

# Biomarker **LIVE**



## Biomarker Testing Guide:

# Ovarian Cancer

This toolkit is a guide for multidisciplinary cancer care team members who manage patients with ovarian cancer and are implementing—or plan to implement—biomarker testing in their cancer program.



## Provider Education

Education on best practices in biomarker testing for ovarian cancer was one topic that clinicians indicated should be focused on for quality improvement.<sup>1</sup>

### Incorporate Education

Offer educational opportunities about biomarker testing and ovarian cancer for the multidisciplinary team to keep up with evolving recommendations and changes in terminology. Biomarker testing in cancer care is defined as testing that identifies characteristics, targetable findings, or other results originating from malignant tissue. This can include laboratory analysis of a biospecimen to test for specific biologically relevant mutations, multiple gene alterations, proteins, and/or other biomarkers.<sup>2</sup>

### Increase Testing Rates

A cross-sectional study of 3,603 patients with ovarian cancer found that 33.9% had undergone testing for genomic

*BRCA* mutations between 2008 and 2018, with 46.4% having undergone testing in 2018.<sup>3</sup> However, current National Comprehensive Cancer Network (NCCN) Guidelines<sup>®</sup> recommend all patients with ovarian, fallopian tube, or peritoneal cancer undergo testing in the upfront setting for germline and somatic mutations in *BRCA1/2*, and, if both are negative, presence of loss of heterozygosity (LOH) or homologous recombination deficiency (HRD) in the tumor.<sup>4</sup> In the recurrence setting, the analysis should include *BRCA1/2*, HRD status, microsatellite instability (MSI), tumor mutational burden (TMB), and neurotrophic tyrosine receptor kinase (NTRK), if not included in prior testing.

### Recommended Biomarkers<sup>4</sup>

#### At diagnosis:

- Germline and somatic *BRCA1/2* mutations
- HRD status (if no *BRCA1/2* germline mutations)

#### At recurrence, particularly for endometrioid and clear cell histology types:

- TMB, MLH1, MSH2, MSH6, PMS2 (dMMR)
- MSI
- *MET* exon 14 skipping variants

#### For all histology types:

- *NTRK* fusions

## PROVIDER EDUCATION

At some institutions, somatic testing is conducted at recurrence if a germline *BRCA1/2* mutation was identified, which can reduce costs. The results of this testing can inform treatment decisions (e.g., PARP inhibitors, immune checkpoint inhibitors).

### Actively Reduce Disparities

A retrospective study of 6,001 patients with ovarian cancer found that the rate of *BRCA* testing was lower among Black patients (21.6%) and patients

who were uninsured (20.8%) when compared to overall genetic testing rates for patients with ovarian cancer

(30.9%).<sup>5</sup> Providers should try to reduce barriers to ensure that all patients receive appropriate biomarker testing.

*“Each tumor is unique and each ovarian cancer histology type has a different spectrum of genetic alterations associated with it, thereby making them distinct. This suggests that the tumor growth drivers are different and treatment approaches can be different.”*

—DEBORAH ZAJCHOWSKI, PHD, SCIENTIFIC DIRECTOR, CLARITY FOUNDATION



## Patient Education

Ovarian cancer patient advocates say that patients want to understand how their cancer is going to be treated and why.

### Know When to Educate

Many patients are overwhelmed at their diagnosis and remember little from their first visit; it is best to wait until a subsequent appointment to provide thorough education about ovarian cancer, treatment, and biomarker testing.

### Know What to Teach

Some patients are familiar with the *BRCA* genes and know that they should undergo genetic testing for an inherited mutation. However, most have no idea that biomarker testing (specifically, testing the cancer for mutations) may need to be done if genetic testing shows no

### Adopt Consistent Terminology<sup>2</sup>

- **Biomarker testing in oncology** - Laboratory analysis of a biospecimen to test for specific biologically relevant mutations, multiple gene alterations, proteins, and/or other biomarkers.
- **Genetic testing for an inherited mutation or genetic testing for inherited cancer risk** - to identify germline mutations.
- **Testing the cancer for mutations** - One specific type of biomarker testing looks for mutations in the cancer acquired throughout life (somatic mutations).

*BRCA* mutations. Also, patients may not understand the terminology that is used to describe testing or results. It is important to educate patients and caregivers using consistent terminology about what biomarker testing is, and how it affects their treatment and why. For example, genetic testing for *BRCA1/2* germline mutations and biomarker testing for *BRCA* somatic mutations or HRD status can help inform decisions for the use of a PARP inhibitor for maintenance therapy or as treatment in the recurrent setting.<sup>4</sup>

### Know How to Educate

Different patients prefer different routes of education, but medical oncologists are the primary source of information about biomarker testing.<sup>7</sup> It is important to talk directly to your patients about their ovarian cancer and treatment, but also provide handouts for them to refer to later. Include reputable online resources that patients can turn to for more information and a support system. Many patients also appreciate a phone call from their provider to answer any questions they may have.

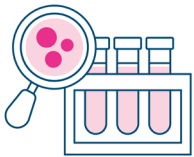
### Examples of Trusted Resources

- [Clarity Foundation](#)
- [Cancer.Net](#)
- [Ovarian Cancer Research Alliance](#)
- [American Cancer Society](#)
- [Cancer Support Community](#)

## PATIENT EDUCATION

*“Every woman with ovarian cancer should know her BRCA1 or BRCA2 status.”<sup>6</sup>*

**-SUSAN DOMCZEK, MD**, EXECUTIVE DIRECTOR, BASSER CENTER FOR BRCA, UNIVERSITY OF PENNSYLVANIA ABRAMSON CANCER CENTER



## Infrastructure

**One limitation to implementing broad biomarker testing in ovarian cancer is awareness of what biomarkers are included in testing.**

### Understand Test Differences

PARP inhibitor benefit was shown in clinical trials in patients with HRD resulting from high genomic instability. This indicates that appropriate testing should measure genomic instability and not only individual HR genes. More importantly, HRD is broadly defined and there is no full consensus on which parameters determine HR status.<sup>8</sup> Multiple laboratories offer HRD and LOH tests, but each test’s analytic approaches differ and not all labs measure genomic instability. Clinicians should be aware of which test is being used by their laboratory

and which test was used in the clinical trial of the PARP inhibitor of interest.

### Appropriately Order Tests

Biomarker testing can be performed using a specimen from the initial surgical cytoreduction. But in some cases, biopsies of a recurrent ovarian tumor may be preferred since alterations can be different from those in the primary tumor and may impact clinical trial eligibility.<sup>9</sup> Cytology samples, such as from ascites or pleural effusions, can often be used for this purpose, but pathology review must be ordered in advance to ensure

a sufficient sample is received and processed by the pathology laboratory.

*“Some oncologists don’t think about the fact that the cells from fluid samples can be used for testing. Also, they must request this ahead of time to initiate the appropriate tissue processing and pathology review.”*

**-DEBORAH ZAJCHOWSKI, PHD**, SCIENTIFIC DIRECTOR, CLARITY FOUNDATION



## Staffing and Services

**The multidisciplinary team is critical to ensuring that patients with ovarian cancer receive optimal care across all stages of the disease. Tumor boards that meet regularly and prioritize the discussion of biomarkers are critical to remaining up to date on the continuously evolving recommendations for testing and treatment.**

### Adequate Personnel and Services

Connect patients to a dedicated financial navigator who can help them understand the cost of biomarker testing, secure insurance coverage, and find other ways to reduce copay costs.

### Navigating Clinical Trials

Biomarker testing may help identify clinical trials for which a patient may be eligible. A dedicated clinical trial navigator can help community-based

clinicians consider clinical trials as an option for treatment throughout the patient’s journey.

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A publication from the ACCC education program, "BiomarkerLIVE."  
Learn more at [acc-cancer.org/biomarkerlive](https://acc-cancer.org/biomarkerlive).

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