

Use of Radon Risk Messaging with High Lung Cancer Risk Individuals in the Primary Care Setting

Stacy Stanifer, PhD, APRN, AOCNS, Amanda Thaxton-Wiggins PhD, Whitney Beckett,

Kathy Rademacher BA, Ellen J Hahn, PhD, RN, FAAN

University of Kentucky, BREATHE

College of Nursing



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Bridging Research Efforts and Advocacy Toward Healthy Environments

- **Vision:** All people will have access to clean air and live in healthy environments.
- **Mission:** To promote lung health and healthy environments to achieve health equity through:
 - a) research
 - b) community outreach and empowerment
 - c) advocacy and policy development
 - d) access to health services



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Purpose

- To examine the association of beliefs and self-efficacy related to tobacco and radon exposure with tobacco and radon risk reduction practices among primary care providers in Kentucky.

Lung Cancer and Kentucky

- **Lead the nation in new cases of lung cancer**
 - 2023: ~5,170 new cases
- **Tobacco Use**
 - 21% of adults
- **Radon**
 - 93% of KY Counties have moderate-to-high radon risk potential
 - 37% of tests ≥ 4.0 pCi/L
- **Ranked #4 in lung cancer screening**
 - 13% of high-risk population is being screened

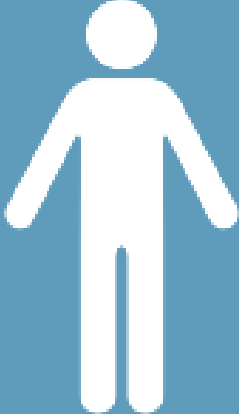



Source: ACS; EPA; 2022 American Lung Association State of Lung Cancer

Lung Cancer Screening in High-Risk Individuals

LUNG CANCER SCREENING CRITERIA
Our patients must be:

50-80
years old





 **CURRENTLY** smoke

or

QUIT
in the last
15 YEARS

Have at least a
20-PACK-YEAR
smoking history

 X  = **20**
pack-year history

1 pack per day 20 years
Or 1/2 pack a day 40 years

Lung Cancer Screening Shared Decision-Making

- **Involves a discussion of:**
 - Potential benefits
 - Limitations
 - Harms
 - Necessity for annual screening
 - All persons who currently smoke should receive smoking cessation interventions concurrent with referral



Evaluating Radon and Tobacco Smoke Co-Exposure Risk Messaging with Patients at High-Risk for Lung Cancer During the Primary Care Visit

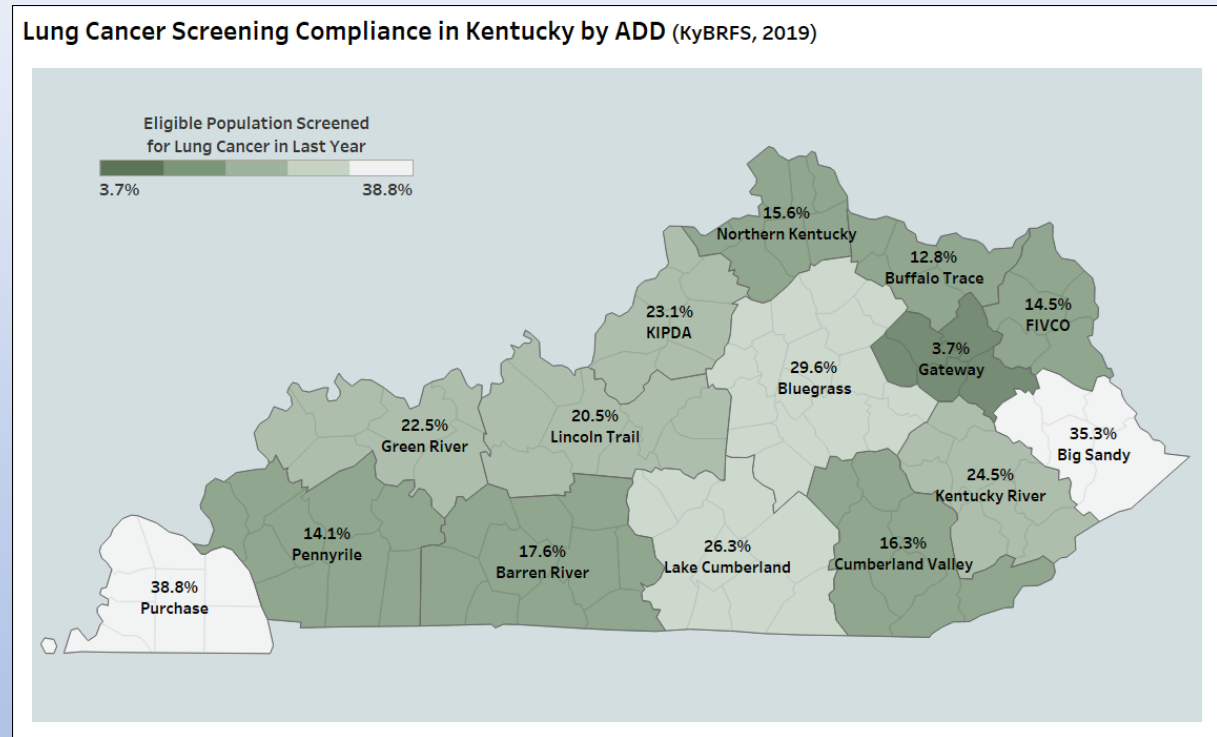


Hypothesis

We hypothesized that providers with higher scores on beliefs and self-efficacy and personal history of home radon testing will use more proactive tobacco and radon risk messaging when counseling high-risk patients during lung cancer screening shared-decision making (LCS-SDM).

Study Design & Sample

- Cross-sectional, observational study
- Obtained provider lists from KBML and KBN
- Stratified random sampling by Area Development District of 1,000 PCPs (APRN, MD, DO)



Measures and Analysis

- Mailed self-report survey
 - **LCS-SDM practice:** frequency of SDM, 5-point Likert; 6 items assessing tobacco and radon risk messaging during SDM, 5-point Likert
 - Radon LCS-SDM was dichotomized as ever/never
 - **Radon beliefs:** 9 statements, 5-point Likert
 - **Self-efficacy:** ability, resources, ease of counseling patients on (1) tobacco cessation, (2) radon testing, and (3) radon mitigation, 5-point Likert
 - **Personal history of home radon testing:** yes/no
 - **Demographics:** gender, years in practice, licensure type and practice setting
- Data Analysis
 - Descriptive stats
 - Multilevel linear regression modeling examining the association among beliefs, self-efficacy and practices related to tobacco and radon risk messaging
 - Generalized estimating equations modeled associations with radon LCS-SDM
 - SAS, version 9.4

Results

Table 1. Descriptive Summary of Study Variables (N=149)

	Mean (SD) or n (%)
Age	49.3 (12.5)
Gender	
Male	27 (18.1%)
Female	122 (81.9%)
Practice years	
<10	63 (42.9%)
10-19	28 (19.0%)
20-29	34 (23.1%)
30+	22 (15.0%)
Licensure	
APRN	116 (78.4%)
MD/DO	32 (21.6%)
Practice setting	
Primary care	26 (19.3%)
Family medicine	39 (28.9%)
Internal medicine	16 (11.8%)
Other	54 (40.0%)
County-level radon risk potential	6.5 (2.7)
Personal home radon testing, yes	59 (39.6%)
Beliefs about radon, (potential range 9-45)	24.1 (5.0)
Self-efficacy, (potential ranges 0-12)	
Smoking cessation	7.5 (2.7)
Radon testing	3.7 (2.8)
Radon mitigation	3.4 (2.7)
LCS-SDM	
Tobacco (potential range 0-8)	4.9 (2.7)
Radon (potential range 0-16)	1.5 (2.8)

Results

Table 2. Frequency of tobacco and radon risk reduction messaging during LCS-SDM (N = 149)

	<i>Mean (SD)</i>
Discussed the dangers of smoking with patients	2.38 (1.43)
Discussed the dangers of radon with patients	0.39 (0.73)
Discussed the dangers associated with combined exposure to tobacco and radon	0.43 (0.86)
Counseled patients on quitting smoking as appropriate	2.49 (1.39)
Recommended home radon testing	0.33 (0.70)
Recommended radon mitigation to those with high radon levels	0.34 (0.88)

Note. Response options range from 0) Never to 4) Always. Only 29% of providers reporting ever using radon risk messaging during LCS-SDM

Results

Table 3. Multilevel modeling association among demographics, beliefs, self-efficacy and tobacco and radon risk reduction messaging during LCS-SDM (n = 121)

Regressor	Tobacco		Radon	
	Est. <i>b</i> (SE)	<i>p</i>	Est. OR (95% CI)	<i>p</i>
Male gender	-0.18 (0.55)		0.45 (0.08 – 2.54)	.37
Practice years	0.10 (0.21)		1.10 (0.57 – 2.12)	.79
APRN license (ref: MD/DO)	-0.48 (0.66)		0.26 (0.03 – 2.25)	.23
Practice setting				
Primary care (ref)			1.00	
Family medicine	0.42 (0.55)	.45	0.24 (0.04 – 1.41)	.12
Internal medicine	-0.04 (0.70)	.96	0.31 (0.03 – 3.08)	.32
Other	-1.01 (0.53)	.06	0.19 (0.03 – 1.10)	.07
County-level radon risk potential			1.13 (0.84 – 1.51)	.42
Personal home radon testing			4.29 (0.94 – 19.61)	.06
Beliefs about radon			1.10 (0.98 – 1.25)	.12
Self-efficacy				
Smoking cessation	0.47 (0.07)	<.001		
Radon testing			1.14 (0.60 – 2.18)	.69
Radon mitigation			1.36 (0.70 – 2.65)	.36

Discussion

- Screening does not prevent most lung cancer deaths; thus, *prevention* remains essential
- In general, radon testing & mitigation are not being discussed with individuals at high-risk for lung cancer
- Provider tobacco cessation counseling self-efficacy was associated with greater frequency of tobacco risk-messaging during LCS-SDM
 - Greater self-efficacy in counseling on smoking cessation than radon testing & mitigation
 - Not all providers report smoking cessation counseling with each visit
- Low radon testing and mitigation self-efficacy scores indicate providers may benefit from radon education

Conclusion

- Co-exposure to tobacco and radon increases the risk of lung cancer
- Radon exposure is a preventable risk factor and needs to be addressed during the healthcare visit
- Effective synergistic risk messaging is needed
- Increasing provider self-efficacy in radon testing/mitigation may improve radon risk messaging during LCS-SDM



Questions?

Stacy R. Stanifer, PhD, APRN, AOCNS
Assistant Professor
University of Kentucky College of Nursing

stacy.stanifer@uky.edu

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