Background Immunotherapy is a promising treatment for advanced non-small cell lung cancer (advNSCLC) with several immune checkpoint inhibitors (ICIs) FDA-approved since 2015. As ICI indications expand, disparities in treatment selection could result in disparate lung cancer mortality. This study examined differences in ICI treatment by race/ethnicity using a large cohort of real-world advNSCLC patients.

Methods This study used the nationwide Flatiron Health electronic health record-derived de-identified database. Data included individuals diagnosed with advNSCLC between 2011-2021 with available treatment information. Logistic regression analyses assessed the likelihood of receiving an ICI (any line of therapy) by race/ethnicity before FDA-approval of the first ICI for advNSCLC (2011-2014) and after (2015-2021). Patients aged <65 years (younger) and 65+ (older) were assessed separately due to changes in Medicare eligibility at age 65. Significant racial/ethnic differences in ICI treatment accounting for covariates are reported as adjusted odds ratios (OR) with 95% confidence intervals. Covariates were: diagnosis year, geographic region, practice setting (academic/community), gender, age, insurance coverage within 90 days of treatment, smoking history, ECOG performance status within 60 days of diagnosis, documented biomarker testing (before ICI treatment/none), and PDL1 expressed (<1%/1%+).

Results Of 52,031 patients, most were non-Hispanic White (NHW) (68.7%) followed by unknown race/ethnicity (9.2%), Black/African American (AA) (8.6%), other race/ethnicity (8.1%), Hispanic/Latino (3.1%), and Asian (2.2%). Of patients treated before FDA-approval of ICIs for advNSCLC (N=16,219), 11.8% received ICI treatment. Relative to younger or older NHWs respectively, likelihood of ICI was higher among younger Asians (OR=1.94, 1.24-3.05) and lower among younger and older patients with unknown race/ethnicity (OR=0.50, 0.32-0.79; OR=0.45, 0.32-0.63, respectively). Of patients treated after FDA-approvals (N=35,812), 59.1% received ICI treatment. Relative to younger or older NHWs respectively, likelihood of ICI was lower among younger and older Asians (OR=0.48, 0.37-0.62; OR=0.64, 0.53-0.77, respectively), younger and older patients with unknown race/ethnicity (OR=0.83, 0.72-0.96; OR=0.77, 0.70-0.84, respectively), older Hispanic/Latinos (OR=0.85, 0.73-1.00), and older patients with other race/ethnicity (OR=0.90, 0.81-1.00).

Conclusions Most racial/ethnic disparities in ICI treatment were observed among older advNSCLC patients in the years after FDA-approval. Among younger patients, Asians were more likely than NHWs to receive an ICI before FDA-approvals, but this association reversed thereafter. Though not assessed, this was possibly due to differences in prevalence of EGFR mutations. There were no differences in likelihood of ICI treatment between Black/AAs and NHWs. These results suggest a need for concerted effort to offer all patients appropriate ICI treatment irrespective of race/ethnicity and/or age.