SEER*DMS Meaningful Use Workgroup Update

September 2018

Background

- Committee Chair
  - Brent Mumphrey
  - Louisiana Tumor Registry
  - IT Project Coordinator
- First meeting was July 2016
- Participants
  - 13 State Registries
    - Louisiana, New Jersey, New York, New Mexico, Iowa, Utah, Georgia, Connecticut, Hawaii, California, Idaho, Minnesota, Seattle
  - IMS
  - NCI
  - SCG
  - Westat
  - CDC

Workgroup Overall Objective

- State Registries have been receiving requests from physician offices to report their cancer encounters through the Meaningful Use Initiative
- Determine the feasibility of processing these records within SEER*DMS
- Work with IMS to create the import specifications for this record type
- Work with IMS to develop workflows for each Use Case defined by the workgroup

Reminder: Year 1 Progress

- Evaluated eMaRC Plus for pre-processing CDA data before putting it into SEER*DMS
- IMS completed:
  - CDA import for SEER*DMS
    - Records are stored in the PRE_RECORD table like the claims data
    - All CDA data elements are currently stored
  - Simplified CDA Workflow
    - DMS attempts to match incoming records at both the patient and CTC levels
  - Mechanism for viewing CDA data in SEER*DMS

Reminder: Year 1 Progress

- Viewing CDA Data in SEER*DMS
  - Data Search / Data viewer
    - The PRE_RECORD table can be queried directly and the results can viewed in the data search.
  - EHR tab in the Patient Set Editor
    - All linked CDAs are displayed in the EHR tab in the right panel
  - Popup viewer using XSLT
    - This is a complete representation of the original CDA XML record.

Year 2 Objectives

- Data Analysis of CDA data messages received for:
  - Data Quality
  - Casefinding
  - Supplemental Treatment Data
  - Evaluation of Duplicate records
- Develop Workflows for Identified Use Cases
  - Follow up use case
  - Casefinding use case

Data Analysis

- Each registry that had CDA data performed an analysis
- Questions to be answered:
  - For CDA data not matching and existing patient set
    - How many should have matched an existing patient set?
    - How many truly new cases were found?
  - For CDA data matching an existing patient set
    - How many should have matched an existing CTC?
    - How many new CTCs were found?
    - What type of additional information does the CDA data contain?
  - For patient sets with multiple CDAs per CTC
    - Are the CDAs true duplicates?
    - Does last CDA message contain all the data of the previous reports with the new info appended?

Data Analysis

- Data Analysis Template
  - Used to ensure consistency in the analysis across all registries
  - Developed SQL to create the template
    - The SQL was run against the CDA import in SEER*DMS
    - The results generated a blank template with key variable that was exported into Excel
- Example Template

display_id	primary_site	laterality	histology	behavior	dx_date	patient_display_id	primary_site	tumor_record_number	is_new_case	provides_new_info	info_type	comment
EHR-360684	C509	1	8000	3	20170214	PAT-00006649	C504					
EHR-361249	C504	2	8000	3	20150930	PAT-00049697	C508					
EHR-360453	C779	0	9591	3	20100519							
EHR-361673	C504	1	8000	3	20140724	PAT-00225676	C504					
EHR-361737	C186	0	8000	3	20011220	PAT-00233713	C186					
EHR-361256	C504	1	8000	3	20100618	PAT-00237882						
EHR-360651	C770	0	9690	3	20040429	PAT-00244603						
EHR-361772	C421	0	9732	3	20160915	PAT-00245895	C421					
EHR-362181	C504	2	8000	3	20130108							

Data Analysis Results - Louisiana

- Sample of 150 cases from a HemOnc practice
  - CDA record didn't match at any patient set in SEER*DMS
    - 39 cases with event date between 2014 & 2016
    - 8 Cases should have linked to a patient set in DMS
      - Incomplete Demographics
    - 10 Missed cases found
    - 7 Possible missed cases
      - More information was needed to determine if it was truly missed

Data Analysis Results - Louisiana

- CDA record that matched at the patient level
  - 50 cases investigated
  - 7 new cases found. All but two had an event date of 2017. The other two were from 2011 & 2012
  - 1 possible new case. Follow back is needed. Event date from 2017
  - 28 Should have linked to a existing CTC in DMS
  - 11 of those provided useful information
    - Surgery, Chemo, Hormone, BRM, Recurrence, Progression, more accurate Dx date, Tumor Size, Ext, LNs taken, receptor status, subsequent Tx

Data Analysis Results - Louisiana

- CDA record that matched at the CTC level
  - 50 cases investigated
  - 10 of those provided useful info
    - Surgery, Chemo, Hormone, BRM, Recurrence, Progression, more accurate Dx date, Tumor Size, Ext, LNs taken, receptor status, subsequent Tx

Data Analysis Results - Georgia

- CDA record didn't match at any patient set in SEER*DMS
  - 40 cases sampled
  - 17 Missed cases Identified
  - 23 Matched a HL7 in SEER*DMS
- CDA record that matched at the patient level
  - 33 cases sampled
  - 12 New cases identified
  - 9 Should have linked to and exisiting CTC
  - 6 provided new information
    - Dx date, surgery, treatment/subsequent tx

Data Analysis Results - Georgia

- CDA record that matched at the CTC level
  - 30 cases sampled
    - 2 new cases identified
    - 2 matched wrong CTC
    - 21 provided new information
      - Histology, Tumor size, LN's, SSF, second primaries, staging, treatment, second course treatment

Data Analysis Results – New Jersey

- CDA record didn't match at any patient set in SEER*DMS
  - 50 cases sampled
  - 29 Missed cases Identified
  - 9 Matched a HL7 in SEER*DMS
- CDA record that matched at the patient level
  - 50 cases sampled
  - 6 New cases identified
  - 9 provided new information

Data Analysis Results – New Jersey

- CDA record that matched at the CTC level
  - 50 cases sampled
    - 1 new cases identified
    - 13 provided new information

Data Analysis Results

- Utah and Iowa also performed the analysis with similar results
- Summary
  - CDA data can be a useful casefinding tool for Registries
  - CDA data is also a valuable source for supplementing missing and incomplete data

Duplicate Data

- Quite often there are sets of CDAs from the same doctor which have all the same information; each one adds just a bit of additional information.
- The CDA implementation guide specifies that each CDA record should be a cumulative report with all new information appended to the previous
  - Not all vendors implemented this the same way.
- Some examples in LA have over twenty linked CDAs from the same doctor.
- What do we do about this?

Duplicate Data

- IMS is developing and testing algorithms to identify duplicate reports.
  - The number of duplicate EHR reports was reduced by 25% using a strict comparison algorithm.
  - Defined algorithms to compare medication and procedure sections of the CDA. The algorithms were reviewed with the workgroup in August 2018. The workgroup agreed that earlier reports that match on procedure and medications would be flagged as duplicates. The latest report would be retained.
  - IMS is preparing a detailed report to show the specific data in a CDA that prevents a report from being flagged as a duplicate. These reports will be reviewed by the workgroup registries to enhance the duplicate algorithms.

Use Case Workflow - Casefinding

- Draft workflow
  - CDA messages are received and loaded into DMS
  - SEER*DMS attempts to match all incoming records at the Patient/CTC level
  - Registry staff will query SEER*DMS for CDA record not linked to CTC and the data of diagnosis > "*Registry specified timeframe*"
    - Ex. 18+ months after diagnosis
    - Timeframe may vary by registry and type of reporting facility
      - Ex. HemOnc practice may be 18 month after diagnosis but a Dermatology may only be 6 months
  - After investigating these records cases are either
    - Reportable and need to be abstracted
    - Non-reportable
    - Should be link to an existing CTC

Use Case Workflow - Casefinding

- Questions for Discussion
  - Is there enough data in the CDA record to create patient set for reportable cases we are not going to get and abstract from another source?
  - How do we keep track of those reportable CDA we expect a facility to abstract and report? Would that mechanism be an AFL?
  - For CDA records considered non-Reportable, should all subsequent records for the same patient and CTC be automatically set to non-reportable?
  - For cases that should have matched to an existing CTC in DMS, we need a mechanism for forcing them to link to the existing CTC. Would we want all subsequent CDAs coming in from the same facility, for the same patient and with the same code to be automatically linked to that CTC?

Next Steps

- IMS will continue to work on de-duplication algorithm
- Start loading CDA data into production server to use for passive follow-up and to facilitate the development of algorithms
- Finalize the Casefinding workflow and start putting it into practice
- Develop draft workflows for the other Use Cases identified
- Added the Electronic Health Record (EHR) dashboard. This shows the number of EHR imported by month.
- Determine if the CDA data standard can be used to receive data from Radiation Oncology EHRs like MOSAIQ

QUESTIONS?