



Data Quality Improves: An Evaluation of Canadian Data Using the SEER Site/Histology Validation List

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BACKGROUND

- The Canadian Cancer Registry (CCR) at Statistics Canada collects cancer data from the nation's 13 Provincial and Territorial Cancer Registries (PTCRs).
- The CCR collects data on all tumours using the International Classification of Diseases for Oncology, Third Edition (ICD-O-3) and, since 2007, the SEER Multiple Primary/Histology (MP/H) rules for determining multiple primaries.
- The CCR determined its existing improbable site/histology list needed to be updated and decided to use the SEER Site/Histology Validation List, a previously unused resource.
- A data quality initiative was undertaken by the Resolutions Issues Group (RIG), a subcommittee of the Data Quality Management Committee (DQMC). Site/histology combinations within the CCR were verified using the 2009 SEER Validation List.

OBJECTIVES

- To replace the obsolete CCR improbable site/histology combination table with the SEER Site/Histology Validation List.
- To incorporate the SEER Site/Histology Validation List with behaviour 1 codes (found in the ICD-O-3 and falling within the CCR scope – see table) and the high grade dysplasia codes effective for 2012 forward.
- To thoroughly review CCR data with site/histology combinations not found on the SEER Site/Histology Validation List.
- To create an automated feedback process allowing PTCRs to verify records falling outside the SEER Site/Histology Validation List.
- To identify potential issues related to reporting by PTCRs and CCR data collection.
- To detect national concerns and/or provincial/territorial-specific issues in coding standards practice.

SOURCES

- ICD-O-3 including errata up to Jan 1, 2012 implementation year
- SEER Site/Histology Validation List 2009 including errata up to Dec 2012
- CCR System Guide 2012 Edition
- CCR 2012 Tabulation Master File

CCR Reporting Scope

Date of diagnosis	ICD-O-3 Behaviour code	ICD-O-3 Topography codes	ICD-O-3 Histology codes
1992/01/01 to 2006/12/31	1, 2, 3	C00 – C80 • See exceptions below for C44 (skin)	8000 to 9989
	0	C70 – C72 (meninges, brain and spinal cord, cranial nerves and other parts of central nervous system) C70 – C72 (meninges, brain and spinal cord, cranial nerves and other parts of central nervous system) C75.1, C75.2, C75.3 (pituitary, craniopharyngeal duct and pineal gland)	8000 to 9989
2007/01/01 to 2009/12/31	0	C00 – C80 • See exceptions below for C44 (skin)	8000 to 9989
	1 and 3	C00 – C80 • See exceptions below for C44 (skin), C53 (cervix), C61.9 (prostate)	8000 to 9989
	2	C70 – C72 (meninges, brain and spinal cord, cranial nerves and other parts of central nervous system) C75.1, C75.2, C75.3 (pituitary, craniopharyngeal duct and pineal gland)	8000 to 9992
2010/01/01 and onwards	0	C00 – C80 • See exceptions below for C44 (skin)	8000 to 9992
	1 and 3	C00 – C80 • See exceptions below for C44 (skin), C53 (cervix), C61.9 (prostate)	8000 to 9992
	2	C70 – C72 (meninges, brain and spinal cord, cranial nerves and other parts of central nervous system) C75.1, C75.2, C75.3 (pituitary, craniopharyngeal duct and pineal gland)	8000 to 9992

CCR Scope Exceptions (not to be reported)

Date of diagnosis	ICD-O-3 Behaviour code	ICD-O-3 Topography codes	ICD-O-3 Histology codes
1992/01/01 and onwards	1, 2, 3	C44 (skin)	8050 to 8084 (squamous cell neoplasm) or 8090 to 8110 (basal cell neoplasm)
2007/01/01 and onwards	1, 2, 3	C44 (skin)	8000 to 8005 (NOS) or 8010 to 8046 (epithelial neoplasm)
	2	C53 (cervix), C61.9 (prostate)	All histologies

METHOD

- Restricted to those cases in the CCR diagnosed between 2001-2010 and further limited to cases diagnosed since 2007 for issues related to MP/H changes.
- A site/histology combination for behaviour 1 was only added to the SEER Site/Histology Validation List if the histology was found in ICD-O-3 and could occur in a particular site.
- Obsolete behaviour 1 codes in ICD-O-3 were not added.
- When adding behaviour 1 site/histology combinations, a series of data runs were conducted to verify if the CCR had cases with those combinations. Site/histology combinations considered improbable, or incorrectly coded, were recorded on a quality control list to be returned to the appropriate registry for review.
- Errors were grouped for analysis according to site, behaviour, histology and MP/H issues.

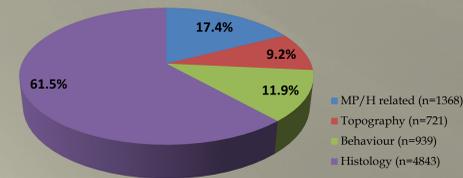
Primary focus was on identifying inconsistencies with the following:

- Application of histology coding changes in ICD-O-3.
- Adoption of behaviour coding changes in ICD-O-3.
- Changes with the implementation of 2007 MP/H rules.

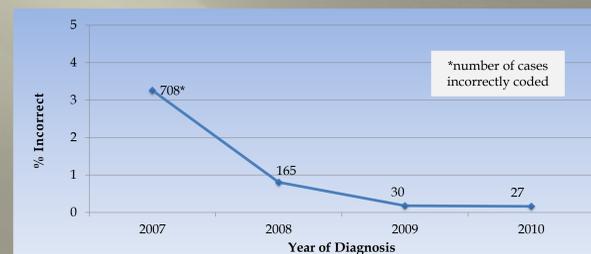
RESULTS

- The SEER Site/Histology Validation List (containing 10,453 lines) was expanded to include behaviour 1 site/histology combinations (representing an addition of 645 lines).
- A total of 55 different site/histology/behaviour coding issues were identified.
- A total of 7,871 cases had one of these coding issues.

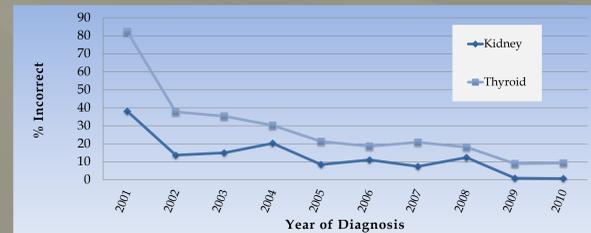
Distribution of Site/Histology/Behaviour Coding Issues (n=7,871 cases)



Percentage of Acinar Adenocarcinoma Prostate Cases (C61.9) Incorrectly Coded as 8550/3 vs 8140/3 from 2007-2010



Percentage of Papillary Carcinoma Kidney Cases (C64.9) and Thyroid Cases (C73.9) Incorrectly Coded using 8050/3 vs. 8260/3



- Although the number of coding errors for prostate represented a small percentage of overall cases, the substantial decline in errors from 2007 to 2010 demonstrates that registries were applying the MP/H rules.
- The number of errors related to coding papillary carcinoma for thyroid and kidney also declined.

EXAMPLES OF CODING ISSUES

Histology, Behaviour, MP/H Coding

ICD-O-3: 8050/3 was used for coding papillary carcinoma for kidney and thyroid vs. 8260/3. Coding of splenic marginal b-cell lymphoma for spleen using 9699/3 vs. 9689/3.	Site/Histology/Behaviour Carcinoid tumour of uncertain malignant potential should be coded for site C18.1. ICD-O-3 specifies 8240/1 histology/behaviour for appendix only.	MP/H rules: Reporting of acinar adenocarcinoma of the prostate using 8550/3 vs. 8140/3. Coding adenocarcinoma, intestinal type 8144/3 for colon vs. 8140/3.
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OUTCOMES

- Incorporating the customized SEER Site/Histology Validation List into the data verification process will result in improved data quality, accuracy and comparability across Canada.
- Improvements to formal communication and education processes are necessary.

NEXT STEPS

- Work to develop and revise standardized edits.
- Implement an automated feedback process with overrides (similar to NAACCR) for items that require review (those items falling outside of the customized SEER Site/Histology Validation List).
- Facilitate communication among Provincial/Territorial experts to ensure coding and reporting changes are kept up to date and to ensure changes to standards are consistently applied.

