

Use of Override Flags in the 1995-1999 CINA File Submissions

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Introduction

Each year, files submitted in response to the annual NAACCR call for data are reviewed using standardized protocols by the statistical analytic unit staff and the CINA Production Sub-committee. These include identification and omission of non-standard codes, review of frequency distributions for all data elements, consistency in counts by gender, year, site, and other routine file assessments. Non-routine evaluations are also conducted by NAACCR staff on topical issues. In 2000-01, historical data for registry certification were assessed to identify registries with persistent hurdles in achieving registry certification standards. Follow-up interviews were conducted with these registries to determine whether the issues were unique to each registry or whether issues were common and general training programs might be warranted. This effort resulted in several presentations and a paper that is published on the NAACCR web site (<http://www.naacr.org/Stats/EpiReports.html#DataQ> accessed June 18, 2002).

Recently, concern has been expressed that override flags could be set without conducting proper review and follow-back. This would produce an EDITS output that shows no errors, a criterion required for gold certification and inclusion in CINA combined rates. It is of particular concern since the frequency of override flags is not included in the high data quality criteria, and no standard or guideline has been established for a reasonable frequency for setting these flags.

Background

NAACCR has adopted many standards for data submission with the goal of creating objective standards for quality, to standardize the data processing steps, and to release a useful product. In 2000, Howe and colleagues (2000) completed a project to determine the variability in the number and proportion of flag overrides among various high quality registries and to determine whether a standard acceptable range could be defined for the purposes of evaluating the data quality of *Call for Data* submissions. Frequency distributions by registry were produced for nine override flags. The data were also reviewed to determine whether a standard for an acceptable frequency of override flags could be defined empirically.

Fifteen registries were included in the analysis of 1990-1994 data. (Howe et al., 2000). The range for setting override flags was very narrow for all flags. The authors concluded that the analysis should be repeated in subsequent years to determine whether the range and central tendencies of the flag overrides would change and whether the inclusion of a greater number of registries would improve the precision of the estimates (reducing the confidence intervals). When the paper was discussed in a workshop, an expert panel concluded that while override flags may not be a good way to evaluate the quality of the data file due to variation in medical practice that can affect the need for setting an override flag (e.g., diagnostic confirmation and surgery code), they are useful in identifying non-standard practice in setting flags, particularly by indicating those data elements where either no override flags are set or where 100 percent of the flags are set. (Howe, et al, 2000).

Purpose

The purpose of this report is to describe the use of nine specific override flags on the data file submitted to NAACCR for 1995-1999. The feasibility of establishing guidelines for a reasonable use of override flags is evaluated.

Method

Source of Data

The 2002 NAACCR annual call for data was the source of the data. Registries participate voluntarily to be included in the NAACCR *Cancer in North America* monograph and to have the most recent data year evaluated by the NAACCR registry certification program. Information on the NAACCR standard 13 override flags are requested on the file submissions. The override flags are used to identify reports where combinations of data codes are highly improbable and most likely indicate an error in coding or reporting. However following proper follow back of each error with cancer reporters in facilities, the codes are reviewed and may be determined to be correctly recorded. An override flag is set appropriately in these instances.

Override Flags

Nine of the 13 override flags were included in the analysis due to minimal inter-registry variation and non-universal collection of EOD data elements on the remaining four override flags: age-site-morphology inter-field edit (item number 1990), sequence number/ diagnostic confirmation inter-field edit (number 2000), site/ laterality/ sequence number inter-record review (item 2010), surgery/ diagnostic confirmation inter-field edit (number 2020), site/ type inter-field edit (item 2030), histology/ behavior inter-field edit (item 2040), report source/ sequence number review (item 2050), ill-defined site/ sequence number (item 2060), and leukemia-lymphoma/diagnostic confirmation inter-field edit (item 2070). The four edits, site/behavior edit (item 2071), site/EOD/Diagnosis date (item 2072), site/laterality/EOD (item 2073), and site/laterality/morphology (item 2074), were omitted.

Analysis

The frequency of setting override flags was reported as a rate: the number of flags set per 10,000 records. Data were summarized by the range, mean and median frequencies of override flag setting. These statistics were also stratified by several categories:

1. By registry certification criteria. Registry medians were compared with the median values for each certification category. Further, to meet a certification category, the registry had to meet the gold or silver criteria for each year, 1995-1999, on the file submitted in December 2001.
2. By registries in either the SEER or NPCR program. Registry medians were compared with the median rates for each of the national programs.
3. And finally, all NAACCR submissions were compared with the NAACCR median values.

For each analysis above and for each override flag, registries that exceeded the median rate were noted. Then the number of flags exceeding the median rates were summed for each registry. A distribution of the number of times the median rate was exceeded was totaled for all registries.

In addition, for each override flag, registries that exceeded the mean rate for the category were noted. Then the registries exceeding the mean rates by at least 500% were identified. These registries were identified as extreme outliers in the frequency of setting of override flags.

When registries were identified as an extreme outlier or identified as exceeding the median rate of override flags for all flags, the registry director was contacted. The purpose of the interview was to determine whether standard follow back procedures for review and reconciliation of EDITS errors was being conducted and whether there were any other explanations for the high rate of flag setting. Twenty-four registries were contacted.

Results

Description of Sample

A total of 49 U.S. registries submitted their 1995-1999 data to NAACCR and agreed to have them included in special studies. One US registry was omitted from the analyses as a flag was set on all records for each of the nine edits. Although Canadian registries submitted data, none gave consent to use the data in any special studies. Within the US, the analysis included 10 registries from the SEER program and 38 from the NPCR program. A total of 28 registries met gold or silver certification criteria for their 1995-1999 file. Table 1 summarizes the mean and median rates for flag setting and the ranges of the rates among all registries. These results are reported for all NAACCR submissions and by certification status and national program affiliation. For all override flags, the range in rates was large. Further, large differences were found frequently between each mean and median rate suggesting a non-normative distribution of rates with one or more registries having a very high rate of override flags.

Among the certification categories, the median rate varied widely for some edits, but not others. The gold certified registries did not always have a median rate lower than the silver median rate of override flags. Edits for age/site/morphology, site/type, surgery/diagnostic confirmation, histology, and report source were higher for gold certified registries than silver certified registries. Median rates also differed between registries in the SEER program compared with the NPCR program except for the sequence number/diagnostic confirmation edit where both had the same median. The median rate of override flags was greater in the SEER program than the NPCR program for the following edits: site/laterality/sequence number, surgery/ diagnostic confirmation, and site/type.

When all registries were compared with the NAACCR median rate, several patterns emerged as summarized in Table 2 below. Seven registries exceeded the NAACCR median rate on all nine flags. All seven were in the NPCR program. On the other extreme, six registries were below the NAACCR median rate on all 9 flags. Most SEER registries exceeded the NAACCR median rate for 3-4 edits. The NPCR registries tended to cluster in both tails of the distribution as shown in Table 2.

Table 2. Count of registries that exceed the NAACCR median rate by the frequency of exceeding the median, stratified by national program and 1999 registry certification status, CINA submissions, 1995-1999					
Exceeds Median on:	Program			Certification	
	NAACCR	SEER	NPCR	Gold	Silver
All 9 flags	7	0	7	1	1
8 of 9 flags	1	0	1	0	0
7 of 9	5	0	5	4	0
6 of 9	4	1	3	3	0
5 of 9	5	1	4	1	0
4 of 9	5	4	1	5	2
3 of 9	4	3	1	0	2
2 of 9	4	0	4	3	1
1 of 9	7	1	6	3	0
No flags	6	0	6	2	1
Total	48	10	38	21	7

Most registries (n=35) had some flags set for each of the nine edits. One registry had zero override flags for five of the nine edits; 1 registry had zero set for four of the edits. Seven registries had one edit with no flags; one had two edits with no flags; and three registries had three edits with no flags.

Five registries were identified as extreme outliers on at least one flag. They exceeded the NAACCR mean rate by more than five-fold. Among these five registries, two registries had extremely high values on four or more override edits.

Discussion and Conclusions

Without any information about local practices, interviews with the registry directors were used to help interpret these results. Interviews were conducted with the following registries: those exceeding the NAACCR median nine times out of nine, the five registries with extreme outlier values, and the registry with no flags set on more than four edits. In 23 of the 24 registries meeting one of these criteria, the described process used to follow-back, verify codes, and reconcile errors was determined to follow recommended guidelines. The remaining one registry that did not follow recommended guidelines was contacted at the conclusion of the study to provide information on the guidelines and how their process would need to be modified to come into compliance with the existing recommendations.

This discrepancy between following guidelines for 23 of 24 registries with outlier values in flag setting is difficult to explain. The interviews were not detailed and merely described whether individual record reconciliation was taking place. There may be variation in the detailed reconciliation process that was not captured, but that does distinguish this group of registries with the registries with a more judicious use of setting flag overrides.

Fewer override flags does not always mean a more standard approach to the reconciliation process. It may be a situation where either too few or too many override flags are most indicative of outliers. Too few override flags could occur when records are changed to avoid an error without proper follow-back and reconciliation.

Recommendations

- 1) Continue monitoring registry-specific override flag setting.
- 2) Identify registries with outlier values of flag setting and contact them to clarify their EDITS error reconciliation process.
- 3) No standard for setting override flags is readily apparent from these data, thus no standard should be set at this time.
- 4) The reconciliation procedure of EDITS errors should be reviewed and if necessary a best practice approach be developed as part of the NAACCR Procedure Guidelines for Registry Operations.

Conclusions

- 1) This evaluation of data files is useful for identifying outlier registries.

References

Howe HL, Tucker TC, Lehnerr M. Defining a standard for an acceptable range of EDITS' flag overrides. In Howe HL Report of the NAACCR *CINA Deluxe* Beta Test. Springfield, IL: North American Association of Central Cancer Registries, March 2000, p. 7.