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Patterns of genomic testing for epithelial ovarian cancer across a large community-based health care network- a real world experience

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Genomic testing in epithelial ovarian cancer across a large community-based healthcare network - a real world experience

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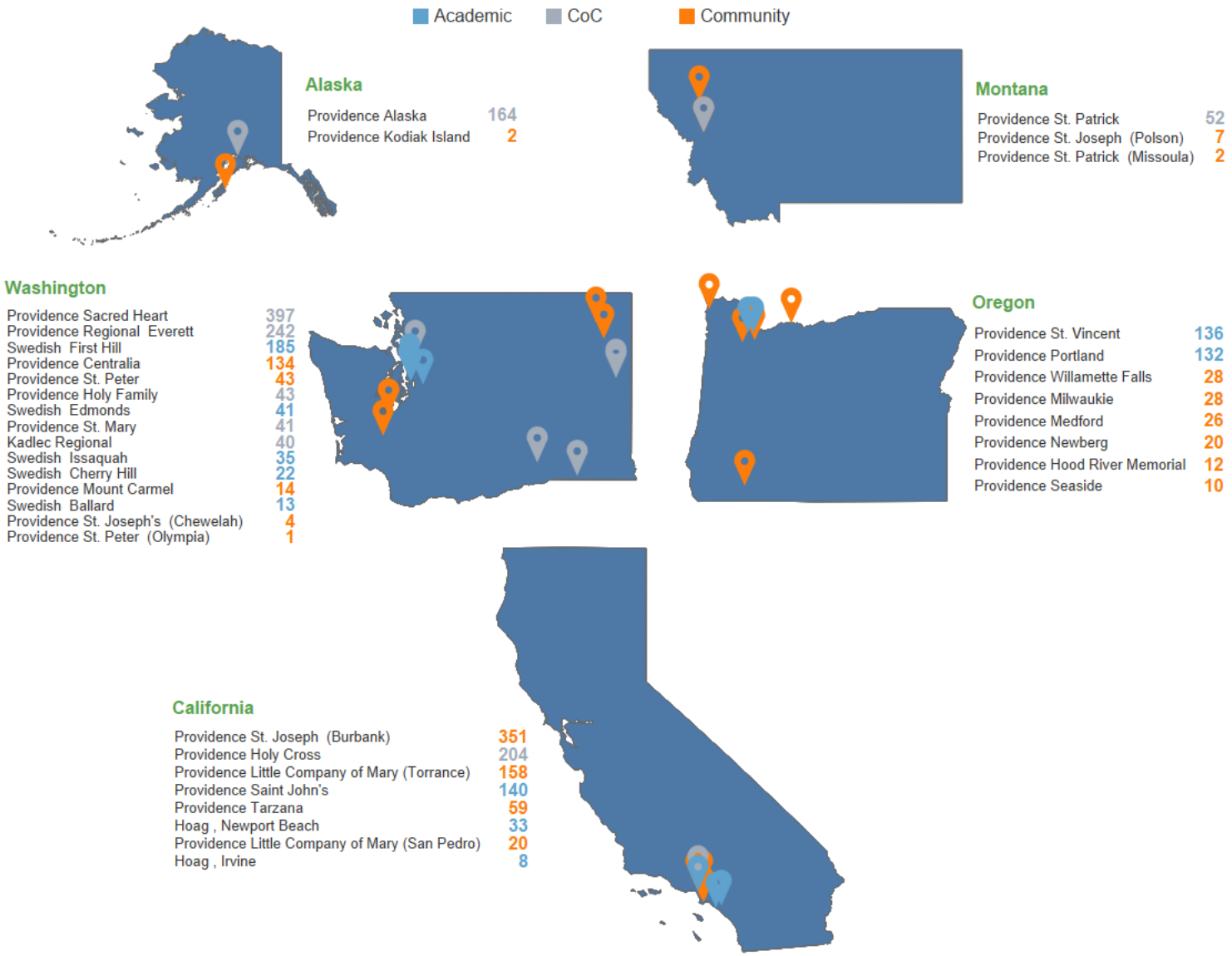
Background

- With over 200,000 deaths annually worldwide, epithelial ovarian cancer (EOC) has the highest mortality of all gynecologic cancers
- Germline and somatic tumor tissue testing (TTT) for mutations in BRCA1/2 and assessment of homologous recombination deficiency (HRD) informs prognosis and treatment decisions
- In addition to BRCA1/2 mutation, HRD can be measured as either genomic instability (GI) or loss of heterozygosity (LOH) and each is associated with different FDA approvals
- NCCN guidelines (V1.2022) recommend germline and somatic testing and assessment of HRD for all women with invasive EOC
- Despite this recommendation, testing rates remain low and an optimal strategy to achieve the recommended testing has not been defined

Objective

Evaluate rate, patterns and trends over time of germline and somatic testing for invasive EOC patients across a large community-based healthcare system operating in five states



Methods

- Study population

- patients with a diagnosis of invasive EOC (ICD C56.x)
- at least one in-person visit to a Providence St. Joseph Health (PSJH) oncology department or a PSJH oncology care provider for EOC
- between January 2015 and January 2020 (n= 2847)

- Data collected

- Patient demographics
- Clinicopathologic characteristics including tumor stage, treatment, and genetic counseling information
- Germline and somatic TTT information including time from diagnosis to receipt of test result in the EMR
- Structured genomic data was sourced from laboratory information systems and manual abstraction of molecular sequencing reports

- Data analysis

- Descriptive statistics were tabulated; Germline and somatic TTT data were analyzed separately. The term Genomic Testing (GT) refers to patients who had either germline or somatic TTT

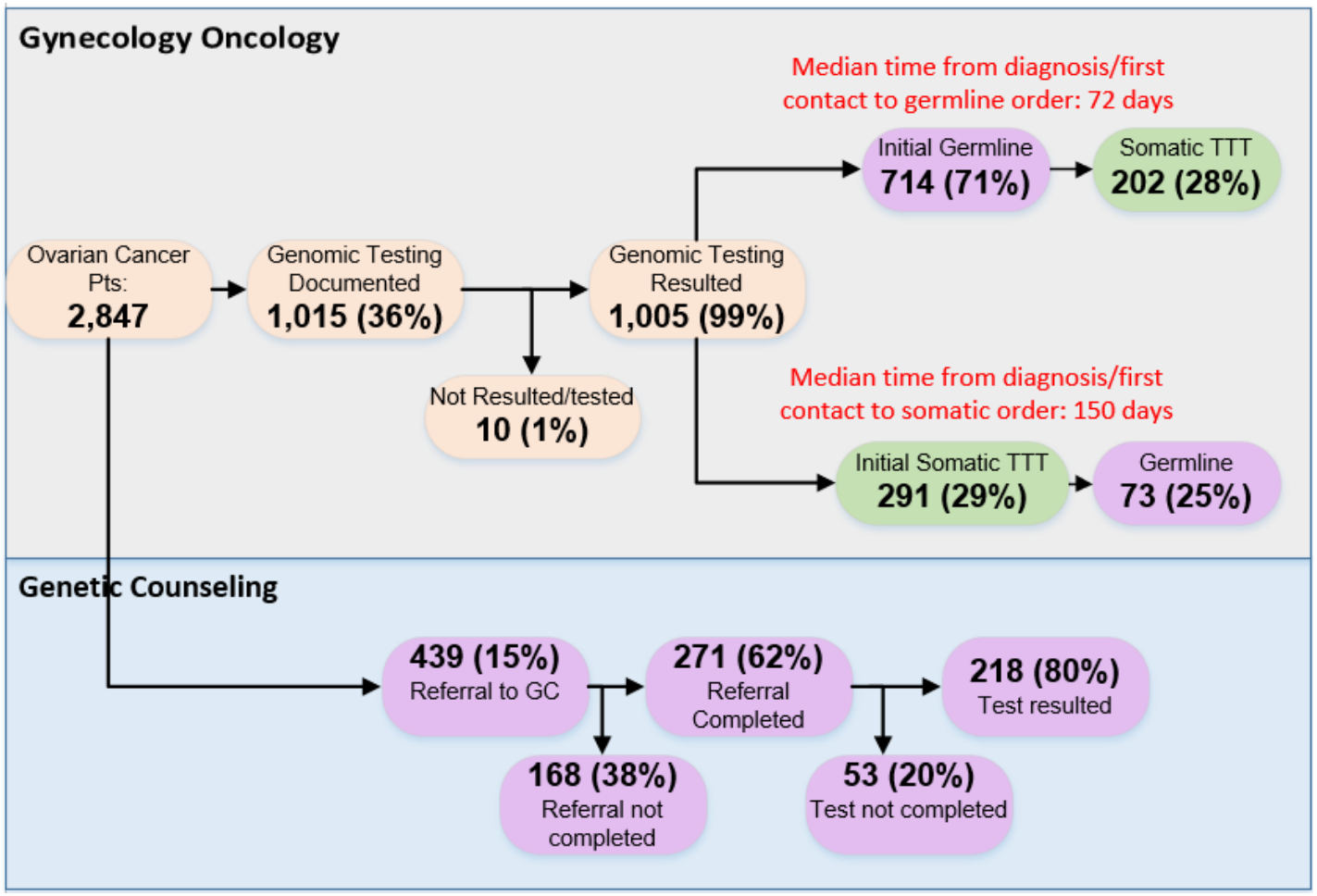
Genomic Testing Journey

•Germline testing was initial testing approach in majority of patients

•Of those with initial germline or somatic testing, approximately 25% went on to receive complement test

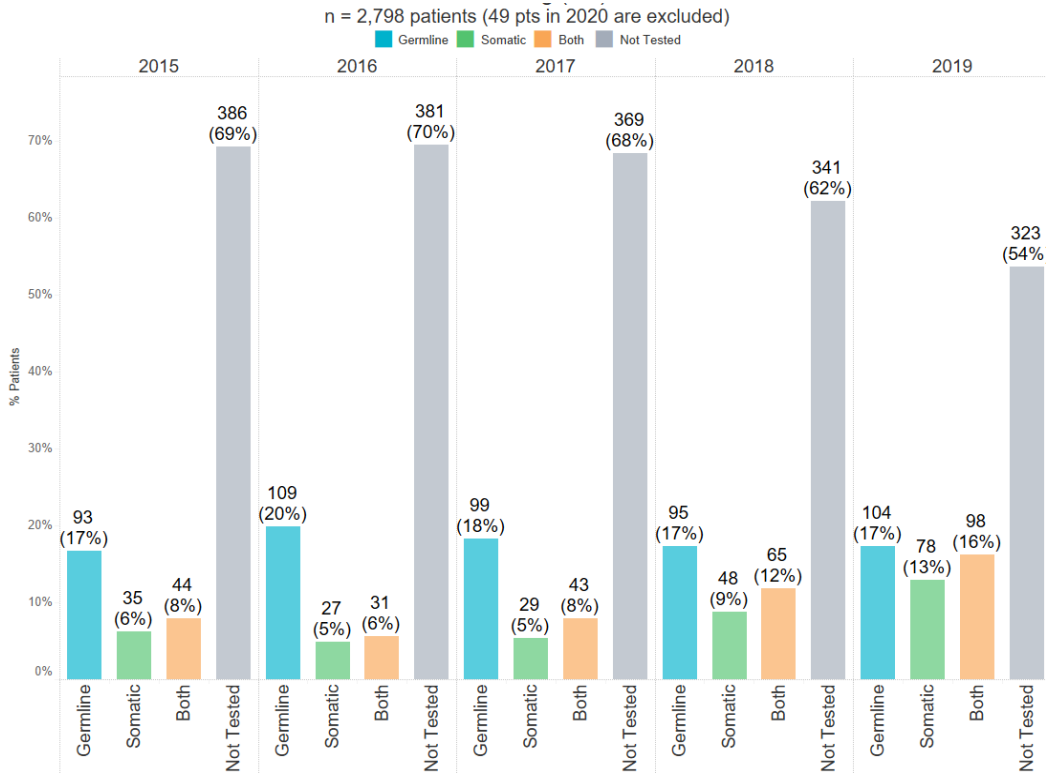
•Median time from diagnosis or first contact to test order was >2x longer for somatic vs. germline testing

•Genetic counseling increased testing rates but many patients did not complete GC referral

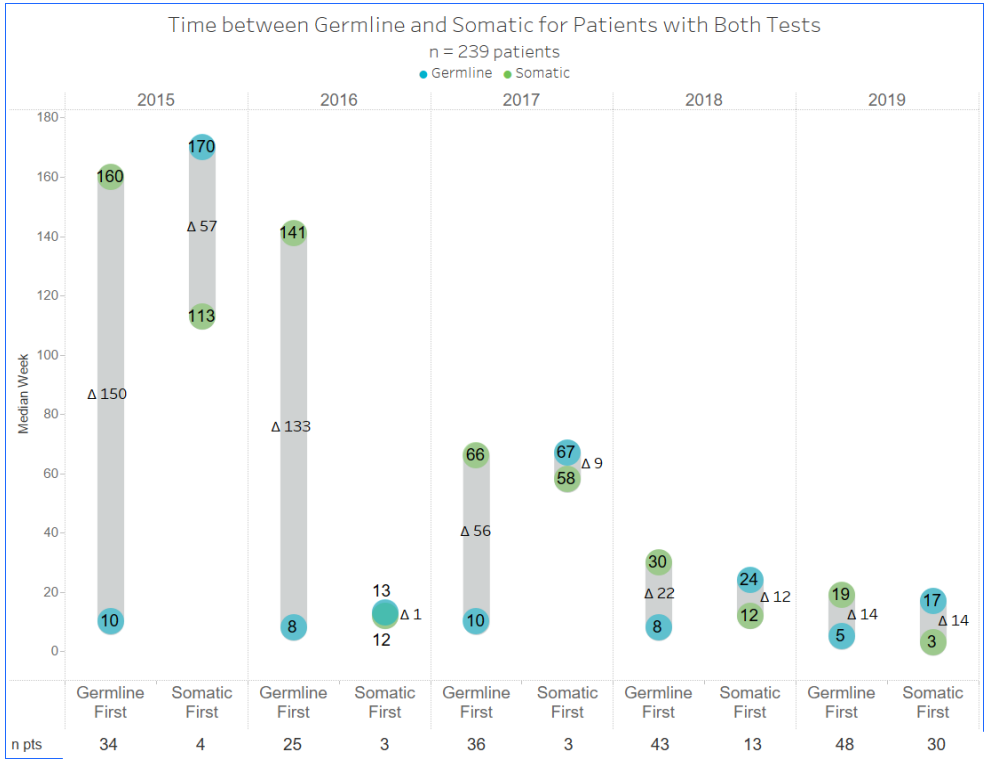


Genomic Testing Trends

•GT rates increased over time (p<0.0001), largely influenced by an increase in somatic testing

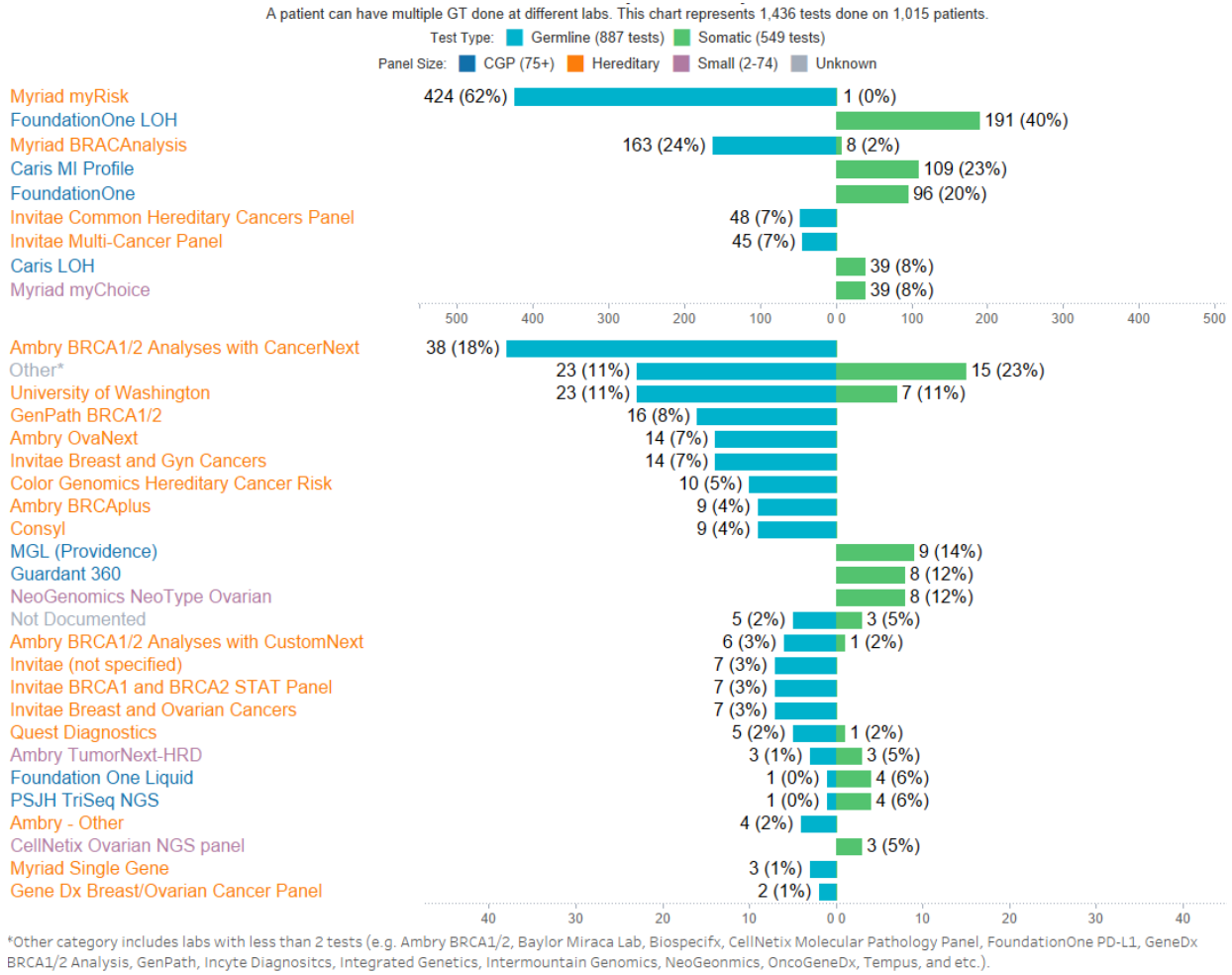


Interval between germline and somatic testing decreased dramatically over the study period



Genomic Testing Rates by Laboratory Assay

- Seventeen different vendors and multiple assays were utilized
- Panel size varies greatly for both germline (2-90 genes) and somatic TTT (5-500 biomarkers)
- Extent of HRD analysis also varies with unique gene combinations in each panel and LOH included on only 3 assays
- There is no consensus regarding type of test to order within this community-based cohort



*Other category includes labs with less than 2 tests (e.g. Ambry BRCA1/2, Baylor Miraca Lab, Biospecifx, CellNetix Molecular Pathology Panel, FoundationOne PD-L1, GeneDx BRCA1/2 Analysis, GenPath, Incyte Diagnositcs, Integrated Genetics, Intermountain Genomics, NeoGeonmics, OncoGeneDx, Tempus, and etc.).

Conclusions

• Genomic testing (GT) rates for EOC patients have increased over time but remain low with less than 50% of patients receiving GT at the end of the study interval

• Substantial heterogeneity exists in testing approach including the assay type, timing, and sequencing of test

• Genetic counseling greatly increased testing rates but only 15% of patients received a genetic counseling referral

• We anticipate that a systematic, reflex testing protocol that incorporates engagement of genetic counseling services and is limited to at most a few test vendors will improve adherence to guideline directed testing