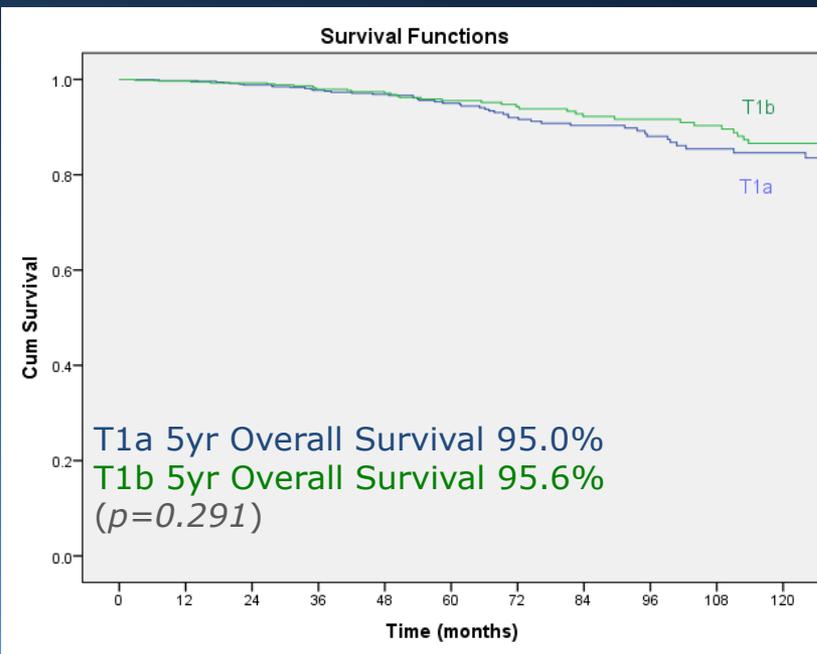
		T1 a		T1b		<i>p value</i>
		n	%	n	%	
Age	<45 yrs	335	37.3	293	47.0	<0.001
	≥45 yrs	564	62.7	330	53.0	
Gender	Female	726	80.8	491	78.8	<i>0.351</i>
	Male	173	19.2	132	21.2	
Previous RT exposure	No	843	93.8	598	96.0	<i>0.058</i>
	Yes	56	6.2	25	4.0	
Thyroid Surgery	< total thyroid	236	27.1	182	29.5	<i>0.307</i>
	Total thyroid	634	72.9	434	70.5	
RAI therapy	No RAI	845	94.0	472	75.8	<0.001

T1a and T1b - Outcomes

Disease specific Deaths, "0" in both groups

Over all Survival

Recurrence free Survival



2015 ATA Guidelines now accept Lobectomy for intrathyroidal tumors up to 4 cms



Challenging Established Paradigms in the Management of Thyroid Cancer

All patients with Differentiated Carcinoma
need Total Thyroidectomy

Not necessarily.....

★ *The complications following Total Thyroidectomy, and the quality of life after Total Thyroidectomy are issues that must be factored in the decision regarding "Unindicated Total Thyroidectomy practice"*

Lobectomy vs Total Thyroidectomy

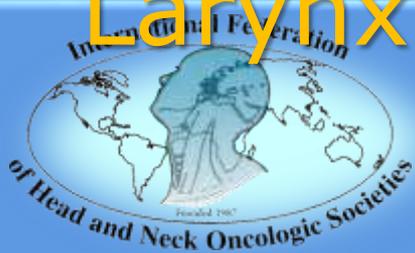
- 884 consecutive pts
- All Intrathyroidal tumors
- All N 0 patients
- All M 0 patients
- All Differentiated

Characteristics (n=884)	Number (%)
Age	
<45y	421 (48%)
>45y	463 (52%)
Gender	
Male	185 (21%)
Female	699 (79%)
pT Stage	
T1	634 (72%)
T2	250 (28%)
Pathology	
Papillary	798 (90%)
Follicular	50 (6%)
Hurthle Cell	36 (4%)
Risk Group	
Low	370 (42%)
Intermediate	449 (51%)
High	65 (7%)
Surgery	
Lobectomy	362 (41%)
Total Thyroidectomy	522 (59%)

Lobectomy vs Total Thyroidectomy

Outcome	Lobectomy	Total Thyroidectomy	p Value
Local Recurrence Free Survival	100%	100%	NS
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Larynx Cancer Staging – 5th Edition



The International Federation
of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017

- Supraglottis
- Glottis
- Subglottis
- T1 – T4



Supraglottis

The International Federation of Head and Neck Oncologic Societies

T	5 th Ed	6 th Ed	7 th Ed
1	Tumor limited to one subsite of supraglottis with normal vocal cord mobility	Tumor limited to one subsite of supraglottis with normal vocal cord mobility	Tumor limited to one subsite of supraglottis with normal vocal cord mobility
2	Tumor invades mucosa of more than one adjacent subsite of supraglottis or glottis or region outside of the supraglottis (e.g., mucosa of base of tongue, vallecula, medial wall of pyriform sinus) without fixation of the larynx	Tumor invades mucosa of more than one adjacent subsite of supraglottis or glottis or region outside the supraglottis (e.g., mucosa of base of tongue, vallecula, medial wall of pyriform sinus) without fixation of the larynx	Tumor invades mucosa of more than one adjacent subsite of supraglottis or glottis or region outside the supraglottis (e.g., mucosa of base of tongue, vallecula, medial wall of pyriform sinus) without fixation of the larynx
3	Tumor limited to larynx with vocal cord fixation and/or invades any of the following: postcricoid area, pre-epiglottic tissues	Tumor limited to larynx with vocal cord fixation and/or invades any of the following: postcricoid area, pre-epiglottic tissues, paraglottic space, and/or minor thyroid cartilage erosion (e.g., inner cortex)	Tumor limited to larynx with vocal cord fixation and/or invades any of the following: postcricoid area, pre-epiglottic space, paraglottic space, and/or inner cortex of thyroid cartilage
4	Tumor invades through the thyroid cartilage, and/or extends into soft tissues of	T4 a Tumor invades through the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscle of the tongue, strap muscles,	T4 a Moderately advanced local disease Tumor invades through the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including

Supraglottis

The International Federation
of Head and Neck Oncologic Societies



Changes from 5th



8th on

Current Concepts in Head and Neck Surgery and Oncology 2017

- Addition of invasion of paraglottic space and minor cartilage invasion to T3
- Division of T4 to T4a and T4b (Resectable & Unresectable)
- Change of terminology for T4a and T4b to (Moderately advanced and Very advanced)



Glottis

The International Federation of Head and Neck Oncologic Societies

T	5 th Ed	6 th Ed	7 th Ed
1	Tumor limited to vocal cord(s) (may involve anterior or posterior commissure) with normal mobility T1a Tumor limited to one vocal cord T1b Tumor involves both vocal cords	Tumor limited to vocal cord(s) (may involve anterior or posterior commissure) with normal mobility T1a Tumor limited to one vocal cord T1b Tumor involves both vocal cords	Tumor limited to vocal cord(s) (may involve anterior or posterior commissure) with normal mobility T1a Tumor limited to one vocal cord T1b Tumor involves both vocal cords
2	Tumor extends to supraglottis and/or subglottis, and/or with impaired vocal cord mobility	Tumor extends to supraglottis and/or subglottis, and/or with impaired vocal cord mobility	Tumor extends to supraglottis and/or subglottis, and/or with impaired vocal cord mobility
3	Tumor limited to the larynx with vocal cord fixation	Tumor limited to the larynx with vocal cord fixation and/or invades paraglottic space, and/or minor thyroid cartilage erosion (e.g., inner cortex)	Tumor limited to larynx with vocal cord fixation and/or invasion of paraglottic space, and/or inner cortex of thyroid cartilage
4	Tumor invades through the thyroid cartilage and/or to other tissues beyond the larynx (e.g., trachea, soft	T4 a Tumor invades through the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscle of the tongue, strap muscles, thyroid, or esophagus)	T4a Moderately advanced local disease Tumor invades through the outer cortex of the thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscle of the tongue, strap muscles, thyroid, or esophagus)

Gottis

The International Federation of Head and Neck Oncologic Societies



Changes from 5th → 7th → 8th on
Current Concepts in Head and Neck Surgery and Oncology 2017

- Addition of invasion of paraglottic space and minor cartilage invasion to T3
- Division of T4 to T4a and T4b (Resectable & Unresectable)
- Change of terminology for T4a and T4b to (Moderately advanced and Very advanced)



Subglottis

The International Federation of Head and Neck Oncologic Societies

T	5 th Ed	6 th Ed	7 th Ed
1	Tumor limited to subglottis	Tumor limited to subglottis	Tumor limited to subglottis
2	Tumor extends to vocal cord(s) with normal or impaired mobility	Tumor extends to vocal cord(s) with normal or impaired mobility	Tumor extends to vocal cord(s) with normal or impaired mobility
3	Tumor limited to larynx with vocal cord fixation	Tumor limited to larynx with vocal cord fixation	Tumor limited to larynx with vocal cord fixation
4	Tumor invades through cricoid or thyroid cartilage and/or extends to other tissues beyond the larynx (e.g., trachea, soft tissues of neck, including thyroid, esophagus)	<p>T4a Tumor invades cricoid or thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscles of the tongue, strap muscles, thyroid or esophagus)</p> <p>T4b Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures.</p>	<p>T4a Moderately advanced local disease Tumor invades cricoid or thyroid cartilage and/or invades tissues beyond the larynx (e.g., trachea, soft tissues of neck including deep extrinsic muscles of the tongue, strap muscles, thyroid or esophagus)</p> <p>T4b Very advanced local disease Tumor invades prevertebral space, encases carotid artery, or invades mediastinal structures.</p>

Subglottis

The International Federation
of Head and Neck Oncologic Societies



Changes from 5th



Current Concepts in Head and Neck Surgery and Oncology 2017

- (Resectable & Unresectable)
- Change of terminology for T4a and T4b to (Moderately advanced and Very advanced)



Stage Groupings

The International Federation of Head and Neck Oncologic Societies

Stage ↓	5 th Ed	6 th Ed	7 th Ed
1	T1N0M0	T1N0M0	T1N0M0
2	T2N0M0	T2N0M0	T2N0M0
3	T3N0, T1,2,3, N1	T3N0, T1,2,3, N1	T3N0, T1,2,3, N1
4	IV A-T4N0,N1 ,Any TN2 IV B- Any T N3 IV C – Any T, Any N,M1	IV A-T4a, N0,N1,N2 T1,2,3, N2 IV B- T4bAnyN,AnyTN3 IV C – Any T, Any N,M1	IV A-T4a, N0,N1, T1,2,3,4aN2 IV BT4bAnyN,AnyTN3 IV C – Any T,AnyN,M1



Staging of Larynx Cancer

The International Federation
of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017

8th Edition

- No major changes planned for T staging
- Nodal staging will incorporate ENE in N staging
- Non Anatomic factors will be recorded, such as: Socio economic status, BMI, P53, Comorbidity, Tobacco, alcohol abuse, EGFR, Immune status , etc.



Changes in Stage Groupings

The International Federation of Head and Neck Oncologic Societies

Current Concepts in Head and Neck Surgery and Oncology 2017

- No change for Stage 1,2 and 3

- Stage 4, divided into three groups
 - 4a – Moderately advanced Locoregional Disease
 - 4b – Very advanced Locoregional Disease
 - 4c – Distant Metastatic Disease

Differentiated Thyroid Cancer

Prognostic Factors

Mayo

Lahey

Mayo

Karolinska

MSKCC

AGES

AMES

MACIS

DAMES

GAMES

Age
Grade

Age
Metastases

Metastases
Age
Completeness
Of resection

DNA
Age
Metastases

Grade
Age
Metastases

Extension

Extension

Invasion

Extension

Extension

Size

Size

Size

Size

Size



Risk Group Stratification

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



Differentiated Thyroid Cancer

Risk Group Stratification

- 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 overall prognosis, for local , regional, or distant failure and Survival.

