

**Title:** Factors Impacting Screening Adherence in the RMRVAMC Lung Precision Oncology Program

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**Abstract:**

**Introduction**

Lung cancer is the leading cause of cancer-related death in the United States, with veterans at increased risk due to higher rates of smoking and occupational exposures. Despite the effectiveness of low dose computed tomography in reducing lung cancer mortality, adherence to lung cancer screening remains low, particularly within the Veterans Health Administration. Rural populations have an increased incidence of lung cancer and generally have less geographic access to CT facilities, with current literature finding rural veterans are less likely to complete follow-up scans. A centralized and coordinated approach to lung cancer screening has been shown to be superior in improving patient adherence and the Rocky Mountain Regional VA Medical Center has introduced such a program, which provides an opportunity to assess what factors impact adherence in this healthcare system.

**Methods**

This retrospective analysis examined lung cancer screening adherence among veterans enrolled in the Lung Precision Oncology Program at the Rocky Mountain Regional VA Medical Center from March 2021 to June 2023. Adherence was assessed based on Lung Imaging Reporting and Data System (Lung-RADS) interval imaging recommendations, with general estimating equations used to evaluate the relationship between age, gender, smoking status, urbanicity, and Lung-RADS score with patient adherence.

**Results**

Among 351 patients that were included (mean age 65.3 years, 91% male), 13.4% resided in rural areas. Urban veterans were significantly less likely to adhere to screening recommendations compared to rural veterans, with a 68% reduction in adherence odds (OR 0.32, 95% CI 0.16-0.62,  $p < 0.001$ ). Higher adherence was observed among patients with elevated Lung-RADS scores, which reflects greater relative risk of lung cancer. The baseline prevalence of lung cancer was 1.12% at the first scan and the incidence of lung cancer at the second scan was 0.73%. 52% of patients who were initially adherent to their second scan became nonadherent at their third scan.

**Conclusions**

Urban veterans and those undergoing multiple screening scans potentially face distinct barriers to lung cancer screening adherence. For urban veterans, socioeconomic challenges and difficulty navigating complex healthcare systems can impede participation. Long-term engagement often declines after initial adherence, possibly due to logistical issues, patient fatigue, or a perceived lower need for follow-up after negative results. Addressing disparities is critical for optimizing lung cancer detection. Targeted interventions are needed to sustain engagement and improve screening effectiveness in veterans.