# Table of Contents

List General Chapters.................................................................................................................................... 3  
Chapter Content............................................................................................................................................. 5  
Diseases.......................................................................................................................................................... 6  
Disease Content............................................................................................................................................. 8  
Changes........................................................................................................................................................ 40  
Topography.................................................................................................................................................. 42  
Histology...................................................................................................................................................... 44  
Definitions of AJCC TNM.......................................................................................................................... 47  
Registry Data Collection Variables............................................................................................................. 49  
Histologic Grade (G)................................................................................................................................... 51  
Prognostic Stage Groups................................................................................................................................. 53  
AJCC Clinical Prognostic Stage Groups........................................................................................................ 54  
AJCC Pathological Prognostic Stage Groups............................................................................................... 56  
AJCC Post-Neoadjuvant Pathological Prognostic Stage Groups............................................................... 58  
Staging Form............................................................................................................................................... 60
List General Chapters

API Endpoint Status: draft

A list of the chapterid and corresponding titles of all general information chapters.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/chapters</td>
</tr>
<tr>
<td>Returns</td>
<td>A list of title-chapterid pairs for AJCC Staging Manual chapters not related to a particular disease.</td>
</tr>
</tbody>
</table>

Request Headers

<table>
<thead>
<tr>
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<th>application/xml</th>
<th>Optional (Default)</th>
</tr>
</thead>
</table>

Response Headers

<table>
<thead>
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</thead>
</table>

Parameters

There are no extra parameters for this method.

Schema

chapters-list contains:

((chapter-item)) (any number)

chapter-item contains:

((chapter-id) (one) then (chapter-title) (one))

Request Example

GET https://api.cancerstaging.org/chapters

Response Example

<chapters-list>
  <chapter-item>
    <chapter-id>MAG-PRO</chapter-id>
    <chapter-title>Prostate</chapter-title>
  </chapter-item>
</chapters-list>
Chapter Content

API Endpoint Status: draft

The entire contents of a particular general information chapter.

Note: A list of title-chapterid pairs is available using the Chapter Content on page 5 endpoint.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/chapters/chapterid/content</td>
</tr>
<tr>
<td>Returns</td>
<td>The specialized DITA XML representation of the contents of a non-disease AJCC Staging Manual chapter.</td>
</tr>
<tr>
<td>XPath</td>
<td>(just deliver the entire &lt;topic&gt; with a root id matching chapter-id)</td>
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Request Headers

| Accept     | application/xml | Optional (Default) |

Response Headers

| Content-Type | application/xml; charset=UTF-8 |

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/chapters/TBD/content

Schema

TBD

Response Example

TBD
Diseases

API Endpoint Status: **draft**

A list of the disease ID (*disease*) and corresponding titles of all disease sites, and the parent organ system ID (*system*)

**Overview**

<table>
<thead>
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<th>GET</th>
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<tbody>
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</tr>
<tr>
<td>Returns</td>
<td>A list of title-<em>disease</em>-system sets for AJCC Staging Manual diseases.</td>
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<td>XPath</td>
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**Request Headers**

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**Response Headers**

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**Parameters**

There are no extra parameters for this method.

**Request Example**

GET https://api.cancerstaging.org/diseases

**Schema**

diseases-list contains:

```xml
((disease-item)) (any number)
```

disease-item contains:

```xml
((disease-id) (one) then (disease-title) (one) then (system-id) (one))
```

**Response Example**

```xml
<diseases-list>
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    <system-id>MAG</system-id>
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```
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...
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Disease Content

API Endpoint Status: implemented

The entire AJCC Staging Manual chapter for the disease.

Overview

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<tbody>
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</tr>
<tr>
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<td>The entire AJCC Staging Manual chapter for the specified disease in specialized DITA XML.</td>
</tr>
<tr>
<td>XPath</td>
<td>//disease</td>
</tr>
</tbody>
</table>

Request Headers

<table>
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Response Headers

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<th>application/xml; charset=UTF-8</th>
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</thead>
</table>

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/MAG-PRO/content

Schema

<disease> contains:

((title) then (diseaseprolog) then (summary) then (introduction) then (introductionshared) (optional) then (anatomy) then (classificationrules) then (prognosticfactors) then (riskassessment) then (recommendations) then (tnmdefinitions) then (stageanatomic) (optional) then (stageprognostic) then (registrydata) then (histologicgrade) then (histopathologictype) then (survival) (optional) then (illustrations) (optional) then (bibliography) then (namedsection) (optional) then (reference-info-types) (any number))

Response Example

<disease xmlns:ditaarch="http://dita.oasis-open.org/architecture/2005/" id="disease-8173" domains="(topic reference disease) (topic hi-d) (topic ut-d) (topic indexing-d) (topic hazard-d) (topic abbrev-d) (topic pr-d) (topic sw-d) (topic ui-d) ">

This classification applies to adenocarcinomas and squamous carcinomas of the prostate gland. This classification applies to adenocarcinomas and squamous carcinomas of the prostate gland. These histopathologic types of cancer...
Are staged according to the classification for...

And can be found in chapter...

Sarcomas

Abdomen and Thoracic Visceral Organs

42

Urothelial cell carcinomas

Urethra (prostatic urethra)

63

Urothelial carcinoma of bladder involving prostate

Urinary Bladder

62

Definition of Primary Tumor (T)

Pathologically organ-confined disease is considered pT2 and no longer subclassified by extent of involvement or laterality.

Histologic Grade (G)

The Gleason score (2014 criteria) and the Grade Group should both be reported.
AJCC Prognostic Stage Groups

Stage III includes select organ-confined tumors based on prostate-specific antigen (PSA) and Gleason/Grade Group status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>C61.9</td>
<td>Prostate Gland</td>
</tr>
<tr>
<td>8140</td>
<td>Acinar adenocarcinoma</td>
</tr>
<tr>
<td>8480</td>
<td>Mucinous (colloid) acinar adenocarcinoma</td>
</tr>
<tr>
<td>8490</td>
<td>Signet ring-like cell acinar adenocarcinoma</td>
</tr>
<tr>
<td>8572</td>
<td>Sarcomatoid acinar adenocarcinoma</td>
</tr>
<tr>
<td>8148</td>
<td>Prostatic intraepithelial neoplasia, high-grade</td>
</tr>
<tr>
<td>8500</td>
<td></td>
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</table>
Intraductal carcinoma

Ductal adenocarcinoma

Cribriform ductal adenocarcinoma

Papillary ductal adenocarcinoma

Solid ductal adenocarcinoma

Urothelial carcinoma

Adenosquamous carcinoma

Squamous cell carcinoma

Basal cell carcinoma

Adenocarcinoma with neuroendocrine differentiation

Well-differentiated neuroendocrine tumor

Small cell neuroendocrine carcinoma
Large cell neuroendocrine carcinoma

Prostate cancer is the most common noncutaneous cancer in men, with increasing incidence in older age groups. Prostate cancer has a tendency to metastasize to bone. Earlier detection is possible through a screening blood test, prostate-specific antigen (PSA), and the diagnosis is generally made using transrectal ultrasound (TRUS) guided biopsy.

The incidence of both clinical and latent carcinoma increases with age. However, this cancer is rarely diagnosed clinically in men under 40 years of age. There are substantial limitations in the ability of both digital rectal examination (DRE) and TRUS to precisely define the size or local extent of disease; DRE currently is the most common modality used to define the local stage. Heterogeneity within the T1c category resulting from inherent limitations of either DRE or imaging to quantify the cancer is balanced by the inclusion of other prognostic factors, such as histologic grade, PSA level, and extent of cancer on needle biopsies that contain cancer. Diagnosis of clinically suspicious areas of the prostate can be confirmed histologically by needle biopsy. Less commonly, prostate cancer may be diagnosed by histologic examination of the resected tissue from a transurethral resection of the prostate (TURP) for obstructive voiding symptoms.

TNM staging is regarded as the clinical “gold-standard” for prostate cancer and is used as the basis for guiding treatment decision-making. For example, the classification of T3, non-organ confined disease, has implications for adjuvant radiotherapy after surgery or adjuvant hormone therapy with radiotherapy. Patients with N1 disease diagnosed either clinically or pathologically, are increasingly recognized as benefiting from radiotherapy.

Also, patients with M1 disease who are asymptomatic are at this time unproven to benefit from initial local therapy.

Stage grouping for prostate cancer was improved in the American Joint Committee on Cancer (AJCC) Cancer Staging Manual, 7th Edition.
>th</sup> Edition, to include PSA and tumor grade (i.e., Gleason score) for the first time. This practice continues in the 8<sup class="+ topic/ph hi-d/sup ">th</sup> Edition with revisions to be in greater alignment with clinical experience and practice guidelines.

With this goal in mind, together with the general nature of prostate cancer diagnoses in which approximately 95% of cancers are diagnosed while still clinically localized, the stage grouping approach is similar to that for liver, bone, and gastrointestinal stromal tumors (GIST) in that Group III may include organ-confined disease. The precedence in other solid tumor types that take into account the established impact of tumor grade (e.g., mitotic rate in GIST) and location/multifocality (e.g., multiple organ-confined tumors in hepatocellular carcinoma and discontinuous organ-confined tumors in bone site) are the primary reasons governing the Group III designation in prostate for Gleason 4+5, 5+4, or 5+5 (Gleason sum 9-10, Grade Group 5) and/or PSA &gt; 20 ng/mL, despite an organ-confined primary tumor.

In this 8<sup class="+ topic/ph hi-d/sup ">th</sup> Edition, some other major changes of AJCC staging for prostate cancer have been made. The subclassification of pT2 in the 7<sup class="+ topic/ph hi-d/sup ">th</sup> Edition used a three-tier system based on the extent and laterality of disease (i.e., pT2a vs. pT2b vs. pT2c). However, several recent studies have failed to demonstrate prognostic value of either pathological tumor extent or laterality when disease is organ-confined. Therefore, all pathological organ-confined disease now is classified as pT2.

Clinical staging, however, retains the three-tier subclassification.

The 7<sup class="+ topic/ph hi-d/sup ">th</sup> Edition described prognostic stage grouping categories based on TNM, pretreatment serum PSA, and histologic grade. In this 8<sup class="+ topic/ph hi-d/sup ">th</sup> Edition, the categories have been revised to improve the prognostic value and to be more in harmony with treatment guidelines of the National Comprehensive Cancer Network (NCCN) and the American Urological Association (AUA), in addition to incorporation of the recently endorsed Grade Groups.
Adenocarcinoma of the prostate most commonly arises within the peripheral zone of the gland, where it may be amenable to detection by DRE (Figure <xref href="#disease-8173/fig-MAG_PRO_1" class="- topic/xref "/>). A less common site of origin is the anteromedial prostate, the transition zone, which is remote from the rectal surface and is the site of origin of benign nodular hyperplasia. The central zone, which composes most of the base of the prostate, seldom is the source of cancer but often is invaded by the spread of larger cancers. Pathologically, cancers of the prostate often are multifocal; 80–85% arise from the peripheral zone, 10–15% from the transitional zone, and 5–10% from the central zone. Anterior cancers also occur and may be detected more easily with saturation biopsy or magnetic resonance (MR) imaging.</p>

The regional lymph nodes are the nodes of the true pelvis, which essentially are the pelvic nodes below the bifurcation of the common iliac arteries (Figure <xref href="#disease-8173/fig-MAG_PRO_2" class="- topic/xref "/>). They include the following groups:

- Pelvic, NOS
- Hypogastric
- Obturator Iliac (internal, external, or NOS)
- Sacral (lateral, presacral, promontory [Gerota’s], or NOS)

The shaded area represents distribution of regional lymph nodes. The non-shaded area indicates nodes outside
Distant lymph nodes lie outside the confines of the true pelvis. The distant lymph nodes include the following:

- Aortic (paraaortic lumbar)
- Common iliac
- Inguinal, deep
- Superficial inguinal (femoral)
- Supraclavicular
- Cervical
- Scalene
- Retroperitoneal, NOS

Osteoblastic metastases are the most common non-nodal osseous sites of prostate cancer metastasis. Lung and liver metastases usually are identified late in the course of the disease.
accepted that T1a tumors would be Grade Group 1 (#3+3) tumors. When cancer is found in more than 5% of the resected tissue and Grade Group 1 or any Grade Group 2-5 regardless of percentage tissue resected, then the T stage is designated as T1b (Figure <xref href="#disease-8173/fig-MAG_PRO_3" class="- topic/xref ">).</p>

<fig id="fig-MAG_PRO_3" class="- topic/fig ">
<title class="- topic/title ">Clinical T1a (left) is defined as a tumor with an incidental histologic finding in 5% or less of tissue resected. Clinical T1b (right) is defined as a tumor with an incidental histologic finding in more than 5% of tissue resected. </title>
<image placement="inline" href="Figures/AJCCFig58.3.png" class="- topic/image "/></fig>

The primary clinical tumor assessment typically includes the information from the DRE of the prostate. Neither imaging information nor tumor laterality information from the prostate biopsy should be used for clinical staging. A tumor that is found in one or both sides by needle biopsy, but is not palpable or visible by imaging, is classified as T1c. Clinical T category, however, should always reflect DRE findings only. Pathology reports of prostate biopsy also should include the number of positive biopsy regions, the biopsy core-length involvement, and both the Gleason score and Grade Group. 

Lymph nodes can be imaged using ultrasound, computed tomography (CT), MR imaging, or lymphangiography. Although enlarged lymph nodes can occasionally be visualized on radiographic imaging, fewer patients are initially discovered with clinically evident metastatic disease. In lower risk patients, imaging tests have proven unhelpful. In lieu of imaging, risk tables often are used to determine individual patient risk of nodal involvement prior to therapy. Laterality of the regional nodes does not affect the N category. Involvement of distant lymph nodes is classified as M1a. 

The histologic grade of the prostate cancer is important for prognosis. Based on published data from several thousand prostate cancers treated surgically and by radiation therapy, the World Health Organization (WHO) and the International Society of Urological Pathology (ISUP) formalized changes to Gleason scoring and the adoption of prognostically important Grade Groups for prostate cancer.
(ranging from 1-5) with Group 1 being <required-cleanup translate="no" class="-topic/required-cleanup">

$$3 + 3 = 6$$ tumors; Group 2, $$3 + 4 = 7$$; Group 3, $$4 + 3 = 7$$; Group 4, Gleason sum 8; and Group 5, Gleason scores 9 and 10 tumors. <xref class="-topic/xref">

$$1$$</xref>, <xref class="-topic/xref">

$$2$$</xref>, <xref class="-topic/xref">

$$3$$</xref> It is recommended that both the Gleason score and the Grade Group are reported together as both are used in the 8th Edition of the AJCC staging for prostate cancer.</p>

<p class="-topic/p">

<fig id="fig-MAG_PRO_4" class="-topic/fig">

<title class="-topic/title">Clinical T2 is defined as a tumor that is palpable and confined within the prostate. Clinical T2a (left) is defined as a tumor that involves one-half of one side or less, whereas clinical T2b (right) is defined as a tumor that involves more than one-half of one side but not both sides.</title>

<image placement="inline" href="Figures/AJCCFig58.4.png" class="-topic/image"/>
</fig>

<fig id="fig-MAG_PRO_5" class="-topic/fig">

<title class="-topic/title">Clinical T2c is defined as a tumor that involves both sides.</title>

<image placement="inline" href="Figures/AJCCFig58.5.png" class="-topic/image"/>
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</p>

<imaging class="-topic/sectiondiv disease/imaging">

<p class="-topic/p">Although imaging could one day potentially improve clinical staging accuracy, interobserver reproducibility, issues with patient selection, and contradictory results have limited the utility of imaging in clinical staging, and imaging alone cannot replace the DRE as the clinical staging standard. Thus, for local T category assignment, no imaging test is explicitly required.</p>

<p class="-topic/p">TRUS has not been proven to be satisfactory for predicting extracapsular/extraprostatic extension. Color Doppler and power Doppler identify increased vascularity, but have not yet been shown to improve staging accuracy. Similarly, contrast-enhanced and 3D ultrasound have not yet been adequately tested or
shown to improve the delineation of the cancer and prostate capsule.</p><p>Three major MR imaging techniques that have been used to stage prostate cancer are T2-weighted MR imaging, MR spectroscopic imaging (MRSI), and dynamic contrast-enhanced MR imaging (DCE-MRI). None of these approaches has been proven to be consistently helpful in accurately staging the primary tumor.</p><p>MR imaging of the prostate has a relatively low predictive value for extraprostatic invasion, but MR imaging performs slightly better for seminal vesicle invasion. Although endorectal coil MR imaging (erMRI) provides high spatial resolution, there is controversy regarding the need for an endorectal coil, in particular depending on the strength of the imaging magnet; thus, the use of the endorectal coil is not routinely recommended. For N category, conventional MR imaging and CT are very insensitive for the detection of nodal abnormalities for most patients, as they rely on enlargement of the nodes, which carries both false negative and false positive errors. However, in high-risk patients, node enlargement can indicate the presence of nodal metastases. An enlarged node identified on MR imaging or CT can be targeted for biopsy or selective resection. For M category, Tc-99m bone scans are obtained to identify bone metastases in high-risk patients, typically defined by elevated PSA values (&gt; 10 ng/mL).</p><p>Radiological reports of prostate MR imaging should localize the site of the primary cancer(s) and specify the presence of extraprostatic extension and/or seminal vesicle invasion. CT or MR imaging reports of the abdomen-pelvis should specify the number, size (bidimensional), and location of enlarged lymph nodes. Bone scans should report whether metastatic lesions are present or absent and if present, should specify the approximate number and location of the lesions. If correlative CT or MR imaging scans are available, the bone scan report also should include whether there is correspondence between the bone scan finding and the cross-sectional imaging.</p><p>Several emerging imaging methods have been suggested for prostate cancer staging. These include the sodium fluoride (NaF) positron emission tomography (PET)/CT scan that is more sensitive than a conventional bone scan and therefore, may be helpful in initial bone staging. A series of PET compounds targeting the
prostate-specific membrane antigen (PSMA) appears to be highly sensitive for nodal and bony metastases and may emerge as a staging tool in the future. Other PET imaging agents such as C-11 choline, F-18 choline, and F-18 FACBC also have shown promise but cannot currently be recommended as standard of care. Iron-oxide MR imaging also has shown promising results for nodal staging. None of these methods are widely available, and at this time, these methods are considered investigational.

Assigning the pathological T (pT) category is accomplished in radical prostatectomy specimens. In previous AJCC editions, organ-confined tumors (pT2) were subcategorized to maintain symmetry with clinical subcategories. However, as evidence suggests that pT2 subcategorization does not convey prognostic information, the past subcategorization is not included in the 8th Edition. pT2 tumors are those confined to the prostate gland, while pT3 tumors are those with extension of tumor beyond the borders of the gland. The basic boundary of the prostate is a condensed fibromuscular layer of prostatic stroma, the "capsule", best recognized in posterior and posterolateral aspects of the gland, but not in the apex, anterior, or bladder neck regions. Even in regions with a well-defined capsule, tumor- or biopsy-related fibrous change may cause difficulty in the evaluation of extraprostatic extension.

Documenting and reporting pathological staging parameters in radical prostatectomy specimens is a key component in providing optimal management for patients. The College of American Pathologists (CAP) provides guidelines on specimen handling.

In general, total prostatectomy, including regional lymph node dissection with full histologic evaluation, is required for complete pathological classification. Under certain circumstances, however, pathological T-classification can be determined with other means. For example, (1) positive biopsy of the rectum permits a pT4 classification without prostatectomy or a bladder transurethral resection demonstrating prostate cancer invasive into the bladder, and (2) a biopsy revealing carcinoma in extraprostatic soft tissue permits a pT3 classification, as does a biopsy revealing adenocarcinoma clearly infiltrating seminal vesicle smooth muscle tissue.
There is no pT1 category.

Prostatectomy specimens should include Gleason score and Grade Group, and surgical margin status.

The 7th Edition of the AJCC TNM staging system subdivides pT2 disease into three categories: pT2a, pT2b, and pT2c, as determined by involvement of one-half of one side, more than one-half of one side, and involvement of both sides of the prostate gland. This system has been relied upon as a broad surrogate to describe cancer volume. Several retrospective outcome data analyses have challenged the utility of this subdivision. Sufficient evidence was found to justify collapsing pT2a, pT2b, and pT2c stages into a single category. No data exist to allow correlation of pT2 stage subgroupings with survival in localized prostate cancer due to the indolent and prolonged clinical course of the disease.

The 8th Edition of the AJCC TNM staging system maintains the subdivision of pT3 disease into two categories: pT3a (Figures) and pT3b (Figure), as determined by the presence of extracapsular invasion in any location and the presence of seminal vesical invasion with or without extracapsular invasion, respectively.
Clinical and pathological T3a is defined as a tumor with bilateral extraprostatic extension. The most easily recognizable sign of extraprostatic extension is tumor admixed with periprostatic fat. In the posterior and posterolateral prostate, a pT3a category also may be assigned to tumor identified within loose connective tissue and/or perineural spaces of the neurovascular bundles or to distinct tumor nodules within desmoplastic stroma that bulges beyond the prostatic contour. In the absence of clear histologic boundaries in the apex, anterior, and bladder neck regions, such evaluations are imprecise. Tumor detected in apex/distal margin sections is diagnosed as organ-confined (pT2). In the anterior prostate, the mingling of skeletal muscle, blood vessels, and medium-sized smooth muscle bundles among the anterior prostate and anterior extraprostatic space, make invasion into or at the level of adipose tissue the most reliable diagnostic feature of extraprostatic extension (pT3a). Some method of quantitation of extraprostatic extension is routinely reported, with the two most common approaches distinguishing “focal” (a few neoplastic glands just outside the prostate or extraprostatic tumor occupying less than 1 high-power field in no more than two sections) from “established” (more than focal). In the 7th Edition, microscopic bladder neck invasion (i.e., tumor detected in bladder neck/proximal margin sections) was reclassified as pT3a, rather than together with gross invasion (pT4), a change that remains in the 8th Edition. Seminal vesicle invasion (pT3b) indicates tumor infiltration of the muscular wall of the seminal vesicle (Figure 8). This finding should be distinguished from periseminal vesicle soft tissue invasion, which is staged as pT3a (extraprostatic extension). Pelvic lymph node metastasis in prostate cancer. The number of lymph nodes identified and the number involved by tumor are routinely reported.
The 8th Edition of the AJCC TNM staging system also maintains the pT4 category to represent a tumor that is fixed or invades adjacent structures other than seminal vesicles such as external sphincter, rectum, bladder, levator muscles, and/or pelvic wall (Figures <xref href="#disease-8173/fig-MAG_PRO_9" class="- topic/xref ">
</xref>
and <xref href="#disease-8173/fig-MAG_PRO_10" class="- topic/xref ">).

Clinical and pathological T4 is defined as a tumor that is fixed or invades adjacent structures other than seminal vesicles such as bladder, as shown here, external sphincter, rectum, levator muscles, and/or pelvic wall. (Figures <xref href="#disease-8173/fig-MAG_PRO_9" class="- topic/xref ">
</xref>
and <xref href="#disease-8173/fig-MAG_PRO_10" class="- topic/xref ">

Perhaps one of the more extensively debated aspects of pathological staging and risk stratification is one that technically is not an element of the current AJCC TNM staging system, namely the status of surgical resection margins in radical prostatectomy specimens. There is controversy regarding the “parameters or elements” to be reported in the case of identifying positive surgical margins in resected prostate glands. Although most agree that the pT category regardless of the margin status needs to be documented, there is no consensus on what aspects of surgical margin involvement are important to report.
Prostate-Specific Antigen

PSA is a protein produced by cells of the prostate gland. The PSA level is measured PSA in blood. The results usually are reported as nanograms of PSA per milliliter (ng/mL) of blood. The higher a man’s PSA level, the greater the risk of diagnosis of and mortality from prostate cancer.

In general, a PSA level less than 10 ng/mL is considered low, 10 to 20 ng/mL is intermediate, and greater than 20 ng/mL is high. A PSA greater than 100 ng/mL without evidence of clinical metastasis is associated with much poorer survival.

Grade Group/Gleason Score

Grade Grouping is based on the histologic pattern of arrangement of carcinoma cells in hematoxylin and eosin-stained sections. Five basic grade patterns are used to generate a histologic Gleason score that ranges from 1 to 5. Grade Group is the stratification of histologic grade scores into prognostically relevant groups: Grade Group 1 (Gleason score # 6), Grade Group 2 (Gleason score 3 + 4 = 7), Grade Group 3 (Gleason score 4 + 3 = 7), Grade Group 4 (Gleason score 8), and Grade Group 5 (Gleason score 9-10).

Grade Group is prognostic for PSA recurrence.
</xref><sup class="+ topic/ph hi-d/sup ">17</sup></xref> as well as with prostate cancer mortality.

</xref><sup class="- topic/ph hi-d/sup ">18</sup></xref></p>

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</factorlist class="- topic/dl disease/factorlist ">
</factorentry class="- topic/dlentry disease/factorentry ">
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Margin Status </factorname>

</factordesc class="- topic/dd disease/factordesc ">
<p class="- topic/p ">Although the status of surgical margins <i class="+ topic/ph hi-d/i ">per se</i> is not an element, the prognostic importance of the phenomenon, including its potential impact for further postsurgical treatment and outcome, is an important prognostic factor. In reporting pathological results of prostatectomy specimens, pT category should be reported along with margin status, and a positive surgical margin should be indicated by an R1 descriptor (residual microscopic disease) as currently is the case. </p>
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Histologic Type </factorname>

</factordesc class="- topic/dd disease/factordesc ">
<p class="- topic/p ">The vast majority of prostate cancers are histologically described as acinar, microacinar, or conventional type. Histologic variants, including ductal carcinoma of prostate, signet ring cell adenocarcinoma of prostate, mucinous adenocarcinoma of prostate, adenosquamous carcinoma of prostate, small cell neuroendocrine carcinoma of prostate, and sarcomatoid histologic variants of conventional adenocarcinoma; although due to their rarity of individual variants, stage matched studies to acinar adenocarcinoma are not available. </p>
Molecular and Genomic Assays

Biopsy information, such as the proportion of biopsy regions (i.e., cores) or biopsy tissue positive, is an indicator of disease burden that complements DRE findings and may further subclassify clinically localized disease. For men with metastasis, the site of disease may be prognostic. In a large meta-analysis, survival differed based on the site of metastatic disease for men with metastatic castrate-resistant prostate cancer. Men with lung and liver metastases appear to fare worse than men with bone and nonvisceral involvement. However, the reporting of biopsy information is not standardized, and there is variation in collecting, processing, and describing specimens in terms of “core” or tissue involvement with carcinoma. As a consequence, the integration of biopsy information into prognostic classification systems has been widely accepted and the added value is not clear.

Prognostic models will continue to play an important role in 21st century medicine for several reasons.
First, by identifying which factors predict outcomes, clinicians gain insight into the biology and natural history of the disease. Second, treatment strategies may be optimized based on the outcome risks of the individual patient. Third, because of the heterogeneity of disease in most cancers, prognostic models will play a critical role in the design, conduct, and analysis of clinical trials in oncology. If developed and validated appropriately, these models may become part of routine patient care and decision-making in trial design and conduct.

The AJCC Precision Medicine Core (PMC) developed and published criteria for critical evaluation of prognostic tool quality, which are presented and discussed in Chapter 4. Although developed independently by the PMC, the AJCC quality criteria correspond fully with the recently developed Cochrane CHARMS tool for critical appraisal in systematic reviews of prediction modeling studies.

Existing prognostic models for prostate cancer meeting all of the AJCC inclusion/exclusion criteria and meriting AJCC endorsement are presented in this section. A full list of the evaluated models and their adherence to the quality criteria is available on www.cancerstaging.org. The PMC performed a systematic search of published literature for prognostic models/tools in prostate cancer from January 2011 to December 2015. The search strategy is provided in Chapter 4. The PMC defined “prognostic model” as a multivariable model where factors predict a clinical outcome that will occur in the future. Each tool identified was compared against the quality criteria developed by the PMC as guidelines for AJCC commendation for prognostication models (see Chapter 4).

Fifteen prognostication tools are...
seven for patients with localized disease, one for non-castrate patients with metastatic cancer, and six for patients with metastatic castration-resistant prostate cancer. Of the 15 available models, 13 models were rejected based on the predefined criteria for exclusion. For most of the models, the proportion of patients with missing data in the validation set was not stated. Three of the models did not report on the follow-up status of the patients. One of the models for patients with localized disease met
11 out of the 14 criteria, although the endpoint was based on prostate cancer-specific survival rather than overall survival. For this model, the equation was not readily available, and the number of events was unspecified. Several models for patients with localized disease did not use overall survival as the outcome. Several models for patients with localized disease did not use overall survival as the outcome, nor were they validated (internally or externally), or did not provide the calibration plots. Hence, the PMC determined that these models were not readily available for use. The model for non-castrate patients with metastatic disease lacked sufficient details on the number of events and on calibration, and was neither validated nor readily available for use. Among the six models for metastatic disease, two met all inclusion criteria and are available online (Table 58.1). One model was for chemotherapy naïve patients, and the other model was for patients for whom first-line chemotherapy had failed. Other models in the advanced metastatic setting met a subset of the inclusion criteria but did not include a calibration plot or were not readily available for use. The sixth model was presented in a scientific meeting but has not been published at the time of this writing. Nevertheles,
Fifteen prognostic models in prostate cancer were identified, but only two models for metastatic disease met all predefined AJCC inclusion and exclusion criteria and are, therefore, endorsed by the AJCC. Both of the endorsed models were based on data from large phase III trials in metastatic patients and were externally validated. In the models for patients with localized prostate cancer disease, an outcome other than overall survival was used. Although another endpoint may be appropriate in this setting, the present AJCC guidelines focus on the use of overall survival as the outcome of interest. It is expected that these guidelines will evolve over time and that other endpoints besides overall survival will be developed for patients with localized disease. Recent guidelines on the reporting of prediction model development and validation have been published. Although external validation is considered ideal, model developers may not have access to external data. Other validation approaches, such as bootstrapping, may be acceptable.
<table>
<thead>
<tr>
<th>Prognostic Tool</th>
<th>Web Address</th>
<th>Factors Included in the Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metastatic castration-resistant prostate cancer</td>
<td><a href="https://www.cancer.duke.edu/Nomogram/firstlinechemotherapy.html">https://www.cancer.duke.edu/Nomogram/firstlinechemotherapy.html</a></td>
<td>ECOG performance status, site of metastases, PSA, hemoglobin, albumin, alkaline phosphatase, LDH &gt; 1 ULN, opioid analgesic use</td>
</tr>
<tr>
<td>Metastatic castration-resistant prostate cancer treated with second-line chemotherapy</td>
<td><a href="https://www.cancer.duke.edu/Nomogram/secondlinechemotherapy.html">https://www.cancer.duke.edu/Nomogram/secondlinechemotherapy.html</a></td>
<td>ECOG performance status, visceral disease, progression on docetaxel, duration on hormone, measurable disease, pain, PSA, hemoglobin, alkaline phosphatase</td>
</tr>
</tbody>
</table>
Two key missing criteria that were lacking in the majority of models identified in the AJCC review process were calibration plots and the tools to facilitate clinical utility. These should be, and are, easily addressable. In following these guidelines, authors will enhance the rigorous development, validation, and overall quality of future prognostic tools, resulting in a larger number of tools being endorsed by the AJCC.

The following variables should be considered for stratification in future clinical trials for prostate cancer:

**Primary tumor**

- Clinical Factors
  - T Category
  - Serum PSA
  - Grade Group with or without Gleason score

- Number and percentage of positive biopsy regions (i.e., biopsy "cores")

**Regional lymph nodes/distant metastases**

- Pathological Factors
  - Extranodal extension of cancer
  - M1b (bone) versus M1c (lung, liver, brain, with or without bone)
  - M1b (bone) versus M1c (lung, liver, brain, with or without bone) <xref>23</xref>
<table>
<thead>
<tr>
<th>T Category</th>
<th>T Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>T1</td>
<td>Clinically inapparent tumor that is not palpable</td>
</tr>
<tr>
<td>T1a</td>
<td>Tumor incidental histologic finding in 5% or less of tissue resected</td>
</tr>
<tr>
<td>T1b</td>
<td>Tumor incidental histologic finding in more than 5% of tissue resected</td>
</tr>
<tr>
<td>T1c</td>
<td>Tumor identified by needle biopsy found in one or both sides, but not palpable</td>
</tr>
<tr>
<td>T2</td>
<td>Tumor is palpable and confined within prostate</td>
</tr>
</tbody>
</table>
| T2a        | Tumor involves one-half
of one side or less</AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow ">
   <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
   T2b</AJCCcategory>
   <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
   Tumor involves more than one-half of one side but not both sides</AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow ">
   <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
   T2c</AJCCcategory>
   <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
   Tumor involves both sides</AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow ">
   <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
   T3</AJCCcategory>
   <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
   Extraprostatic tumor that is not fixed or does not invade adjacent structures
   </AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow ">
   <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
   T3a</AJCCcategory>
   <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
   Extraprostatic extension (unilateral or bilateral)
   </AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow ">
   <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
   T3b</AJCCcategory>
   <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
   Tumor invades seminal vesicle(s)
   </AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow ">
   <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
   T4</AJCCcategory>
   <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
   Tumor is fixed or invades adjacent structures other than seminal vesicles such as external sphincter, rectum, bladder, levator muscles, and/or pelvic wall
   </AJCCcriteria>
</TNMrow>
</Ttable>
</Tdefinition>
<Tdefinition class="- topic/sectiondiv disease/Tdefinition ">
   <Ttable stagetype="pathological" class="- topic/simpletable disease/Table ">
       <sthead class="- topic/sthead ">
           <stentry class="- topic/stentry ">T Category</stentry>
           <stentry class="- topic/stentry ">T Criteria</stentry>
       </sthead>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T1</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor is less than or equal to one-half of one side
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T1a</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor is less than or equal to one-half of one side
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T1b</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor is less than or equal to one-half of one side
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T1c</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor is less than or equal to one-half of one side
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T2a</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor involves more than one-half of one side but not both sides
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T2b</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor involves more than one-half of one side but not both sides
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T2c</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor involves both sides
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T3</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Extraprostatic tumor that is not fixed or does not invade adjacent structures
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T3a</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Extraprostatic extension (unilateral or bilateral)
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T3b</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor invades seminal vesicle(s)
           </AJCCcriteria>
       </TNMrow>
       <TNMrow class="- topic/strow disease/TNMrow ">
           <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
           T4</AJCCcategory>
           <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
           Tumor is fixed or invades adjacent structures other than seminal vesicles such as external sphincter, rectum, bladder, levator muscles, and/or pelvic wall
           </AJCCcriteria>
       </TNMrow>
   </Ttable>
</Tdefinition>
Regional nodes were not assessed

No positive regional nodes

Metastases in regional node(s)

No distant metastasis

Distant metastasis

Nonregional lymph
node(s) </AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow">
  <AJCCcategory class="- topic/stentry disease/AJCCcategory">
    M1b
  </AJCCcategory>
  <AJCCcriteria class="- topic/stentry disease/AJCCcriteria">
    Bone(s)
  </AJCCcriteria>
</TNMrow>
<TNMrow class="- topic/strow disease/TNMrow">
  <AJCCcategory class="- topic/stentry disease/AJCCcategory">
    M1c
  </AJCCcategory>
  <AJCCcriteria class="- topic/stentry disease/AJCCcriteria">
    Other site(s) with or without bone disease
  </AJCCcriteria>
</TNMrow>
</Mtable>
</Mdefinition>
<PSAdefinition class="- topic/sectiondiv disease/PSAdefinition">
  <p>PSA values are used to assign this category.</p>
  <simpletable class="- topic/simpletable">
    <sthead>
      <stentry>PSA values</stentry>
    </sthead>
    <strow>
      <stentry>&lt; 10</stentry>
    </strow>
    <strow>
      <stentry># 10 &lt; 20</stentry>
    </strow>
    <strow>
      <stentry>&lt; 20</stentry>
    </strow>
    <strow>
      <stentry>&gt; 20</stentry>
    </strow>
    <strow>
      <stentry>Any value</stentry>
    </strow>
  </simpletable>
</PSAdefinition>
<HGdefinition class="- topic/sectiondiv disease/HGdefinition">
  <namedsection class="- topic/sectiondiv disease/namedsection">
    <sectiontitle>
      <simpletable>
        <sthead>
          <stentry>Grade Group</stentry>
          <stentry>Gleason Score</stentry>
          <stentry>Gleason Pattern</stentry>
        </sthead>
        <strow>
          <stentry>1</stentry>
        </strow>
        <strow>
          <stentry># 6</stentry>
        </strow>
        <strow>
          <stentry># 3+3</stentry>
        </strow>
        <strow>
          <stentry>2</stentry>
        </strow>
        <strow>
          <stentry>7</stentry>
        </strow>
        <strow>
          <stentry>3+4</stentry>
        </strow>
      </simpletable>
    </sectiontitle>
  </namedsection>
</HGdefinition>
### Stage Prognostic

<table>
<thead>
<tr>
<th>When T is...</th>
<th>And N is...</th>
<th>And M is...</th>
<th>Then the stage group is...</th>
</tr>
</thead>
<tbody>
<tr>
<td>T3</td>
<td>N7</td>
<td>M4+3</td>
<td>Stage 4+3</td>
</tr>
<tr>
<td>T4</td>
<td>N8</td>
<td>M4+4</td>
<td>Stage 4+4</td>
</tr>
<tr>
<td>T5</td>
<td>N9 or 10</td>
<td>M4+5, 5+4, or 5+5</td>
<td>Stage 5+5</td>
</tr>
</tbody>
</table>

#### Registry Data

- Pretreatment serum PSA levels lab value (in tenths, highest value XXX.X, last prediagnosis value)
- Grade Group for clinical stage
- Gleason score for clinical stage
- Gleason patterns for clinical stage
- Grade Group for pathological stage
- Gleason score for pathological stage
Gleason patterns for pathological stage

Tertiary Gleason pattern on prostatectomy

Number of cores examined

Number of cores positive

Needle core biopsies positive in one side, both sides, beyond prostate

This classification applies to adenocarcinomas and squamous carcinomas, but not to sarcoma or transitional cell (urothelial) carcinoma of the prostate. Adjectives used to describe histologic variants of adenocarcinomas of prostate include mucinous, signet ring cell, ductal, and neuroendocrine, including small cell carcinoma. There should be histologic confirmation of the disease.

<i>Modern pathology : an official journal of the United States and Canadian Academy of Pathology, Inc. Jan 2011;24(1):16-25.</i>  
Changes

API Endpoint Status: implemented
Changes to the information about this disease.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/changed</td>
</tr>
<tr>
<td>Returns</td>
<td>Summary of Changes: Changes for the specified disease in specialized DITA XML.</td>
</tr>
<tr>
<td>XPath</td>
<td>//changes</td>
</tr>
</tbody>
</table>

Request Headers

<table>
<thead>
<tr>
<th>Accept</th>
<th>application/xml</th>
<th>Optional (Default)</th>
</tr>
</thead>
</table>

Response Headers

<table>
<thead>
<tr>
<th>Content-Type</th>
<th>application/xml; charset=UTF-8</th>
</tr>
</thead>
</table>

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/HEP-GAL/content/changed

Schema

<changes> contains:

((changestable))

Response Example

<changes>
  <changestable>
    <sthead>
      <stentry>Change</stentry>
      <stentry>Details of Change</stentry>
      <stentry>Level of Evidence</stentry>
    </sthead>
    <strow>
      <stentry>Definition of Primary Tumor (T)</stentry>
    </strow>
  </changestable>
</changes>
T2 disease is now subdivided into two groups: T2 tumors on the peritoneal side (T2a) and those on the hepatic side (T2b) of the gallbladder.

Definition of Regional Lymph Node (N) changed from location-based definitions to number-based N category assessment. N categories have been revised to define N1 as one to three positive nodes and N2 as four or more positive nodes. The recommendation that six or more nodes be harvested and evaluated has been added.
Topography

API Endpoint Status: **implemented**

Topography codes for the *disease*.

**Overview**

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/topography</td>
</tr>
<tr>
<td>Returns</td>
<td>ICD-O-3 Topography Codes: Topography codes and descriptions for the <em>disease</em> in specialized <em>DITA XML</em></td>
</tr>
<tr>
<td>XPath</td>
<td>//topography</td>
</tr>
</tbody>
</table>

**Request Headers**

<table>
<thead>
<tr>
<th>Accept</th>
<th>application/xml</th>
<th>Optional (Default)</th>
</tr>
</thead>
</table>

**Response Headers**

<table>
<thead>
<tr>
<th>Content-Type</th>
<th>application/xml; charset=UTF-8</th>
</tr>
</thead>
</table>

**Parameters**

There are no extra parameters for this method.

**Request Example**

GET `https://api.cancerstaging.org/diseases/HEP-GAL/content/topography`

**Schema**

`<topography> contains: 
 ((topographytable))`

**Response Example**

```
<topography>
  <topographytable>
    <sthead>
      <stentry>Code</stentry>
      <stentry>Description</stentry>
    </sthead>
    <strow>
      <stentry>C23.9</stentry>
      <stentry>Gallbladder</stentry>
    </strow>
  </topographytable>
</topography>
```
<row>
  <entry>C24.0</entry>
  <entry>Cystic duct only</entry>
</row>
</topographytable>
</topography>
Histology

API Endpoint Status: implemented

Histology codes for the disease.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/histology</td>
</tr>
<tr>
<td>Returns</td>
<td>WHO Classification of Tumors: Histology codes and descriptions for the specified disease in specialized DITA XML.</td>
</tr>
<tr>
<td>XPath</td>
<td>//histology</td>
</tr>
</tbody>
</table>

Request Headers

| Accept       | application/xml | Optional (Default) |

Response Headers

| Content-Type | application/xml; charset=UTF-8 |

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/HEP-GAL/content/histology

Schema

<histology> contains:

((sectiondiv-info-types) (any number) then (histologytable))

Response Example

<histology>
  <p>Bosman FT, Carneiro F, Hruban RH, Theise ND, eds. <i>World Health Organization Classification of Tumours of the Digestive System.</i> Lyon: IARC; 2010.</p>
  <histologytable>
    <sthead>
      <stentry>Code</stentry>
      <stentry>Description</stentry>
    </sthead>
    ...
  </histologytable>
</histology>
<strow>
  <stentry>8010</stentry>
  <stentry>Carcinoma <i>in situ</i></stentry>
</strow>

<strow>
  <stentry>8148</stentry>
  <stentry>Biliary intraepithelial neoplasia, high grade (BilIN-3)</stentry>
</strow>

<strow>
  <stentry>8503</stentry>
  <stentry>Intracystic papillary neoplasm with high-grade intraepithelial neoplasia</stentry>
</strow>

<strow>
  <stentry>8470</stentry>
  <stentry>Mucinous cystic neoplasm with high-grade intraepithelial neoplasia</stentry>
</strow>

<strow>
  <stentry>8140</stentry>
  <stentry>Adenocarcinoma</stentry>
</strow>

<strow>
  <stentry>8140</stentry>
  <stentry>Adenocarcinoma, biliary type</stentry>
</strow>

<strow>
  <stentry>8144</stentry>
  <stentry>Adenocarcinoma, intestinal type</stentry>
</strow>

<strow>
  <stentry>8140</stentry>
  <stentry>Adenocarcinoma, gastric foveolar type</stentry>
</strow>

<strow>
  <stentry>8480</stentry>
  <stentry>Mucinous adenocarcinoma</stentry>
</strow>

<strow>
  <stentry>8310</stentry>
  <stentry>Clear cell adenocarcinoma</stentry>
</strow>

<strow>
  <stentry>8490</stentry>
  <stentry>Signet ring cell carcinoma</stentry>
</strow>

<strow>
  <stentry>8070</stentry>
</strow>
<table>
<thead>
<tr>
<th>Code</th>
<th>Histology</th>
</tr>
</thead>
<tbody>
<tr>
<td>8560</td>
<td>Adenosquamous carcinoma</td>
</tr>
<tr>
<td>8020</td>
<td>Undifferentiated carcinoma</td>
</tr>
<tr>
<td>8246</td>
<td>High-grade neuroendocrine carcinoma</td>
</tr>
<tr>
<td>8041</td>
<td>Small cell neuroendocrine carcinoma</td>
</tr>
<tr>
<td>8013</td>
<td>High-grade neuroendocrine carcinoma</td>
</tr>
<tr>
<td>8244</td>
<td>Mixed adenoneuroendocrine carcinoma</td>
</tr>
<tr>
<td>8503</td>
<td>Intraductal papillary neoplasm with an associated invasive carcinoma</td>
</tr>
<tr>
<td>8470</td>
<td>Mucinous cystic neoplasm with an associated invasive carcinoma</td>
</tr>
</tbody>
</table>
Definitions of AJCC TNM

API Endpoint Status: implemented

All T, N, and M definitions for a disease, including definitions of any additional factors used for staging.

Overview

HTTP Method | GET
URI | /diseases/disease/content/definitions
Returns | All T, N, and M definitions and definitions of any additional factors for staging the specified disease in specialized DITA XML.
XPath | //tnmdefinitions

Request Headers

Accept | application/xml | Optional (Default)

Response Headers

Content-Type | application/xml; charset=UTF-8

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/NET-STO/content/definitions

Schema

<tnmdefinitions> contains:

(Tdefinition) (one or more) then (Ndefinition) (one or more)
then (Mdefinition) (one or more) then (namedsection) (optional)
then (PSAdefinition) (optional) then (namedsection) (optional)
then (HGdefinition) (optional) then (namedsection) (optional)
then (Gdefinition) (optional) then (namedsection) (optional)
then (Sdefinition) (optional) then (namedsection) (optional)
then (Ldefinition) (optional) then (namedsection) (optional)
then (MRdefinition) (optional) then (namedsection) (optional)
then (RSdefinition) (optional) then (namedsection) (optional)
then (Hdefinition) (optional) then (namedsection) (optional)
then (Bdefinition) (optional) then (namedsection) then
(oncotypedx_definition) (optional) then (namedsection) (optional)
### Response Example

```xml
<Mtable class="- topic/simpletable disease/Mtable ">
  <sthead class="- topic/sthead ">
    <stentry class="- topic/stentry ">M Category</stentry>
    <stentry class="- topic/stentry ">M Criteria</stentry>
  </sthead>
  <TNMrow class="- topic/strow disease/TNMrow ">
    <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
      M0
    </AJCCcategory>
    <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
      No distant metastasis
    </AJCCcriteria>
  </TNMrow>
  <TNMrow class="- topic/strow disease/TNMrow ">
    <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
      M1
    </AJCCcategory>
    <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
      Distant metastasis
    </AJCCcriteria>
  </TNMrow>
  <TNMrow class="- topic/strow disease/TNMrow ">
    <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
      M1a
    </AJCCcategory>
    <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
      Nonregional lymph node(s)
    </AJCCcriteria>
  </TNMrow>
  <TNMrow class="- topic/strow disease/TNMrow ">
    <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
      M1b
    </AJCCcategory>
    <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
      Bone(s)
    </AJCCcriteria>
  </TNMrow>
  <TNMrow class="- topic/strow disease/TNMrow ">
    <AJCCcategory class="- topic/stentry disease/AJCCcategory ">
      M1c
    </AJCCcategory>
    <AJCCcriteria class="- topic/stentry disease/AJCCcriteria ">
      Other site(s) with or without bone disease
    </AJCCcriteria>
  </TNMrow>
</Mtable>
```
Registry Data Collection Variables

API Endpoint Status: implemented
Registry data collection variables for disease.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/datacollection</td>
</tr>
<tr>
<td>Returns</td>
<td>for the specified disease in specialized DITA XML.</td>
</tr>
<tr>
<td>XPath</td>
<td>//registrydata</td>
</tr>
</tbody>
</table>

Request Headers

| Accept | application/xml | Optional (Default) |

Response Headers

| Content-Type | application/xml; charset=UTF-8 |

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/NET-STO/content/datacollection

Schema

<registrydata> contains:

{text data (optional) or dl (optional) or fig (optional) or image (optional) or lines (optional) or lq (optional) or note (optional) or hazardstatement (optional) or object (optional) or ol (optional) or p (optional) or pre (optional) or simpletable (optional) or sl (optional) or table (optional) or ul (optional) or cite (optional) or ph (optional) or b (optional) or i (optional) or sup (optional) or sub (optional) or tt (optional) or u (optional) or q (optional) or term (optional) or abbreviated-form (optional) or tm (optional) or xref (optional) or state (optional) or data (optional) or data-about (optional) or foreign (optional) or unknown (optional) or draft-comment (optional) or fn (optional) or indextermref (optional) or
Response Example

<registrydata>
  <ol>
    <li><p>Size of Tumor (value or unknown)</p></li>
    <li><p>Depth of Invasion</p></li>
    <li><p>Nodal Status &amp; Number of Nodes involved, if applicable</p></li>
    <li><p>Sites of Metastasis, if applicable</p></li>
    <li><p>Ki-67 Index &amp; Mitotic Count</p></li>
    <li><p>Histologic Grade</p></li>
    <li><p>Differentiation (Well, Intermediate, or Poorly/Undifferentiated)</p></li>
    <li><p>Preoperative pancreastatin level</p></li>
    <li><p>Preoperative gastrin level</p></li>
  </ol>
</registrydata>
Histologic Grade (G)

API Endpoint Status: **implemented**

Histologic grade for disease.

**Overview**

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/histograde</td>
</tr>
</tbody>
</table>

Returns: Histologic grade information for the specified disease in specialized DITA XML.

**XPath**

//histologicgrade

**Request Headers**

<table>
<thead>
<tr>
<th>Accept</th>
<th>application/xml</th>
<th>Optional (Default)</th>
</tr>
</thead>
</table>

**Response Headers**

<table>
<thead>
<tr>
<th>Content-Type</th>
<th>application/xml; charset=UTF-8</th>
</tr>
</thead>
</table>

**Parameters**

There are no extra parameters for this method.

**Request Example**

GET https://api.cancerstaging.org/diseases/NET-STO/content/histograde

**Schema**

```xml
<histologicgrade> contains:
  (<histologicgradetable> or <HGtumordifferentiation> or <HGmitoticcount>
   or <HGtumornecrosis> or <HGfnclccgrade> or text data (optional)
   or dl (optional) or fig (optional) or
   image (optional) or lines (optional) or lg (optional) or note (optional) or
   hazardstatement (optional) or object (optional) or ol (optional)
   or p (optional) or
   pre (optional) or simpletable (optional) or sl (optional)
   or table (optional) or
   ul (optional) or cite (optional) or ph (optional) or b (optional)
   or i (optional) or
   sup (optional) or sub (optional) or tt (optional) or u (optional)
   or q (optional) or
   term (optional) or abbreviated-form (optional) or tm (optional)
   or xref (optional) or
   state (optional) or data (optional) or data-about (optional)
   or foreign (optional) or
   unknown (optional) or draft-comment (optional) or fn (optional)
   or indextermref (optional) or
```
**Response Example**

```xml
(histologicgrade>
    (histologicgradetable>
        (sthread>
            (stentry></stentry>
            (stentry></stentry>
        </sthread>
        (strow>
            (stentry>G1</stentry>
            (stentry>Mitotic Count (per 10 HPF)<fn callout="**" id="g-definition-1">10 HPF = 2 mm<sup>2</sup>; at least 50 HPF (at 40× magnification) must be evaluated in areas of highest mitotic density in order to adhere to WHO 2010 criteria.</fn> &lt; 2 and Ki-67 Index (%)<fn callout="**" id="g-definition-2">MIB1 antibody; % of 500–2,000 tumor cells in areas of highest nuclear labeling.</fn> &lt;3</stentry>
        </strow>
        (strow>
            (stentry>G2</stentry>
            (stentry>Mitotic Count (per 10 HPF) = 2-20 and Ki-67 Index (%)<xref href="#disease-test-DOCTYPE.dita/g-definition-2"/> = 3-20</stentry>
        </strow>
        (strow>
            (stentry>G3</stentry>
            (stentry>Mitotic Count (per 10 HPF) > 20 and Ki-67 Index (%)<xref href="#disease-test-DOCTYPE.dita/g-definition-2"/> &gt; 20</stentry>
        </strow>
    </histologicgradetable>

<p>In cases of disparity between Ki-67 proliferative index and mitotic count, the result that indicates a higher grade tumor should be selected as the final grade. For example, a mitotic count of 1 per 10 HPF and a Ki-67 of 12% should be designated as a G2 NET. </p>
</histologicgrade>
```
Prognostic Stage Groups

API Endpoint Status: implemented

All prognostic staging information for a disease.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/staging</td>
</tr>
<tr>
<td>Returns</td>
<td>All anatomic and prognostic staging information for the specified disease in specialized DITA XML.</td>
</tr>
<tr>
<td>XPath</td>
<td>(/stagesection,//stagesection_alt)</td>
</tr>
</tbody>
</table>

Request Headers

<table>
<thead>
<tr>
<th>Accept</th>
<th>application/xml</th>
<th>Optional (Default)</th>
</tr>
</thead>
</table>

Response Headers

<table>
<thead>
<tr>
<th>Content-Type</th>
<th>application/xml; charset=UTF-8</th>
</tr>
</thead>
</table>

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/NET-STO/content/staging

Schema

<stagesection> contains:

( dl or parml or fig or syntaxdiagram or imagemap or image or lines or lq or note or hazardstatement or object or ol or p or pre or simpletable or sl or table or ul or cite or keyword or ph or b or i or sup or sub or tt or uor q or term or abbreviated-form or tm or xref or state or data or data-about or foreign or unknown or draft-comment or fn or indextermref or indexterm or required-cleanup) (any number) or stagetable or sectiondiv

<stagesection_alt> contains:

( dl or parml or fig or syntaxdiagram or imagemap or image or lines or lq or note or hazardstatement or object or ol or p or pre or simpletable or sl or table or ul or cite or keyword or ph or b or i or sup or sub or tt or uor q or term or abbreviated-form or tm or xref or state or data or data-about or foreign or unknown or draft-comment or fn or indextermref or indexterm or required-cleanup) (any number) or stagetable_alt or sectiondiv
AJCC Clinical Prognostic Stage Groups

API Endpoint Status: **implemented**
Clinical prognostic clinical stage tables and information for the *disease*.

**Overview**

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/staging/prognosticc</td>
</tr>
<tr>
<td>Returns</td>
<td>Clinical prognostic clinical stage tables and information for the specified <em>disease</em> in specialized DITA XML.</td>
</tr>
<tr>
<td>XPath</td>
<td>//stageprognostic/stagesection[@stagetype=&quot;clinical&quot;],//stageprognostic/stagesection_alt[@stagetype=&quot;clinical&quot;],//stageprognostic/stagesection[string-length(@stagetype)=0],//stageprognostic/stagesection_alt[string-length(@stagetype)=0]</td>
</tr>
</tbody>
</table>

**Request Headers**

| Accept       | application/xml | Optional (Default) |

**Response Headers**

| Content-Type | application/xml; charset=UTF-8 |

**Parameters**

There are no extra parameters for this method.

**Request Example**

GET https://api.cancerstaging.org/diseases/MAG-PRO/content/staging/prognosticc

**Schema**

<stagesection> contains:

```plaintext
( dl or parml or fig or syntaxdiagram or imemap or image or lines or lq or note or hazardstatement or object or ol or p or pre or simpletable or sl or table or ul or cite or keyword or ph or b or i or sup or sub or tt or uor q or term or abbreviated-form or tm or xref or state or data or data-about or foreign or unknown or draft-comment or fn or indextermref or indexterm or required-cleanup) (any number) or stagetable or sectiondiv
```
<stagesection_alt> contains:

( dl or parml or fig or syntaxdiagram or imagemap or image or lines or lg or note or hazardstatement or object or ol or p or pre or simpletable or sl or table or ul or cite or keyword or ph or b or i or sup or sub or tt or uor q or term or abbreviated-form or tm or xref or state or data or data-about or foreign or unknown or draft-comment or fn or indextermref or indexterm or required-cleanup) (any number) or stagetable_alt or sectiondiv
AJCC Pathological Prognostic Stage Groups

API Endpoint Status: implemented

Pathological prognostic clinical stage tables and information for the disease.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/staging/prognosticp</td>
</tr>
<tr>
<td>Returns</td>
<td>Pathological prognostic clinical stage tables and information for the specified disease in specialized DITA XML.</td>
</tr>
</tbody>
</table>

XPath

`//stageprognostic/stagesection[@stagetype="pathological"], // stageprognostic/stagesection_alt[@stagetype="pathological"], // stageprognostic/stagesection[string-length(@stagetype)=0], //stageprognostic/stagesection_alt[string-length(@stagetype)=0])`

Request Headers

<table>
<thead>
<tr>
<th>Accept</th>
<th>application/xml</th>
<th>Optional (Default)</th>
</tr>
</thead>
</table>

Response Headers

<table>
<thead>
<tr>
<th>Content-Type</th>
<th>application/xml; charset=UTF-8</th>
</tr>
</thead>
</table>

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/MAG-PRO/content/staging/prognosticp

Schema

`<stagesection> contains:`

```
( dl or parml or fig or syntaxdiagram or imagemap or image or lines or lq or note or hazardstatement or object or ol or p or pre or simpletable or sl or table or ul or cite or keyword or ph or b or i or sup or sub or tt or uor q or term or abbreviated-form or tm or xref or state or data or data-about or foreign or unknown or draft-comment or fn or indextermref or indexterm or required-cleanup) (any number) or stagetable or sectiondiv
```
<stagesection_alt> contains:

( dl or parml or fig or syntaxdiagram or imagemap or image or lines or lg
or note or hazardstatement or object or ol or p or pre or simpletable
or sl or table or ul or cite or keyword or ph or b or i or sup or sub
or tt or uor q or term or abbreviated-form or tm or xref or state or data
or data-about or foreign or unknown or draft-comment or fn or indextermref
or indexterm or required-clean-up) (any number) or stagetable_alt
or sectiondiv
AJCC Post-Neoadjuvant Pathological Prognostic Stage Groups

API Endpoint Status: implemented

Post-neoadjuvant pathological prognostic clinical stage tables and information for the disease.

Overview

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/staging/prognosticyp</td>
</tr>
<tr>
<td>Returns</td>
<td>Post-neoadjuvant pathological prognostic clinical stage tables and information for the specified disease in specialized DITA XML.</td>
</tr>
<tr>
<td>XPath</td>
<td>(/stageprognostic/stagesection[@stagetype=&quot;neoadjuvantpathological&quot;],/stageprognostic/stagesection_alt[@stagetype=&quot;neoadjuvantpathological&quot;],/stageprognostic/stagesection[string-length(@stagetype)=0],/stageprognostic/stagesection_alt[string-length(@stagetype)=0])</td>
</tr>
</tbody>
</table>

Request Headers

| Accept | application/xml | Optional (Default) |

Response Headers

| Content-Type | application/xml; charset=UTF-8 |

Parameters

There are no extra parameters for this method.

Request Example

GET https://api.cancerstaging.org/diseases/MAG-PRO/content/staging/prognosticyp

Schema

<stagesection> contains:

( dl or parml or fig or syntaxdiagram or imagemap or image or lines or lq or note or hazardstatement or object or ol or p or pre or simpletable or sl or table or ul or cite or keyword or ph or b or i or sup or sub or tt or uor q or term or abbreviated-form or tm or xref or state or data)
Staging Form

API Endpoint Status: **implemented**
Staging form for *disease*.

**Overview**

<table>
<thead>
<tr>
<th>HTTP Method</th>
<th>GET</th>
</tr>
</thead>
<tbody>
<tr>
<td>URI</td>
<td>/diseases/disease/content/form</td>
</tr>
<tr>
<td>Returns</td>
<td>for the specified <em>disease</em> in specialized <em>DITA XML</em>.</td>
</tr>
<tr>
<td>XPath</td>
<td></td>
</tr>
</tbody>
</table>

**Request Headers**

<table>
<thead>
<tr>
<th>Accept</th>
<th>application/xml</th>
<th>Optional (Default)</th>
</tr>
</thead>
</table>

**Response Headers**

<table>
<thead>
<tr>
<th>Content-Type</th>
<th>application/xml; charset=UTF-8</th>
</tr>
</thead>
</table>

**Parameters**

There are no extra parameters for this method.

**Request Example**

GET https://api.cancerstaging.org/diseases/NET-STO/content/form

TBD