**BACKGROUND**

- 11-15% of women with ovarian cancers have inherited a BRCA1 or BRCA2 mutation.
- As of 2008, all patients with epithelial ovarian cancer meet National Comprehensive Cancer Network (NCCN) and the Society of Gynecologic Oncology (SGO) criteria for genetic testing.
- PARP inhibitors are now available, commercially and in clinical trials, for patients with BRCA1/BRCA2 mutations.

**OBJECTIVES**

- The objectives of this analysis were to quantify the gap between the number of newly diagnosed patients with ovarian cancer and the BRCA1/BRCA2 testing population nationally and by state.

**METHODS**

- We identified the number of patients diagnosed with ovarian cancer in the US annually and by state from The American Cancer Society's Annual Cancer Facts and Figures publication [1].
- These numbers were adjusted for coefficients that estimate the number of cases of ovarian cancer diagnosed in the US.
- Clinical information was provided by the physician on the test request form.
- Newly-diagnosed patients were defined as those tested within a year of diagnosis.
- The percentages of patients tested according to age-at-diagnosis were based on SEER incidence rates [3] adjusted to the 2000 US Standard Population [4].

**RESULTS**

- 27% of newly diagnosed patients with ovarian cancer were tested for BRCA1/BRCA2 nationally in 2013 (Figure 1 and Figure 2).
- This is an increase from 8.4% in 2007 (Figure 1).
- The percentages of newly diagnosed patients with ovarian cancer that were tested in 2013 are shown according to the state in which they were diagnosed in Figure 2.
  - RI had the highest testing rate at 44.4%.
  - States with the lowest testing rates were MS, MT and IA at 9.2%, 11.1% and 13.4%, respectively.
  - The following variables were significantly positively correlated with testing rates per state in 2013:
    - Median income (p=0.0003)
    - Level of education (Bachelor's degree, p=0.002; advanced degree, p=0.0003)
    - Physicians per 100,000 in the population (p=0.001)

**CONCLUSIONS**

- Although all patients with epithelial ovarian cancer have met NCCN guidelines for BRCA1/BRCA2 testing since 2008, only 27% of newly diagnosed patients were tested in 2013.
- In this analysis, there was over a three-fold difference in testing prevalence among the states. Even in states with the highest testing rates, over 50% of patients were not tested within a year of diagnosis.
- Patient and provider education as well as approval of novel agents targeting BRCA1/BRCA2 genetic mutations and the identification of additional genes associated with ovarian cancer will likely improve testing rates.

**REFERENCES**

3. Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov). National Cancer Institute. Age-adjusted SEER Incidence Rates by Age-at-Diagnosis: Ontario, All Races, Female (SEER9). 2014. 57.2% 50 years of age or older