

The College of American Pathologists Electronic Cancer Checklists (CAP eCC): Providing a Clear Guide to the New World of Cancer Surveillance

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Outline

- The guide: CAP Cancer Checklists
- Transformation to the eCC
- Why XML?
- Examples
- What's next?
 - AJCC 7th edition
 - CS mapping
 - CAP Cancer Committee updates



CAP Cancer Checklists

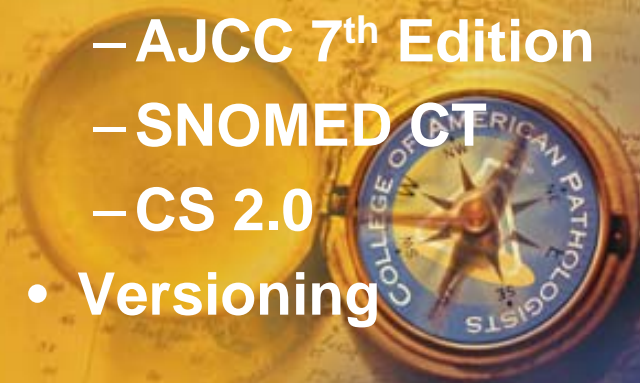
What are they?

- Guidelines to aid the pathologist in collecting the essential data elements needed in the pathology report for each tissue type
- Created in printable format by CAP Cancer Committee
- Transformed to electronic format (XML) with eCC



eCC Features 2

- Interoperable (platform independent)
- Portable, exchangeable format (XML)
- Used in various lab and cancer registry Information Systems
- Mappings
 - SNOMED CT now
 - LOINC, CS future
- Regularly scheduled releases and updates
 - AJCC 7th Edition
 - SNOMED CT
 - CS 2.0
- Versioning



eCC Features

- **Structured data elements in a logical workflow**
- **Customizable for individual lab practices**
- **An example implementation of larger DIHIT product suite**



eCC Benefits

- Ensure essential data elements are collected in cancer reports
- Provides consistency, quality and efficiency in data collection and reporting
- Aids cancer registrars; educating residents
- Allows for compliance with
 - American College of Surgeons CoC reporting requirements
 - Canadian provincial and territorial requirements for pathology reporting

Why XML?

- Open standard broadly adopted by HIT
- Interoperable bridge for exchanging data between applications
- Structured electronic document representing the information to be exchanged
- Endorsed by main standards organizations (HL7, IHE, IHTSDO, etc)
- First release Jan 2009 with current checklists (AJCC 6th edition)

CAP eCC Evolution

CAP Approved Digestive System • Colon and Rectum

Surgical Pathology Cancer Case Summary (Checklist)

*Protocol revision date: January 2005
Applies to invasive carcinomas only
Based on AJCC/UICC TNM, 6th edition*

COLON AND RECTUM: Resection

Patient name:
Surgical pathology number:
Other identifiers:

Note: Check 1 response unless otherwise indicated.

MACROSCOPIC

Specimen Type

Right hemicolectomy
 Transverse colectomy
 Left hemicolectomy
 Sigmoidectomy
 Rectal/rectosigmoid colon (low anterior resection)
 Total abdominal colectomy
 Abdominoperineal resection
 Other (specify): _____
 Not specified

***Specimen Length (if applicable)**
 *Specify: ___ cm

Tumor Site

Cecum
 Right (ascending) colon
 Hepatic flexure
 Transverse colon
 Splenic flexure
 Left (descending) colon
 Sigmoid colon
 Rectosigmoid
 Rectum
 Colon, not otherwise specified
 Cannot be determined (see Comment)

***Tumor Configuration**

Exophytic (polypoid)
 Infiltrative
 Ulcerating
 Other (specify): _____

- CAP Cancer Committee
 - PDF
 - Word
- Previous Names
 - CAP Cancer Protocols (CCP)
 - SNOMED Encoded CAP Cancer Checklists (SECCC)

CAP eCC Evolution-XML Format

- XML file instance (each checklist)

```
ColonRectumExcisionBx.xml
1 <?xml version="1.0" encoding="utf-8"?>
2 <?xml-stylesheet type="text/xsl" href="srtemplate.xslt" ?>
3 <template xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3
4 <required xmlns="">true</required>
5 <template-header xmlns="">
6 <title>Colon and Rectum: Excisional Biopsy (Polypectomy)</title>
7 <category>Digestive System</category>
8 <versions>
9 <version display-name="AJCC UICC" major-version="6th Edition" minor-version="" />
10 <version display-name="FIGO" major-version="" minor-version="" />
11 <version display-name="CS" major-version="" minor-version="" />
12 </versions>
13 <publication>
14 <revision-date>2005-01-01</revision-date>
15 <approval-status>0</approval-status>
16 </publication>
17 <generic-header>Surgical Pathology Cancer Case Summary (Checklist)</generic-header>
18 <restrictions>Applies to invasive carcinomas only</restrictions>
19 </template-header>
20 <template-body xmlns="">
21 <note note-id="48113.100004300" sort-order="100">
22 <text>*Data elements with asterisks, or otherwise marked as optional, are not requ
23 </note>
24 <note note-id="8878.100004300" sort-order="200">
25 <text>Note: Check 1 response unless otherwise indicated</text>
26 </note>
27 <header-group header-group-id="8879.100004300" sort-order="300">
28 <required>true</required>
29 <title>MACROSCOPIC</title>
30 <header-group-items>
31 <question question-id="8874.100004300" sort-order="400" question-fill-in="false">
32 <required>false</required>
33 <title>SPECIMEN TYPE</title>
```



CAP eCC Features- XML Basic Format

Colon and Rectum - Digestive System

CAP Approved

Surgical Pathology Cancer Case Summary (Checklist)

Protocol revision date: 2005-01-01
Applies to invasive carcinomas only
Based on AJCCUICC TNM, 6th Edition

Colon and Rectum: Excisional Biopsy (Polypectomy)

Patient Name:
Surgical pathology number:

*Data elements with asterisks, or otherwise marked as optional, are not required for accreditation purposes for the Commission on Cancer. These elements may be clinically important, but are not yet validated or regularly used in patient management. Alternatively, the necessary data may not be available to the pathologist at the time of pathologic assessment of this specimen.

Note: Check 1 response unless otherwise indicated

MACROSCOPIC

*SPECIMEN TYPE

*Specimen from large intestine obtained by excisional biopsy (polypectomy) of lesion

TUMOR SITE

Cecum
 Right (ascending) colon
 Hepatic flexure
 Transverse colon
 Splenic flexure
 Left (descending) colon
 Sigmoid colon
 Rectum
 Not specified

POLYP SIZE

Cannot be determined (see Comment)

Greatest dimension (cm)

*Additional dimension (cm)

*Additional dimension (cm)

POLYP CONFIGURATION

Pedunculated with stalk

Stalk length (cm)

Pedunculated, no stalk
 Sessile
 Fragmented

*Distance of Invasive Carcinoma from Anal Verge (per clinical report)

*Specify distance from anal verge (cm)

*Distance from anal verge unknown

*Distance of Adenoma from Anal Verge (per clinical report)

*Specify distance of adenoma from anal verge (cm)

*Distance from anal verge unknown

- Style (design features)



CAP eCC Features- XML Table of Contents Format

- [Adrenal Gland: Resection](#)
- [Ampulla of Vater: Ampullectomy](#)
- [Ampulla of Vater: Pancreaticoduodenectomy](#)
- [Anus: Excisional Biopsy](#)
- [Anus: Local Excision \(Transanal Disk Excision\)](#)
- [Anus: Resection](#)
- [Appendix: Resection](#)
- [Bone Biopsy](#)
- [Bone Marrow: Blood Film, Aspirate, Cell Block, Trephine Biopsy, Touch Imprint](#)
- [Bone Resection](#)
- [Brain/Spinal Cord: Biopsy/Resection](#)
- [Breast: Excision Less Than Total Mastectomy \(Includes Wire-Guided Localization Excisions\); Total Mastectomy; Modified Radical Mastectomy; Radical Mastectomy](#)
- [Colon and Rectum: Excisional Biopsy \(Polypectomy\)](#)
- [Colon and Rectum: Resection](#)
- [Endometrium: Biopsy](#)
- [Endometrium: Hysterectomy, With or Without Other Organs or Tissues](#)
- [Esophagus: Biopsy](#)
- [Esophagus: Resection](#)
- [Extrahepatic Bile Ducts: Resection](#)

Ampulla of Vater - Digestive System

CAP Approved

Surgical Pathology Cancer Case Summary (Checklist)

Protocol revision date: 2005-01-01
Applies to invasive carcinomas only
Based on AJCC/UICC TNM, 6th Edition

Ampulla of Vater: Ampullectomy

Patient Name:
Surgical pathology number:

*Data elements with asterisks, or otherwise marked as optional, are not required for accreditation purposes for the Commission on Cancer. These elements may be clinically important, but are not yet validated or regularly used in patient management. Alternatively, the necessary data may not be available to the pathologist at the time of pathologic assessment of this specimen.

Note: Check 1 response unless otherwise indicated

MACROSCOPIC	
*SPECIMEN TYPE	TUMOR SITE
<input type="radio"/> *Specimen from ampulla of Vater obtained by ampullectomy	<input type="radio"/> Intra-ampullary
	<input type="radio"/> Peri-ampullary
	<input type="radio"/> Junction of ampullary and duodenal mucosa
	<input type="radio"/> Not specified
TUMOR SIZE	
<input type="checkbox"/> Cannot be determined (see Comment)	
Greatest dimension (cm)	

CAP eCC Features- XML Advanced Format

PATHOLOGIC STAGING	
PRIMARY TUMOR (reset) <input type="radio"/> Stage I: Confined to gland, 5 cm or less <input type="radio"/> Stage II: Confined to gland, greater than 5 cm <input type="radio"/> Stage III: Extracapsular extension without other organ involvement <input type="radio"/> Stage IV: Distant metastasis or extension into other organs <input type="radio"/> Cannot be determined	REGIONAL LYMPH NODES (reset) <input type="radio"/> Cannot be assessed <input type="radio"/> No regional lymph node metastasis <input type="radio"/> Regional lymph node metastasis Number of regional lymph nodes examined <input type="text"/> Number of regional lymph nodes involved <input type="text"/>
DISTANT METASTASIS (reset) <input type="radio"/> Cannot be assessed <input type="radio"/> Distant metastasis *Specify metastatic site(s), if known <input type="text"/>	
MARGINS (reset) <input type="radio"/> Margins uninvolved by tumor <input type="radio"/> Margin(s) involved by tumor Specify margin(s) <input type="text"/> <input type="radio"/> Cannot be determined	*VENOUS (LARGE VESSEL) INVASION (V) (reset) <input type="radio"/> *Absent <input type="radio"/> *Present <input type="radio"/> *Indeterminate *ADDITIONAL PATHOLOGIC FINDINGS (check all that apply) <input type="checkbox"/> *None identified <input type="checkbox"/> *Tumor necrosis <input type="checkbox"/> *Hyperplasia <input type="checkbox"/> *Adenoma <input type="checkbox"/> *Other (specify) <input type="text"/>
*COMMENT(S) <input type="text"/>	
<input type="button" value="Submit"/>	



CAP eCC Features- XML Advanced Format

- Structured Report Example
 - SNOMED CT encoded
 - Can be placed in HL-7 message

```
Structured Report Data

<sr-data version-ckey="2.100004300" display-name="Adrenal gland: Resection">
  <question ckey="7161.100004300" display-name="HISTOLOGIC TYPE"/>
  <question ckey="7163.100004300" display-name="TUMOR SITE"/>
  <question ckey="7169.100004300" display-name="SPECIMEN TYPE">
    <answer ckey="7170.100004300" display-name="Subtotal adrenalectomy" code="396526009"/>
  </question>
  <question ckey="7174.100004300" display-name="LATERALITY">
    <answer ckey="7175.100004300" display-name="Right" code="29392005"/>
  </question>
  <question ckey="7178.100004300" display-name="TUMOR SIZE">
    <question ckey="7179.100004300" display-name="Greatest dimension (cm)">
      <answer ckey="7179.100004300" display-name="1.3" code="371479009"/>
    </question>
    <question ckey="7180.100004300" display-name="Additional dimension (cm)">
      <answer ckey="7180.100004300" display-name="0.5" code="395512009"/>
    </question>
  </question>
</sr-data>
```



Sample Cancer Report

Template: breast

Name	Value	Source
specimen type	excision	HL7
lymph node sampling	sentinel_lymph_nodes_axillary_dissection	HL7
▪ specimen size		ADF
specimen greatest dimension	10 cm	HL7
specimen additional dimensions	7 x 5 cm	HL7
tumor site	upper_inner_quadrant	HL7
laterality	left	HL7
▪ invasive component size		ADF
invasive component greatest dimension	3.5 cm	HL7
invasive component additional dimensions	3.4 x 3.2 cm	HL7
histologic type	invasive_ductal_carcinoma	HL7
tubule formation	minimal_score_3	HL7
nuclear pleomorphism	score_3	HL7
▪ mitotic count 25x		ADF
mitotic count 40x	score_3	HL7
total nottingham score	grade_iii	HL7
▪ histologic grading system		ADF
▪ histologic grade other		ADF
▪ mitotic count other		ADF
primary tumor	pT2	HL7
regional lymph nodes	pN0	HL7
regional lymph nodes examined	3	HL7
regional lymph nodes involved	0	HL7
Total Errors:	12	

MICROSCOPIC

Macroscopic
 Specimen Type: Lumpectomy
 Lymph Node Sampling: Sentinel lymph node with axillary dissection
 Specimen Size: 10 cm x 7 cm x 5 cm
 Laterality: Left
 Tumor Site: Upper inner quadrant

Microscopic
 Non-Invasive Carcinoma: Absent
 Invasive carcinoma: Invasive ductal carcinoma
 Size of invasive component: 3.5 cm x 3.4 cm x 3.2 cm
 Histologic Grade: Nottingham System
 Tubule formation: Score 3
 Nuclear Pleomorphism: Score 3
 Mitotic Score (40X): Score 3
 Total Nottingham Score: Grade III 8-9 points
 Tumor Necrosis: Present Extensive
 Venous/Lymphatic (Large/Small Vessel) Invasion (V/L): Present
 Perineural Invasion: Negative
 Microcalcifications: Not identified
 Tumor Marker(s)
 Estrogen receptor: Pending
 Progesterone receptor: Pending
 HER-2/neu: Pending

Lymph node summary
 Number examined: 3
 Number involved: 0

Comments:
 The second specimen and the fourth specimen were submitted as putative sentinel lymph nodes. However multiple levels through the tissue blocks did not reveal any lymph nodes in these specimen.

Nipple: Not applicable
 Status of margin involvement: Margin(s) uninvolved by invasive carcinoma
 Distance of invasive carcinoma from the closest margin (mm): 1
 Negative margin closest to invasive carcinoma: Deep

Additional Pathologic Findings: Nonproliferative fibrocystic changes.

AJCC Staging
 Stage: pT2, pN0, pMX

What's next?

- **CAP Cancer Committee**
 - Integrates NAACCR, CS 2.0 and AJCC 7th edition data elements
 - New checklists (DCIS, Penis)
 - Updated clinical content (i.e. Molecular Diagnostics)
- **CAP PERT**
 - Transforms into XML
 - Next CAP eCC release



Thank you!

- Thank you for your attention
- For further information, contact us at:
 - (847)-832-7700
 - capecc@cap.org
 - apitkus@cap.org

