

INTRODUCTION

- (NSCLC) driven by different oncogenic drivers.
- Biologically distinct lung mutations considered to have different clinco-epidemiological characteristics
- Although general understanding of these differences by molecular alternations, we utilize a systematic approach to characterize these clinco-epidemiological variables.

METHODS

Meta-Analysis

- Systematic literature search
- Looking at Clinical Trial, Retrospective, Prospective cohort English studies
- Pubmed searches
- Meta-analyses approach used to describe characteristics
- Reviewing *age, female proportion, and never smoking proportion* for each mutation across variables such as:
 - East Asian vs other countries [including Global which may include East Asian]
 - Clinical Trials vs real-world observational
 - Updated from 62,863 to 82,481 patients

RESULTS

429 unique studies; 82,481 patients

Comparisons by Molecular Alterations

When compared to overall typical lung cancer cohorts where individuals who never smoked represent < 25% of population, females =<50%, and median ages of >= 65 years:

- Patients with fusions (ALK, ROS1, RET) were associated with higher rates of having no primary smoking exposure, being female and being younger
- Patients with HER2 and EGFR mutations had results similar to fusions, except that patients with EGFR mutations had slightly older average ages
- Patients with BRAF and MET mutations also had higher rates of individuals who lacked primary smoking exposure, but had similar age and gender proportions as historical overall lung cancer populations
- Patients with KRAS mutations were the only group who were clearly associated with very high smoking rates, and male predominance

RESULTS

Total number of Studie Arms and Patients included (N= 82481)

mutation	Total Study Arms	Total # of Patients	East Asia Study Arm	Other Study Arm	Clinical Trial Study Arm	Real-world Study Arm
ALK fusion	78	18052	26	52	28	50
ROS1 fusion	41	3877	21	20	12	29
RET fusion	32	2729	16	16	7	25
EGFR common mutation	47	14292	36	11	9	38
EGFR exon 20 insertion	40	4650	18	22	8	32
EGFR uncommon mutation	18	1644	13	5	1	17
HER2 mutations	36	2978	20	16	6	30
cmET exon 14 skipping	16	1471	3	13	6	10
BRAF Mixed	26	2911	13	13	0	26
BRAF V600	14	1329	2	12	2	12
KRAS all	71	17604	17	54	4	67
KRAS G12C	44	10944	5	39	8	36

Table 1: Summary of Study Arms and Patients

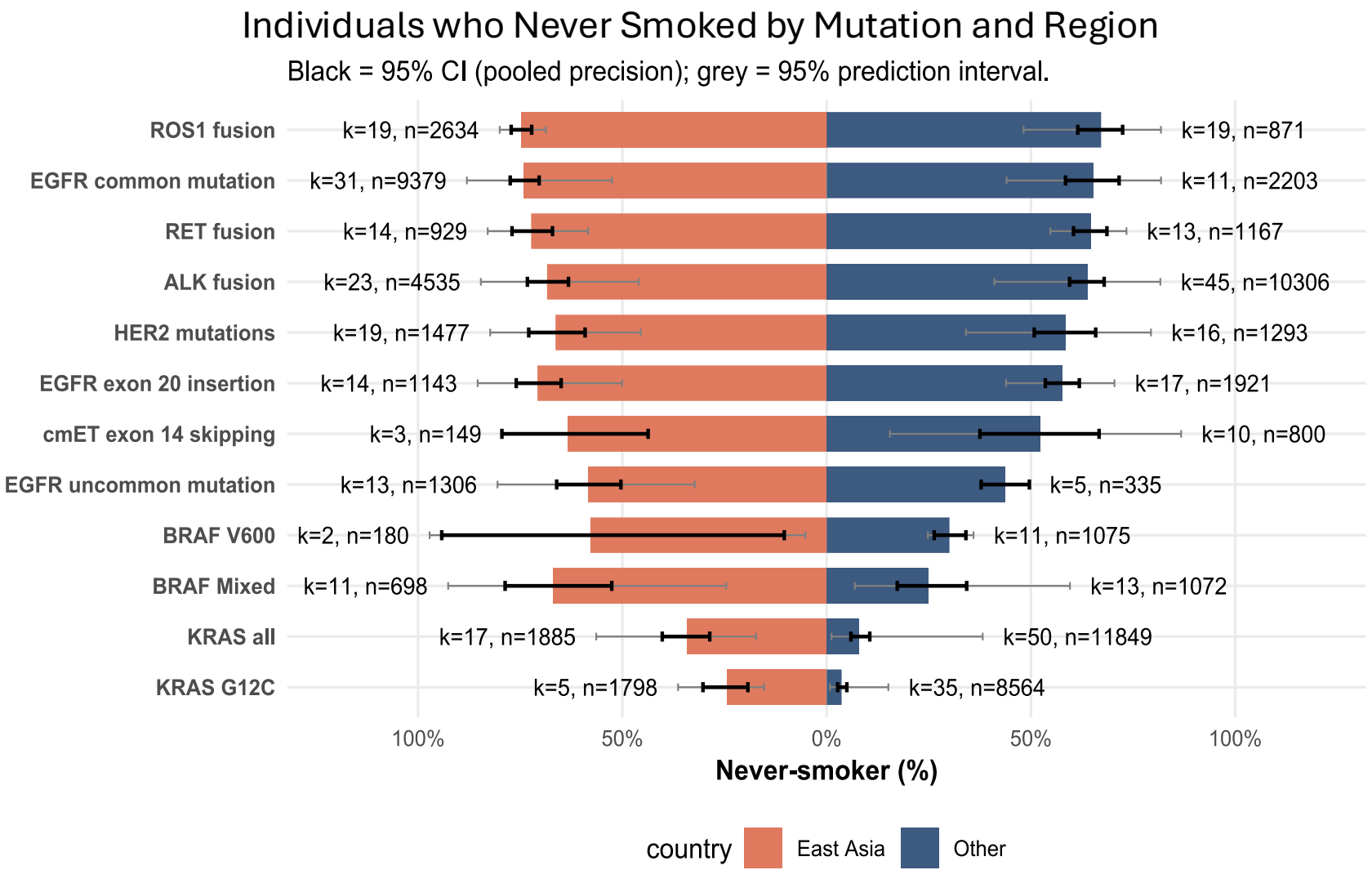


Figure 1: Individuals who Never Smoked by East Asia vs Other

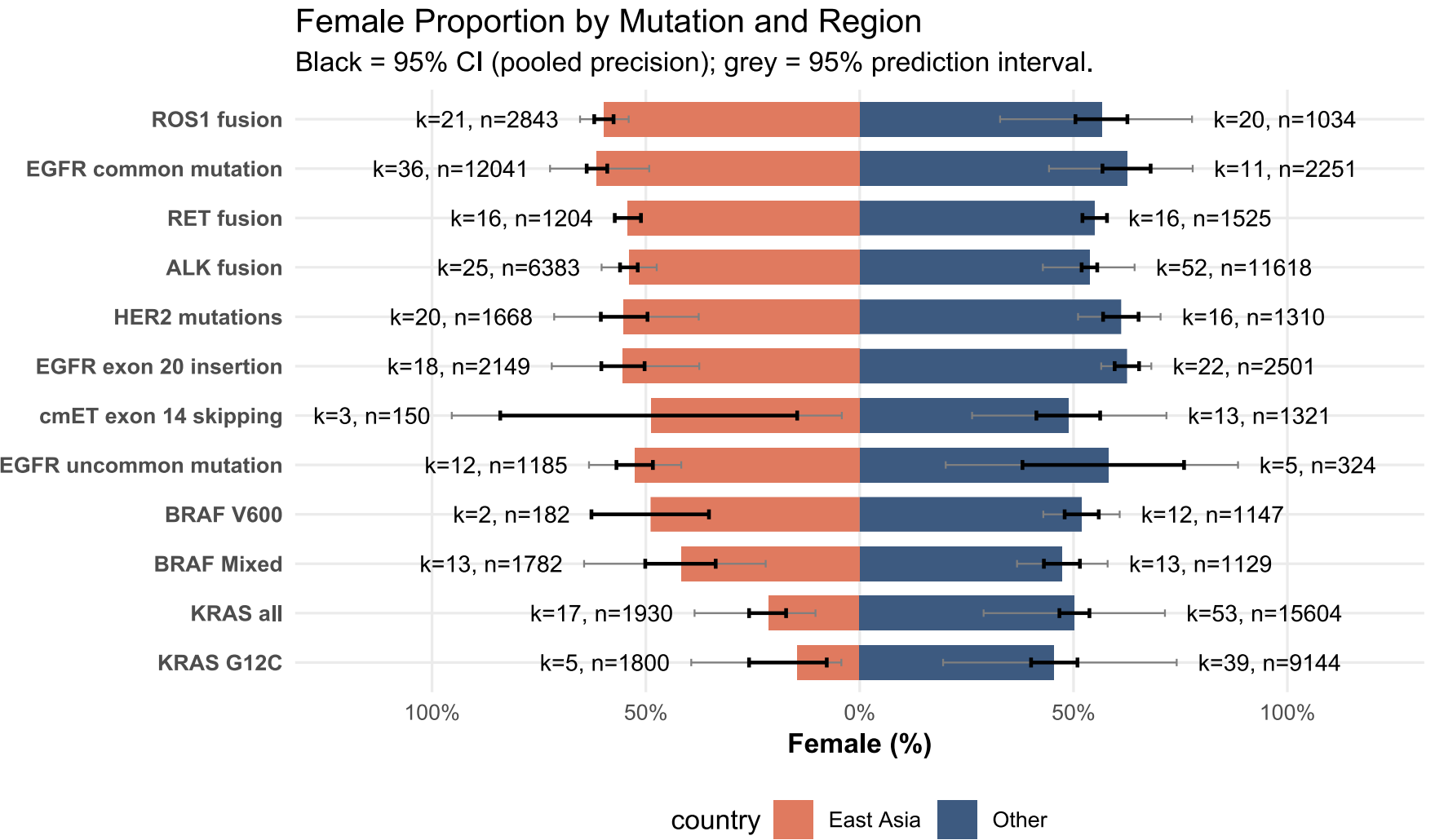


Figure 2: Female proportion by East Asia vs Other

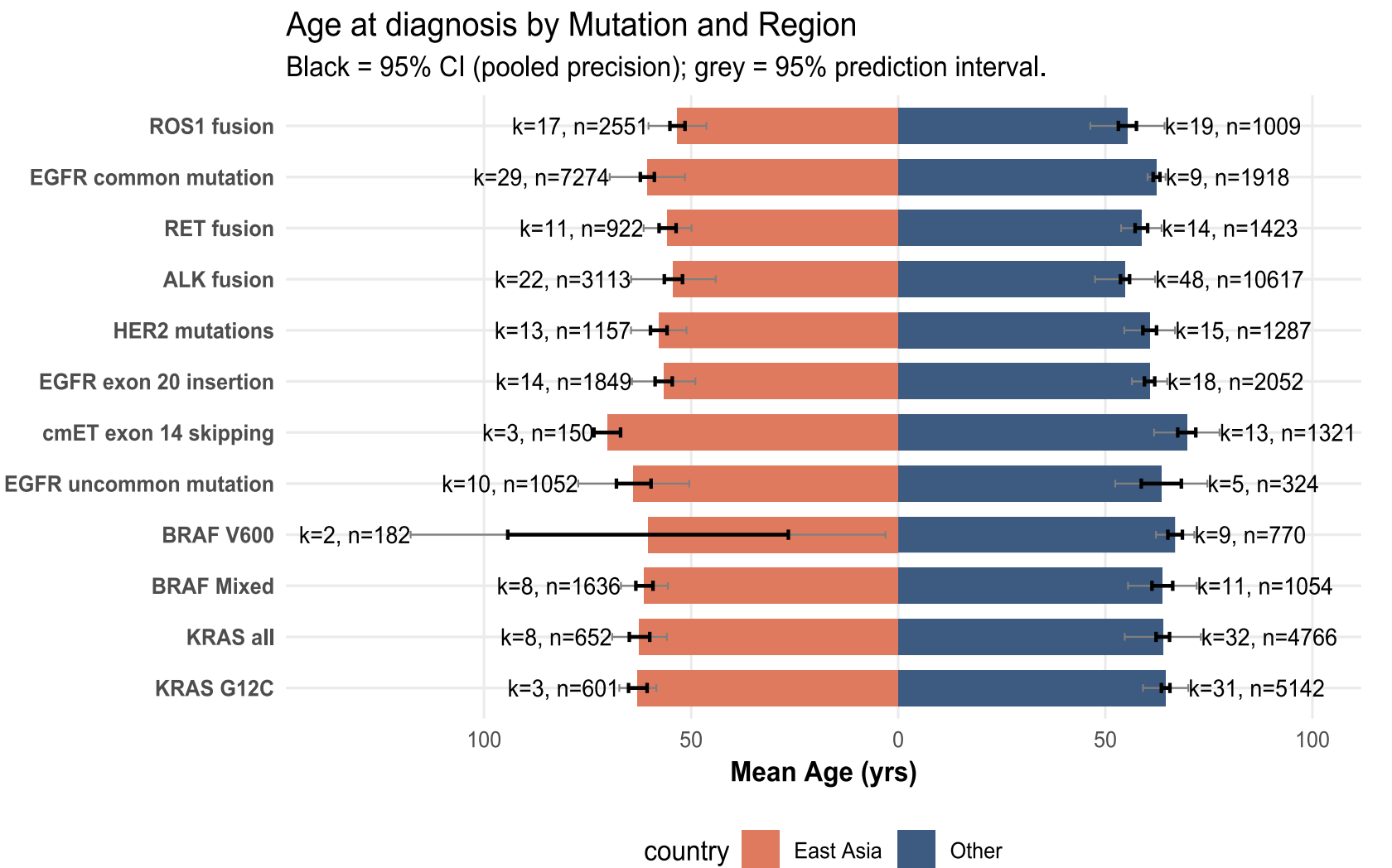


Figure 3: Age (Mean) by East Asia vs Other

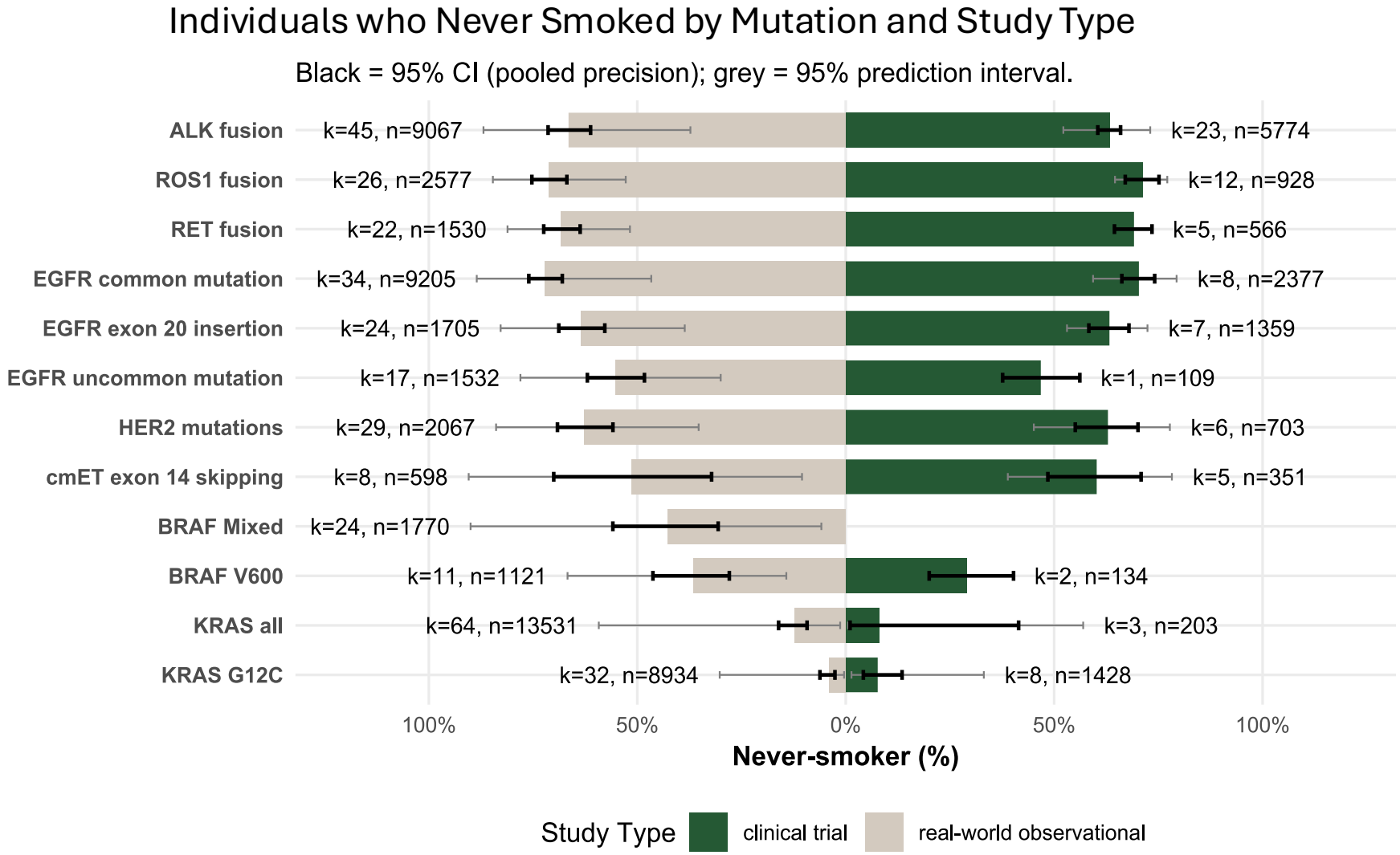


Figure 4: Individuals who Never Smoked Clinical Trial vs Real-world Observational

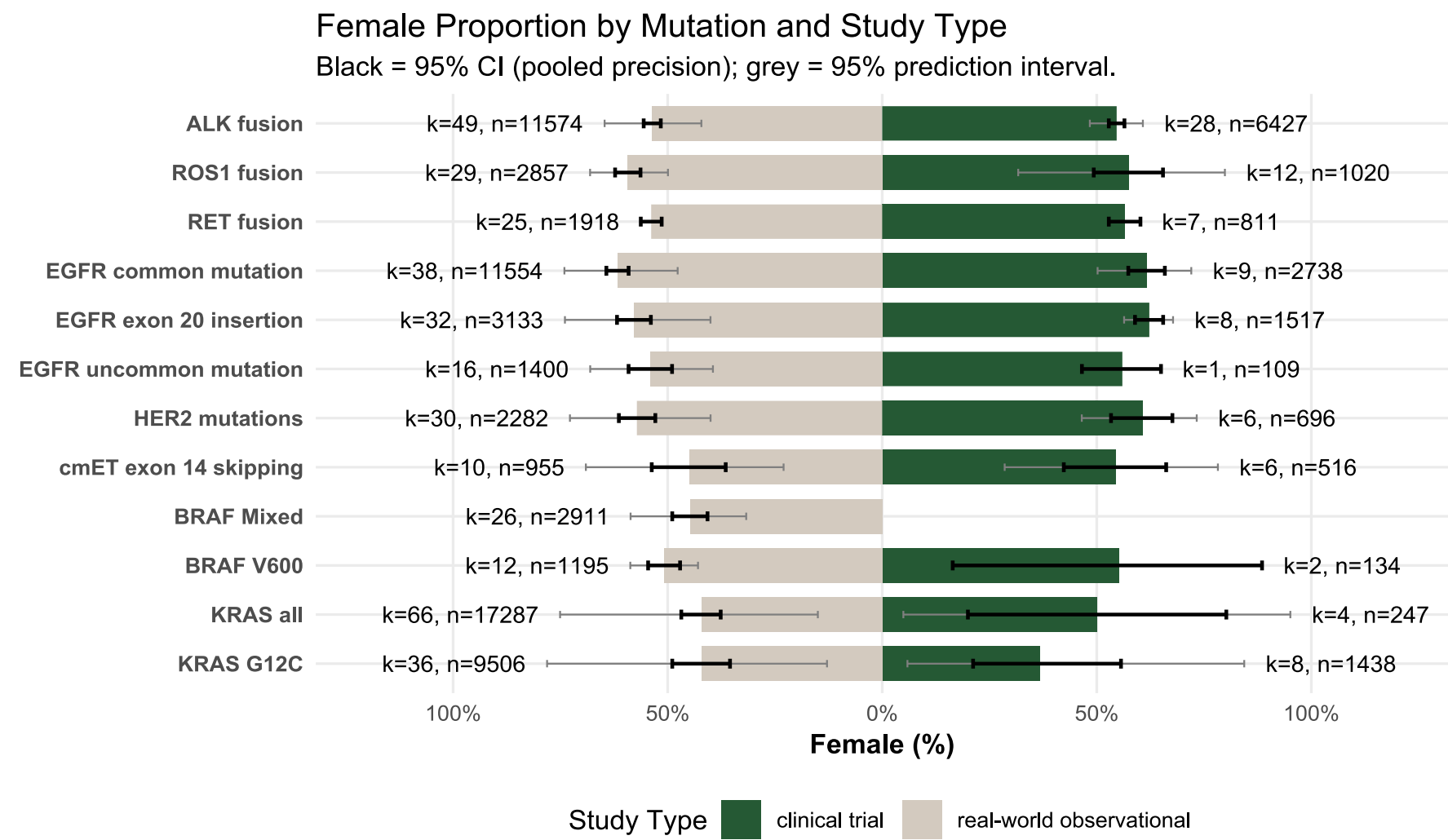


Figure 5: Female proportion by Clinical Trial vs Real-world Observational

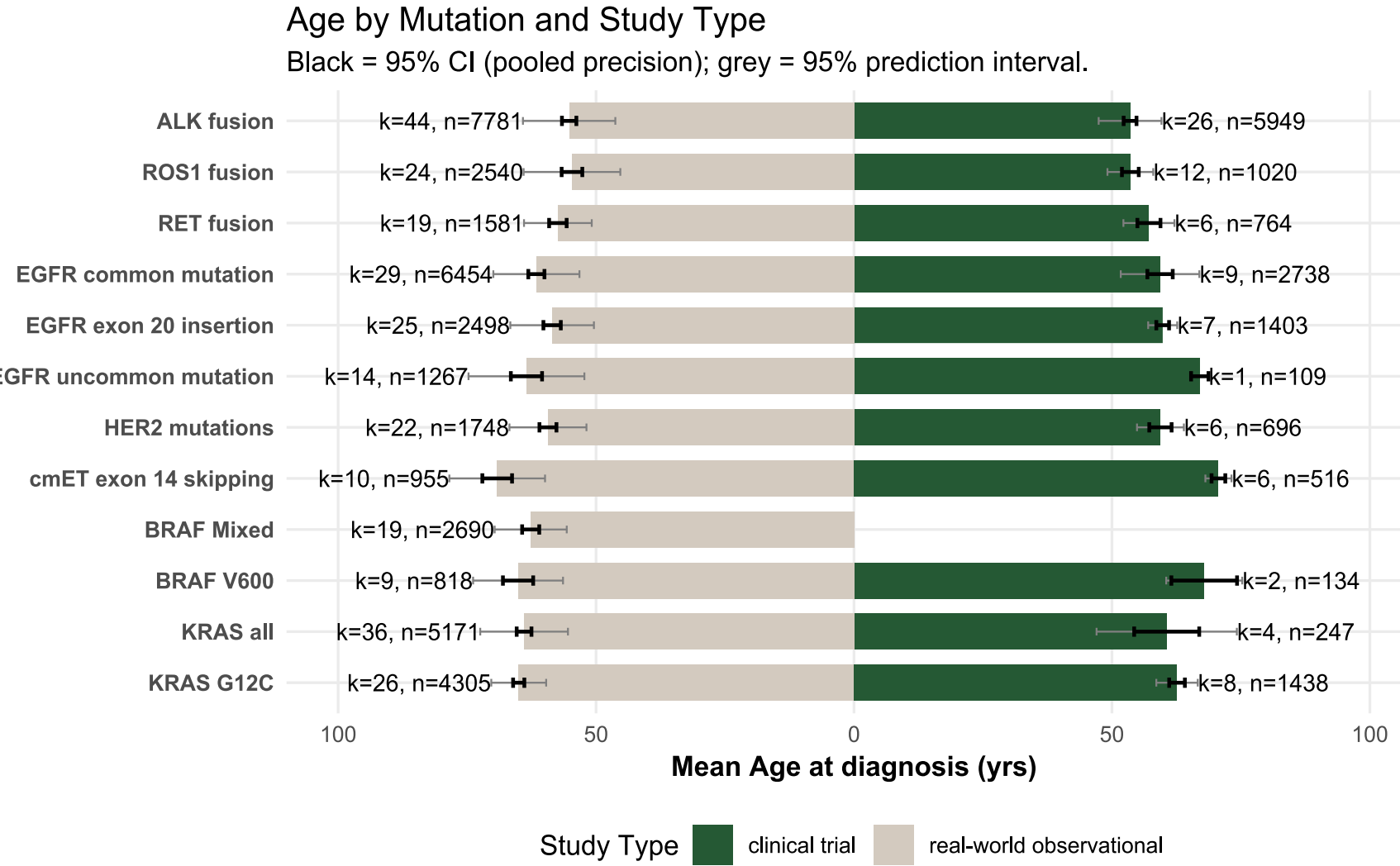


Figure 6: Age (Mean) by Clinical Trial vs Real-world Observational

RESULTS

East Asia vs Other

- Proportion of individuals who never smoked are higher in East Asian studies than Other studies with the largest difference seen in patients with KRAS mutations (Figure 1)
- Proportion of females is lower in East Asia vs Other studies for KRAS all and KRAS G12C (Figure 2)
- There were no other significant differences

Clinical Trial vs Observational

- Results by molecular alteration for proportions of patients by smoking status, gender, and mean age between clinical trials and real-world observational studies were similar (Figures 4-6)

DISCUSSION AND FUTURE DIRECTION

Actionable Take Away Message

- Accurate clinico-demographic information is critical to understanding the patient characteristics of different molecular subgroups, which can help our understanding of their underlying biology.

Future Direction for Research

- We will explore whether there were differences in demographics across different years, which may have occurred due to selected biomarker testing
- We will explore the correlations between gender and smoking status

REFERENCES

Scan QR Code for list of studies included in this analysis

