



Improving Completeness of Adjuvant Therapy Data by a Linkage with an Electronic Prescription Data - Louisiana Tumor Registry's Experiences

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BACKGROUND

Population-based cancer registries do not have complete data on adjuvant therapy due to inadequate resources. Obtaining complete data manually is costly. Thus seeking more cost-effective way to capture such information is always a high priority of Louisiana Tumor Registry (LTR). CDC-NPCR funded Comparative Effectiveness Research (CER) project provided us an opportunity to look for a way to improve the completeness of information on adjuvant therapy through linkages of registry data with datasets that contain treatment information such as Medicare, Medicaid, and prescription data. In this poster, we share our experience in a linkage of registry data with electronic prescription (e-prescription) file, including the linkage process and improvement of adjuvant therapy data, and lesson learned.

DATA RESOURCES

Electronic prescription (e-prescription) data

The 2010-2011 e-prescription data were from the Healthcare Services Division (HCSD), a public hospital system in Louisiana. The HCSD system consisted of 8 hospitals (Medical Center of Louisiana; Huey P. Long ; University Medical Center; Earl K. Long ; Lallie Kemp; Leonard J. Chabert ; Washington/St. Tammany Parish; and W.O. Moss) in Louisiana. It provided quality medical care to residents of Louisiana regardless of income or insurance coverage and Louisiana medical education needs. There were about 7% of cancer cases reported to LTR diagnosed and/or treated at these hospitals. The HCSD system started to implement the e-prescription in 2008; all HCSD hospitals adopted the e-prescription by March 2012. If a patient received 2 chemo or hormonal drugs at two different time, the e-prescription dataset maintained four records for the patients, one for each drug (see Table 1)

Table 1. Sample of E-prescription data file

Facility code	Patient identifiers	Drug name	Direction for Use	Provider name	Date entered	Other data items
1001	Micky Mouse	Protonix	1 tablet 1 time per day	John Smith	2/9/2011	...
1001	Micky Mouse	Protonix	1 tablet 1 time per day	John Smith	3/21/2011	...
1001	Micky Mouse	Dexamethasone	pre-med for chemotherapy I.V.	John Smith	2/9/2011	...
1001	Micky Mouse	Dexamethasone	pre-med for chemotherapy I.V.	John Smith	4/25/2011	...

Identifier includes patient name, birthday, social security number and medical record number.

Louisiana Tumor Registry data

We extracted data on breast, colon and rectum cancers and chronic myeloid lymphoma (CML) diagnosed in 2010 and 2011 from the registry master database; these cancer sites were selected because the CER project required complete data on adjuvant therapy for them. For 2010 cases, information on adjuvant treatment was from registry routine abstraction only, whereas for 2011 cases, information was from both routine data collection and the [CER project](#).

List of complete chemo and hormonal drugs

Since e-prescription dataset contained all prescription drugs, the first step was to identify chemo and hormonal drugs. We obtained a list of complete chemo and hormonal drugs from the website <http://www.chemocare.com/>, sponsored by the Scott Hamilton CARES.

LINKAGE PROCESS AND RESULTS

Linkage processes

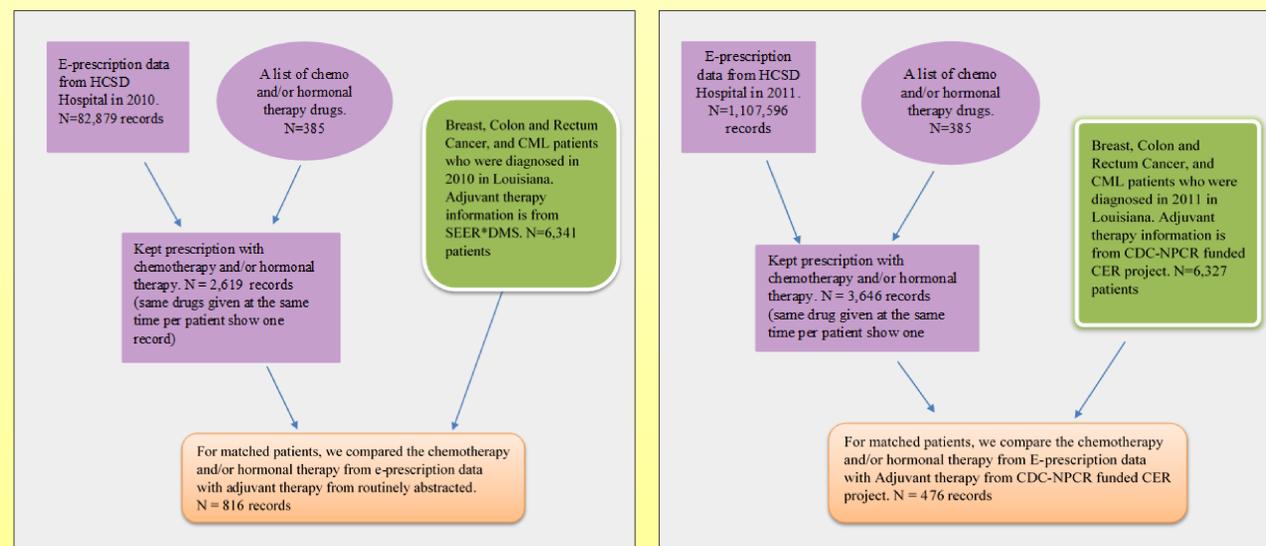
1. Linked e-prescription data with the list of chemo and hormonal drugs

We used a SAS program developed in house to link the e-prescription data with the list of chemo and hormonal drugs by name of drug to identify chemo and hormonal drugs in the e-prescription data file. After the linkage, we only kept the records for patients who received the chemo and/or hormonal drug in the e-prescription file.

2. Linkage of e-prescription dataset with the LTR data

We used Link Plus 2.0 to match records from e-description dataset with those from the LTR dataset by last name, first name, social security number, and date of birth. If a patient record in the LTR database matched with records in the prescription data, it indicates the patient received chemotherapy and/or hormonal therapy in HCSD system.

Figure 1. Linkage flowchart



Results

Breast, colorectal, and CMS cases diagnosed in 2010

There were 816 records in the e-prescription dataset matched with records of 67 patients from the LTR dataset. We found that 15 out of 67 patients (22.4%) did not have information on chemo or hormonal treatment in LTR dataset received chemo/hormonal therapy according to e-prescription data.

Breast, colorectal, and CMS cases diagnosed in 2011

There were 476 records in e-prescription dataset matched with records of 261 patients. We found that 5 out of 261 patients (1.9%) did not have information on chemo or hormonal treatment in LTR dataset received chemo/hormonal therapy according to e-prescription data.

CONCLUSIONS

1. Additional data on adjuvant therapy is obtained through the linkage of registry routine data with e-prescription data. This linkage is a cost-effective way to improve the completeness of information on adjuvant therapy in registry routine data.
2. Data on adjuvant therapy collected through the CER is complete. Linkage of CER data with-e-prescription did not gain additional adjuvant treatment information.

LIMITATIONS

1. We did not manually review whether drug names were matched between LTR dataset and e-prescription dataset. Manual review is necessary to assess the consistency in recording drug names in LTR and e-prescription datasets.
2. We only linked registry data with the same year of e-prescription data. If a patient received adjuvant therapy in the subsequent year after the diagnosis year, the information on adjuvant therapy from e-prescription was not caught.
3. We did not confirm whether a given drug was for the first course or subsequent treatment. Some subsequent treatment may be misclassified as first course treatment.

This project was funded by CDC-NPCR through IFC-Macro's subcontract with Louisiana Tumor Registry.