

# Receipt of guideline-congruent care among AYA patients with ovarian germ cell tumors



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## Background

Ovarian germ cell tumors (GCT) are rare gynecological malignancies that occur more commonly in adolescents and young adults (AYA: 15-39 years). Because this age range spans that of both pediatric and adult practitioners, AYAs often do not receive uniform care.

- Objectives:**
- To Describe initial cancer care for AYAs with ovarian GCTs
  - To examine factors associated with receipt of guideline-congruent care (guideline care) and survival in a population-based cohort.

## Methods

- We identified AYAs diagnosed with a first primary ovarian GCT from 2004 to 2018 in the California Cancer Registry.
- Guideline care was determined from the summary surgery variable and the chemotherapy text fields in the CCR (Table 2).
- Multivariable logistic regression examined clinical and sociodemographic factors associated with receipt of guideline care.
- Flexible parametric models were used to measure the impact of guideline care on survival.
- Results are presented as adjusted odds ratios (OR), hazard ratios (HR), and their associated 95% confidence intervals (CI).

## Results

- We identified 613 patients with ovarian GCTs.
- 55% were treated by OBGYN/Gynecological Oncology, 25% received all their care at a specialized cancer center (SCC), and 83% received guideline care (Table 1)
- Treatment by Hematology/Oncology vs OBGYN/Gynecological Oncology, older age, and public insurance were associated with decreased odds of receiving guideline care and worse survival (Figures 1 and 2)
- Guideline care was associated with better survival

Table 1. Characteristics by Guideline Care Status

Characteristics	Guideline Care=No N=103	Guideline Care=Yes N=510
Age at diagnosis (years)	N (%)	N (%)
15-18	17 ( 16.5%)	113 ( 22.2%)
19-21	7 ( 6.8%)	93 ( 18.2%)
22-30	52 ( 50.5%)	196 ( 38.4%)
31-39	27 ( 26.2%)	108 ( 21.2%)
Health Insurance Status		
Private	59 ( 57.3%)	339 ( 66.5%)
Public/Uninsured	44 ( 42.7%)	171 ( 33.5%)
Stage		
I	51 ( 49.5%)	356 ( 69.8%)
II	9 ( 8.7%)	34 ( 6.7%)
III/IV	43 ( 41.8%)	120 ( 23.5%)
Specialty		
Hematology/Oncology	33 ( 32.0%)	130 ( 25.5%)
OBGYN/Gynecological Oncology	47 ( 45.6%)	289 ( 56.7%)
Primary Care/Other	7 ( 6.8%)	28 ( 5.5%)
Unknown	16 ( 15.5%)	63 ( 12.4%)
Specialized Cancer Center (SCC)		
All care	23 ( 22.3%)	132 ( 25.9%)
Part/None	80 ( 77.7%)	378 ( 74.1%)
Five-Year Survival		
Alive	93 ( 90.3%)	494 ( 96.9%)

Figure 1. Factors Associated with Guideline Care

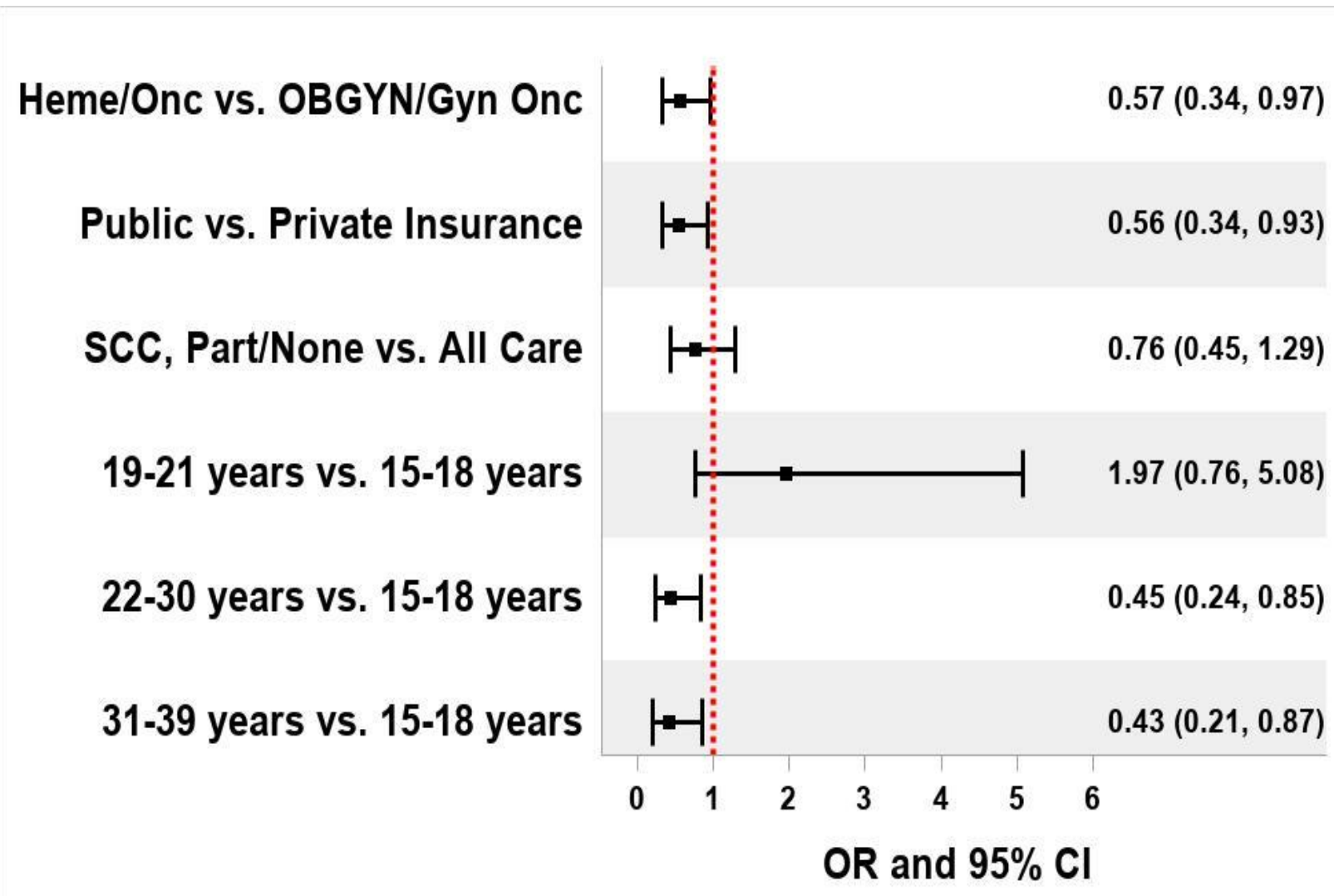
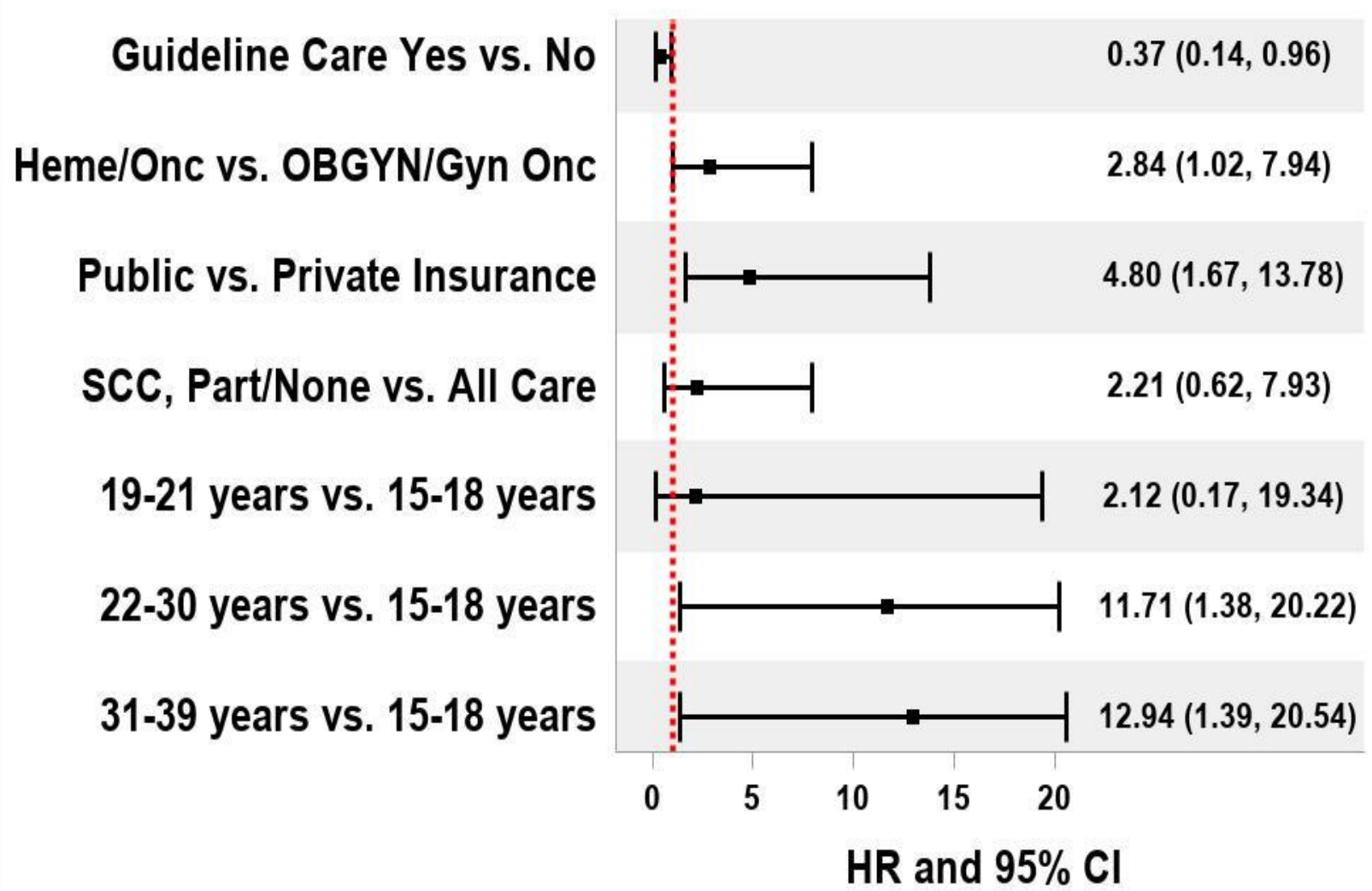


Figure 2. Associations between Guideline Care and Survival



All models were adjusted for age at diagnosis, insurance type, race/ethnicity, socioeconomic status, SCC (NCI-designated cancer center or Children Oncology Group institution), physician specialty, and rural/urban location.

Table 2. Definition of Guideline Care

Stage	Histology	Guideline Treatment
Stage I	Non-dysgerminoma	▪ Surgery alone ▪ Surgery plus BEP or PVB
	Dysgerminoma	▪ Surgery alone ▪ Surgery plus BEP, PVB, or Etoposide/Carboplatin
Stage II-IV	All but immature teratoma	▪ Surgery plus BEP or PVB
	Immature teratoma	▪ Surgery alone ▪ Surgery plus BEP or PVB with or without radiation

BEP= Bleomycin, Etoposide, Cisplatin; PVB=Cisplatin, Vinblastine, Bleomycin

## Conclusions

We found that nearly 20% of AYAs with ovarian GCTs did not receive guideline care in California, which was associated with worse survival. Older age at diagnosis, public/no insurance, and treatment by Hematology/Oncology (vs OBGYN/Gynecology Oncology) doctors negatively impacted receipt of guideline care and survival.

Health policies should focus on improving insurance coverage for all AYAs and increasing awareness of the importance of following established guideline care to treat these patients.