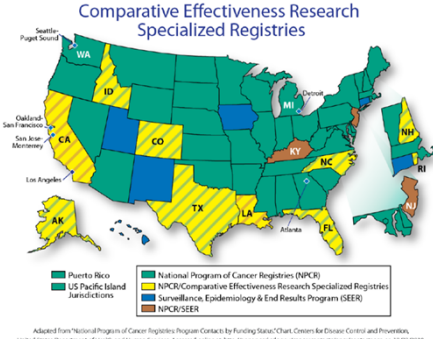


# Return on Investment of Medicaid Linkages for NPCR's Enhancing Cancer Registry Data for Comparative Effectiveness Research (CER) Project: Idaho's Perspective

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### Aims

Investigate the utility of Medicaid claims linkages as a casefinding source in a state lacking a hospital discharge data system, and as a sustainable approach for collecting treatment and comorbidity 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

### Introduction

In 2010, Idaho was selected to participate in the National Program of Cancer Registries Enhancing Cancer Registry Data for Comparative Effectiveness Research (CER) Project. The Medicaid linkage activities described in this poster were funded as part of American Recovery and Reinvestment Act (ARRA) 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 datasets 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.

Medicaid and private insurance account for 25% - 35% of Idaho's cancer cases. Among adults aged 18-64, Idaho ranked 44th in terms of health care coverage in 2011 (26.5% uninsured). Persons lacking health care coverage will not be included in health insurance claims files. In FY 2009, Idaho ranked 42nd in terms of Medicaid enrollment as a percentage of total population (14.7%). Idaho accordingly may have less information to gain from Medicaid linkages than may be possible in some states.

### Methods

CDRI provided a state Medicaid analyst with ICD-9-CM codes for reportable cancer cases to be used for the claims query and instructed the analyst to query claims spanning 1/1/2011 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 (cancer or other) for that person for the time period were included in the claims data file.

The Medicaid claims data file was linked to the CDRI database using Link Plus (Version 2.0) software. The linkages were used for casefinding by identifying cancer-related claims that did not link to 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 linkages.

Idaho was the fortunate recipient of a NAACCR Mentor Fellowship to assist with the Medicaid claims linkage. As a result of the NAACCR Mentor Fellowship, CDRI staff was able to:

- Develop SAS code to identify discrepancies in treatment information between the central registry database and the claims records for breast, colon, and rectum cases
- Create Perl scripts to mine the claims data for comorbidity information and apply logic from comorbidity scoring algorithms to group and prioritize comorbidity codes.

As part of the CER Project, CDRI preferentially used hospital case reports as the source for comorbidity information. In the event that fewer than ten comorbidities were already reported from hospitals for a case, Medicaid claims for the timeframe from 1 year prior to diagnosis until 1st course treatment date were mined using FORDS guidelines for allowable codes.

### 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, 1,378 persons with a cancer-related ICD-9-CM code did not link to the CDRI database (1970-2012 cases).

CDRI Years of Diagnosis	CDRI Patients	Medicaid Persons that Linked to CDRI using Link Plus
2007 - 2012	42,840	1,621 Matches
1970 - 2012	190,906	2,177 Matches

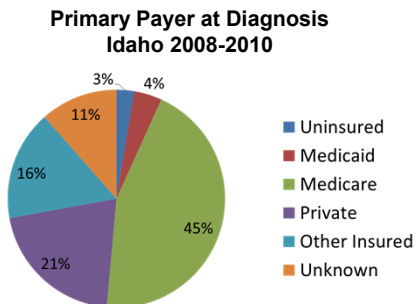
CDRI used procedure codes to concentrate on cancer-related claims for follow-back.

- 287 of the 1,378 persons with cancer-related ICD codes were targeted for follow-back
- After follow-back for the 287 cases, one missed case was identified
- Three additional case reports were missed by CoC facilities, but the cases were reported by other sources

CDRI Staff Hours: 95

#### 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 cases for 2011 (includes non-Idaho).

- The linked CDRI 2011-Medicaid person dataset contained 594 Idaho resident cases.
- The Medicaid linkage constituted 7% of CDRI cases for 2011, which is a higher percentage than expected based on the field "primary payer at diagnosis."

We used the linked CDRI 2011-Medicaid data to attempt to improve treatment information for three primary sites:

CER Site Category	Linked Cases	Medicaid Claims
Breast	125	19,226
Colon	38	6,834
Rectum	20	1,959

Of the 125 linked Medicaid-CDRI breast cancer cases, 6 cases showed potential discrepancies between the first course surgery data in the CDRI database and the claims data. This could be when the CDRI data showed no surgery, and the claim showed surgery; or if the claim showed more 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 Medicaid-CDRI breast cancer cases (4%) had surgery fields changed as a result of the Medicaid claims linkage and follow-back (two results cancel each other):

RX Summ--Surg Prim Site (NAACCR # 1290)	Before Linkage	Follow-Back Result
None	14 (11%)	-1 (10%)
Partial mastectomy, NOS	3 (2%)	0 (2%)
Lumpectomy or excisional biopsy	40 (32%)	-1 (31%)
Reexcision of the biopsy site	6 (5%)	-1 (4%)
Segmental mastectomy	1 (1%)	0 (1%)
Total (simple) mastectomy	35 (28%)	2 (30%)
Modified radical mastectomy	23 (18%)	2 (20%)
Radical mastectomy	2 (2%)	0 (2%)
Mastectomy, NOS	1 (1%)	-1 (0%)
Surgery, NOS	0 (0%)	0 (0%)
Unknown	0 (0%)	0 (0%)
<b>Total</b>	<b>125</b>	<b>5 Changes / 4 Changed</b>

CDRI Staff Hours: 72

#### Conclusions

- For the purpose of improving treatment information, the Medicaid linkage yielded very little. Without follow-back by CTR to 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 seldom took claims information over what was already in the central registry database.

For radiation therapy, there were 4 breast cancer cases that showed potential discrepancies between the CDRI database and the claims data. For chemotherapy, there were 2 breast cancer cases that showed potential discrepancies between the CDRI database and the claims data. After follow-back, no cases were changed in the CDRI database.

Of the 38 linked Medicaid-CDRI colon cancer cases, none showed a potential discrepancy in surgery between the CDRI database and the claims data. One colon cancer case showed potential discrepancies between the CDRI database and the claims data for both radiation and chemotherapy. After follow-back, it was found that these were subsequent treatments for an earlier (breast) primary cancer for this patient.

Of the 20 linked Medicaid-CDRI rectum cancer cases, 2 cases showed potential discrepancies between the first course surgery data in the CDRI database and the claims data. After follow-back, neither case was changed in the CDRI database. For linked Medicaid-CDRI rectum cancer cases, there were no cases with discrepancies for radiation or chemotherapy.

CDRI Staff Hours: 3

#### Conclusions

- For the purpose of improving comorbidity information, the Medicaid claims linkage was an excellent source for previously unreported information. CDRI intends to use claims linkages as a sustainable activity for the purpose of improving comorbidity information.

### Goal 3: Improve Comorbidity Information

#### Results

For the 594 linked CDRI 2011-Medicaid cases, we found previously unknown comorbidities for 278 (47% of cases).

- 91 of the cases (15.3%) had no comorbidities previously reported
- 1,394 comorbidities were added to the CDRI database (mean = 5.0 per case)

CDRI Staff Hours: 16

#### Conclusions

- For the purpose of improving comorbidity information, the Medicaid claims linkage was an excellent source for previously unreported 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 SSN and address at dx for about 5% of the linked Medicaid cases, and primary payer for 9%.

Field	Updates to CDRI 2011 Cases (%)
Sex	3 (0.5%)
SSN	28 (4.7%)
Race	10 (1.7%)
Primary payer at diagnosis	52 (8.8%)
Address at diagnosis	26 (4.4%)

CDRI Staff Hours: 3

#### 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 likely be useful for updating vital status and date of last contact fields, but this use was not assessed during the project.

### 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. Hospitals were working with CDRI to report high quality, complete treatment data, and CDRI processed multiple hospital update files to gain a more complete picture of treatment than is typical.

### Acknowledgements

This project was funded as part of American Recovery and Reinvestment Act (ARRA) Comparative Effectiveness Research activities through the Centers for Disease Control and Prevention. We acknowledge the Centers for Disease Control and Prevention for its support of CDRI under cooperative agreement 1U58DP003882-01. The findings and conclusions in this 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 Boscoe, New York State Cancer Registry, and are grateful to NAACCR for this opportunity.

