



Cancer Care Ontario

# Molecular data in synoptic reports Part 1: Canada

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# Synoptic Reporting in Canada

- National Standards for the Health Care System
  - Management, organization and delivery healthcare is provincial
- Number of National and Provincial pathology associations
  - Pathology leadership in various provincial organizations
- College of American Pathologists (CAP) cancer checklists as the content standard for pathology reporting
  - Canadian Association of Pathologists (2009)
  - Canadian Partnership Against Cancer (CPAC)



# Ontario Landscape

**Size:** *Over 1 million square kilometers*

**Population:** *14.5 million people (39% of Canadians)*

**Distributed cancer system:** *14 Regional Cancer Programs and one central cancer agency*

**Pathology:** *55 cancer pathology laboratories, 118 cancer surgery facilities*

**New cancer cases per year:** *70,000+*

**Pathology Reports:** *170,000+*

**Pathologists:** *420+*

**Lab information systems:** *Multiple LIS/Synoptic reporting tool combinations*

# Overview: Implementation of synoptic pathology reporting in ON

## Infrastructure

1999-2004: ePath infrastructure established

## Synoptic-Like

2004-2007: Transition from narrative to synoptic-like reporting

## Synoptic

2008-2010: Ontario implements synoptic reporting for 5 common cancer resection reports

## Biomarkers

2015–Present: Increasing emphasis on synoptic reporting of biomarkers

1999

2004

2004

2005

2008

2010

2015

01

02

03

04

05

06

07

## Quality Focus

2004: CCO's enhanced emphasis on driving quality and performance standards

## Reporting Standard

2005: Adoption College of American Pathologist (CAP) Standard

## Synoptic Expansion

2010-2012: Expanded synoptic reporting to 63 disease sites, implement updates to reporting and transmission standards

# Uptake of Synoptic Reporting

Reporting Level	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Description	<ul style="list-style-type: none"> <li>Narrative</li> <li>No CAP content</li> <li>Single text field data</li> </ul>	<ul style="list-style-type: none"> <li>Narrative</li> <li>CAP content</li> <li>Single text field data</li> </ul>	<ul style="list-style-type: none"> <li>Level 2+</li> <li>Synoptic-like structured format</li> </ul>	<ul style="list-style-type: none"> <li>Level 3+</li> <li>Electronic reporting tools using drop-down menus</li> </ul>	<ul style="list-style-type: none"> <li>Level 4+</li> <li>Standardized reporting language</li> <li>Data elements stored in discrete data fields</li> </ul>	<ul style="list-style-type: none"> <li>Level 5+</li> <li>Common data and messaging standards with ckeys, SNOMED CT or other encoding</li> </ul>
% Ontario Hospitals 2004-05	5%	40%	50%	5%	0%	0%
% Ontario Hospitals 2006-07	0%	5%	70%	25%	0%	0%
% Ontario Hospitals 2008-09	0%	0%	65%	17%	18%	0%
% Ontario Hospitals 2009-10	0%	0%	20%	2%	78%	0%
% Ontario Hospitals January 2012	0%	0%	8%	0%	0%	92%
% Ontario Hospitals May 2012	0%	0%	3%	0%	0%	97%
% Ontario Hospitals October 2015	0%	0%	0%	0%	0%	<b>100%</b>

# Biomarker Indicators: Trend

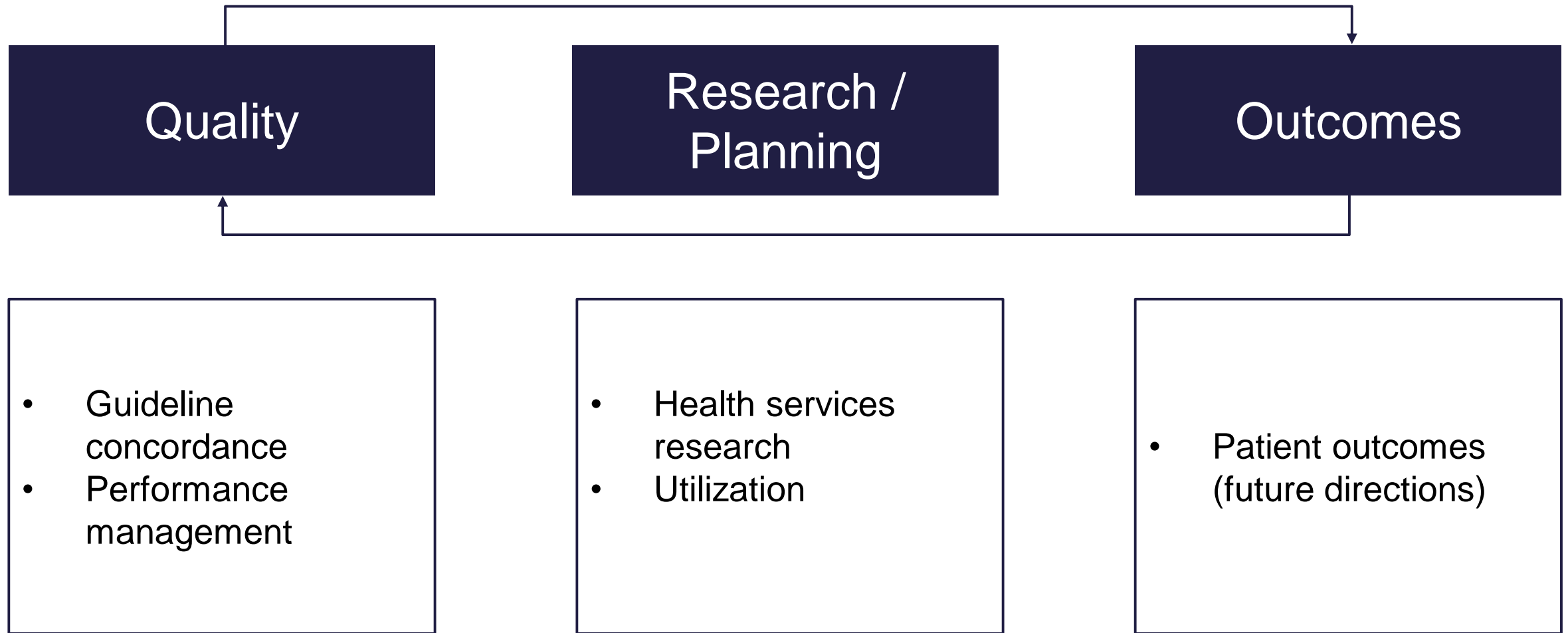
## Volume of Synoptic Biomarker Templates over time.

Inclusions: CAP Template ID equal to:

eCC Checklist template-id	Checklist Name
169.1000043	BREAST: Biomarker Reporting Template
241.1000043	CNS: Biomarker Reporting Template
228.1000043	COLON AND RECTUM: Biomarker Reporting Template
347.1000043	DNA Mismatch Repair Biomarker Testing for Checkpoint Inhibitor Immunotherapy
264.1000043	ENDOMETRIUM: Biomarker Reporting Template
223.1000043	GASTRIC: HER2 Biomarker Reporting Template
242.1000043	GIST: Biomarker Reporting Template
227.1000043	LUNG: Biomarker Reporting Template
253.1000043	Melanoma: Biomarker Reporting Template
255.1000043	THYROID: Carcinoma Biomarker Reporting Template
251.1000043	CLL: Biomarker Reporting Template
252.1000043	CML: Biomarker Reporting Template
254.1000043	DLBCL: Biomarker Reporting Template
250.1000043	MPN: Biomarker Reporting Template

Biomarker Reporting Template	Received Year			
	2015	2016	2017	2018
<b>Breast</b>	5444	9406	12232	15700
<b>Colon and Rectum</b>	606	1016	1669	2664
<b>Gastric HER2</b>	796	1069	1231	1670
<b>Lung</b>	980	1829	2280	4054
<b>Melanoma</b>	7	215	334	370
<b>CNS</b>	0	0	0	85
<b>DNA Mismatch Repair</b>	0	0	0	174
<b>Endometrium</b>	0	0	90	676
<b>GIST</b>	0	2	2	4
<b>Thyroid Carcinoma</b>	0	0	0	1
<b>DLBCL</b>	0	0	0	175
<b>MPN</b>	0	0	0	708
<b>Grand Total</b>	<b>7833</b>	<b>13537</b>	<b>17838</b>	<b>26281</b>

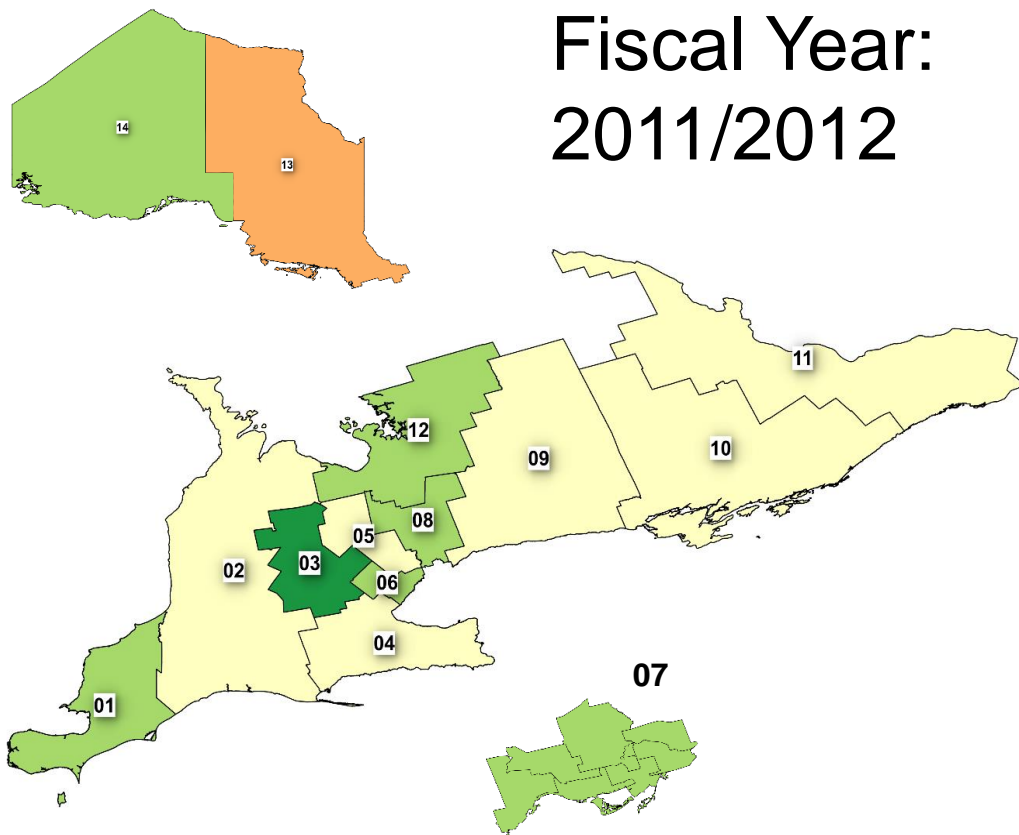
# Uses of molecular data in synoptic reports



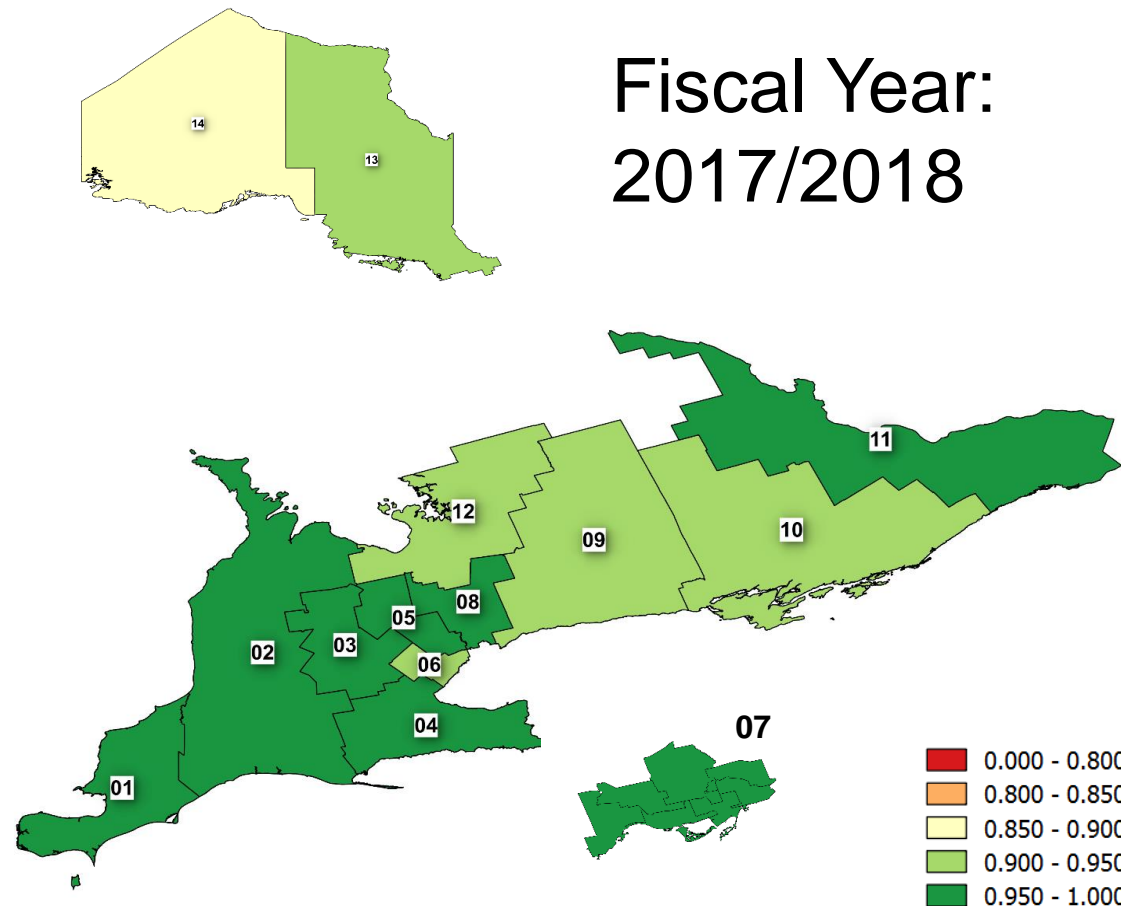
# Examples of Synoptic Data Usage:

*Colon – Percent of 12 or more Lymph Nodes Examined*

Fiscal Year:  
2011/2012



Fiscal Year:  
2017/2018





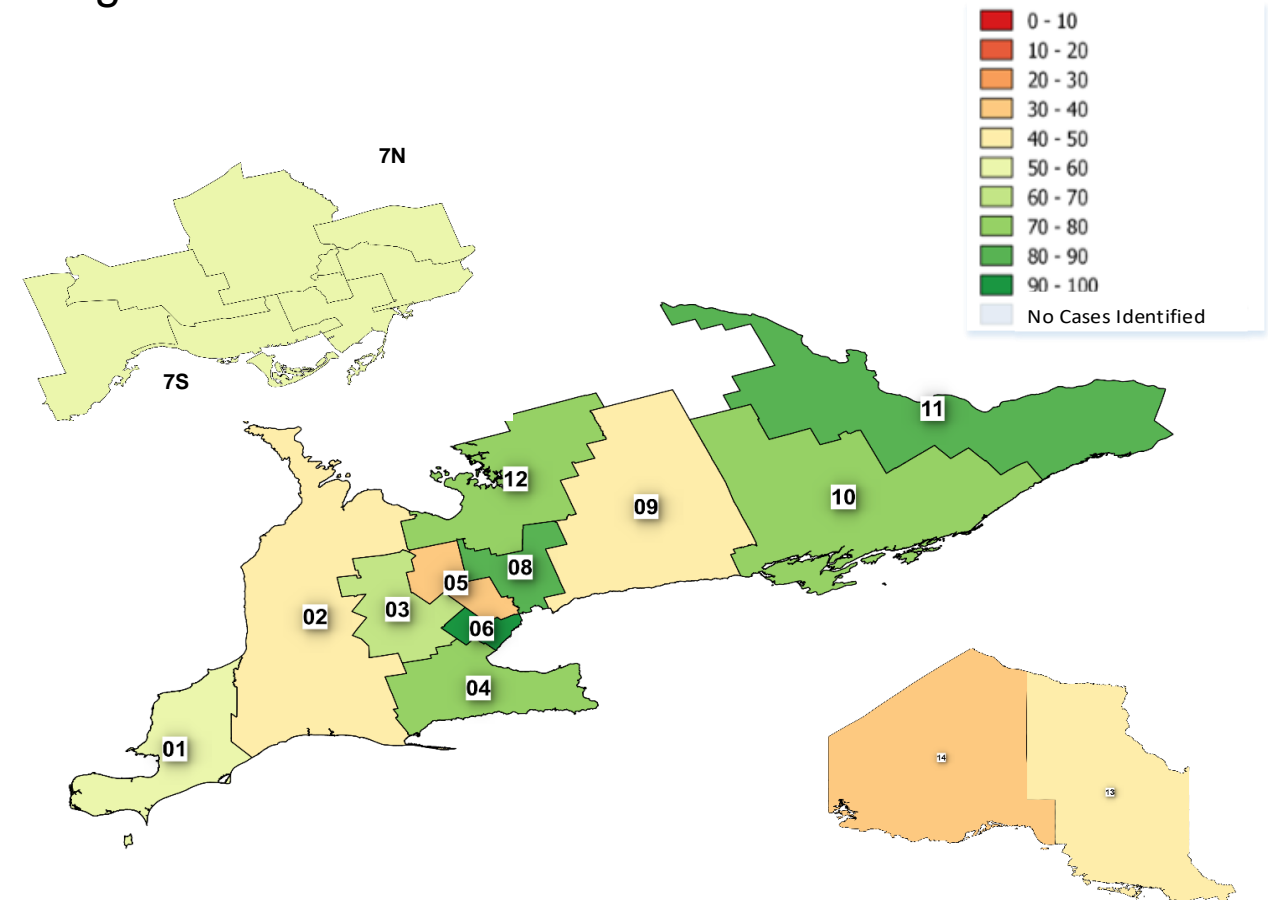
# Examples of Synoptic Data Usage:

## *Biomarker testing for drug treatment eligibility*

Utilize synoptic data to monitor biomarker testing for indications/populations associated with drug eligibility

- Monitor uptake
- Identify gaps / variation in practice
- Identify potential quality issues

Percent of NSCLC cases with either EGFR OR ALK by Surgical LHIN



# Examples of Synoptic Data Usage:

## *Lynch Study – Colorectal*

Synoptically derived volumes vs. self-reported volumes

# Diagnosed	955
Synoptic biomarker volume	341
Self-reported volume	957

Surgical LHIN	# Diagnosed	Synoptic Data			
		With Biomarker	% with Biomarker	Loss of nuclear expression (either MLH1, MSH2, MSH6, PMS2)	% Loss of nuclear expression (either MLH1, MSH2, MSH6, PMS2)
1	44	13	29.55%	*	*
2	93	34	36.56%	*	*
3	38	17	44.74%	*	*
4	108	34	31.48%	*	*
5	31	13	41.94%	6	<b>46.15%</b>
6	62	37	59.68%	*	*
7N	42	14	33.33%	*	*
7S	83	30	36.14%	*	*
8	107	52	48.60%	7	<b>13.46%</b>
9	96	32	33.33%	*	*
10	37	15	40.54%	*	*
11	80	20	25.00%	0	<b>0.00%</b>
12	38	6	15.79%	*	*
13	36	14	38.89%	0	<b>0.00%</b>
14	14	*	*	0	<b>0.00%</b>
Unknown - Within Ontario	46	6	13.04%	0	<b>0.00%</b>
Ontario	955	*	*	35	<b>10.26%</b>

\* Cell Suppression LE 5 cases; blank cell = no synoptic data

# Challenges

- Linking biomarker reports to primary surgical specimens
- Managing large amounts of genomic data (panels)
- Embedding pathology within a Comprehensive Genetics Strategy
  - Combines tumour and Germline Data
  - Focus on action and evaluation

# Future Directions

- Expanding number of synoptically driven quality indicators
- Evaluating pathology data against treatment pathways
- Moving synoptic data from administration to action
  - Pathology Drives Patient Care

Thank you

