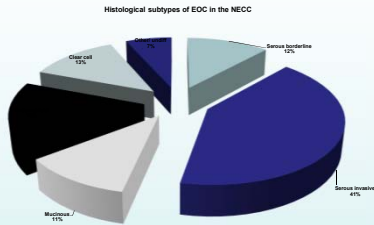# The Multiethnic Cohort Study
Ovarian Cancer

Background

• **Epithelial ovarian cancer** is a heterogeneous disease with distinct histological subtypes

Histological subtypes of EOC in the NECC

Histological Subtype	Tumor Cell Resemblance
Serous	Lining of fallopian tubes
Mucinous	Endocervical or intestinal epithelium
Endometrioid	Lining of uterus
Clear Cell	Clear, peg-like cells (no tissue resemblance)

• Ovarian cancer is the fifth leading cause of cancer death in the US

• Given the lack of early detection strategies, it is essential to focus efforts on the primary prevention of disease development

• The burden of ovarian cancer differs substantially across racial/ethnic groups (**Figure 1**)

   • **In Hawaii, Native Hawaiian women have a similar incidence rate (11.8/100,000) and the highest mortality rate (9.9/100,000) from ovarian cancer as compared with white women (12.0 new cases/100,000; 7.0 deaths/100,000)**

Objectives: to investigate a wide range of factors that may explain the reasons for the observed differences in incidence and survival rates across racial/ethnic groups

Study population

Study Population: Multiethnic Cohort (MEC) Study

• **585 cases**: Incident epithelial ovarian cancers identified from cancer registries

   • Distribution by histology: 309 serous, 122 carcinoma (not specified), 53 endometrioid, 32 clear cell and other subtypes

   • Distribution by race/ethnicity: 157 Japanese American, 148 white, 135 Latina, 93 black, 52 Native Hawaiian
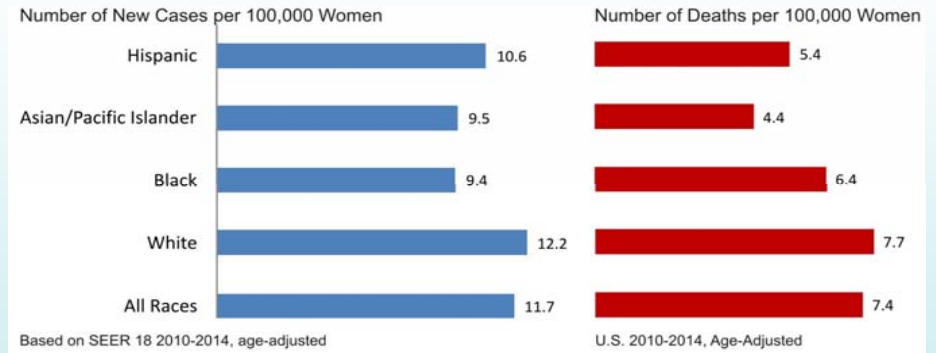
Data available:

• **Reproductive factors** including number of pregnancies (0, 1, 2, 3, >3), oral contraceptive use (none, 3 months - <1 year, 1-5 years, >5 yrs) and tubal ligation

• **Other ovarian cancer risk factors** including family history of ovarian cancer in a first degree relative

• Diet

Analysis strategy:

• Investigate a range of factors in relation to ovarian cancer risk across racial and ethnic groups

Ovarian cancer facts

I. Ovarian cancer incidence and mortality rates by race/ethnicity

Number of New Cases per 100,000 Women

Race/Ethnicity	New Cases
Hispanic	10.6
Asian/Pacific Islander	9.5
Black	9.4
White	12.2
All Races	11.7

Based on SEER 18 2010-2014, age-adjusted

Number of Deaths per 100,000 Women

Race/Ethnicity	Deaths
Hispanic	5.4
Asian/Pacific Islander	4.4
Black	6.4
White	7.7
All Races	7.4

U.S. 2010-2014, Age-Adjusted

II. Risk factors for ovarian cancer

Factor	Risk	Comment (OR/RR, 95% CIs)
Reproductive, medical events		
Menarche	↓	Late age: **0.94** (0.72 – 1.2)
Cycle Length	↑	Short or irregular cycles
Menopause	-	Late age: **0.82** (0.54 – 1.3)
Parity	↓	Any term pregnancy: **0.47** (0.40 – 0.56)
Breastfeeding	↓	Ever breastfed: **0.81** (0.68 – 0.95)
Oral Contraceptives[1]	↓	**10%** decreased risk with each additional year of use
HRT (est + prog)[2]	↑	**1.6** (0.8-3.2)
Body Mass Index[3]	↑	**1.4** (1.2 – 1.6)
Genetic/ familial		
Family history[7]	↑	**1.75** (1.19 – 2.57)
Other environmental factors		
Smoking[4]	↑	**2.1** (1.6 – 2.8), mucinous histology only
Talc use[5]	↑	**1.38** (1.25 – 1.52)
Tubal Ligation[6]	↓	**0.66** (0.50 - 0.87)

▪ **Outcomes of the MEC Study**: highlight different pathways of ovarian cancer development across different racial/ethnic groups.

▪ **Future directions**: to improve strategies for the primary prevention of ovarian cancer, and prognostic outlook for women with ovarian cancer, by highlighting factors that can be used to design interventions to correct cancer disparities.