

# Evaluation of a Pilot Radon Detector Lending Program In Four Rural Public Libraries

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# Disclosures

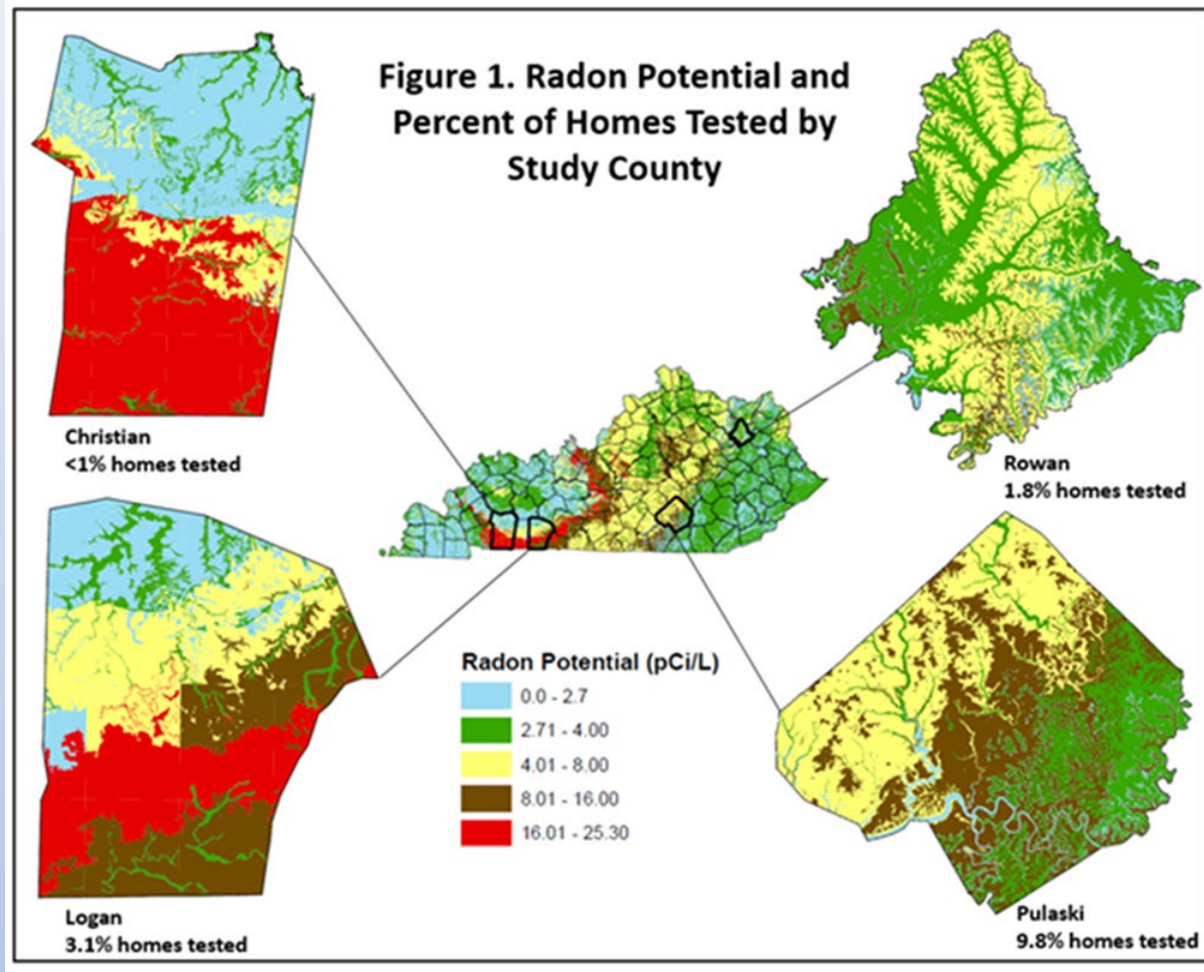
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- The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIEHS or the Kentucky Radon Program.

# Radon on the RADAR

Goal: To increase access to radon testing and affordable radon mitigation in rural communities using geohealth methodology applying a citizen science approach

- Aim 1: Recruit, train 60 individuals across four counties as citizen scientists
- Aim 2: Use citizen scientist to collect data on home radon levels
- **Aim 3: Pilot a library loan program for electronic radon detectors**
- Aim 4: Full launch of library loan program
- Aim 5: Develop coalitions in each county to sustain efforts of radon awareness, testing, and mitigation

# Radon Detector Kit Lending Program



# Overview: Library Lending Program

- 25 kits per library
- Available to community members:
  - Age 18+
  - Valid library card
- No charge for kit
- Invited to participate in optional research study
- 15-17 month pilot phase
- Paid and unpaid marketing inside and outside of libraries

# Developing the Library Lending Program

- Planning meetings with academic partners, library staff, and citizen-scientists
- Creating kit contents
- Generating handouts and videos for the public
- Crafting trainings for library staff
- Developing promotional materials to reach communities





# Pilot Study Findings

Stanifer, S., Beckett, W., Rademacher, K., Simpson, K., Rayens, MK, Thaxton-Wiggins, A., Hahn, E.J.  
*Public library lending programs increase radon testing in rural communities (pending review).*

# Check Outs and Study Participation

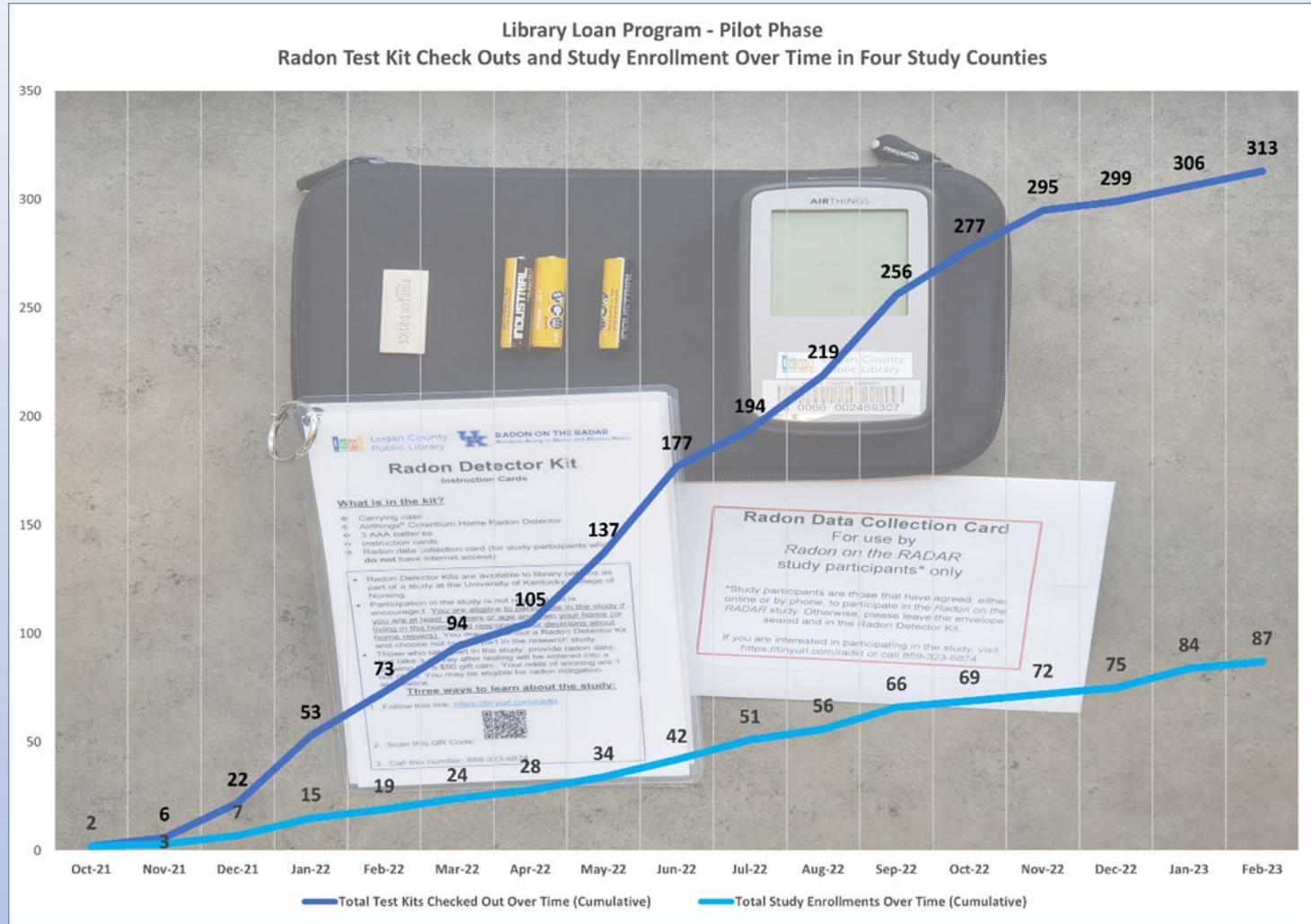




Table 1. Library loan participant sociodemographic characteristics by those who completed the post-testing survey and those who did not

	Total sample Mean (SD) or n (%)	Completers Mean (SD) or n (%)	Non-completers Mean (SD) or n (%)	p
Age	58.1 (15.4)	<b>59.9 (15.4)</b>	<b>50.6 (13.7)</b>	<b>.025<sup>a</sup></b>
Sex				
Male	25 (29.4%)	19 (27.9%)	6 (35.3%)	.65 <sup>b</sup>
Female	59 (69.4%)	48 (70.6%)	11 (64.7%)	
Other	1 (1.2%)	1 (1.5%)	0 (0.0%)	
Race/ethnicity				
White, non-Hispanic	83 (97.65%)	<b>68 (100.0%)</b>	<b>15 (88.2%)</b>	<b>.038<sup>b</sup></b>
Black, non-Hispanic	2 (2.35%)	<b>0 (0.0%)</b>	<b>2 (11.8%)</b>	
Education				
High school or below	7 (8.2%)	6 (8.8%)	1 (5.9%)	.96 <sup>c</sup>
Some college	22 (25.9%)	16 (23.5%)	6 (35.3%)	
College graduate	26 (30.6%)	23 (33.8%)	3 (17.6%)	
Post-graduate	30 (35.3%)	23 (33.8%)	7 (41.2%)	
Household income				
<\$29,999	18 (22.0%)	17 (26.1%)	1 (5.9%)	.055 <sup>c</sup>
\$30,000 - \$59,999	19 (23.2%)	15 (23.1%)	4 (23.5%)	
\$60,000 - \$89,999	20 (24.4%)	16 (24.6%)	4 (23.5%)	
\$90,000 - \$119,999	12 (14.6%)	8 (12.3%)	4 (23.5%)	
\$120,000 or higher	13 (15.8%)	9 (13.9%)	4 (23.5%)	

Note: N = 86. Numbers vary due to missing data on individual items; completers (n=68) and non-completers (n = 18). <sup>a</sup> P-value from two-sample t-test. <sup>b</sup> P-value from Fisher's exact test. <sup>c</sup> P-value from Mann-Whitney U test.

Table 2. Library loan participant housing characteristics, tobacco & radon exposure by those who completed the post-testing survey and those who did not

	Total sample Mean (SD) or n (%)	Completers Mean (SD) or n (%)	Non-completers Mean (SD) or n (%)	p
Tobacco use in home				
Yes	8 (9.3%)	8 (11.8%)	0 (0.0%)	.20 <sup>b</sup>
No	78 (90.7%)	60 (88.2%)	18 (100.00%)	
Children living in the home				
Yes	24 (28.6%)	16 (23.9%)	8 (47.1%)	.075 <sup>b</sup>
No	60 (71.4%)	51 (76.1%)	9 (52.9%)	
Housing type				
Single family home	83 (96.5%)	67 (98.5%)	16 (88.9%)	.11 <sup>b</sup>
Mobile home	3 (3.5%)	1 (1.5%)	2 (11.1%)	
Years living in current home	15.7 (15.1)	16.4 (14.1)	13.2 (18.4)	.43 <sup>a</sup>
Ever tested your home for radon				
Yes	16 (18.6%)	13 (19.1%)	3 (16.7%)	.81 <sup>d</sup>
No	70 (81.4%)	55 (80.9%)	15 (83.3%)	
Long-term radon test results $\geq 4\text{pCi/L}$				
Yes	30 (40.0%)	29 (42.7%)	1 (14.3%)	.23 <sup>b</sup>
No	45 (60.0%)	39 (57.3%)	6 (85.7%)	

Note: N = 86. Numbers vary due to missing data on individual items; completers (n=68) and non-completers (n = 18). <sup>a</sup> P-value from two-sample t-test. <sup>b</sup> P-value from Fisher's exact test. <sup>d</sup> P-value from Chi-square test of association.

Table 3. Library loan participants' views of usability, feasibility, acceptability, and likelihood to mitigate

	Potential range	Mean (SD); range or n (%)
<b>Usability</b>		
Number of materials reviewed (instructions, training video, Radon Action Plan, educational resources)	0-4	3.33 (0.75); 1-4
Device worked as expected	1-5	4.65 (0.51); 3-5
<b>Feasibility</b>		
Ease of understanding materials	1-5	4.59 (0.52); 3-5
Entering radon data each day was easy	1-4	3.89 (0.31); 3-4
<b>Acceptability</b>		
Helpfulness of materials	1-5	4.56 (0.48); 3-5
Likely to recommend the Library Loan Program (n = 47 <sup>a</sup> )	1-4	3.87 (0.49); 1-4
<b>Likelihood to mitigate</b>		
Likely to hire mitigation professional (n = 36 <sup>b</sup> )	1-4	3.34 (0.94); 1-4
Financial help assist in mitigation system installation (n = 36 <sup>b</sup> )	1-4	3.63 (0.78); 1-4

Note: (n = 68); <sup>a</sup> Based on n = 47 (question added after start of study); <sup>b</sup> Based on n = 36 (only those who reported at least one daily or a long-term radon number  $\geq 4.0\text{pCi/L}$ )

# What study participants said....

“I appreciate this program was available to me without cost.”

“.... I would have never thought to test my home if this service had not been provided.”

“...I live in an old home with a dirt dug out crawl space/basement. I wanted to test for radon since learning about it but hadn't got around to...purchasing a tester. I'm happy to know my levels are within acceptable range.”

“.... My wife was worried about radon and this was a great free service.”

“I appreciate this excellent resource from my local library and the UK BREATHE program...!”

“The --- Library was most helpful in making sure it's okay before you leave with it and check it thoroughly when returning it. They were simply wonderful!”

# Future of the Library Loan Program

- Full launch underway
  - In-library programming and promotions
- Additional marketing to promote the program
  - Radio and direct mail highly effective
- Community-led coalitions to promote the library lending program, radon mitigation, and general awareness of radon
  - Build into existing coalition (e.g., Logan County Health Coalition) or new group
  - Library staff
  - Partner organizations (health departments, family resource staff, etc.)
  - Citizen scientists



# Questions?

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