Background

- Guidelines from 2017 include risk-reduction recommendations (e.g., 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\(^\text{®}\)):** 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**