Reported Referral for Genetic Counseling or *BRCA 1/2* Testing Among United States Physicians

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Original Article

Reported Referral for Genetic Counseling or *BRCA 1/2* Testing Among United States Physicians

A Vignette-Based Study

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BACKGROUND: Genetic counseling and testing is recommended for women at high but not average risk of ovarian cancer. National estimates of physician adherence to genetic counseling and testing recommendations are lacking. **METHODS:** Using a vignette-based study, we surveyed 3200 United States family physicians, general internists, and obstetrician/gynecologists and received 1878 (62%) responses. The questionnaire included an annual examination vignette asking about genetic counseling and testing. The vignette varied patient age, race, insurance status, and ovarian cancer risk. Estimates of physician adherence to genetic counseling and testing recommendations were weighted to the United States primary care physician population. Multivariable logistic regression identified independent patient and physician predictors of adherence. **RESULTS:** For average-risk women, 71% of physicians self-reported adhering to recommenda-

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Trivers KF, Baldwin LM, Miller JW, Matthews B, Andrilla CH, Lishner DM, Goff BA.
Cancer. 2011 Dec 1;117(23):5334-43. doi: 10.1002/cncr.26166. Epub 2011 Jul 25]

Presentation Overview

- Rationale
- Methods
- Results
- Discussion

Rationale

- **Genetic counseling and testing recommended for women at high risk, based on personal or family history**
- **Women with BRCA1/2 mutations have a substantially higher risk of breast/ovarian cancer**
  - Cumulative breast cancer risk of 57%, 49% for BRCA1/2 carriers
  - Cumulative ovarian cancer risk of 40%,18% for BRCA1/2 carriers
- **For BRCA+, interventions can decrease ovarian and breast cancer risk by 80 – 95%- PRIMARY PREVENTION**
- **No national study has examined appropriateness of referral to genetic counseling and testing by physician and patient characteristics**
  - National estimates of physician adherence to guidelines are lacking

Methods

- **Vignette –based survey with hypothetical patients**
  - Annual exam vignette asking about frequency of
    - Referral for genetic counseling or testing
    - Offering or ordering BRCA 1/2 testing
  - Varied patient age, race, insurance status, and risk (family history)
  - Average risk (mother with breast cancer at age 70), medium risk (mother with ovarian cancer at age 62), high risk (personal history of breast cancer at 30, paternal grandmother with ovarian cancer, paternal first cousin with premenopausal breast cancer)
- **3200 family physicians, ob/gyns, general internists surveyed**
  - Identified through American Medical Association (AMA) masterfile
- **Physician characteristics from survey and AMA**
  - Primary setting, geography, fear of malpractice, level of risk taking, where get information, estimation of patient's ovarian cancer risk

Sample

3200 physicians surveyed

158 excluded

3042

1878 (61.7%) responded

304 excluded

1574

Statistical Analyses

- **Only included physicians that received average and high risk vignettes (n = 979)**
  - Wanted to focus on vignettes with no question about whether referral was appropriate
- **Weighted to be nationally representative of US physicians**
  - Representing 93,771 physicians
- **Outcome: Adherence to genetic counseling and testing recommendations stratified by risk**
  - Average: Almost never referring for genetic counseling or testing *and* almost never offering or ordering BRCA1/2 testing
  - High: Almost always referring for genetic counseling or testing *or* almost always offering or ordering BRCA1/2 testing

Statistical Analyses (cont'd)

- **Calculated unadjusted weighted % of adherence stratified by risk**
  - By patient and physician characteristics
- **Stepwise multivariable models using logistic regression were developed separately for average and high risk**
  - Including all statistically significant ($p \leq 0.05$) physician characteristics
  - Patient age, race, insurance status included regardless of significance
  - SUDAAN software
- **ORs converted to RRs using predictive marginals**

RESULTS

Adherence to Recommendations: Patient Characteristics

	Average-Risk Women (not offering genetic counseling/testing)	High-Risk Women (offering genetic counseling/testing)
Overall	71.3	41.1
Age		
35	70.0	56.6
51	72.5	26.9
Race		
White	66.3	39.9
Black	76.3	42.3
Insurance		
Private	66.1	41.8
Medicaid	77.3	40.3

Adherence to Recommendations: Physician Characteristics

	Average-Risk Women (not offering genetic counseling/testing)	High-Risk Women (offering genetic counseling/testing)
Overall	71.3	41.1
Sex		
Women	69.3	49.9
Men	72.7	34.9
Specialty		
Family med	67.6	34.3
Internal med	73.9	41.1
Ob/gyn	74.2	57.3
Location		
Rural	80.5	24.8
Urban	69.3	44.1
Listed USPSTF among top sources of cancer screening information		
Yes	73.3	34.5
No	69.0	47.6

Adherence to Recommendations by Physician Estimated Risk of Ovarian Cancer

	Actual risk: Average	Actual risk: High
MD Estimated Risk	Adherence (not offering genetic counseling/testing)	Adherence (offering genetic counseling/testing)
Average	77.9	5.4
Somewhat higher	55.4	33.5
Much Higher	26.0	64.6

Strengths and Limitations

Strengths

- Large sample size
- Nationally representative
- Good response rate
- First to provide national estimates by patient and physician characteristics

Limitations

- Self-report intentions, not actual practice
- Variations in guidelines
  - Lack of clear guidance for average-risk women

Conclusion and Discussion

- **Physicians reported referral of many average-risk, not high risk women**
  - Unidentified high-risk women miss out on important services
  - Referring average-risk women is an inefficient use of resources with, at most, minimal clinical benefit
- **Education of physicians on risk assessment is needed**
- **Intervention and education efforts to encourage referral for high-risk, discourage for average-risk**
  - Complicated (and differing) guidelines, takes substantial time to take appropriate family history
  - Simple referral tools may help?
- **CDC cooperative agreements**
  - Promotion breast cancer genomics best practices at state level

Thanks!

For more information on CDC's cancer prevention and control programs:

www.cdc.gov/cancer

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