Using Medicaid Encounter Data to Assess Utilization of Genetic Tests

Nicoleta Voian, MD, MPH[1,2], Kerry Silvey, MA, CGC[1,3], Nanette Newell, PhD[1], Amy I Zlot, MPH[1], Robert Nystrom, MA[1], Katherine Bradley, PhD, RN[1]

1. Oregon Genetics Program, Public Health Division, 2. Oregon Health & Science University, Department of Molecular and Medical Genetics, 3. Oregon Health & Science University, Child Development and Rehabilitation Center, Center for Children and Youth with Special Health Needs

Background

Oregon Medicaid covers genetic testing for breast, ovarian, and colorectal cancer if specific guidelines are met (healthoregon.org/genetics).

Project Objectives

1. Evaluate utilization of genetic testing for breast/ovarian and colorectal cancers for Oregon's 2007 Medicaid clients
2. Estimate the number of 2007 Medicaid clients likely to carry a BRCA or MMR mutation
3. Develop an algorithm for analyzing utilization of genetic testing using third party payer claims or encounter data

Methods

Non-identifiable Oregon Medicaid encounter data were analyzed for these genetic tests:

1. Population screening
   a. Multigene panels for breast cancer
   b. Fecal DNA for colorectal cancer
2. Genetic testing for populations at high risk for cancer
   a. BRCA 1 & 2 for breast and ovarian cancer
   b. Mismatch repair (MMR) genes for colorectal cancer
3. Treatment and monitoring for people with cancer
   a. BRCA 1 & 2 for breast and ovarian cancer
   b. CYP2D6 and gene expression profiling for breast cancer
   c. MMR, UGT1A1, and KRAS for colorectal cancer.

De-identified data were obtained from Oregon Medicaid for all client encounters denoted by Molecular Diagnostics and Microarray CPT Codes 83890 through 83914 and 88384 through 88386. Data fields for each encounter:

1. Randomly assigned client ID
2. CPT Code
3. Encounter date

Methods con't

4. CPT genetic test modifiers
5. ICD-9 codes (up to six were available for each CPT Code)
6. Age
7. Amount paid
8. Provider ordering the test
9. Vendor paid for the test

Data were sorted based on:

1. Encounters by client and date
2. Age ≥18
3. IDC-9 Codes associated with breast, ovarian, or colorectal cancer; or laboratory testing
4. Cost of test, provider, and vendor
5. Molecular Diagnosis CPT Code Modifiers

The number of 2007 Medicaid clients likely to carry a BRCA or MMR mutation was estimated using data from the literature and Oregon State Cancer Registry (OSCaR) data.

Results

1. In 2007, Oregon Medicaid paid for 1,734 adult genetic tests.
2. At most, ten were for the breast, ovarian or colorectal cancer tests we were evaluating.
3. No tests were performed solely for family history.
4. We estimate that in 2007, between 790 and 1100 adult Medicaid clients carried a BRCA mutation and between 107 and 216 clients carried colorectal cancer or MMR mutation.

Table 1:
Genetic Tests Likely to be for Breast, Ovarian, or Colorectal Cancer

Client #	Gender	Age	ICD-9 Code	Diagnosis Name	CPT Codes	Lab Per-forming Test	Billed Amount
1	F	40	211.3	Benign neoplasm colon	83891, 83894, 83912, 83898, 83904, 83909	Unknown	$ 2000
2*	F	39	V672 V103	Chemotherapy follow up, Hx of breast malignancy	83891, 83892, 83903, 83896	Unknown	$ 169
2*	F	39	V672, V153	Chemotherapy follow up, Hx irradiation	83891, 83912, 83903, 83898, 83896	Unknown	$158
3	F	27	220	Benign neoplasm ovary	83901, 83890, 83894, 83912, 83896	Unknown	$139
4	M	60	153.9	Malignant neoplasm colon unspecified	83891, 83909, 83912, 83901, 83901	Unknown	$77
5	F	63	V76.51	Special screening for malignant neoplasm, colon	83912, 83890, 83892, 83894, 83898	Unknown	$ 362
6	F	64	174.3	Malignant neoplasm of female breast, lower inner quadrant	83891, 83892, 83912, 83896, 83898	Unknown	$170
7	F	52	174.9	Malignant neoplasm breast, unspecified	83891, 83896, 83898, 83905, 83912	OHSU	$182
8	F	22	611.72	Lump or mass, breast	83892, 83890, 83894, 83912, 83898	Unknown	$ 576
9	F	45	183.0	Malignant neoplasm ovary	83907, 83896, 83900, 83912, 83912	OHSU	$205

*Two genetic tests were done for the same client

Conclusions

1. Genetic testing for breast, ovarian, and colorectal cancer appears to have been underutilized in Oregon's Medicaid population in 2007.
2. Molecular Diagnostics CPT Codes-Modifiers for cancer genetic tests were not used by Medicaid vendors in 2007
3. Using CPT Codes in the absence of CPT Genetic Testing Code Modifiers or genetic testing HCPCS Codes provides some useful information about utilization of cancer genetic tests, but lacks specificity
4. For use in analyzing future datasets, two lists were generated.
   a. ICD9 Codes likely to be associated with breast, ovarian, and colorectal cancer genetic tests
   b. Examples of Vendors. CPT Codes, and costs for breast, ovarian, and colorectal cancer genetic tests

Acknowledgments: This project was supported by the Centers for Disease Control and Prevention (CDC) Cooperative agreement # CDC-RFAGD08- 801 (grant # 1U38GD000061) Genomic Applications in Practice and Prevention: Translation Programs in Education, Surveillance, and Policy.