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Overview of the Stage Capture and Pathology Reporting Project

The Cancer Care Ontario (CCO) led *Stage Capture and Pathology Reporting Project*, is a provincial initiative aimed at improving the quality and completeness of cancer stage data collection and cancer pathology reporting through implementation of common data and reporting standards that have been endorsed both provincially and nationally. The project will support cancer system improvement and enhanced quality of patient care by providing new information to cancer system providers, researchers and other decision-makers on cancer stage and pathology for all cancer patients in Ontario. Backgrounders on cancer staging and cancer pathology are included in an Appendix to this Project Summary.

The Pathology Reporting Project

The goal of the *Pathology Reporting Project* is to receive synoptic cancer pathology reports in discrete data field format from all hospitals that are electronically submitting pathology reports to CCO. All reports will be standardized according to the College of American Pathologists cancer reporting checklist standard, for all cancer sites.

CCO is working in collaboration with hospitals, laboratories and pathologists across Ontario to implement electronic tools and infrastructure that will enable discrete synoptic pathology reporting. The synoptic capture of pathology reporting data at each hospital/lab and standardized transmission of this information to Ontario's central cancer registry will allow cancer pathology data to be stored in a structured and consistent format (discrete data fields), in order to support enhanced reporting of pathology data quality and to facilitate enhanced use of pathology data for automated stage capture, for tumor registration and for other analytic indicators and measures.

Synoptic pathology reporting in discrete data field format for five common cancer resections or surgeries (breast, lung, colorectal, prostate and endometrium has been successfully implemented with the first 8 early adopter hospitals (Wave 1) and an additional thirteen hospitals (Wave 2) are targeted for completion by summer of 2009. All remaining hospitals (Wave 3) in Ontario have been engaged to implement by the Spring of 2010. For further information on status of implementation across Ontario, please visit our website: http://csqi.cancercare.on.ca/cms/One.aspx?portalId=40955&pageId=41216.

In 2010/11 and 2011/12, CCO will work with all hospitals and laboratories to update their synoptic pathology reporting tools to the 2010 CAP cancer checklists and expand reporting to all disease sites, with the goal of reporting 90% of all pathology reports in discrete synoptic format. This final phase of implementation will also include implementation of pan-Canadian endorsed data and messaging standards (e.g., NAACCR vol 5 and Inforway Lab standards) to support interoperability and comparable reporting.

The *Pathology Reporting Project* is comprised of three interrelated workstreams:

- **Hospital Implementations of Synoptic Pathology Reporting**: CCO will work together with hospitals as they move forward to verify that the data sent includes all of the mandatory CAP checklist elements and that the HL7 message is formatted correctly. This process of data validation will include modifications to the Pathology Information Management System (PIMS) software at CCO as well as the method by which reports are extracted from the hospital Lab Information System (LIS) for transmission to the Ontario Cancer Registry.

- **Vendor Certification**: For hospitals requiring technical solutions to meet these new reporting standards, CCO will conduct a vendor certification process to verify vendor's ability to collect and report data as per the CAP/CS aligned data standard. The certification process is not intended to replace hospital procurement policies. Hospitals still need to ensure that the vendor/solution meets local pathology reporting work practices and clinical, statutory and technical requirements, which include the integration of patient information among hospital systems.

- **Pathology Data Quality Management and Reporting:** This component includes the development of pathology data quality and surgical pathology reports that will be shared with hospitals, pathologists and other users.

Strong interdependencies exist between the Pathology Reporting and Stage Capture initiatives that will enable automated capture of stage related data from synoptic pathology reports.

The Stage Capture Project

The goal of the *Stage Capture Project* is to develop data collection processes, tools and supports that enable timely access to accurate, complete and comparable information on cancer stage and other important prognostic factors for all patients in Ontario. The initiative will allow CCO to achieve its vision of collecting the data elements required to determine stage at diagnosis for cancer adult patients, using the Collaborative Staging methodology, for surveillance purposes.

As a critical prognostic factor, cancer stage information adds considerable value to the measurement and evaluation of cancer service treatment patterns and outcomes. In spite of that, there are relatively few published cancer system indicators in Ontario or beyond that utilize stage. At the outset of the project in 2007, CCO was only collecting valid[1] stage data for approximately 33% of total new incident cases in the province. This stage data was provided to CCO by 12 of the 14 Regional Cancer Centres (RCCs) in the province for radiation and systemic therapy cases. None of the other hospitals treating cancer were reporting stage to CCO, and there were some RCC cases, generally those treated by surgery only, at the host hospitals, that were not being reported.

Since 2007, stage capture in Ontario has increased from 33% to 64%. This has resulted from the increased completeness and quality of stage reported by the 14 RCCs as well as the initiation of Collaborative Staging (CS) data collection beyond the cancer centres. CS data collection was successfully implemented in Ontario's 35 Cancer Surgery Agreement (CSA) hospitals (excluding RCCs) in 2008/09, for top 4 cancers (breast, lung, colorectal and prostate). For further information on status of implementation across Ontario, please visit our website: http://csqi.cancercare.on.ca/cms/One.aspx?portalId=40955&pageId=41222.

The implementation of CS data collection to an additional 36 non-Cancer Surgery Agreement hospitals is planned for 2009/10. The move to CS data collection for all RCC cases will occur after automated CS data capture from discrete synoptic pathology reporting has been achieved and is targeted for 2011/12.

The *Stage Capture Project* is comprised of three interrelated workstreams:

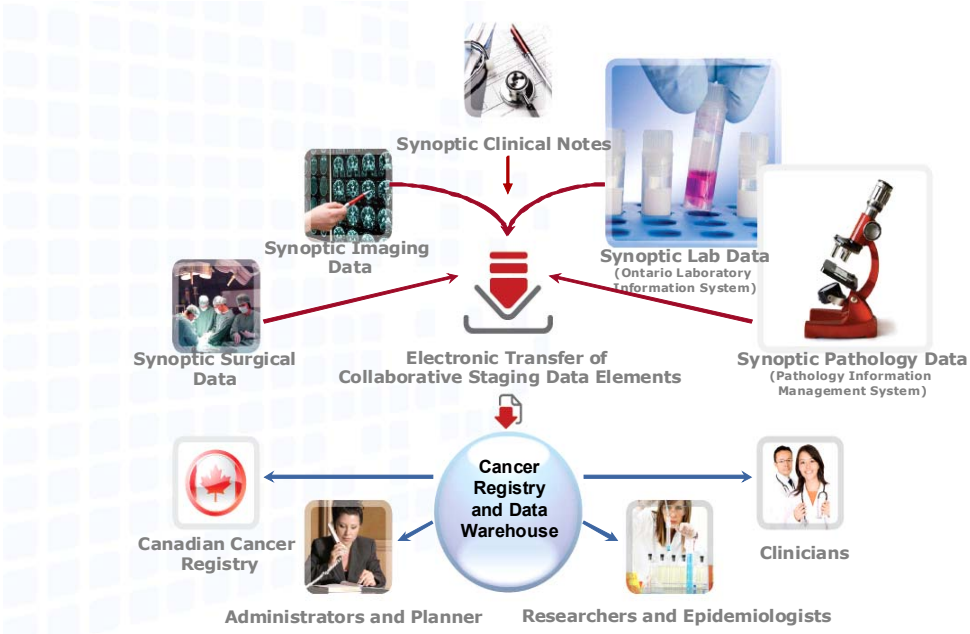
- **Stage Data Quality Management**: This component involves the development of a comprehensive stage data quality management program aimed at improving the validity and reliability of reported stage data. The data quality program includes better ways to measure and monitor stage data quality as well as education and other strategies for improving stage validity and completeness.

- **Stage Data Use Enhancement:** This component includes the research and development of stage based indicators for system surveillance and guideline concordance. It also includes a consultation and education process aimed at improving the use and understanding of stage based indicators by cancer service providers.

- **Hospital Implementation of Collaborative Staging:** CCO is working with all Ontario hospitals to implement Collaborative Staging data collection, initially through manual review of cancer patient hospital health records by specialized CCO abstractors. Hospitals are enabling access to the cancer patient hospital health records through secure web based technologies. Planning and design of IT infrastructure to facilitate automated stage data capture from e-Path is underway so that a model of semi-automated data capture can be introduced after implementation of discrete synoptic reporting of the 2010 CAP cancer checklists (see figure 1). Opportunities to integrate other synoptic reporting (i.e., e-Imaging, e-Surgery, etc.) will be pursued as new technologies are implemented.

[1] Valid stage data as defined by CCO's stage capture rate analysis is the proportion of cases for which the assigned stage falls within therange of valid values for the given disease site.

Figure 1: *Future Vision for Collaborative Staging (CS) Data Capture*



The Stage Capture and Pathology Reporting Project is part of a broader pan-Canadian initiative that is being led by the Canadian Partnership Against Cancer, which has also contributed significant funding support.

For further background information please see visit our website at
http://www.cancercare.on.ca/toolbox/systeminfo/inforeptools/stcapproj/
or please email us at: pathology@cancercare.on.ca or stage@cancercare.on.ca

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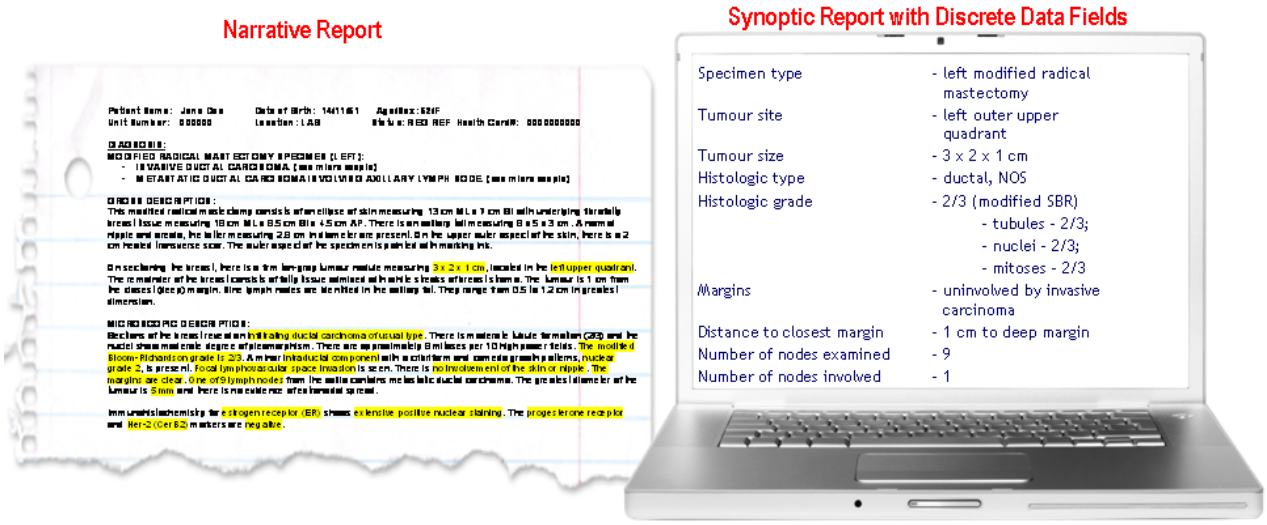
Appendix – Backgrounder on cancer pathology reporting and cancer staging

What is synoptic pathology reporting in discrete data field format?

High-quality cancer pathology reporting is important because the information contained within these reports guides decisions by doctors in confirming a cancer diagnosis and informing subsequent cancer treatment decisions. Synoptic pathology reporting refers to an electronic report in discrete data field format (i.e., each type of information has a specific place and format in the report) that allows for the standardized collection, transmission, storage, retrieval and sharing of data between clinical information systems.[2] The College of American Pathologists' cancer checklists have been endorsed as the Ontario standard for standardizing the content of cancer pathology reports. The following figure illustrates the difference between a tradition narrative report and a synoptic report

Figure 4. Example of a narrative, synoptic-like and synoptic report in discrete data field format



Standardization of cancer pathology reporting is being enabled through implementation of synoptic reporting e-tools by hospitals and endorsement of a common data and messaging standard by all hospitals that are centrally submitting electronic reports to the Ontario Care Registry at CCO. The following table illustrates the current level of standardized cancer pathology reporting in Ontario.

Figure 5*: Level of Standardized Cancer Pathology Reporting in Ontario*

Innovative →

Reporting level	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Description	• Narrative • No CAP content • Single text field data	• Narrative • CAP content • Single text field data	• Level 2 + • Synoptic-like structured format	• Level 3 + • Electronic reporting tools using drop-down menus	• Level 4 + • Standardized reporting language • Data elements stored in discrete data fields	• Level 5 + • ICD-O and SNOMED CT or other coding
% of Ontario hospitals in 2008/09	0%	0%	21%	51%	28%	0%

2009/10 goal is for all hospitals to achieve level 5 for top 5 cancer resections

[2] College of American Pathologists. An overview of the College of American Pathologists cancer checklists; http://www.cap.org/apps/docs/snomed/CAP_Cancer_Checlkists_Overview_090115.pdf. Accessed March 13, 2009.

What is cancer staging?

Cancer staging describes the extent or severity of an individual's cancer based on the extent of the original tumor and the extent of spread in the body[3]. The appropriate management of a patient with cancer is not possible without knowledge of the extent or stage of the cancer. The American Joint Committee on Cancer (AJCC) TNM system presented below (tumor-node-metastasis) is the most widely used staging system globally and is also used by physicians in Ontario's regional cancer programs. (See http://web.facs.org/cstage/schemalist.htm for more information on TNM staging).

***Figure 2**: AJCC TNM Staging System which is also endorsed and supported by the UICC.*

T category—extent of the primary tumor (TX, T0, T1, T2, etc)

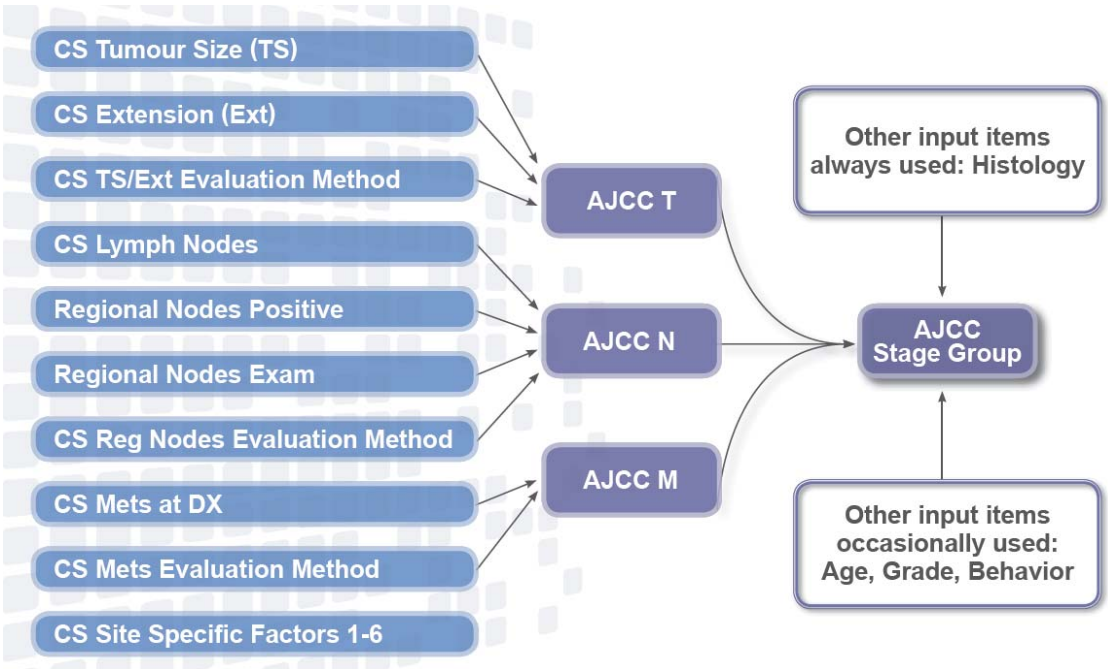
N category—extent of regional lymph node involvement (N1, etc)

M category—presence of distant metastasis (M0, M1, etc)

TNM categories are used to derive overall stage group at diagnosis (Stage I-IV; where Stage I is early stage & Stage IV is late stage)

Collaborative Staging (CS) has been endorsed as Ontario's standard for collecting cancer stage information. (See http://web.facs.org/cstage/schemalist.htm for more information on CS). The following figure lists the CS data elements on the left side and illustrates how CS can be used to derive TNM staging which is depicted centre-right.

***Figure 3**: Schematic Diagram of Relationship of Inputs and Outputs for CS to TNM Staging System*



[3] American Joint Committee on Cancer. 2009. What is cancer staging? http://www.cancerstaging.org/ mission/whatis.html; Accessed June 11, 2009.