

Radon Community Knowledge Assessment in Eau Claire County, WI



The Power of **AND**

University of Wisconsin
Eau Claire

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INTRODUCTION

- Radon is a naturally occurring, odorless, colorless, tasteless, and radioactive gas; product of decomposing Uranium (1)
- Second leading cause of lung cancer in USA (1)
- US Environmental Protection Agency radon level guideline: 4 pCi/L in homes (1)
- Radon found in 5-10% of Wisconsin homes above 4 pCi/L (2)
- 24-41% of homes in Eau Claire County, WI test above 4 pCi/L (Fig. 1) (2)
- Eau Claire City-County Health Department (ECCCHD) funded in 2014 to promote radon awareness in Eau Claire County through an education campaign
- ECCCHD partnered with University of Wisconsin – Eau Claire (UWEC) Environmental Public Health faculty and students to assess the education campaign's impact on community awareness of radon



Fig. 1. Radon contamination frequency in Wisconsin homes (3)

OBJECTIVES

- Explore effectiveness of the ECCCHD radon education campaign by assessing knowledge level change of Eau Claire County residents
- Identify successful radon education outreach methods
- Identify populations with low radon awareness and knowledge levels to target in future education campaigns
 - Older vs. younger adults?
 - Homeowners vs. non-homeowners?

METHODS

- Identical pre- and post-surveys assessing radon awareness among Eau Claire County residents administered January 2015 and May 2015
 - Survey development based on previous study of radon awareness in rural Canada (3)
- ECCCHD education campaign began after pre-survey and ended before post-survey
 - Campaign materials: billboards, social media websites, newspapers, and announced on local radio
- Surveys distributed at local college sporting events and elementary schools, and to UWEC faculty, staff and students online
 - Survey approved by UWEC Institutional Review Board for human subject use in fall, 2014
 - Participants excluded if not Eau Claire County resident
- Notable survey content: age, home ownership status, level of knowledge about radon, source of knowledge about radon
- Likert scale of 1-10 used: 1 = no knowledge and 10 = most knowledge
- "Young" defined as 18-35 yrs and "old" from 36+ yrs
- STATA statistical software used for data analysis (unpaired t-test)

STUDY POPULATION

- 470/599 survey responses used (non-county residents excluded)

Table 1: Study population by survey and age group

	Survey 1	Survey 2	TOTAL
Young Participants	48	72	120
Old Participants	133	217	350
TOTAL	181	289	470

RESULTS

How participants heard about radon before and after the education campaign

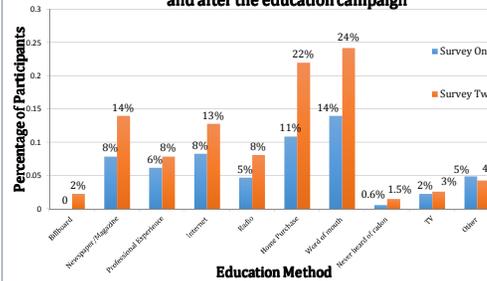


Fig. 2: The graph illustrates how participants became informed about radon before (blue bars) and after (orange bars) the education campaign. There was no statistically significant difference in likert scale responses between survey 1 and 2 when participants were asked "On a scale from 1 to 10, how much do you know about radon?" (knowledge level was reported by participants on a likert scale; 1 = no knowledge and 10 = most knowledge)

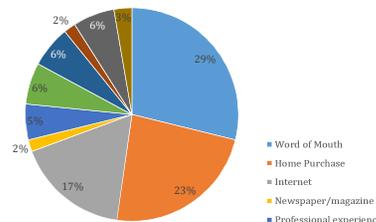


Fig. 3: Young Participant Source of Knowledge

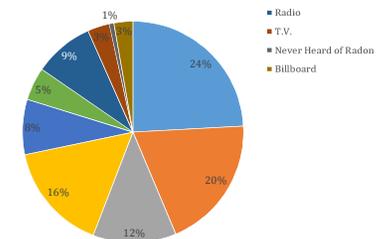


Fig. 4: Old Participant Source of Knowledge

Figs. 3 and 4: Both old and young participants reported the top two sources of their radon knowledge were through word of mouth and purchasing a home. The third highest source reported by young and old participants were the internet and newspaper/magazines, respectively (post-campaign survey results only).

Table 2: Comparing likert scale responses, old participants reported higher average knowledge levels of radon than young participants on both surveys (Both P-values < 0.05).

	Average reported knowledge level by age group	
	Survey One	Survey Two
Young Participants	4.2	3.2
Old Participants	5.0	5.3
P-value (95% confidence)	0.036	0.000

Table 3: Comparing likert scale responses, homeowners reported higher average knowledge levels of radon than non-homeowners on both surveys (Both P-values < 0.05).

	Average reported knowledge level by homeowner status	
	Survey One	Survey Two
Homeowners	5.0	5.3
Non-homeowners	4.0	3.1
P-value (95% confidence)	0.021	0.000

DISCUSSION

- Although no significant difference was apparent between overall reported knowledge before and after the campaign, Figure 2 illustrates some ECCCHD education materials did appear to reach the target audience (ex. 6% increase in outreach by newspaper/magazine)
- Eau Claire County residents appear to learn about radon most often through word of mouth and by home purchase (Fig 2).
 - The internet may also be a useful tool for targeting younger adults, and newspaper/magazines for older adults (Figs. 3 and 4)
 - Other sources mentioned from participants: bus advertisement, health department issuing free test kits, on the nightly news
- Younger participants reported having significantly less knowledge about radon than older participants (Table 2).
 - Internet education materials, like a smart phone app or use of social media, should be developed to target younger generations in future campaigns (Figs. 3 and 4)
- Homeowners likely report knowing more about radon because radon testing is mandatory for most home sales in Wisconsin (4).
 - Both age groups reported learning about radon most often through a home purchase
 - Future campaigns should focus on creating education materials for realtors that appeal to both age groups

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REFERENCES

- US Environmental Protection Agency. Health Risk of Radon. Retrieved April 12, 2016, from <https://www.epa.gov/radon/health-risk-radon>
- Wisconsin Department of Health Services. Radon Information for Wisconsin. Retrieved April 18, 2016, from <http://www.dhs.wisconsin.gov/radon/index.htm>
- Abramson, Z., Barkanova, S., & Redden, A.M. (2014). Concerning knowledge: Assessing radon knowledge and concern in rural Nova Scotia. *The Journal of Rural and Community Development*, 9(2), 103-111.
- Pickie, B. Selling a Wisconsin Home: What Are My Disclosure Obligations? Retrieved April 5, 2016, from <http://www.nolo.com/legal-encyclopdia/wisconsin-home-sellers-disclosure-required-under-state-law.htm>
- Wisconsin Department of Health Services. Radon Information for Wisconsin. Retrieved April 18, 2016, from <http://www.dhs.wisconsin.gov/radon/index.htm>