Despite progress in lung cancer early detection and treatment, lung cancer remains the leading cause of cancer-related death in the United States. In 2014, the United States Preventive Services Task Force (USPSTF) recommended adults at high risk for lung cancer undergo annual low-dose computed tomography screening, however, lung cancer screening uptake in the clinic remains low. Prior qualitative research on physician perceptions and experiences with lung cancer screening has been limited since the publication of the USPSTF and Centers for Medicare and Medicaid Services (CMS) decision memo. We conducted a qualitative study to assess family physicians’ knowledge and perceptions of lung cancer screening and gain insight into their current experiences with low-dose computed tomography (LDCT). A convenience sample of FPs were asked to participate in telephone interviews. A semi-structured interview guide was used to navigate the interviews, which were transcribed verbatim. A theme codebook was developed using the constant comparison technique and all interviews were coded by two reviewers. A total of 15 FPs completed the interview.

We found that FP knowledge about the scientific evidence and patient eligibility criteria for LDCT was suboptimal. Patient age and smoking status were the primary drivers of a FPs decision to discuss lung cancer screening. Most FPs knew that they should initiate LDCT discussions with high risk patients, however, they indicated that they would be willing to screen patients outside of the specified criteria if asked by a patient or if they felt that the patient should be screened for other reasons. Most FPs felt that LDCT discussions and follow-up should be their responsibility. Not surprisingly, LDCT cost and lack of time were cited as barriers to
LDCT discussions. Facilitators included incorporation of patient screening tools in the clinic waiting room and electronic medical record notifications. The results of this study indicate that there is a need for FP education about lung cancer screening using LDCT, as well as tools to assist providers at the point of care.

As lung cancer screening becomes more widely adopted, more lung cancers will be detected at an earlier stage of disease. While tumor molecular testing (MT) is currently recommended for patients with metastatic disease, MT could increasingly be used in the early stage setting to help guide initial treatment decisions involving targeted therapies, such as epidermal growth factor receptor (\textit{EGFR}) tyrosine kinase inhibitors (TKI) (e.g. erlotinib). However, disparities in MT and erlotinib utilization may exist. We quantitatively evaluated factors related to MT and erlotinib utilization and the impact of these on overall survival (OS).

Cases diagnosed with stage IIIIB/IV non-small cell lung cancer (NSCLC) between January 1, 2002 and December 31, 2012 and available through the SC Central Cancer Registry were linked to SC State Employee Health Plan and Medicaid administrative claims data. MT and erlotinib utilization were independently categorized as “yes” or “no” based on claims data. We found several characteristics associated with MT, including younger age, having an out-of-state provider, being diagnosed in 2010 or later, adenocarcinoma histology, and low tumor grade. Risk of death was reduced for patients with MT. OS was longer for patients who had MT. Younger age, female sex, SC State Employee Health Plan insurance, having an out-of-state provider, adenocarcinoma histology (p<.001), and having molecular testing were associated with erlotinib utilization. Risk of death was also lower for patients treated with erlotinib and OS was also longer. These results suggest that tumor MT and erlotinib utilization lead to improved
patient survival. Additional research should evaluate these important factors in nationally representative datasets.

This dissertation focused on two approaches to improving lung cancer outcomes. Continued research on the early diagnosis and treatment of lung cancer is warranted.