

Leveraging a Geographic Information System (GIS) to Identify Lung Cancer Care Disparities and Opportunities in Rural Appalachia

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BACKGROUND

An 11-county region bordering West Virginia, Virginia, and Kentucky has significantly higher lung cancer incidence and mortality rates than the national rates of 54.0 and 35.0 per 100,000 people, respectively (Table 1). The Rural Appalachian Lung Cancer Screening Initiative, recognized by the White House Cancer Moonshot, **seeks to improve lung cancer screening rates by partnering with health systems in the 11-county region to implement new interventions.**

County	Mortality* (per 100,000)	Incidence* (per 100,000)	# Lung Cancer Screening Sites	# Oncology Services Sites
Pike, KY	70	109.3	2	2
Buchanan, VA	49.4	42.9	1	0
Dickenson, VA	55.9	50	0	1
Russell, VA	45	45.8	1	1
Scott, VA	58.1	46.7	0	0
Wise, VA	61.4	68.6	1	0
Norton City, VA	60.8	89.5	1	1
Logan, WV	57.6	104.2	1	0
McDowell, WV	59.8	102.8	0	0
Mingo, WV	74.8	111.5	0	0
Wyoming, WV	70.3	100.4	0	0

*Lung & Bronchus, 2017-2021 age-adjusted incidence rates; Lung & Bronchus, 2018-2022 age-adjusted mortality rates. Source: statecancerprofiles.cancer.gov

METHODS

To understand availability of local resources, ACCC developed an interactive GIS tool that identifies screening locations and other essential healthcare services in the 11-county region and surrounding catchment areas. Data was collected from publicly available sources and requested from state departments of health. Facilities were contacted to verify lung cancer screening and other services and when unclear. Stata 18 was used to combine and clean lists of facilities for upload to Google My Maps. The Lung Cancer Screening Initiative Task Force determined key services to map which include:

- Lung cancer screening sites
- Oncology services (diagnosis to treatment)
- NCI-designated cancer centers
- Primary care/general health services
- Federally Qualified Health Centers (FQHCs) & rural health clinics
- School-based FQHCs
- Critical access hospitals
- Breast cancer screening sites

RESULTS

Of the 11 intervention counties, key findings include:

- 1** FQHC or primary care site in each county
- 5** do not have lung cancer screening sites (Table 1, Figure 1)
- 7** counties do not have oncology service sites (Table 1)

The closest NCI-designated cancer centers to the participating sites are over 140 miles away.

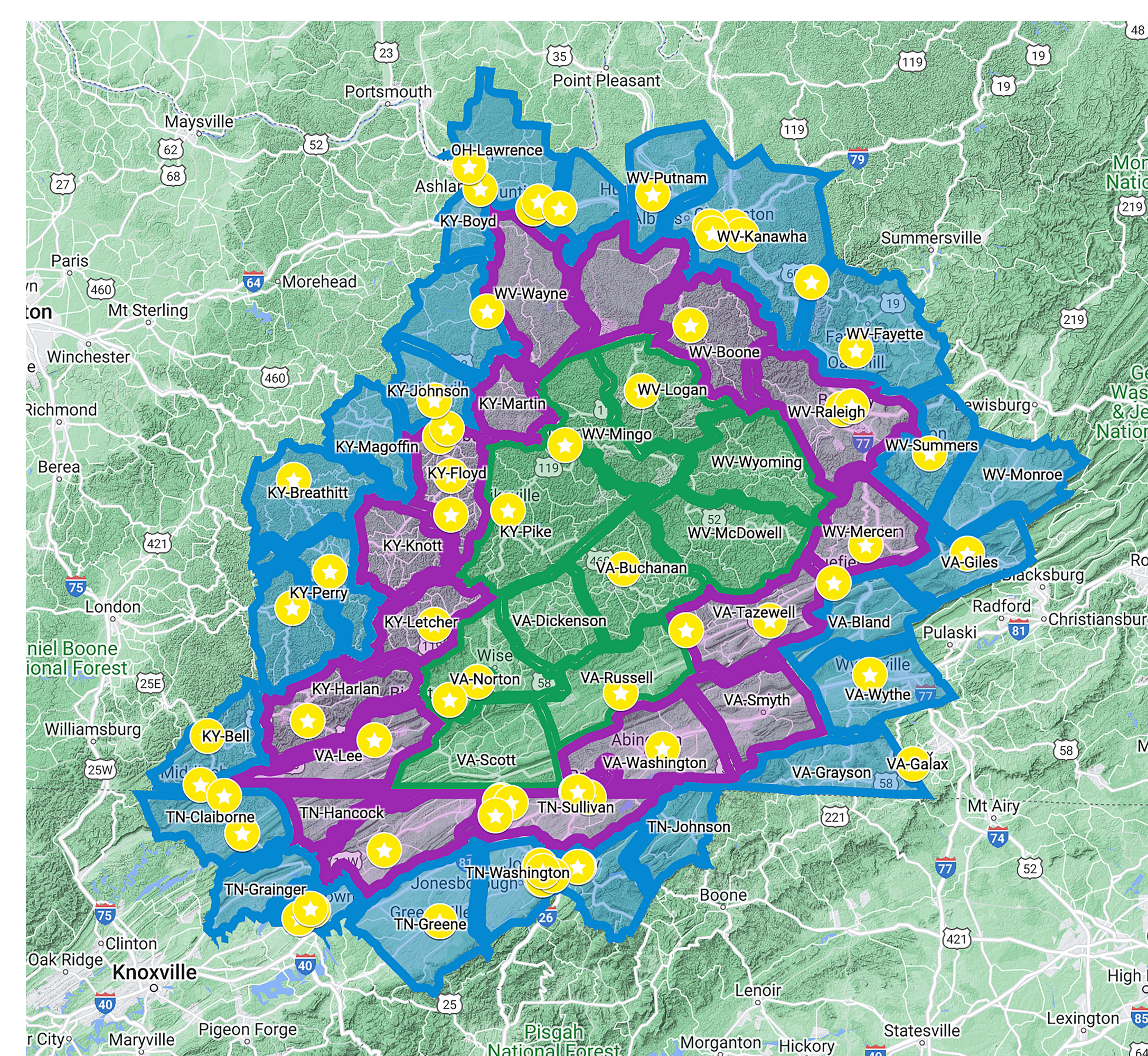


Figure 1. Lung cancer screening sites in intervention counties (green), secondary catchment area (purple), tertiary catchment area (blue).

FUTURE DIRECTIONS FOR RESEARCH

- Explore opportunities to scale the Initiative to additional health systems in the 11-county region.
- Replicate methods to inform current access to care and improve equitable delivery of lung cancer screening in regions across the U.S.

CONCLUSIONS AND FUTURE DIRECTIONS

Access to lung cancer screening and oncology care is limited in the region. Local healthcare facilities or departments of health can utilize this map to inform development of interventions by considering potential geographical challenges, identifying referral sites, outreach opportunities, and partners to facilitate lung cancer screening and education.



Access the map by scanning the QR code

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