Cancer Care Ontario

Automating Collaborative Staging data collection: Unleashing the power of the electronic health record

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Ontario
Cancer Care Ontario

Presentation outline

- Project background
- Purpose of the evaluation
- Methods
- Results
- Conclusions and Implications for practice

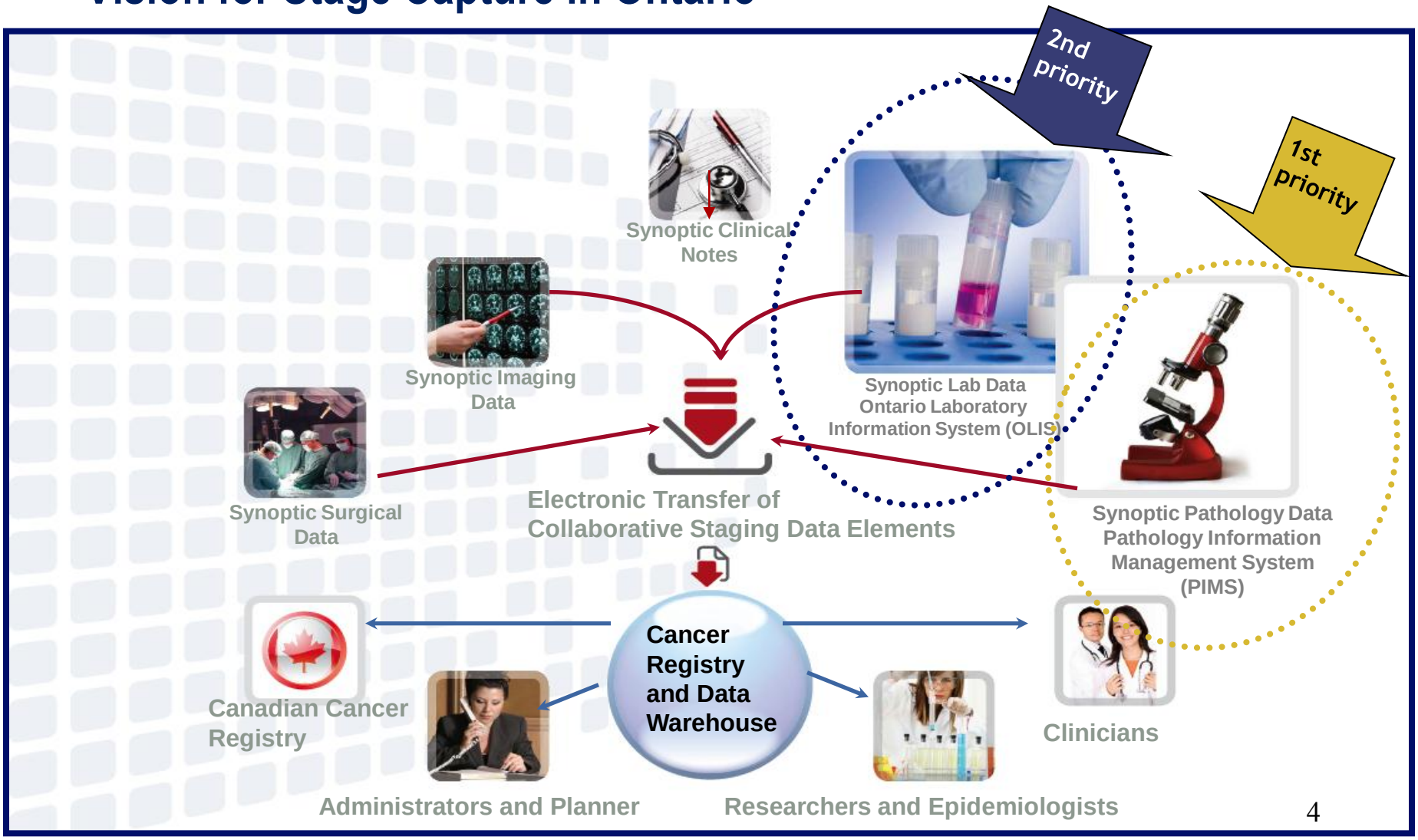
Project Background

Improve the quality and completeness of cancer stage data collection and cancer pathology reporting through implementation of common data and reporting standards and innovative new e-Tools

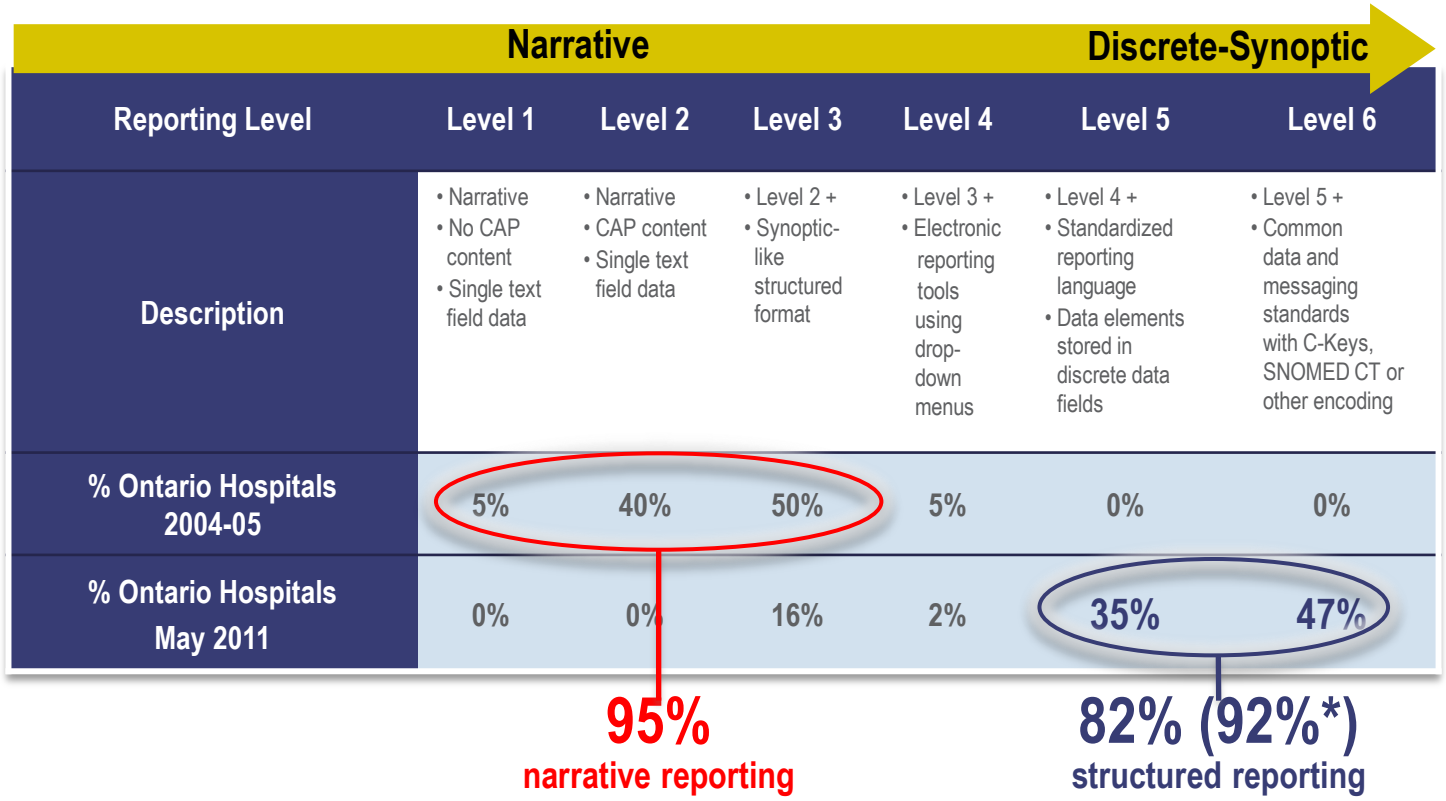
Stage-Path Project Goals:

- Standardize cancer pathology reporting
  - synoptic reports with discrete data fields
  - 90% complete based on CAP cancer checklists
- Achieve population based staging
  - enable semi-automated capture of cancer stage at diagnosis – leverage synoptic pathology reporting
  - 90% of all eligible new cases using the Collaborative Staging (CS) minimum data set

Vision for Stage Capture in Ontario



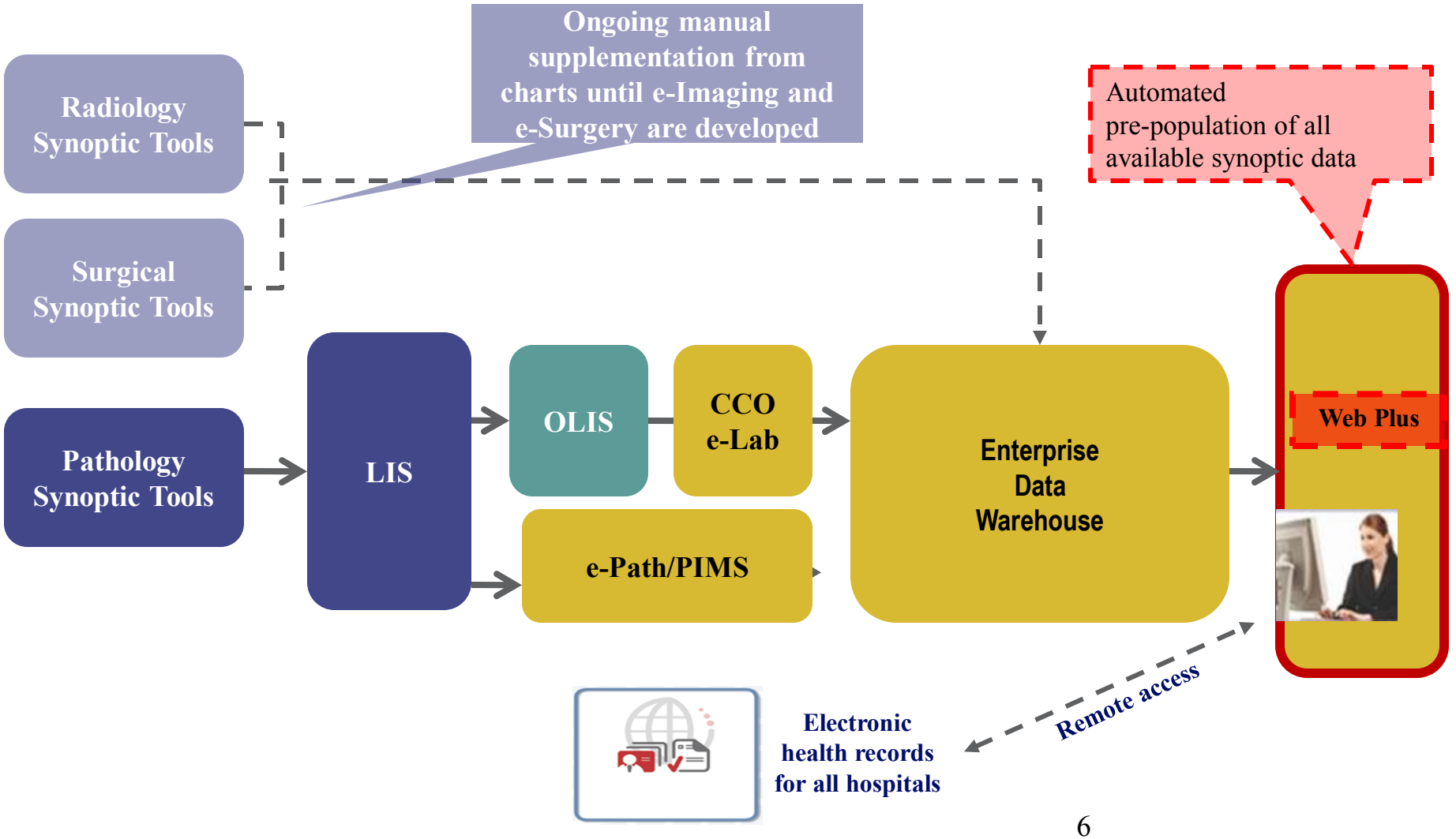
Synoptic (structured) Pathology Reporting in Ontario



- Ontario = first jurisdiction anywhere to structure and standardize pathology reporting in eHRs across virtually all hospitals

* excluding very small hospitals that cannot send electronically and still fax reports to CCO

Model for CS Automation



Evaluation Purpose and Objectives

Purpose

To determine the impact of the introduction of CS automation on the time required to review abstracts by CS Analysts.

Objectives

1. To determine the difference in time to review abstract : manual versus automated with Level 5 synoptic path reports (CSv1 – phase 1 & CSv2 – phase 2)

2. To obtain feedback from CS analysts regarding the impact of change in methodology practice.

Methods

1. Time analysis
2. Overwrite Assessment
3. Focus group with CS analysts

Number of Cases – Manual vs. Semi-automated with CSv1/ CSv2

Disease site	Semi-Automated (CSv1)	Manual (CSv1)
CRC	121	2999
Lung	196	1775
Breast	381	1184
Prostate	341	3230
Total	1039	9188

Disease site	Semi-Automated (CSv2)	Manual (CSv2)
CRC	1137	1064
Lung	456	416
Breast	832	798
Prostate	1076	1071
Total	3501	3349

Analysis: Manual vs. Semi-automated with CSv1/ CSv2

Disease site	Manual (CSv1) Mean	Semi-Automated (CSv1) Mean	Manual (CS v2) Mean	Semi-Automated (CSv2) Mean
CRC	10.30	9.74	11.67	10.52
Lung	12.97	10.63	13.81	10.58
Breast	11.72	10.07	8.46	9.88
Prostate	8.32	9.13	8.06	8.71
Overall**	10.30	9.83*	11.16	9.85

Dependent t-tests were conducted to compare the mean scores of ***manual versus automated* cases, with results indicating a ***statistically significant difference in scores*** for the time required to review cases.

Dependent t-tests were conducted to compare the mean scores of ***CS (v1) versus CS (V2),* with results indicating ***no statistically significant difference in scores*** for the time required to review cases.

* Time to complete scores presented here may not be a true representation of actual time and may actually be lower (e.g. faster) than the results presented here due to learning curve of CS analysts and miscommunication re: instructions for tracking and recording time on worksheets.

Overwrite Assessment: Phase 1 (CSv1)

609/1039 (59%) cases required overwrite.										
	All		CRC		LUNG		BREAST		PROSTATE	
	CS	SSF	CS	SSF	CS	SSF	CS	SSF	CS	SSF
Total #	451	328	33	0	100	0	221	321	91	4
Clinical # (%)	79 (18%)	25 (7%)	0	0	7 (7%)	0	44 (20%)	26 (8%)	26 (29%)	0
Pathology # (%)	372 (82%)	303 (92%)	33 (100%)	0	93 (93%)	0	177 (80%)	295 (92%)	65 (71%)	4 (100%)
Most freq. overwrite %	CS LN (30%)	SSF6 (79%)	CS Ext (66%)		RegNodes Pos (66%)		CS LN (43%)	SSF6 (79%)	CS LN; RegNodes Pos (34% each)	SSF5; SSF6 (50% each)

Note: For most of these cases, even with overwrites, T,N mapping was not affected.

Overwrite Assessment: Phase 2 (CSv2)

1590 /3502 (45%) cases required overwrite.										
	All		CRC		LUNG		BREAST		PROSTATE	
	CS	SSF	CS	SSF	CS	SSF	CS	SSF	CS	SSF
Total #	1793	596	1052	105	249	70	433	267	65	145
Clinical # (%)	456 (25%)	6 (< 1%)	283 (26%)	1 (< 1%)	28 (11%)	0	131 (30%)	0	12 (18%)	1 (<1%)
Pathology # (%)	1137 (63%)	590 (99%)	769 (73%)	104 (99%)	221 (89%)	70 (100%)	302 (70%)	267 (100%)	52 (80%)	144 (99%)
Most freq. overwrite %	CS Ext (49%)	SSF3 (28%)	CS Ext (63%)	SSF6 (81%)	CS Ext (59%)	SSF1, SSF2 (50% each)	CS LN (40%)	SSF4 (46%)	CSTS; CS Ext (31% each)	SSF3 (98%)

Note: For most of these cases, even with overwrites, T,N mapping was not affected.

CS Analyst : Focus Groups - Phase 1 (CSv1)

Benefits	
Theme	Description
Time	Saves time; would be spending more time reading and looking for the information; great for “simple” cases such as colorectal; good to have site specific factors prepopulated. “Getting faster with time.” There is no way we would be able to process the volume of cases without automation.” Remote access is great – no way would this be possible without remote access.
Quality	Less time spent on data entry, therefore decreased opportunity for error associated with data entry. Able to spend more time on critical analysis of the clinical data rather than data entry. Recognize there will always be some component of analysis of the information – more focus on analysis than clerical / data entry.

CS Analyst : Focus Groups - Phase 1 (CSv1)

Challenges	
Theme	Description
Adapting to new way	"Don't like the prepopulated fields, find them confusing, I know where to look for information in the chart" "Currently not trusting the information and the mapping – but once I am more comfortable with the system, trust will increase and this will save time." Concerns about personal risk: "My initials are on this case, worried that I will miss some of the details with prepopulated information". " It was hard to deal with all disease sites at once, it would have been better to start with small number of disease sites to focus on the process.
Quality	Still concerned about the quality and the reliability of the data coming through. " I just want to know that the information is accurate, then I will trust it. "It's the little glitches that are creating the biggest issues"

CS Analyst : Focus Groups - Phase 2 (CSv2)

Benefits	Challenges
Time : Much faster; more helpful especially with the site specific factors; less changes to be made; more precise; starting point is much better – easier to double check to ensure correct information.	Minor tweaking required for some codes in site specific factors
	Still some minor bugs / glitches in the system

Conclusions and Implications for Practice

- CS Automation improved efficiency in stage data collection
- CS Analysts reported preference for pre-population and a shift in their role to allow them to do more critical data analyses
- Phase 3 of evaluation will assess CS mapping rules to 2010 eCCs (Level 6 synoptic pathology reports) which are better aligned with CSv2 data elements - results anticipated in Fall 2011

Thank You!

Questions?