



TNM Classification of Malignant Tumours 8th edition

Changes between the 7th and 8th editions

international union
against cancer

TNM-8

- The TMN 8th edition is being published in December 2017.

The UICC TNM Prognostic Factors Project recognizes that not all cancer registries will be able to stage new cancer cases diagnosed from January the 1st 2018 with TNM 8th edition but that physician may use the 8th edition as soon as it is available. It is therefore important that the edition of TNM being used to stage patients is recorded.

- The following is a summary of the changes between the 7th and 8th editions of TNM.
- Major changes are listed and minor changes are identified.

TNM-8

New classifications:

- Oropharynx p16+ve
- Unknown primary cervical neck lymph nodes
- Skin head and neck cancers
- Thymus
- Neuroendocrine tumors: pancreas
- Osteosarcoma: Pelvic, Spine
- Soft tissue Sarcoma: Head and neck, Retroperitoneal, Thoracic and Abdominal Viscera

Major modifications

- Head and Neck Nodes
- Nasopharynx
- Thyroid
- Esophagus
- Stomach
- Anal Cancer
- Liver
- Lung
- Prostate
- Ovary

Minor or no modifications

- Introduction
- Other Head and Neck carcinomas
- Hepatobiliary
- Small intestine, Colon and rectum
- Neuroendocrine
- Pleura
- Penis, Kidney, Ureter, Bladder, Urethra,
- Eye
- Malignant Lymphoma

New Structure

- Remove C factor from introduction
- Clarify ITC
- Add Prognostic Grid
- Essential TNM
- Paediatric Malignancies

ITC -UICC

- Isolated tumour cells (ITC) are single tumour cells or small clusters of cells not more than 0.2 mm in greatest extent that can be detected by routine H and E stains or immunohistochemistry. An additional criterion has been proposed to include a cluster of fewer than 200 cells in a single histological cross-section others have proposed that a cluster should have 20 cells or fewer; definitions of ITC may vary by tumour site.
- The exception is in Malignant Melanoma of the skin and Merkel Cell Carcinoma, wherein ITC in a lymph node are classified as N1. These cases should be analyzed separately.

Head and Neck Changes

- For all sites there are separate classifications for clinical and pathological neck nodes
- There is a new classification for p16 positive oropharyngeal cancers. Tumours that have p16 immunohistochemistry overexpression.
- The classification for nasopharyngeal cancers and thyroid cancers has been modified
- There is a new classification for squamous cell carcinoma of the skin in the head and neck region
- There is a new classification for cervical nodal involvement with unknown primary

Clinical

N1, N2a, N2b and N2c unchanged
other than specify without
extranodal extension

- N3a Metastasis in a lymph node more than 6 cm in greatest dimension without extranodal extension
- N3b Metastasis in a single or multiple lymph nodes with clinical extranodal extension*

* The presence of skin involvement or soft tissue invasion with deep fixation/tethering to underlying muscle or adjacent structures or clinical signs of nerve involvement is classified as clinical extra nodal extension

Pathological

N1, N2a, N2b and N2c unchanged
other than specify without
extranodal extension

- pN3a Metastasis in a lymph node more than 6 cm in greatest dimension without extranodal extension
- pN3b Metastasis in a lymph node more than 3 cm in greatest dimension with extranodal extension or, multiple ipsilateral, or any contralateral or bilateral node(s) with extranodal extension

Clinical and Pathological T categories

- T1 Tumour 2 cm or less in greatest dimension
- T2 Tumour more than 2 cm but not more than 4 cm
- T3 Tumour more than 4 cm in or extension to lingual surface of epiglottis
- T4 Tumour invades any of the following: larynx, deep/ extrinsic muscle of tongue (genioglossus, hyoglossus, palatoglossus, and styloglossus), medial pterygoid, hard palate, mandible*, lateral pterygoid muscle, pterygoid plates, lateral nasopharynx, skull base; or encases carotid artery

Clinical N categories

- N0 No regional lymph node metastasis
- N1 Unilateral metastasis, in lymph node(s), all 6 cm or less
- N2 Contralateral or bilateral metastasis in lymph node(s), all 6 cm or less in greatest dimension
- N3 Metastasis in lymph node(s) greater than 6 cm in dimension

Pathological N categories

- pN0 No regional lymph node metastasis
- pN1 Metastasis in 1 to 4 lymph node(s)
- pN2 Metastasis in 5 or more lymph node(s)

Clinical				Pathological			
Stage I	T1,T2	N0,1	M0	Stage I	T1,T2	N0,1	M0
Stage II	T1,T2	N2	M0	Stage II	T1,T2	N2	M0
	T3	N0,N1,N2	M0		T3	N0,N1	
Stage III	T1-T4	N3	M0	Stage III	T3,T4	N2	M0
	T4	Any N	M0				
Stage IV	Any T	Any N	M0	Stage IV	Any T	Any N	M0

T categories

T1 Unchanged

T2 Tumour with extension to parapharyngeal space and/or infiltration of the medial pterygoid, lateral pterygoid, and/or prevertebral muscles

T3 Tumour invades bony structures of skull base cervical vertebra, pterygoid structures, and/or paranasal sinuses

T4 Tumour with intracranial extension and/or involvement of cranial nerves, hypopharynx, orbit, parotid gland and/or infiltration beyond the lateral surface of the lateral pterygoid muscle

N Categories

N1 Unilateral metastasis, in cervical lymph node(s), and/or unilateral or bilateral metastasis in retropharyngeal lymph nodes, 6 cm or less, above the caudal border of cricoid cartilage

N2 Bilateral metastasis in cervical lymph node(s), 6 cm or less above the caudal border of cricoid cartilage

N3 Metastasis in cervical lymph node(s) greater than 6 cm in dimension and/or extension below the caudal border of cricoid cartilage

Stage Groups

Stage I	T1	N0	M0
Stage II	T1	N1	M0
	T2	N0, N1	M0
Stage III	T1, T2	N2	M0
	T3	N0, N1, N2	M0
Stage IVA	T4	N0, N1, N2	M0
	Any T	N3	M0
Stage IVB	Any T	Any N	M1

Stage IV compressed previous stage IVB now IVA

If HPV positive stage as per
nasopharyngeal carcinomas

If p16 positive stage as per p16
positive oropharynx carcinomas

If HPV and p16 negative clinical and
pathological node definitions are as
above

Stage III	T0	N1	M0
Stage IVA	T0	N2	M0
Stage IVB	T0	N3	M0
Stage IVC	T0	N1, N2, N3	M1

The definition of T3 has been revised for papillary and follicular and medullary carcinomas

T3a Tumour more than 4 cm in greatest dimension, limited to the thyroid

T3b Tumor of any size with gross extrathyroidal extension invading only strap muscles (sternohyoid, sternothyroid, or omohyoid muscles)

The age for a poor prognosis has changed from 45 years to 55 years

Stage < 55 years old

Stage I	Any T	Any N	M0
Stage II	Any T	Any N	M1

Stage \geq 55 years old

Stage I	T1a, T1b, T2	N0	M0
Stage II	T3	N0	M0
	T1, T2, T3	N1	M0
Stage III	T4a	Any N	M0
Stage IVA	T4b	Any N	M0
Stage IVB	Any T	Any N	M1

TNM-8 Oesphagogastric Junction

Oesophagus and Gastric Carcinomas

- A tumour the epicenter of which is within 2 cm of the oesophagogastric junction and also extends into the oesophagus is classified and staged using the oesophageal scheme. Cancers involving the oesophagogastric junction (OGJ) whose epicenter is within the proximal 2 cm of the cardia (Siewert types I/II) are to be staged as oesophageal
- Cancers whose epicenter is more than 2 cm distal from the OGJ will be staged using the Stomach Cancer TNM and Stage even if the OGJ is involved.

There are no changes in the definitions of the T, N and M categories.

Note there are pathological prognostic groups available for squamous cell carcinoma and clinical and pathological prognostic groups available for adenocarcinoma

The AJCC also publish post preoperative therapy prognostic groups for adenocarcinoma and squamous cell carcinoma

Clinical Stage				Pathological Stage			
Stage 0	Tis	N0	M0	Stage 0	Tis	N0	M0
Stage I	T1	N0, N1	M0	Stage IA	T1a	N0	M0
Stage II	T2	N0, N1	M0	Stage IB	T1b	N0	M0
	T3	N0	M0		T2	N0	M0
Stage III	T1,T2	N2	M0	Stage II	T3	N0	M0
	T3	N1, N2	M0		T1	N1	M0
Stage IVA	T4a,T4b	Any N	M0	Stage IIIA	T1	N2	M0
Stage IVA	Any T	N3	M0	T2	N1	M0	
Stage IVB	Any T	Any N	M1	Stage IIIB	T2	N2	M0
				T3	N1, N2	M0	
				T4a	N0, N1	M0	
				T4b	N0, N1	M0	
Stage IVA	Any T	Any N	M0	Stage IVA	T4a	N2	M0
					T4b	Any N	M0
					Any T	N3	M0
Stage IVB	Any T	Any N	M1	Stage IVB	Any T	Any N	M1

Clinical Stage

Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage IIA	T1	N1	M0
IIB	T2	N0	M0
Stage III	T1	N2	M0
	T2	N1, N2	M0
	T3,T4a	N0, N1,	M0
Stage IVA	T4b	N0, N1	M0
	Any T	N2, N3	M0
Stage IVB	Any T	Any N	M1

Pathological Stage

Stage 0	Tis	N0	M0
Stage IA	T1a	N0	M0
Stage IB	T1b	N0	M0
Stage IIA	T2	N0	M0
Stage IIB	T1a,T1b	N1	M0
Stage IIIA	T1	N2	M0
	T2	N1	M0
	T3, T4a	N0	M0
Stage IIIB	T2	N2	M0
	T3	N1, N2	M0
	T4a	N1	M0
Stage IVA	T4a	N2	M0
	T4b	Any N	M0
	Any T	N3	M0
Stage IVB	Any T	Any N	M1

Clinical Stage

Stage I	T1, T2,	N0	M0
Stage IIA	T1, T2,	N1, N2, N3	M0
Stage IIB	T3, T4a	N0	M0
Stage III	T3, T4a	N1, N2, N3	M0
Stage IV	T4b	Any N	M0
Stage IV	Any T	Any N	M1

Pathological Stage

Stage 0	Tis	N0	M0
Stage IA	T1	N0	M0
Stage IB	T1	N1	M0
	T2	N0	M0
Stage IIA	T1	N2	M0
	T2	N1	M0
	T3	N0	M0
Stage IIB	T1	N3a	M0
	T2	N2	M0
	T3	N1	M0
	T4a	N0	M0

Definition of tumour deposit clarified

Tumour deposits (satellites) are discrete macroscopic or microscopic **nodules of cancer in the pericorectal adipose tissue's lymph drainage area** of a primary carcinoma that are discontinuous from the primary and without histological evidence of residual lymph node or identifiable vascular or neural structures. If a vessel wall is identifiable on H&E, elastic or other stains, it should be classified as venous invasion (V1/2) or lymphatic invasion (L1). Similarly, if neural structures are identifiable, the lesion should be classified as perineural invasion (Pn1). The presence of tumour deposits does not change the primary tumour T category, but changes the node status (N) to N1c if all regional lymph nodes are negative on pathological examination

T and N categories Unchanged

M1 Distant metastasis

M1a Metastasis confined to one organ (liver, lung, ovary, non regional lymph node(s)) without peritoneal metastases

M1b Metastasis in more than one organ

M1c Metastasis to the peritoneum with or without other organ involvement

Stage Unchanged except for Stage IVA, IVB, IVC as below

Stage IV	Any T	Any N	M1
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Stage IVA	Any T	Any N	M1a
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Stage IVB	Any T	Any N	M1b
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Stage IVC	Any T	Any N	M1c
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Appendix

Introduction of Tis (LAMN). Low-grade appendiceal mucinous neoplasm confined to the appendix

Changes to N and M categories and Stage

Tumours of anal margin and perianal skin defined as within 5cm of the anal margin are now classified with carcinomas of the anal canal

T categories are unchanged

N0 No regional lymph node metastasis

N1 Metastasis in regional lymph node(s)

N1a Metastases in inguinal, mesorectal, and/or internal iliac nodes

N1b Metastases in external iliac nodes

N1c Metastases in external iliac and in inguinal, mesorectal and/or internal iliac nodes

M categories are unchanged

Stage

Stage I	T1	N0	M0
Stage IIA	T2	N0	M0
Stage IIB	T3	N0	M0
Stage IIIA	T1, T2	N1	M0
Stage IIIB	T4	N0	M0
Stage IIIC	T3, T4	N1	M0
Stage IV	Any T	Any N	M1

T1a	Solitary tumour less than or equal to 2 cm in greatest dimension with or without vascular invasion	There are no changes in the definitions of the N and M categories.			
T1b	Solitary tumor more than 2 cm in greatest dimension without vascular invasion				
T2	Solitary tumour with vascular invasion more than 2 cm dimension <i>or</i> multiple tumours, none more than 5 cm in greatest dimension	Stage I A	T1a	N0	M0
T3	Multiple tumours any more than 5 cm in greatest dimension	Stage I B	T1b	N0	M0
T4	Tumour(s) involving a major branch of the portal or hepatic vein with direct invasion of adjacent organs (including the diaphragm), other than the gallbladder <i>or</i> with perforation of visceral peritoneum	Stage II	T2	N0	M0
		Stage IIIA	T3	N0	M0
		Stage IIIB	T4	N0	M0
		Stage IVA	Any T	N1	M0
		Stage IVB	Any T	Any N	M1

Intrahepatic Bile Ducts

- Changes in definitions of T1 and T2 categories
- Changes in Stage

Gall Bladder

- Changes in definitions of T2 category and N categories
- Change in Stage

Perihilar Bile Ducts No Changes

Distal Extrahepatic Bile Duct

- Changes in definitions of T1, T2, T3 categories and N categories
- Changes in Stage

Ampulla of Vater

- Changes in definitions of T1, T2 and T3 categories and N categories
- Changes in Stage

Well differentiated Neuroendocrine Tumours of the Gastrointestinal Tract

- Pancreas added
- Minor changes in T categories.
- Changes in N category for Jejunum and Ileum
- Minor changes in Stage

T1	Tumour 2 cm or less
T1a	Tumour 0.5 cm or less
T1b	Tumour greater than 0.5 cm and less than 1 cm
T1c	Tumor greater than 1 cm but no more than 2 cm
T2	Tumour more than 2 cm but no more than 4 cm
T3	Tumour more than 4 cm in greatest dimension
T4	Tumour involves coeliac axis, superior mesenteric artery and/or common hepatic artery
N1	Metastases in 1 to 3 nodes
N2	Metastases in 4 or more nodes

M category unchanged

Stage

Stage IA	T1	N0	M0
Stage IB	T2	N0	M0
Stage IIA	T3	N0	M0
Stage IIB	T1, T2, T3	N1	M0
Stage III	T1, T2, T3	N2	M0
	T4	Any N	M0
Stage IV	Any T	Any N	M1

T1 Tumour 3 cm or less

T1mi Minimally invasive adenocarcinoma

T1a Tumour 1 cm or less

T1b Tumour more than 1 cm but not more than 2 cm

T1c Tumour more than 2 cm but not more than 3 cm

T2 Tumour more than 3 cm but not more than 5 cm; or tumour with *any* of the following features:

Involves main bronchus without involvement of the carina, or invades visceral pleura or associated with atelectasis or obstructive pneumonitis

T2a Tumour more than 3 cm but not more than 4 cm

T2b Tumour more than 4 cm but not more than 5 cm

T3 Tumour more than 5 cm but not more than 7 cm or directly invades: parietal pleura, chest wall, phrenic nerve, or parietal pericardium; or separate tumour nodule(s) in the same lobe.

T4 Tumour more than 7 cm or of any size that invades any of the following: diaphragm, mediastinum, heart, great vessels, trachea, recurrent laryngeal nerve, oesophagus, vertebral body, carina; or separate tumour nodule(s) in a different ipsilateral lobe to the primary

N Category- No Change

M Category

M1a Separate tumour nodule(s) in a contralateral lobe; tumour with pleural or pericardial nodules or malignant pleural or pericardial effusion

M1b Single extrathoracic metastasis in a single organ

M1c Multiple extrathoracic metastasis in a single or multiple organs

Stage IA	T1	N0	M0	Stage IIIA	T1a-c, T2a,b	N2	M0
Stage IA1	T1mi, T1a	N0	M0		T3	N1	
Stage IA2	T1b	N0	M0		T4	N0, N1	M0
Stage IA3	T1c	N0	M0	Stage IIIB	T1a-c, T2a,b	N3	M0
Stage IB	T2a	N0	M0		T3, T4	N2	M0
Stage IIA	T2b	N0	M0	Stage IIIC	T3, T4	N3	M0
Stage IIB	T1a-c, T2a,b	N1	M0	Stage IV	Any T	Any N	M1
	T3	N0	M0	Stage IVA	Any T	Any N	M1a,b
				Stage IVB	Any T	Any N	M1c

Mesothelioma

Minor change in T1 category

Changes in N category

Changes in Stage

Thymus

Please see details in

Nicholson AG, Detterbeck FC, Marino M et al. The IASLC/ITMIG thymic epithelial tumors staging project: proposals for the T component for the forthcoming (8th) edition of the TNM classification of malignant tumors. *J Thorac Oncol* 2014; 9: s73-s80.

Bone

- No Changes for sarcomas of the Appendicular Skeleton, Trunk, Skull and Facial Bones
- New Classifications introduced for Spine and Pelvic Bone Sarcomas

Soft Tissues sarcoma

New T categories for Extremity and Superficial Trunk

- | | |
|----|---|
| T1 | Tumour 5 cm or less |
| T2 | Tumour more than 5 cm but no more than 10 cm |
| T3 | Tumour more than 10 cm but no more than 15 cm |
| T4 | Tumour more than 15 cm |

New Classification for retroperitoneal sarcoma (same as extremity) Head and Neck and also Thoracic and Abdominal Viscera

T categories

T1 \leq 2 cm

T2 > 2 to 4cm

T3 > 4 cm

T4a Tumor with gross cortical bone / marrow invasion

T4b Tumor with skull base or axial skeleton invasion including foraminal involvement and/or vertebral foramen involvement to the epidural space

N Categories for non head and neck

N1 Metastasis in a single lymph node 3 cm or less

N2 Metastasis in a single ipsilateral lymph node, more than 3 cm but not more than 6 cm or in multiple ipsilateral nodes none more than 6 cm

N3 Metastasis in a lymph node more than 6 cm

Head and Neck Region

N categories as defined in slide 9

Stage			
Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage III	T3	N0	M0
	T1, T2, T3	N1	M0
Stage IVA	T1, T2, T3	N2, N3	M0
	T4	Any N	M0
Stage IVB	Any T	Any N	M1

Cutaneous Melanoma

- pT1a and pT1b categories introduced
 - pT1a \leq 0.8mm
 - pT1b > 0.8mm -1mm
- M category
 - M1a Skin, subcutaneous tissue or non regional lymph nodes
 - M1b Lung
 - M1c Other non-central nervous system sites
 - M1d Central nervous system
- M Category modified by elevated or non-elevated LDH
- Stage Revised

Merkel cell

- Changes in cN and pN classification and in Stage

Prostate

T4N0M0 is now stage III

WHO Grade should be used to record tumour grade

Stage

Stage I	T1, T2a	N0	M0
Stage II	T2b-2c	N0	M0
Stage III	T3,T4	N0	M0
Stage IV	Any T	N1	M0
	Any T	Any N	M1

Penis

Changes in T category and pathological N category

Kidney

N2 is eliminated

Urinary bladder

The M category is subdivided

M1a Non regional lymph nodes

M1b Other distant metastasis

Minor changes to Stage

Urethra

Changes to N category

N1 Metastasis in a single lymph node

N2 Metastasis in multiple lymph nodes

Adrenal Cortex

Change in Stage

Stage I	T1	N0	M0
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Stage II	T2	N0	M0
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Stage III	T1, T2	N1	M0
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	T3, T4	N0, N1	M0
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Stage IV	Any T	Any N	M1
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Ovary– 8th ed TNM and Ovary, Fallopian Tube and Primary Peritoneal Carcinoma based on FIGO 2014

- FIGO has published a new classification for ovarian cancer*
- This classification incorporates cancers of the fallopian tube and primary peritoneal carcinomas

Staging classification for cancer of the ovary, fallopian tube, and peritoneum. Jaime Prat; for the FIGO Committee on Gynecologic Oncology. International Journal of Gynecology and Obstetrics 124 (2014) 1–5

T1	Limited to the ovaries	I	T3 and/or Peritoneal metastasis beyond pelvis
T1a	One ovary, (capsule intact) or fallopian tube	IA	N1 and/or regional lymph node metastasis III
T1b	Both ovaries, capsule intact	IB	T1/T2 N1 Retroperitoneal nodes only IIIA1
T1c1	Surgical Spill	IC1	T1/T2 N1a $\leq 10\text{mm}$ IIIA1i
T1c2	Capsule ruptured before surgery or tumour on surface of ovary or tube		T1/T2 N1b $> 10\text{mm}$ IIIA1ii
T1c3	Malignant cells in ascites or peritoneal washings	IC3	T3a N0/N1 Microscopic peritoneal metastasis
T2	Pelvic extension below pelvic brim or primary peritoneal cancer	II	T3b N0/N1 Macroscopic peritoneal metastasis $\leq 2\text{cm}$ IIIB
T2a	Uterus, tube(s), ovary (ies)	IIA	T3c N0/N1 Peritoneal metastasis $>2\text{ cm}$ IIIC
T2b	Other pelvic tissues	IIB	M1 Distant metastasis (excludes peritoneal) IV
			M1a Pleural effusion positive cytology IVB
			M1b Parenchymal metastases IVB

- A recent consensus conference in Lugano suggested a more simplified system putting together stage I and II as Limited Stage and stage III and IV as Advanced Stage lymphoma.

Limited Stage

- Stage I
- Stage II
- Bulky Stage II

Advanced Stage

- Stage III
- Stage IV

Cheson BD, Fisher RI, Barrington SF, et al. Recommendations for initial evaluation, staging, and response assessment of Hodgkin and non-Hodgkin lymphoma: the Lugano classification. *J Clin Oncol*. 2014;32: 3059-3068

Carcinoma of Conjunctiva

- Minor changes to definition of T1 and T2 categories

Malignant Melanoma of Conjunctiva

- Changes to the pathological T categories

Malignant Melanoma of Uvea

- Iris
 - Minor changes to definition T2 category

Retinoblastoma

Changes to definition of cT1 and cM categories and pT and pM categories

Sarcoma of the Orbit

- Minor changes to definition of T1 and T2 categories

Carcinoma of Lacrimal Gland

- Changes to the T categories

- Information on anatomical extent of disease at presentation is often not available for cancer registries in low and middle income countries either because of inability to perform necessary investigations or because of lack of recording of information.
- The UICC TNM Project has with the International Agency for Research in Cancer and the National Cancer Institute developed **“Essential TNM” that can be used to collect stage data when complete information is not available.**
- When the T, N, and M categories have not been the cancer registrar can code the extent of disease according to the Essential TNM scheme.
- The schema for breast, colorectal cancer, prostate and cervix cancer published in the 8th edition TNM Classification and are available on the website

- A consensus meeting held in 2014 recommended a tiered staging system with more detailed systems for well-resourced cancer registries and less detailed systems for registries with limited resources and access
- The recommendations for tier 1 and 2 follow are published in the 8th edition TNM Classification of Malignant Tumours.
- For some cancers recommendations are the same as described earlier for adult patients.