

**REPORT OF THE AUTOMATED TUMOR
LINKAGE WORK GROUP OF THE REGISTRY
OPERATIONS COMMITTEE, April 2011:
Histology PairsTable for the 2007 MP/H Rules**

Automated Tumor Linkage Work Group Roster, 2011

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Background

NAACCR committees and work groups have worked on the problem of what constitutes correct record linkage and case consolidation since the 1990's. The current report and its accompanying Histology Pairs Table are intended to be companion works to the topography-related set of documents (including the Report Of The Automated Tumor Linkage Work Group Of ROC, October 2005 and ATL Site Pairs Table - see Table of Related Documents), originally published in 2005 to provide cancer registries with a basic table to be leveraged in the design of automated bucket sorting algorithms by ICD-O-3 codes for source records, including multiple case abstracts and other cancer coded information.

Recent developments, including the 2007 Multiple Primary and Histology Coding Rules (MP/H Rules),¹ and advances in electronic data collection of source records (additional hospital case abstracts including, for example, increasing availability of electronic pathology reports, discharge records and billing information) have required further work to refine tumor record linkage.

Together, the Site Pairs Table and Histology Pairs Table are meant to be used as tools to assist in the development automated tumor linkage. They are not, in themselves, recommendations. Automated linkage may be considered advantageous where it reduces

¹ Johnson CH, Peace S, Adamo P, Fritz A, Percy-Laurry A, Edwards BK. The 2007 Multiple Primary and Histology Coding Rules. National Cancer Institute, Surveillance, Epidemiology and End Results Program. Bethesda, MD, 2007.

the amount of time spent on manual association of source records to a case, but it is not necessarily “truth”. The table driven automation logic must be tested and adapted to local conditions. One cancer registry’s final tables will not necessarily be sufficient or correct for another registry’s use. Ongoing auditing and visual review will always be required and review strategies will necessarily vary depending upon the characteristics of the incoming data over time. However, the increasing complexity of standard hospital abstracts along with the increased use of ancillary source data provides a rationale for automation. It should lessen the total time spent doing review and free the tumor registrars to focus their expert attention on specifically targeted issues.

The following table lists relevant documents related to linkage and consolidation many of which are available the NAACCR web site.

Table of Related Documents

Automated Tumor Linkage (ATL) Work Group of the Registry Operations Committee (ROC) Documents	
Validating Tumor Linkage Using the NAACCR Site Pairs Table	Bringman, Deborah, Jerri Linn Phillips, Judy Williams, and John Young. Journal of Registry Management, 2009, v 36, number 3, pp 66-70.
REPORT OF THE AUTOMATED TUMOR LINKAGE WORK GROUP OF ROC, OCTOBER 2005	http://www.naacr.org/StandardsandRegistryOperations/ATLGDocs.aspx
ATL Registry Comparison Chart	http://www.naacr.org/StandardsandRegistryOperations/ATLGDocs.aspx
ATL Site Pairs: Executive Summary	http://www.naacr.org/StandardsandRegistryOperations/ATLGDocs.aspx
ATL Site Pairs Table	http://www.naacr.org/StandardsandRegistryOperations/ATLGDocs.aspx
Record Consolidation Documents	
Record Consolidation Test Project - 2007 Multiple Primary/Histology Rules: Final Report	http://www.naacr.org/StandardsandRegistryOperations/RecordConsolidation.aspx
Report of the Record Consolidation Committee, 2003: Final Report	http://www.naacr.org/StandardsandRegistryOperations/RecordConsolidation.aspx
Report by the Registry Operations Committee, 2000: Report	http://www.naacr.org/StandardsandRegistryOperations/RecordConsolidation.aspx
Report of the Record Consolidation Committee, 1999	http://www.naacr.org/StandardsandRegistryOperations/RecordConsolidation.aspx

Record Consolidation Test Project - ICD-O-2	http://www.naaccr.org/StandardsandRegistryOperations/RecordConsolidation.aspx
Record Consolidation Test Project - ICD-O-3	http://www.naaccr.org/StandardsandRegistryOperations/RecordConsolidation.aspx

Objectives for the Histology Pairs Project

The Tumor Linkage Work Group set itself the objective of developing best practices for automating the determination of which records may represent the same tumor based on their histology, using the SEER MP/H Rules as the standard. The results of this project are intended to serve to facilitate automation of the tumor linkage process by central cancer registries. Hematopoietic malignancies are specifically excluded from this project.

Methods Used to Define Histology Pairs

The NAACCR Histology Pairs Spreadsheet includes pairs of ICD-O-3 histologic type codes that are considered to represent the same tumor in terms of histology. Only solid tumor histologies in the in situ and invasive range were assessed.

The Work Group itself constituted an expert panel based on each member's experience and particular registry or business affiliation, along with comparison to the SEER 2007 MP/H Rules. The Florida Cancer Data System (FCDS) was utilized for this work. FCDS was the only registry known to be using an ICD-O-3 histology pairs table for automated tumor linkage, and the table was compatible with the 2007 MP/H Rules.

Using the FCDS table as a template, groups of histology pairs were first reviewed by work group volunteers and then presented for verification to the group as a whole. During this process, the ICD-O-3 manual, the MP/H Rules and the decisions made by FCDS were consulted and some modifications were made to the FCDS histology pairs list.

Results

The result is the NAACCR Histology Pairs Spreadsheet for Solid Tumors. This resource is based on the 2007 MP/H Rules. It contains pairs of histology codes that appear to be valid per all or some of the MP/H Rules or could be construed to be a logical extension of the rules.

Histology pairs in the spreadsheet represent histologic codes that should be considered the same primary in terms of histology. (Other factors such as primary site, laterality and diagnosis dates must also be assessed in order to make a final determination of whether two records represent the same primary cancer.) In certain cases, histology pairs were included in the table with an annotation that CTR review is recommended in order to make the final determination.

Histology pairs that were in the original FCDS histology pairs table that were considered by the Work Group but not included have been deleted altogether from the current table.

In principle, most pairs marked as "INCLUDE" apply to all MP/H schemes. Some are only appropriate for certain schemes and these are marked as "INCLUDE Site-Spec" with specific details in other columns.

This spreadsheet is a viable basis for automated histology logic in combination with the aforementioned NAACCR site pairs table, laterality logic and diagnosis date logic. Attention

should be paid to any changes in the rules that might necessitate a change from the information given in either the site or histology pairs tables.

Please open the spreadsheet to compare it to the Guide below. Embedding a spreadsheet example into this document was impossible due to formatting constraints.

Guide to Reading and Interpreting the Histology Pairs Spreadsheet

The columns are read as follows:

Columns A and B – the actual pairs

A is “MP2007_HISTO_PAIRS_LOW”, B is “MP2007_HISTO_PAIRS_HIGH”.

- This means that of any two pairs, the lower numeric value will be in column A and the higher value in column B.
- All pairs are reversible and the table does not include reversed pairs; otherwise the table would be twice as large.
- Implementers may choose to add the reversed pair.

Column C, “NAACCR Tumor Linkage WG Final Answer”:

This column includes only pairs that were correct per the 2007 rules for at least one scheme.

- Where the entry says “INCLUDE”, the pair is valid universally.
- Where the entry says “INCLUDE Site-Spec”, the pair is valid for only specified schemes and in other circumstances it is invalid.
- The site-specific columns E-M identify the valid and invalid schemes for the entry “INCLUDE Site-Spec.”

Column D, “Follows 2007 MP rules”

This column indicates the reason for inclusion of the pairs, as follows:

- 1 = Follows Rules
- 2 = Reasonable extension
- BLANK = See comments

Where Column D entry is “BLANK = See comments”, mainly refer to Column N, which contains the comments (see explanation of Column N, below). A small minority of BLANKs do not have a Column D comment, but do have a MP/H rule inclusion in the site-specific columns E through M. This scenario correlates with a Column C entry of “INCLUDE Site-Spec”.

Columns E through M

There is one column for each of the nine 2007 solid tumor schemes.

- Where the entry in column C is “INCLUDE Site-Spec”, each column indicates whether the pair is invalid (entry is “DEL/M10” (delete) or, where the pair is valid specifically for that scheme, the relevant MP/H rule for that scheme is entered (e.g., “M10”).

- Where the entry in column C is “INCLUDE”, there may also be an entry in one or more cells in columns E-M, if a specific scheme mentions the pair within its logic.

Column N

This column contains comments from the Tumor Linkage Work Group, describing observations and recommendations based on categorized scenarios.

NAACCR Tumor Linkage Comments	
1	See Column D
2	See Column D
3	Same 3 digits, but histology seems to be biologically different: should be reviewed.
4	One histology is an in-situ code only, may want to consider review or special handling (i.e., with behavior and report type and date of specimen).
5	Different 3 digits but may be the same tumor. Review to determine whether one or two primaries.
6	May want to review 8046 with other non-small cell histologies with Lung Primary to ensure registrars didn't mis-code a small cell histology to 8046.
7	Two or more tumors; one has a combined/mixed histology and the other has a single histology that is included in that combined/mixed histology. Review to determine whether one or two primaries. (Lung Table 1, Breast Table 3, Other Sites Table 2)
8	Pairs may be the same primary based on timing rule. (Thyroid M6, Brain M6,)
9	One histology is a benign/borderline only; may want to consider review or special handling i.e. with behavior and report type and date of specimen)