



An Overview of the College of American Pathologists Cancer Checklists

Introduction

The College of American Pathologists (CAP) is the leading organization of board-certified pathologists, serving patients, physicians, and the public by fostering and advocating excellence in the practice of pathology and laboratory medicine. The CAP is internationally recognized for its Laboratory Accreditation and Proficiency Testing Programs, creation of SNOMED Clinical Terms® (SNOMED CT®)¹, and its mission to provide quality resources for CAP members.

The Need for Standardized Reporting

Research studies during the 1990s revealed a significant amount of variation in the content of cancer-related pathology reports. Although the reports contained similar information, they could not be used to accurately compare cases, treatment options, or clinical outcomes. Variability was mainly due to dictated free-text that contained transcription errors, insufficient and sometimes omitted clinical data. In response to these findings, the CAP Cancer Committee developed tumor site specific checklists for pathologists to use as a common framework for cancer reporting.

Historically, narrative text has been the foundation of a pathology report. With the publication of the CAP cancer checklists, a format for consistent reporting was established. Today, the checklists define the

structure of the synoptic report, and serve as a summary of the reportable clinical findings displayed in an outline, or list, format. The synoptic summary along with accompanying narrative text and images characterize a structured direction for pathology reporting.

The synoptic section of the report uses standardized content and definitions in a coherent, clinically relevant and consistent way. This format allows the pathologist's findings to be efficiently and effectively used in patient diagnosis, prognosis, and treatment. The use of standardized reporting has applicability in all areas of medicine to improve patient clinical documentation and to aggregate data across different platforms. Sharing standardized cancer information will help to win the war on cancer by providing comparable tumor data and treatment outcomes that can be used to support initiatives in cancer research and in public health.

What are the Cancer Checklists?

The CAP Cancer Checklists are a set of standardized, evidence-based, "scientifically validated" protocols for the 60 most commonly reported forms of cancer. Checklists are developed by the CAP Cancer Committee, a team of pathology experts and liaisons from other highly recognized cancer organizations. The checklists consist of data elements structured as a set of questions and prospective answers with reference information regarding the intended use and meaning of checklist elements. The cancer checklists are available in doc and pdf file versions on the CAP Web site at www.cap.org, and in an electronic format consistent with existing international

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standards for incorporation into existing information systems. The CAP cancer checklists form a library of best practices in pathology reporting for cancer specimen data.

Sample checklist content includes:

- ✓ **Tumor stages, scales, extent of invasion** (T1:Tumor >2 cm in greatest dimension; Nottingham index)
- ✓ **Margins, metastases, and regional lymph nodes** (Proximal surgical margin involved by tumor; MX: Cannot be assessed)
- ✓ **Procedures** (Transurethral prostatectomy)
- ✓ **Histologic type using integrated ICD-O-3 morphology codes** (Melanoma; adenocarcinoma; Non-small cell carcinoma)
- ✓ **Specimens and specimen comments** (Tissue specimen from breast; Excised parathyroid sample)
- ✓ **Non-malignant pathologic findings** (Dysplasia; Calcification; Stenosis)

The Need for Electronic Checklists

The widespread use of clinical information systems in today's healthcare environment requires the collection, storage, and integration of clinical information in an electronic medical record. The ability to incorporate the cancer checklists into existing laboratory information systems and to share the checklist information between disparate clinical systems is a key requirement for adoption. The CAP 'electronic' Cancer Checklists (eCC) were released in early in 2007 to address these issues and to advance the use of the cancer checklists in computerized pathology reporting.

The CAP eCC are available in an electronic format that enables implementation and integration of the checklist data elements into clinical computer systems. To enhance the standardization and interoperability of electronic data reporting, the data elements

of the checklists are encoded with SNOMED CT, the internationally recognized clinical terminology standard. The purpose of encoding text using standardized terminology is to ensure that the clinical data is consistently reported, regardless of reporting site, to facilitate the storage, transmission, retrieval, and sharing of electronic information. Standardized data enables complex database queries and supports the exchange and aggregation of data across many different systems. Encoding the cancer checklists with SNOMED CT provides a rich, expressive, terminology backbone that facilitates data capture through semantic encoding of checklist elements during collection. It also supports interoperability and data exchange to foster a more efficient cancer reporting process.

The Compelling Case for Using the Cancer Checklists

There are many reasons for implementing the use of the encoded CAP eCC in clinical practice. The most important use is that the checklists enable the collection of required cancer data elements essential for patient care and selection of treatment protocols by providing more complete and consistent information to clinicians. Standardization of pathology data collection increases efficiency, reduces ambiguity, and promotes interoperability of cancer data necessary for cancer registry reporting. The CAP eCC advances the use of electronic medical records and clinical decision support tools.

Collection of checklist data elements are required by the American College of Surgeons Commission on Cancer for accreditation of cancer centers and for compliance with Cancer Care Ontario's (CCO) quality standards for pathology reporting. The cancer content contained within the CAP eCC uses more than 2,000

encoded SNOMED CT concept IDs to describe specific procedures, specimens, and morphologic abnormalities. Tumor staging data from the *American Joint Committee on Cancer (AJCC) Staging Manual* is also included.

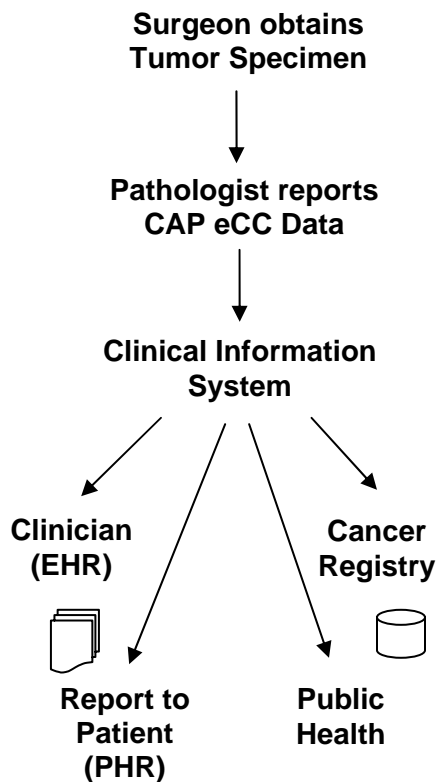
In addition to direct use for patient care, the CAP eCC are utilized for quality assurance measurements, as well as for local, regional, and national compilation of accurate and detailed cancer surveillance data. The CAP collaborates with colleagues at the National Cancer Institute (e.g. with OBBR, SEER, caBIG), Centers for Disease Control and Prevention (CDC) (e.g. the National Program for Cancer Registries [NPCR]), North American Association of Central Cancer Registries (NAACCR), Canada Health Infoway (CHI), CCO, and Health Level 7 ([HL7] an international health standards organization), to optimize utilization of data collected via the CAP eCC for use in cancer research, surveillance and other healthcare initiatives.

The CAP Cancer Committee in conjunction with AJCC and the Pathology Electronic Record Taskforce (PERT) work together in the development of new cancer checklists. Much of this work is supported by a Cooperative Agreement from the CDC through the NPCR to advance standardized electronic reporting for cancer pathology and to further adoption of the CAP eCC. Similar projects funded by the CDC, known as “Reporting Pathology Protocols” (RPP), studied the collection and transmission of

pathology information using selected CAP electronic cancer checklists containing SNOMED CT and LOINC² encoding with HL7 messaging³. This study reported that use of the CAP eCC allowed data reporting by pathologists at the time of examination, rather than relying on cancer registrars to interpret and code pathology text reports at a later date. The results demonstrated more accurate and timely data collection combined with real-time data transmission to the cancer registry. In addition, this standard approach for transmitting CAP eCC question/answer sets supports a high degree of robustness and interoperability between health care data providers and data consumers, despite the use of different software systems and computing infrastructures at each center. Successful cancer treatment depends on accurate diagnosis and selection of the most effective treatment option. Use of the CAP eCC leverages health information technology to support this goal.

New checklist versions, to be released in 2009, will include elements from the new *AJCC Staging Manual* and site specific Collaborative Staging data elements used by cancer registries. Periodic revisions of the CAP eCC are incorporated within the interoperability paradigm, making

FLOW of CAP eCC Data



² LOINC[®] (Logical Observation Identifiers Names and Codes) a unified medical language system code set for laboratory test names transactions between HC facilities, laboratories, laboratory testing devices and public health authorities.

³ HL7 messaging standards support the exchange, integration, sharing, and retrieval of electronic health records worldwide.

the CAP eCC an ideal tool for recording state-of-the-art cancer pathology data for clinical and research purposes. In addition to content updates, the CAP eCC have been converted into eXtensible Markup Language (XML) format. XML was chosen for its universal acceptance, ease of use, and its ability to facilitate the sharing of structured data across different information systems, particularly via the internet. XML also supports the transformation of data into multiple electronic formats for ease of integration into existing pathology and cancer registry systems necessary for wide-spread sharing of information.

Most of the major vendors of laboratory information systems have incorporated the CAP eCC protocols into their systems for pathology reporting. In addition, many other customers use the checklists embedded in cancer registry information systems to report cancer statistics. Educational programs and expert consulting services for the implementation and customization of the CAP eCC are available from CAP to ensure seamless integration and optimal adoption of these important checklist protocols by the users. Use of the CAP eCC requires licensing that CAP customizes to meet the needs of the individual customer and their operational environment.