

Cost Implications of BRCA Testing: Changes in Healthcare Utilization and Expenditures Following a National Screening Campaign

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Background

In 2020, a genetic screening test for the three most common mutations for breast or ovarian cancer among Ashkenazi Jews was included in the National Health Basket, free of charge.

Women identified as carriers are recommended to undergo a strict surveillance program from age 25 to reduce morbidity and mortality from cancer.

Research Objective

Describe the utilization and cost of healthcare services among women who are carriers of BRCA mutations compared to non-carrier women.

Methods

A retrospective cohort study including women who underwent a BRCA mutation test between 2020–2024. Each carrier was matched to up to 10 BRCA non-carriers. HRU and costs in the year before and the year after the test were compared between the groups.

Difference in differences (DiD) between the groups and periods were assessed with Negative binomial regressions and regressions with gamma distributions and log-link functions for HRU and costs, respectively.

Results

There were significant differences in HRU between BRCA carriers and non-carriers. Breast imaging utilization was higher among BRCA mutation carriers in the year following the test, with 59.3% vs. 25.6% undergoing mammography and 55.6% vs. 4.0% undergoing breast MRI compared with non-carriers.

Difference in surgeon visits among carriers were 18% higher (DiD ratio 1.8, 95% CI 1.39–2.31), primary care visits difference were 13% higher (DiD ratio 1.13, 95% CI 1.02–1.25) and gynecological visits rose by about 40% (DiD ratio 1.4, 95% CI 1.1–1.76). Hormone replacement therapy usage increased nearly fivefold (DiD ratio 4.96, 95% CI 2.34–10.52).

Conclusion and Implications

Women who are carrier of BRCA mutation demonstrated significantly higher health care utilization in the year following diagnosis compared with matched non carriers, which may pose higher healthcare burden on healthcare providers, highlighting the need for targeted health care planning and resource allocation strategies tailored to BRCA carriers.

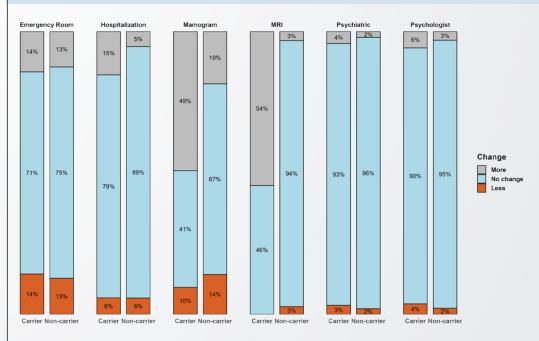
Table 1. Baseline Characteristics of the Study Population – Full and Matched Cohorts

Characteristic	Positive (Full&Matched*)	Negative (Full Cohort*)	SMD/p-value (Full Cohort*)	Negative (Matched Cohort*)	SMD/p-value (Matched Cohort*)
Age, Median (IQR)	35 (28–47)	43 (34–52)	0.37/ <0.001	36 (28–47)	0.01 / 0.80
Sector		0.30/ <0.001			0.01 / >0.90
– Orthodox (OJ)	51 (27%)	3,567 (15%)		510 (27%)	
– Secular (SJ)	136 (72%)	19,989 (84%)		1,351 (72%)	
Socioeconomic Status (SES)		0.40 / <0.001			0.09 / 0.30
– High	30 (16%)	7,280 (31%)		300 (16%)	
– Medium	110 (58%)	12,756 (54%)		1,100 (59%)	
– Low	48 (25%)	3,612 (15%)		478 (25%)	
Hypertension	20 (11%)	4,154 (18%)	0.20 / 0.012	223 (12%)	0.04 / 0.60
Hyperlipidemia	44 (23%)	7,489 (32%)	0.19 / 0.014	478 (25%)	0.05 / 0.50
Osteoporosis	9 (4.8%)	1,865 (7.9%)	0.13 / 0.11	111 (5.9%)	0.05 / 0.50
Cardiovascular Disease	31 (16%)	5,427 (23%)	0.16 / 0.034	318 (17%)	0.01 / 0.90
Diabetes Mellitus	42 (22%)	6,383 (27%)	0.11 / 0.15	397 (21%)	0.03 / 0.70

Foot Notes

*The study population consisted of all women insured by Meuhedet Health Services who underwent BRCA1/2 genetic testing between January 2020 and December 2024. Every BRCA positive female was matched to up to 10 BRCA negative females on SES, sector, district, birth year $\pm$ 1 year and index year $\pm$ 1 year.

Health Resource Usage by BRCA carriers and non- carriers



Analysis of HRU and Costs

