

Innovative Approach to Improve Completeness of Treatment in Cancer Registry Data

Meichin Hsieh, PhD, MSPH, CTR; Brent Mumphy, BS; Lisa Pareti, BS, RHIA, CTR; Xiaocheng Wu, MD, MPH, CTR
Louisiana Tumor Registry, Epidemiology Program, School of Public Health, Louisiana State University Health Sciences Center, New Orleans



Background

In order to comply with Louisiana legislative obligation and meet the funding agencies' requirement for 12-month data completeness, Commission on Cancer (CoC) hospitals in Louisiana are required to transmit reportable cancer cases to Louisiana Tumor Registry (LTR) within 6 months after diagnosis. However, enforcing the timely reporting of cancer cases from CoC hospital registries have resulted in incomplete treatment information for some cases, particularly the adjuvant treatment. Although additional treatment information can be obtained via NAACCR modified (NM) abstracts, any updates made after the initial data submission would trigger a new NM record flag in each CoC hospital registry's database for inclusion of case export in the next transmission file to the LTR. As a result, multiple NM records for the same cancer case may be sent to the LTR and result in multiple labor-intensive consolidations. To avoid this, CoC facilities are requested to retransmit their data to LTR 15-month after diagnosis to update treatment related information.

Objectives

- To demonstrate an innovative approach to improve completeness of treatment related data items in the cancer registry database.
- To assess the improvement of treatment data via the 15-month data retransmission.
- To identify potential missed cases.

Methods

Data Source:

15-month retransmitted data on 2013 diagnosed cases were obtained from 33 CoC facilities, including three radiation treatment centers.

Data Linkage and Comparison:

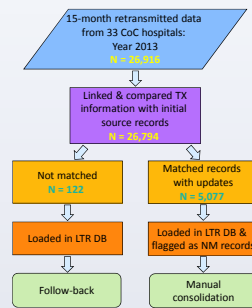
Data linkage and comparison between resubmitted records with existing records were conducted outside the LTR database using Pearl Script, an in-house developed program.

The data elements used for matching the same patient/tumor are listed below.

- Patient name (last, first, alias, maiden name)
- Date of birth
- Social security number
- Primary site
- Laterality
- Reporting facility

Figure 1 shows the summary of data processing for 15-month retransmitted data. Only perfect match records will be included in the treatment data item

Figure 1. Data Processing Flowchart



comparison process.

Treatment Data:

Treatment data items were compared as: Known vs. unknown (including none) value and known vs. known value with different code.

Only matched records with updated treatment data were imported into the LTR database and flagged as NM records for manual consolidation. Non-matched records were also loaded in database as potential new cases for further investigation.

Results

A total of 26,916 resubmitted 2013 NAACCR abstracts were received from 33 CoC hospitals and radiation treatment centers. About 19% (N = 5,077) of distinct abstracts with updates had at least one update related to treatment. Figure 2 shows the percentage of 15-month resubmitted abstracts with update(s) by reporting hospital. The percent of abstracts with updates varied by reporting hospital. The range was from 12.7% to 49.9%.

A total of 16,030 updates, an average of 3 updates per updated abstracts, was identified. The majority of updates (77.6%) were changed from unknown to known value.

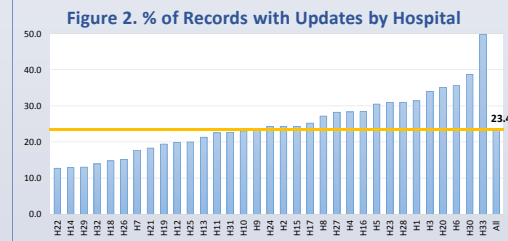
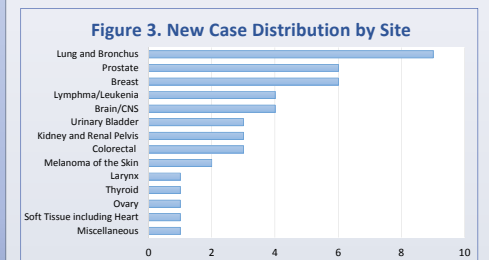


Table 1. Percentage of coding value changes for (a) surgery, (b) systemic & (c) radiation treatment : Known to known and Unknown to known

(a). Surgery				(b). Systemic Treatment				(c). Radiation Therapy			
Surgery	% Known to known (N=1,014)	% Unknown to known (N=840)	% All (N=1,854)	Systemic Treatment	% Known to known (N=756)	% Unknown to known (N=2,347)	% All (N=3,103)	Radiation	% Known to known (N=1,597)	% Unknown to known (N=6,495)	% All (N=8,092)
Surgery primary site	46.1	18.2	33.4	Chemotherapy	36.4	20.6	24.4	Radiation	3.3	10.4	9.0
Scope regional LN surg	24.8	14.4	20.1	Date chemo	31.5	13.5	17.9	Date radiation	6.9	10.2	9.5
Surg approach 2010	1.0	26.1	12.4	Hormone	6.0	30.7	24.7	Date radiation ended	8.6	11.1	10.6
Surgery other site	0.8	6.1	3.2	Date hormone	23.0	27.6	26.5	Boost dose cgy	1.5	7.5	6.3
Surgical margins	0.9	6.1	3.2	BRM	0.0	3.7	2.8	Boost Tx modality	6.9	7.6	7.4
Date surgery	11.2	9.9	10.6	Date of BRM	3.0	3.6	3.4	Radiation location	24.5	10.3	13.1
Date most definitive surg	11.6	16.4	13.8	Other Tx	0.0	0.3	0.2	Number Tx volume	6.7	11.2	10.3
Reason no surgery	3.6	2.9	3.3	Date other Tx	0.1	0.1	0.1	Rad regional dose cgy	5.8	11.1	10.0
								Rad reg Tx modality	21.1	10.2	12.3
								Rad treatment volume	10.1	10.2	10.2
								Reason no radiation	4.6	0.2	1.1

Slightly over 50% of updates were related to radiation fields and most of changes were changed from unknown to known value. One third of updates on surgical data items was surgery on primary site (Table 1a). For systemic treatment, the majority of changes was contributed by chemotherapy and hormone related data items, 93.5% (Table 1b). Changes on radiation were similar across all data items except reason no radiation (Table 1c).



In addition, 122 potential new cases were identified, 45 of them were truly missed cases after investigated. Lung cancer was the major missed cancer site followed by prostate and breast cancer (Figure 3).

Conclusions

- Linking 15-month resubmitted data is a cost-effective approach to obtain complete treatment information.
- Majority of updates for systemic and radiation therapy was obtaining additional treatment information.
- Surgery on primary site and chemotherapy were more likely to receive the updated information. Most of them were changed from NOS to more specific treatment.
- 15-month data resubmission is also a good approach to identify potential missed cases.

Acknowledgment

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