Understanding the Barriers to Lung Cancer Screening in Eastern Kentucky Primary Care Settings: A Proposal

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INTRODUCTION

Kentucky leads the nation in lung cancer incidence and mortality, while stigma surrounding the disease is equally as prevalent[1-3]. Unfortunately, our most rural communities in Kentucky experience cancer death and diagnosis at a greater proportion than their urban counterparts[2]. Until recently, there has not been an evidence-based approach to secondary prevention of lung cancer.

Since 2013, the United States Preventive Task Force Services (USPTFS) recommends screening eligible patients for lung cancer through low-dose computed tomography (LDCT)[4].

As we know from currently recommended cancer screenings, early diagnosis improves prognosis and delays mortality due to a cancer diagnosis. Meta-analyses have shown that screening for lung cancer with low-dose CT can result in an increase in the detection of lung cancer at an earlier stage leading to higher treatment success and survival rates[5]. With this in mind, it is imperative to connect and navigate eligible, high risk patients to LDCT screenings to check for lung cancer. Local screening rates are unknown, however Kentucky is part of a larger Southern region with only 1.7% screening among eligible patients[6,7].
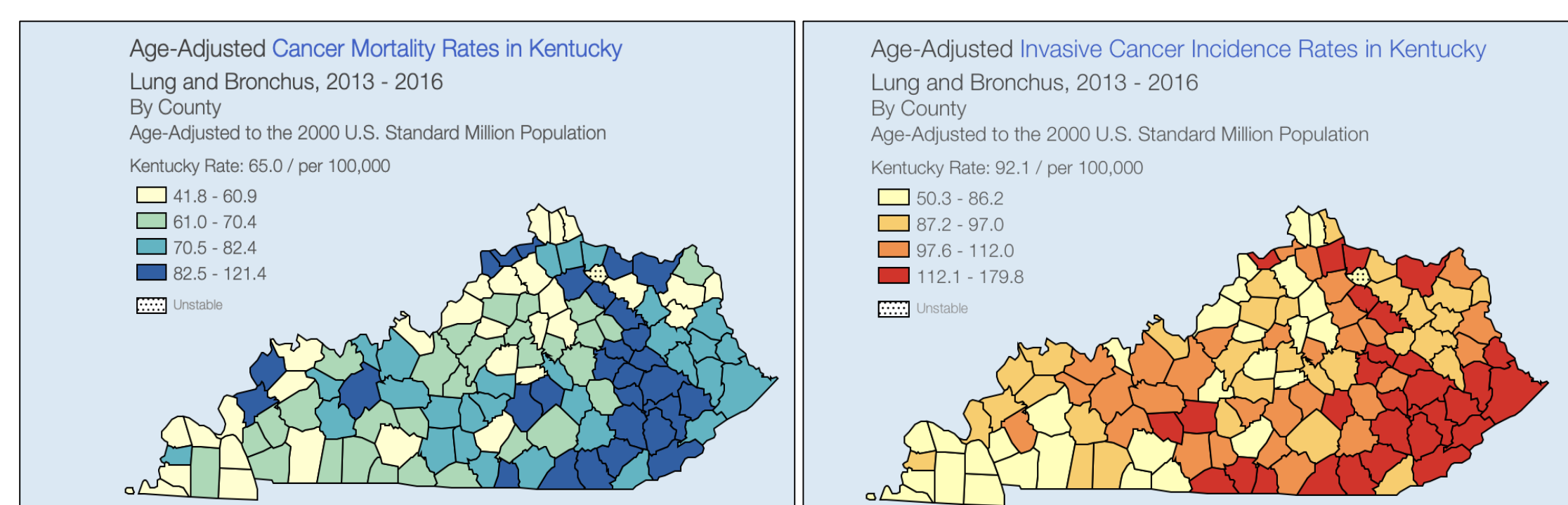

Figure 1 and 2. Kentucky map highlighting lung and bronchus cancer incidence (red) and mortality (blue) by county[2].

OBJECTIVES

- Illustrate the lung cancer landscape of Eastern Kentucky and prioritize specific communities based on lung cancer incidence and mortality
- Identify gaps in the literature surrounding county-level screening rates and potential barriers to obtaining a lung cancer screening (LCS)
- Propose methods in which to assess patients lung cancer screening status, LCS eligibility, knowledge, attitudes, and behaviors surrounding lung cancer, in addition to deterministic and fatalistic beliefs.
- Propose primary care clinics as an ideal setting in which to screen patients for lung cancer and identify potential barriers

METHODS

Table 1. Survey Items by Construct and Rationale for Inclusion

Construct	# of Items	Item	Inclusion Rationale
Demographics	2	"County of Residence" "Age"	County of residence – allows researchers to understand where participants live and receive care Age – aids in determining LCS eligibility
LCS Eligibility	5	"Have you smoked at least 100 cigarettes in your entire life?" "Do you smoke cigarettes every day, some days, or not at all?" "At what age did you start smoking tobacco cigarettes?" "On average, when you smoke/smoked regularly, about how many tobacco cigarettes do/did you usually smoke each day?" "How old were when you smoked your last cigarette?"	Eligibility assessed through validated HINTS measures to assess LCS eligibility as defined by the USPSTF
LCS History	3	"At any time in the past year, have you talked with your doctor or other health professional about having a test to check for lung cancer?" "At any time in the past year, have you talked with your doctor or other health professional about having a test to check for lung cancer?" "How many low-dose CT scans to check or screen for lung cancer have you in the last 3 years?"	Assess LCS screening history of study group
Fatalism and Determinism	4	"To what extent do you agree or disagree with the following statements: - There's not much you can do to lower your chances of getting lung cancer. - There are so many different recommendations about preventing lung cancer that it's hard to know which ones to follow - There are ways to slow down or disrupt the development of lung cancer - It seems like everything causes lung cancer"	These constructs play a large role in health decision-making. Higher fatalism and determinism scores are associated with a lower likelihood of engagement in cancer prevention. Inclusion allows a comparison of local to national HINTS data
Knowledge, Attitudes, & Behaviors	13	"To what extent do you agree or disagree with the following statements: - I think smoking causes cancer - I think low-dose CT scans are unsafe - My fear of hospitals and/or CT scanners prevent me from getting screened - I believe treatment is more of suffering than the disease itself "At what age do you think most people start having lung cancer screenings?" "How often do you worry about getting lung cancer?" "Overall, how many people who develop lung cancer do you think are cured?" "Have you delayed care in the past months due to... - Cost - Treatment - Transportation - Did not delay care - Other, please explain..." "In thinking about accessing health care what barriers or obstacles have you, your family, or friends face? (open-ended)" "To what extent do you agree or disagree with the following statements: - Lung cancer develops over a period of several years - Lung cancer is most often caused by a person's behavior lifestyle - You are reluctant to get checked for lung cancer because you fear you may have it - People with lung cancer would have pain or other symptoms prior to being diagnosed"	Knowledge, attitudes, and beliefs greatly impact health decision-making. These items have been shown to adequately assess the desired constructs while evaluating possible screening barriers. Inclusion allows a comparison of local to national HINTS data

Figure 3. Proposed survey tools

We propose issuing a paper survey to patients at primary care settings in three priority counties in Eastern Kentucky. Priority counties were selected based on lung cancer incidence and mortality and current smoking rates. Validated study measures were replicated using The National Cancer Institute's Health Information National Trends Survey (HINTS)[8-9], The Behavioral Risk Factor Surveillance Survey (BRFSS)[11], and patient barriers to screening as identified by smokers eligible for screening.

HYPOTHESIZED RESULTS AND DISCUSSION

The results of our literature review revealed high levels of fatalism and determinism within Appalachian Communities. Evaluating the knowledge, attitudes and beliefs of this patient cohort will reveal potential barriers that existing to obtaining LDCT to screen for lung cancer. We compare hypothesized results to national HINTS data to illuminate the possibility of similarities and variances between national and community level data[8-10].

Question Asked	National HINTS Respondents[8,9]	Appalachian Respondents
Everything causes cancer	69.3%	⬆ or equal
There's not much one can do to lower their chances of developing cancer	29.6%	⬆
Perceive that there are too many different recommendations about preventing cancer	72.1%	⬆ or equal
Talked with health care provider about LDCT in past year	10%	⬇

CONCLUSION

Lung cancer remains the leading cause of cancer-related mortality in the United States, affecting Eastern Kentucky communities at a disproportionate rate. Effective lung cancer screening utilizing LDCT has the capacity to prevent over 12,000 premature lung cancer deaths annually though has been heavily underutilized in high-risk areas such as Eastern Kentucky.

- We have identified the need for county-level screening data which is not currently available at this time.
- We find it equally important to identify barriers that patients face to completing lung cancer screenings. These barriers may vary greatly and must be assessed on an individual level.
- We have proposed the administration of a paper-based survey study within local primary care clinics to assess the knowledge, attitudes, beliefs, and behaviors surrounding lung cancer and screening.
- Primary care providers are vital in managing patient's preventive care and are the key to making referrals leading to life-saving screenings such as mammography, colonoscopies, and LDCT to check for lung cancer.

This proposal lays the groundwork for future research and it is our study team's vision that the work be carried out within the most high-risk communities in Kentucky. While we have hypothesized results of our study based on surrounding literature, these informed guesses must not take the place of obtaining primary data from community members. This proposal is a framework from which we hope future researchers work. It is the first step to creating targeted and tailored interventions that benefit the Eastern Kentucky communities most at risk of losing loved ones due to a late diagnosis of lung cancer.

CITATIONS

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