

The Kaiser Permanente Research Bank: A Collaborative Resource for Population Health and Cancer Research

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Purpose

The Kaiser Permanente Research Bank (KPRB) is aimed at improving population-level health and healthcare through building a nationwide cohort of 500,000 members, including 440,000 healthy volunteers, 30,000 incident cancer cases, and 30,000 pregnant women. This cohort will serve as a collaborative resource for scientists to conduct precision medicine research on the relationship between patient genetics, demographics, behavioral characteristics, social factors, therapeutic regimens, and health outcomes.

Methods

Study Cohorts

- **General Cohort** - Adult Kaiser Permanente (KP) members across 7 KP regions are eligible to participate (**Figure 1**)
- **Cancer Cohort** - Incident cancer cases identified within weeks of diagnosis using rapid case ascertainment algorithms in 5 regions
- **Pregnancy Cohort** - Pregnant women identified at their first prenatal visit in KP Northern California

Recruitment

- Email, direct mail, and in-clinic invitations
- Posters and flyers to promote volunteer enrollment of KP members who have not yet received an invitation to participate
- Website: researchbank.kaiserpermanente.org

Consent Includes

- Collection of baseline research blood (serum and DNA) or buccal cell DNA specimens
- Baseline Survey (**Table 1**)
- Research access to medical record data and clinical specimens
- Re-contacted for future studies

Results

- As of March 2017, the KPRB has the following number of participants: General Cohort – 272,262; Cancer Cohort – 2,379; Pregnancy Cohort – 23,697 (**Figure 1**)
- Sample types and data availability are shown in **Figure 2**
- The KPRB Cohort is mostly ages ≥ 45 years old, Non-Hispanic White, and Female (**Figure 3**)
- The rapid cancer case ascertainment algorithms have > 80% sensitivity, > 93% specificity, and identify most pathologically confirmed cancer cases within 1 month of diagnosis (**Table 2**)
- The distribution of cancer types enrolled in the cancer cohort is illustrated in **Figure 4**
- Work is ongoing to identify incident cancer cases among enrollees of the General Cohort; a projected 8,000 incident cancer cases will occur in the General Cohort through 2018

Support

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Figure 1. Map of KPRB Recruitment Sites

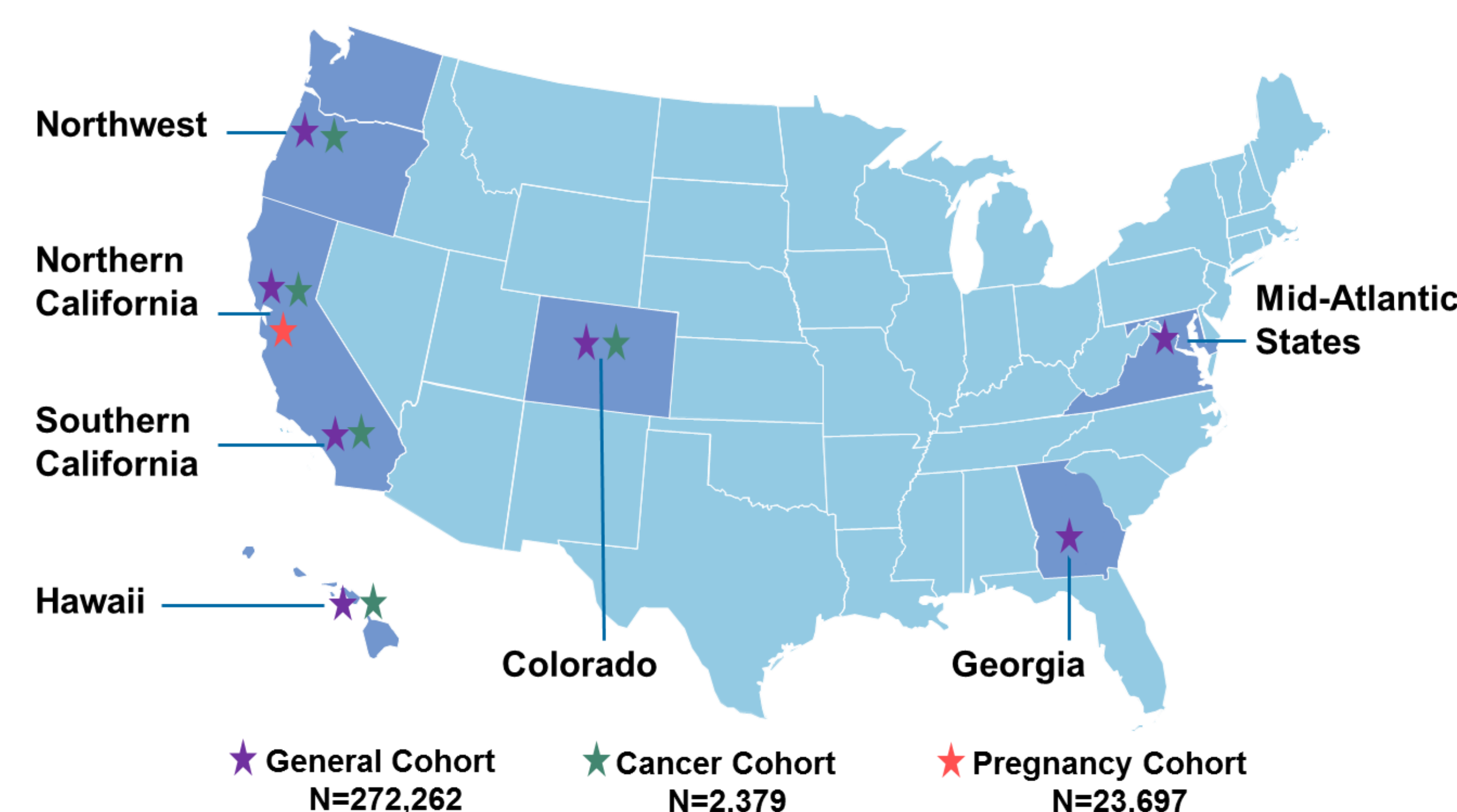


Table 1. Baseline Survey Domains

Survey Domains
Demographics
Neighborhood walkability/safety
Work exposures and shift work
General health (PROMIS 10)
Social media use
Chronic pain
Diet, physical activity, & sedentary behavior
Multi-vitamin, vitamin D, calcium, & NSAIDs
Family history
Alcohol, tobacco, marijuana, & opiate drugs
Stress, isolation, support, discrimination
Reproductive history (women)
Urinary function & erectile dysfunction (men)
Health literacy

Figure 2. KPRB Enrollees with Specimens, Genotype, and Survey Data Available as of March 2017

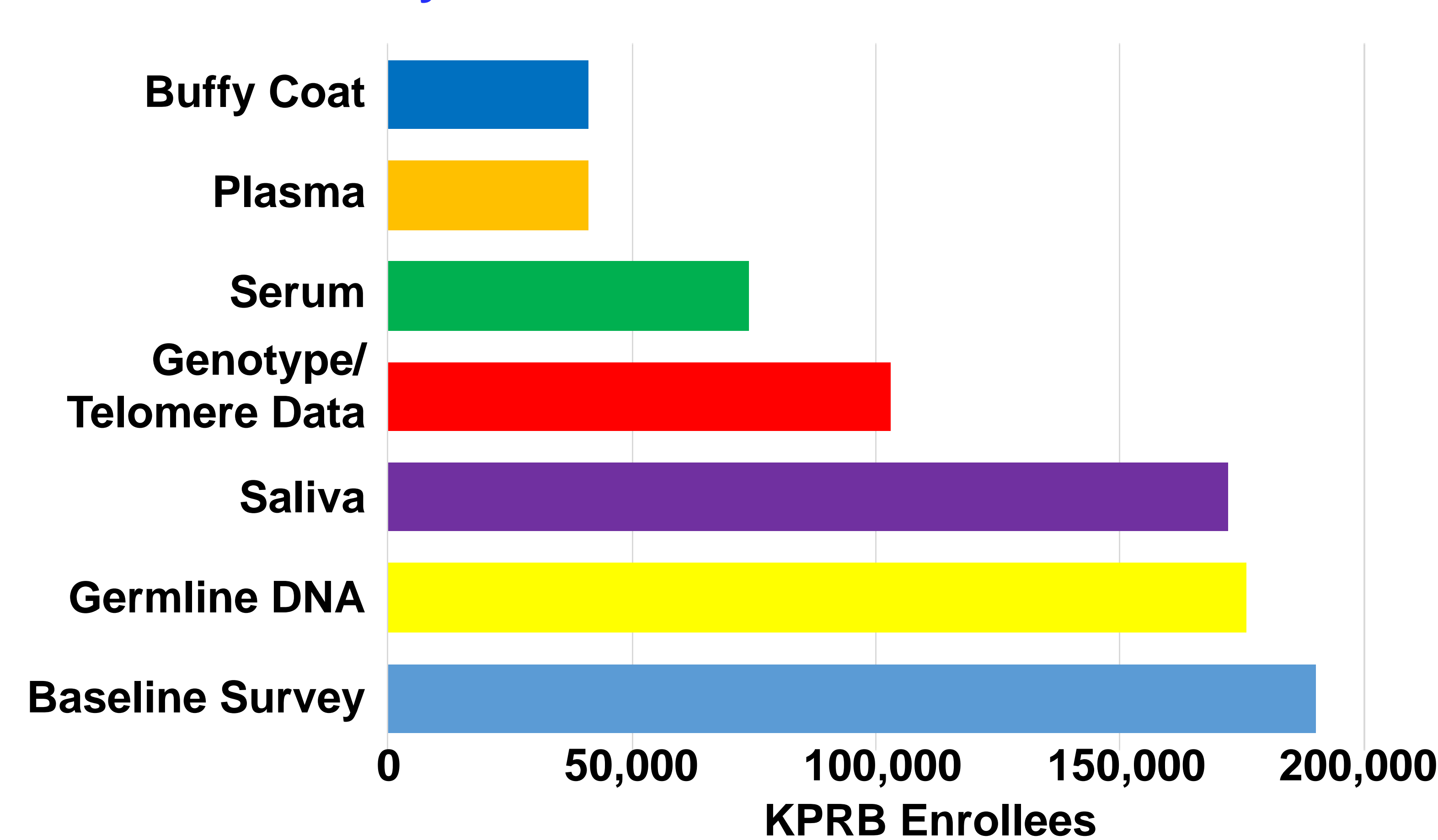


Figure 3. KPRB Demographic Characteristics

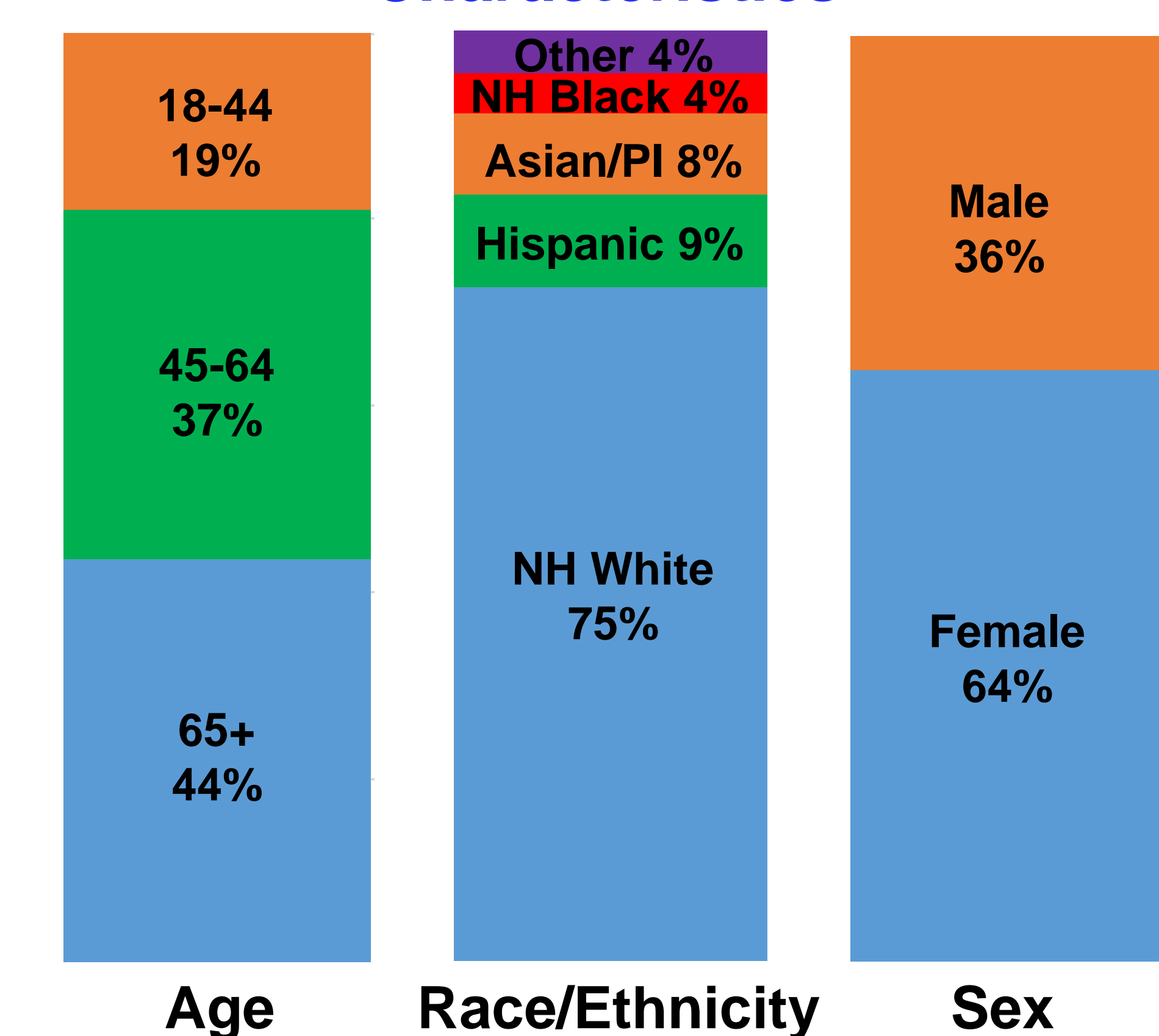


Figure 4. Distribution of Cancer Types among Cancer Cohort Enrollees

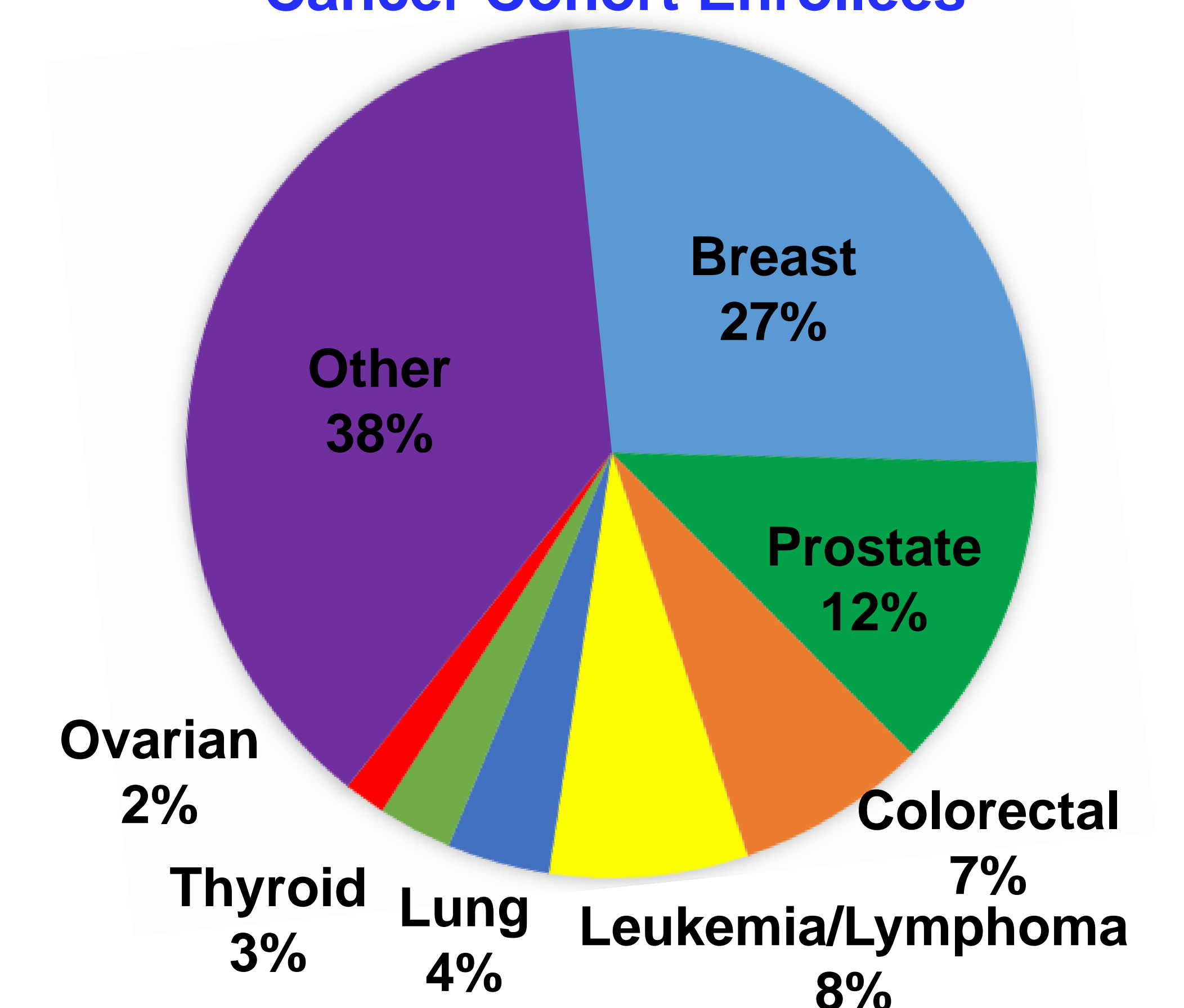


Table 2. Type of Cancer Case Ascertainment Algorithm, by Region

Region	Cancer Ascertainment Algorithm
Colorado	E-Path
Hawaii	Claims and problem list
Northern California	SNOMED codes
Northwest	SNOMED codes
Southern California	Natural Language Processing in pathology reports

Comment

The KPRB is a rich resource for studying population-level health outcomes, including cancer incidence, recurrence, and survival. This resource is accessible to researchers in and outside of KP through an Access Review Committee process (ResearchBankAccess@kp.org).