Real Time Discrete Data Elements from Synoptic Radiology Reports to Enhance Cancer Registry Operations

Gemma Lee
Group Manager
Product Management Cancer Services
Cancer Care Ontario

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Outline

• Ontario Cancer Registry (OCR) Overview
  ▪ Current state of OCR
  ▪ Benefits of synoptic radiology reporting to OCR

• Benefits of combined synoptic radiology and pathology reporting

• Synoptic Radiology Project Status
  ▪ Activities to date
What is OCR?

A computerized database of information about all Ontario residents who have been diagnosed with cancer ("Incidence") or who have died of cancer ("Mortality").

4 Major Data Sources

- Cancer-related CIHI DAD and NACRS (surgical)
- Pathology reports (eMaRC)
- Regional Cancer Centres (ALR/Data Book)
- Death Certificates

Earliest Incidence Data: 1964
Earliest Mortality Data: 1950
The OCR facilitates reporting of:

- **Incidence**
  - The number or rate of new cancer diagnoses over a specified period of time in a known population.

- **Mortality**
  - The number or rate of deaths from cancer over a specified period of time in a known population.

- **Survival**
  - The proportion of people diagnosed with cancer that are still alive after a given time period, most commonly 1 to 5 years after diagnosis.

- **Prevalence**
  - The number of people who have been diagnosed with cancer during a specified time period and who are still alive at a point in time.

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**MISSION**

To generate, analyze and disseminate timely, high quality information describing all cases of cancer diagnosed among Ontario residents.
Patient Linkage

• Combination of deterministic and probabilistic linkage routines to aggregate a person’s source records (what was submitted to CCO) into a “best of linked person record.”
• Generates a single composite/representative record representing that individual.

Case Resolution

• Consolidates records from multiple data sources into one or more primary cases of cancer
• Generates a single “resolved” record representing each primary case.
Source Accrual Patterns

Reporting sources for 2007 incident cases in OCRIS, Oct. 2013

Hospital discharges 73%

Path reports 82%

Day surgery 35%

Deaths 33%

Cancer Tx clinics 62%

% Single Source
Hosp only 4%
Path only 5%
DC only 2%
Clinics only 3%
(Day surgery only 2%)
Benefits of Cancer Radiology Reports to OCR

- Verification of cancer confirmation on clinical cases

- Addresses issue of Over-registration vs. Under-registration
  - Under-registration in current OCR has been verified by Stage Capture work for lung (approximately 500-800 lung cancer cases)
  - suspect that other clinical cancer cases may be missing from OCR
Timely capture of clinical TNM
  • It will allow central staging system more effective/efficient.
  • Ability to identify metastatic status of cancer cases to assign cM effectively

According CIHI CCI code for Inpatient Single Record only
  (excluding cancer centre and hospital day visits)
  • Lung 2010 (270) vs. 2011 (582) vs 2012 (643)
  • CRC 2010 (94) vs. 2011 (172) vs 2012 (193)
Benefits of combined synoptic radiology and pathology reporting

• Cancer Staging

• Patient treatment and Patient follow-up

• Quality Assurance

• Research and Clinical Trials
Synoptic Radiology Reporting Project
**Report Continuum**

**Narrative Reports**
- No structure in report body
- No discrete fields
- May or may not be standardized content
- Free Text

**Structured Reports**
- Structure in report body
- No discrete data fields
- May or may not be standardized content
- Free Text

**Synoptic Reports**
- Structure in report body
- Discrete data fields
- Standardized clinical content using standardized terminology
- Free Text

**FINDINGS**
- Myocardial Infarction
- Heart Attack
- Cardiac Event

**MYOCARDIAL INFARCTION**
- Heart Attack
- Cardiac Event

**Myocardial Infarction**
- Heart Attack
- Cardiac Event
Synoptic Radiology Reporting – Vision

1. Patient undergoes exam

2. Radiologist reviews images, populates eChecklist and signs report

3. Data stored and data mined

4. Referring physician reads report and uses it as a communication and decision making tool

5. Improved outcomes through optimal patient care and enhanced system level opportunities

- Quality of life & patient experience
- Integrated care
- Effectiveness
Project Vision:

Provincial synoptic reporting for key cancer imaging reports.

1. To improve the quality, clarity, and comprehensiveness of radiology reporting for cancer;

2. To drive standards in radiology reporting; and

3. To facilitate automated data mining in radiology reports for staging data collection and population research to improve patient care decisions and patient treatment.
Project Work Streams:

Diagnostic Imaging

Clinical Standards
Clinical Interoperability Standards
Change Management

Cancer Imaging

Infrastructure
Data-enabled Quality Initiatives
CIP Strategy for Synoptic Reporting

Multidisciplinary Expert Advisory Panel

Multidisciplinary Working Groups

Multidisciplinary External Reviewers
# SRR Project - Progress to Date

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<th>Task</th>
<th>Next Steps</th>
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| **Clinical Standards**    | Leading development of clinical standards for Cancer Imaging  
  ✓ Establish Advisory Panel  
  ✓ Architecture of a Synoptic Radiology Report (White Paper)  
  ✓ Governance for clinical checklist working group (White Paper)  
  ❏ Checklist Development  
    • CT Lung for staging – draft complete by multidisciplinary working group, - **Pending Final Review**  
    • Version 2.0 release of CCO MR Template for Rectal Cancer – **July 2015 Release**  
    • **Planning for next three (3) clinical checklists for development**                                                                                                                                                                                                                                                                                                                                                                         |
| **Clinical Interoperability Standards** | Working with standards development organizations to advance interoperable standards  
  ✓ CHI XDS/XDSi implementation guide synoptic radiology chapter  
  ✓ DICOM Supplement 155 for Imaging Reports using HL7 CDA  
  ✓ Terminology Selection Guide Process for Diagnostic Imaging  
  ❏ Assess/Collaborate on RSNA the open source T-Rex Report Template Editor for e-Templating  
  ❏ Assessing impact of evolving SDC standard and CAP e-Templating                                                                                                                                                                                                                                                                                                                                                                           |
| **Change Management**      | Identifying and engaging stakeholders  
  ✓ Understanding radiology work flow (Site Visits)  
  ✓ Championing MRI Rectal Template  
  ✓ Synoptic Radiology Readiness and CCO MRI Template for Rectal Cancer Adoption Survey  
  ✓ Collaborate and communicate with RSNA regarding structured reporting  
  ✓ Synoptic Radiology Reporting Symposium – View to the Future  
  ✓ Development of a Visual Demonstration of effective Synoptic Reporting  
  ❏ **CT Lung Reporting for Lung Cancer Staging Landscape Assessment**                                                                                                                                                                                                                                                                                                                                                                       |
## SRR Project - Progress to Date

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<td><strong>Infrastructure</strong></td>
<td>High-level architectural concept for potential reporting infrastructure&lt;br&gt;✔ Draft conceptual high level design for future CCO synoptic radiology reporting infrastructure leveraging provincial assets&lt;br&gt;☐ Assess continued alignment with e-Health Ontario, Canada Health Infoway, CPAC Surgical Synoptic initiatives</td>
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<td><strong>Data-enabled Quality Initiatives</strong></td>
<td>Develop data and reporting framework, indicators, and reporting tool requirements&lt;br&gt;✔ Collaboration with RSNA regarding CCO vision for Convergence of Radiology and Pathology report data elements&lt;br&gt;☐ CT Lung Reporting for Lung Cancer Staging Landscape Assessment&lt;br&gt;☐ Investigate stakeholder requirements for the integrated Radiology data/report&lt;br&gt;☐ Draft data-use plan for synoptic reporting data</td>
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Mary Jane King, Manager, Ontario Cancer Registry
Questions

Gemma Lee
Group Manager,
Product Management, Cancer Services
Cancer Care Ontario

Email: Gemma.Lee@cancercare.on.ca