

Cost-effectiveness of Genetic Testing with a Hereditary Cancer Panel in Women at Risk of Hereditary Breast Cancer

Background

- Guidelines from 2017 include risk-reduction recommendations (eg, MRI surveillance, mammography, surgery) for women with variants in 11 cancer susceptibility genes.¹
- A previous study demonstrated that a 7-gene panel was cost-effective.² Changing the number of genes on a panel could affect cost-effectiveness.
- **Objective:** Among patients at risk of hereditary breast cancer, the investigators evaluated the cost effectiveness of using a multigene panel (containing the 11 genes with risk-reduction recommendations) compared to a *BRCA1* and *BRCA2* panel.

Methods

- The investigators used a Markov model to estimate life expectancy in hypothetical cohorts of 40-year-old and 50-year-old women.
- Total healthcare costs were estimated from a payer's perspective and included genetic testing and consultation, surveillance, and treatment.
- The investigators determined the cost per life-year gained and cost per quality-adjusted-life-year (QALY) gained, measured as incremental cost-effectiveness ratio (ICER), for a multigene test strategy compared to the *BRCA1/2* test strategy.
 - *BRCA1/2* test strategy: only *BRCA1* and *BRCA2* genes
 - Multigene test strategy (MyVantage[®]): includes *ATM*, *BRCA1*, *BRCA2*, *CDH1*, *CHEK2*, *NBN*, *NF1*, *PALB2*, *PTEN*, *P53*, and *STK11* genes

Results

- For 40-year old women, the multigene test strategy cost \$22,370 per life-year gained (\$47,240 per QALY gained) compared with the *BRCA1/2* test strategy.
- For 50-year old women, the multigene test strategy cost \$36,690 per life year gained (\$63,384 per QALY gained) compared with the *BRCA1/2* test strategy.

Conclusions

- In patients at risk of hereditary breast cancer, a multigene test strategy (MyVantage) is predicted to be cost-effective compared to a *BRCA1* and *BRCA2* test strategy.

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References

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2. Li Y, Arellano AR, Bare LA, et al. *Value Health*. 2017;20:547–55.