**3- Clinical data**

**(staging)**

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**Breast cancer**

**TNM staging:**

**T: Tumor size:**

* T1: Tumor ≤2 cm in greatest dimension
* T2: Tumor 2-5 cm in greatest dimension
* T3: Tumor > 5 cm
* T4a: Any size tumor with direct extension to the chest wall
* T4b: Any size tumor with direct extension to the
* T4c: extension to both chest wall and skin
* T4d: inflammatory breast cancer

**N: Lymph Node :**

* N1: 1–3 three positive lymph node metastases
* N2: ≥4 axillary lymph node metastases or
* N3: any clinically diagnosed internal mammary or supraclavicular lymph nodes

**M: Distant Metastasis:**

* M0: No distant metastasis
* M1: distant metastasis

**Matrix:**



**Non–Small Cell Lung Cancer**

**TNM staging:**

**T:**

* T1: < 3cm
* T2: 3-5 cm or invading main bronchus
* T3: 5-7 cm or invading pleura, chest wall
* T4: > 7cm or or invades any of the following diaphragm, heart, trachea, great vessels

**N:**

* N1: lymph nodes within lobe up to and including hilum;
* N2, ipsilateral mediastinal/subcarinal lymph node(s);
* N3, contralateral mediastinal/hilar, ipsilateral or contralateral scalene, or supraclavicular lymph node(s);

**M:**

* M1a: pleural effusion, spread to contralateral lung
* M1b: single extrathoracic metastasis.
* M1c: multiple extratoracic metastases.

**Matrix:**



**Small cell lung cancer**

**Limited x Extensive Staging:**

* **Limited stage:**

Disease confined to ipsilateral hemithorax within a single radiation port

* **Extensive stage:**

Disease beyond ipsilateral hemithorax or obvious metastatic disease

**TNM staging:**

**Primary Tumor (T)**

* T1: < 3cm
* T2: 3-5 cm
* T3: 5-7 cm or directly invade pleura, chest wall
* T4: >7 cm or invades any of the following diaphragm, heart, trachea, great vessels

**Regional Lymph node (N)**

* N1: lymph nodes within lobe up to and including hilum;
* N2: ipsilateral mediastinal/subcarinal lymph node(s);
* N3: contralateral mediastinal/hilar, ipsilateral or contralateral scalene, or supraclavicular lymph node(s);

**Distant Metastasis (M)**

* M0: No distant metastasis
* M1a:tumor wit pleural nodules or malignant pleural effusion
* M1b: single extrathoracic metastasis
* M1c: multiple extrathoracic metastases

**Matrix**

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**Malignant Pleural Mesothlioma**

**TNM Staging:**

**Primary Tumor (T)**

* T1: tumor limited to ipsilateral parietal pleura
* T2: tumor extending to underlying pulmonary parenchyma or diaphragm
* T3: (locally advanced potentially resectable) tumor extending to mediastinal fat or solitary soft tissue of chest wall
* T4: (locally advanced un-resectable) tumor extending to contralateral pleura or mediastinal organs or spine or multiple soft tissue organs of chest wall

**Regional Lymph node (N)**

* N0: No lymph node involvement
* N1: involvement of ipsilateral bronchial, or hilar or mediastinal LNs
* N2: involvement of contralateral mediastinal or involvement of supraclavicular LNs

**Distant Metastasis (M)**

* M0: No distant metastasis
* M1: distant metastsis

**Matrix**

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**Thymoma**

**Staging:**

**Modified Masaoka clinical staging of thymoma**

|  |  |
| --- | --- |
| **I** | Completely encapsulated, both macroscopically and microscopically |
| **II** | Macroscopic invasion into adjacent fat or mediastinal pleura; or microscopic transcapsular invasion |
| **III** | Macroscopic invasion into adjacent structures (pericardium, great vessels, lung) |
| **IV** | Spread to pleura or pericardium; or lymph node involvement or distant metastatic disease |

**Thyroid Cancer**

**TNM Staging:**

* **Age :** <45 or >45
* **Histologic sutype:** Follicular or medullary or Anaplastic
* **T**
* **N**
* **M**

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**Adrenocortical Carcinoma**

**Staging:**

* **T**
* **N**
* **M**

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**Bladder Cancer**

**Staging:**

**Primary Tumor (T)**

* Ta: noninvasive papillary lesion
* Tis: carcinoma in situ (CIS)
* T1: invasion into the subepithelial connective tissue (lamina propria, muscularis mucosa, submucosa)
* T2a: invasion into the muscle (superficial)
* T2b: invasion into the muscle (deep)
* T3a: invasion into perivesical tissue (microscopic)
* T3b: invasion into perivesical tissue (macroscopic)
* T4a: invasion to prostate stroma, uterus, and vagina
* T4b: invasion to pelvic/abdominal wall

**Regional Lymph Node (N)**

* N0: no lymph nodes
* N1: single lymph node in the true pelvis (hypogastric, obturator, external iliac, or presacral node)
* N2: multiple lymph nodes in the true pelvis
* N3: common iliac lymph node

**Distant Metstasis (M)**

* M0: No distant metastasis
* M1: Distant metastasis
* Non muscle Invasive Bladder cancer: T1
* Muscle Invasive Bladder cancer: >T1

• Stage 0a = TaN0M0

• Stage 0is = TisN0M0

• Stage I = T1N0M0

• Stage II = T2N0M0

• Stage IIIA = T3 or T4a/N0/M0 OR T1-T4a/N1/M0

• Stage IIIB = T1-T4a/N2-or-N3/M0

• Stage IVA = T4b/any N/M0 OR Any T/Any N/M1a (Distant metastasis

limited to lymph nodes beyond the common iliacs)

• Stage IVB = Any T/Any N/M1b (Non-lymph-node distant metastases)

**Cancer Prostate**

T1: tumor is not palpable or visible by imaging, usually detected by an elevated PSA or an incidental finding on transurethral resection of prostate (TURP) for BPH.

T1a: incidental finding in 5% or less of resected prostate tissue TURP

T1b: incidental finding in >5% of resected prostate tissue fromTURP

T1c: detected by biopsy for an elevated PSA

T2: tumor confined to the prostate

T2a: involves half of one lobe or less

T2b: involves majority of one lobe

T2c: involves both lobes

T3: tumor extends through the prostatic capsule

T3a: extracapsular extension (unilateral or bilateral)

T3b: invasion of a seminal vesicle

T4: tumor is fixed or invades adjacent structures other than the seminal vesicle

N0: no lymph nodes involved

N1: regional lymph nodes involved

M0: no evidence of metastatic disease

M1: distant metastatic disease

M1a: nonregional lymph nodes

M1b: bone involvement

M1c: other

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**Testicular tumors**

pT0 No evidence of primary tumor (eg, histologic scar in testis)

pTis Germ-cell neoplasia in situ

pT1 Tumor limited to the testis and epididymis without vascular/lymphatic invasion; tumor may invade into

tunica albuginea, but not the tunica vaginalis

pT2 Tumor limited to the testis and epididymis with vascular/lymphatic invasion, or tumor extending through

tunica albuginea involving the tunica vaginalis

pT3 Tumor invades the spermatic cord with or without vascular/lymphatic invasion

pT4 Tumor invades the scrotum with or without vascular/lymphatic invasion

N0 No regional LN metastasis

N1, pN1 ≤5 LN and all LNs ≤2 cm in greatest dimension on imaging and measured on pathology

N2, pN2 >5 LN or any LN between 2–5 cm in greatest dimension on imaging or measured on pathology

N3, pN3 LN >5 cm in greatest dimension on imaging or pathology

M0 No distant metastasis

M1a Nonregional nodal or lung metastasis

M1b Distant metastasis other than nonregional nodal/lung

S0 LDH beta-human chorionic gonadotropin (bHCG), alpha-fetoprotein (AFP) within normal limits

S1 LDH <1.5 × normal, and bHCG <5,000 mIU/mL and AFP <1,000 ng/mL

S2 LDH 1.5–10 × normal, or bHCG 5,000–50,000 mIU/mL or AFP 1,000–10,000 ng/mL

S3 LDH >10 × normal, or bHCG >50,000 mIU/mL, or AFP >10,000 ng/mL

**Renal Cell carcinoma**

I Tumor <7 cm in greatest dimension, limited to the kidney

II Tumor >7 cm in greatest dimension, limited to the kidney

III Tumor limited to kidney with regional lymph node involvement or Tumor extends into major veins or perinephric tissues but not into the ipsilateral adrenal gland and not beyond the Gerota’s fascia with or without regional lymph node involvement

IV Tumor involves ipsilateral adrenal gland and/or extends beyond Gerota’s fascia or Presence of distant metastasis

**Esophageal cancer**

**Gastric cancer**

**Primary Tumor (T)**

Tis Carcinoma in situ: intraepithelial tumor without invasion of the lamina propria

T1 Tumor invades lamina propria, muscularis mucosae, or submucosa

T2 Tumor invades muscularis propria

T3 Tumor penetrates subserosal connective tissue without invasion of visceral peritoneum or adjacent

structures

T4 Tumor invades serosa (visceral peritoneum) or adjacent structures

**Regional Lymph Nodes (N)**

N1 Metastasis in one to two regional lymph nodes

N2 Metastasis in three to six regional lymph nodes

N3 Metastasis in seven or more regional lymph nodes

**Distant Metastasis (M)**

M0 No distant metastasis

M1 Distant metastasis

**Cancer Colon**

0 Carcinoma in situ; disease restricted to the intraepithelial glandular basement membrane or the

intramucosal lamina propria without nodal or distal metastases

I Tumor restricted to the submucosa or muscularis propria without nodal or distal metastases

II Tumor penetrates beyond the muscularis propria to the pericolorectal tissue, to the surface of the visceral

peritoneum or directly to other organs or structures without nodal or distal metastases

III Any tumor with nodal metastases, or extranodal tumor deposits in fat, but without distant metastases

IV Any tumor associated with distant metastases