## Return on Investment of Medicaid Linkages for NPCR’s Enhancing Cancer Registry Data for Comparative Effectiveness Research (CER) Project: Idaho’s Perspective

**CJ Johnson, E McKeeth**  
Cancer Data Registry of Idaho, Boise, ID.

### Introduction
In 2010, Idaho was selected to participate in the National Program of Cancer Registrars Enhancing Cancer Registry Data for Comparative Effectiveness Research (CER) Project through the Centers for Disease Control and Prevention. Prior to this project, the Cancer Data Registry of Idaho (CDRI) had not performed claims linkages as part of surveillance activities, but only for special projects with health insurance companies. Many central cancer registries have demonstrated improvements in treatment information gained via linkages with hospital discharge databases and claims data. Idaho is one of three states lacking a statewide hospital discharge database, meaning Idaho may potentially stand more to gain via claims linkages.

### Aims
- Investigate the utility of Medicaid claims linkages as a case-finding source in a state lacking a hospital discharge data system, and as an alternative approach for collecting comorbidity and treatment information.

### Specific Goals
1. Ascertain cases not reported by other sources
2. Improve treatment information
3. Improve comorbidity information
4. Update other fields, such as race, address, and primary payer

### Methods
CDRI provided a state Medicaid analyst with ICD-9-CM codes for reimbursable cancer cases to be used for the claims query and instructed the analyst to query claims spanning 1/1/2007 through the latest available. If a cancer ICD code was present in any position on a claim during this time period, that person was flagged, and all claims (or cancer or other) for that person for the time period were included in the claims data.

The Medicaid claims data file was linked to the CDRI database using Link Plus (Version 2.5) software. The linkages were used for assessing by identifying cancer-related claims that did not link as a record in the CDRI database, to gather information on comorbidities; and to collect treatment information. We documented staff time invested in conducting probabilistic linkages between our CDRI database and the Medicaid claims data, apportioning claims as cancer-related or not; translating procedure codes to NAACCR treatment variable values; and updating our database with information on comorbidities and treatment gained through the linkage.

**Goal 1: Case Ascertainment**

#### Results
- Based on the query criteria described in the methods section, CDRI received Medicaid claims for 3,555 persons. For the purpose of case ascertainment, 1,278 persons with a cancer-related ICD-9-CM code did not link to the CDRI database (1970-2012 cases).
- CDRI Years of Cases: 2007 - 2012
- CDRI Patients: 62,850
- Medicaid Persons that Linked to CDRI using Link Plus: 1,278

#### Conclusions
- If a purpose of claims linkage is case ascertainment, it is important to link against all years of cancer registry data.
- For the purpose of case ascertainment, the Medicaid linkage yielded very little for much effort. CDRI does not intend to use claims linkages for the purpose of case ascertainment. Based upon the Medicaid linkage experience, we will focus instead on hospital audits to ensure complete case reporting.

### Goal 2: Improve Treatment Information

**Results**
- The 3,555 persons in the Medicaid file were linked with 8,527 CDRI 2011-Medicaid person dataset contained 594 Idaho residents with breast cancer.
- The Medicaid linkage contained 7% of CDRI cases for 2011, reports as the source for information in those cases.
- CDRI Staff Hours: 95
- Of the 20 linked Medicaid-CDRI breast cancer cases, 2 cases showed potential discrepancies between the first course surgery data in the CDRI database and the claims data. This could be why the CDRI data showed no surgery, and the claim showed surgery, or if the claim showed definitive surgery, it was not possible to determine from the claim if the surgery was for first course or subsequent treatment. A CTR followed back these cases with the provider on the claim to ascertain what the claim represented.
- Five of the 125 linked CDRI-Medicaid breast cancer cases (4%) had surgery fields changed as a result of the Medicaid linkage.
- We used the linked 2011-Medicaid data to attempt to improve treatment information for three primary sites:
  - CTR Site: 2011-Medicaid
  - CDRI Site: 2011-Medicaid

**Conclusions**
- For the purpose of improving treatment information, the Medicaid linkage yielded very little. Without follow-back by CTR facilities, it is not possible to determine if treatment suggested by claims is first course or subsequent. For Medicaid claims linkage after CTR follow-back, we retain treatment information on what was actual in the central registry database.

### Goal 3: Improve Comorbidity Information

**Results**
- CDRI 2011-Medicaid records included no comorbidities previously reported.
- Of the 3,555 persons in the Medicaid file, 91 of the cases (2.5%) had no comorbidities previously reported.

#### Conclusions
- CDRI Staff Hours: 10
- For the purpose of improving comorbidity information, the Medicaid claims linkage was an excellent source for information. CDRI intends to use claims linkages as a sustainable activity for the purpose of improving comorbidity information.

### Goal 4: Update Other Fields

**Results**
- For the 594 linked CDRI-2011-Medicaid Idaho resident cases, we were able to gain information on 50% and address at 91% of the claims.

#### Conclusions
- The Medicaid claims linkage was a useful source of information for updating fields important to cancer surveillance activities, and will be continued as a sustainable activity. Medicaid linkages will also be useful for updating risk stratification and data of interest to other state agencies.

### Limitations & Caveats
It is important to note that the 2011 CDRI data may not be representative of cancer surveillance data in general because of our participation in the CER project. Hospital data were reviewed with the Medicaid claims to ensure data were up-to-date and representative of Idaho cancer surveillance data. As part of the CER Project, CDRI preferred using hospital case files over claims data for comorbidity information. In the event that fewer than ten comorbidities were already reported from hospital abstracts, for a case, Medicaid claims for the time frame from 1 year prior to diagnosis until 1st course treatment date were mined using ICD9-CM codes for allowable codes.

### Acknowledgements
The project was funded as part of American Recovery and Reinvestment Act (ARRA) Comparative Effectiveness Research (CER) Project through the Centers for Disease Control and Prevention. We acknowledge the Centers for Disease Control and Prevention for the support of CDRI under cooperative agreement USD0000038-01. The findings and conclusions in the report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Thanks to the NAACCR Mentor Fellowship, CDRI now possesses the tools to continue to perform claims linkages. We sincerely appreciate the subject matter expertise and professionalism demonstrated by Dr. Frank Bazoos, New York State Cancer Registry, and are grateful to NAACCR for this opportunity.