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Analysis of Radon Awareness and Disclosure Policy in Kentucky: Applying Kingdon's Multiple Streams Framework

Stacy R. Stanifer, PhD, APRN, AOCNS¹, Ellen J. Hahn, PhD, RN, FAAN¹

¹University of Kentucky, College of Nursing, Lexington, KY, USA

Abstract

The purpose of this article is to analyze radon awareness and disclosure policy proposed during the 2018 Kentucky General Assembly using Kingdon's Multiple Stream Framework. Radon gas is the second leading cause of lung cancer. Exposure to radon occurs largely in the home. The proportion of homeowners who have completed radon testing remains low, and home radon testing is voluntary in most states. The Environmental Law Institute recommends states enact policies to promote radon awareness and testing. The most common radon awareness policy mandates radon disclosure during a real estate transaction. A bill to mandate radon disclosure during a real estate transaction was proposed during the 2018 Kentucky General Assembly but was met with opposition and was not filed. As a policy alternative, an administrative regulation to amend the *Form for Seller's Disclosure of Conditions* was proposed to the Kentucky Real Estate Commission. Administrative regulations set forth by government regulatory agencies are equally enforceable and may be a more politically feasible alternative to enacting public policy. Nurses are positioned to promote the health of patients and populations. Nurses advocating for radon control legislation and/or administrative regulations may push radon control policy higher on the governmental decision agenda leading to policy change to decrease the development of lung cancer.

Keywords

radon; disclosure; public policy; lung cancer; Kentucky; government

Exposure to radon gas is the second leading cause of lung cancer in the United States; yet radon-induced lung cancer remains highly preventable (American Cancer Society, 2018; United States Environmental Protection Agency, 2018). Radon is a naturally occurring, radioactive gas produced from the decay of radium-226, which is commonly found in soil and rocks. When radon is inhaled, radioactive particles deposit in the lung where cells are then irradiated, increasing the risk for lung cancer. Furthermore, synergism exists between radon gas and tobacco smoke, with more radon-induced lung cancers occurring in those with a history of tobacco smoke exposure (United States Environmental Protection Agency, 2018). For example, if 1,000 smokers were exposed to 4 picocuries per liter (pCi/L) of radon

Corresponding Author: Stacy R. Stanifer, University of Kentucky, 751 Rose Street, Lexington, KY 40536, USA. srecke0@uky.edu.

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over a lifetime, 62 would develop lung cancer compared to approximately 7 nonsmokers exposed to the same level over a lifetime (United States Environmental Protection Agency, 2016).

Radon gas is present in both outdoor and indoor air. In the United States, the average outdoor concentration of radon is 0.4 pCi/L. Indoors, the concentration of radon is known to vary widely with the average concentration being 1.3 pCi/L (United States Environmental Protection Agency, 2016). Although radon can enter any type of building, exposure to radon occurs largely in the home, where individuals spend most of their time. In January 2005, the U.S. Surgeon General issued a national health advisory warning about the dangers associated with breathing indoor radon. Although there is no safe level of radon exposure, the advisory encouraged all Americans to test indoor radon levels in their home and mitigate when the radon level is 4 pCi/L or higher (United States Department of Health and Human Services, Office of the Surgeon General, 2005; United States Environmental Protection Agency, 2016). The Environmental Protection Agency (EPA) estimates that 1 in every 15 homes nationwide has a radon level above 4 pCi/L, and despite the warning from the U.S. Surgeon General, radon testing and mitigation in the United States remains largely voluntary.

Testing one's home for radon is necessary to determine one's exposure risk. Despite public awareness of radon, the proportion of people who have completed home radon testing remains low. For example, in a study of New York state residents ($N = 1,209$), Wang et al. (2000) found that despite 82% of respondents having heard of radon, only 15% had tested their home for the gas. Furthermore, 71% of those who had heard of radon said that they would definitely not or probably not test their home for radon within the following six months. To overcome the lack of radon testing, many states have begun enacting radon control policies which aim to increase public awareness, testing, and mitigation.

During the 2018 Kentucky General Assembly, lung health advocates lobbied and advocated for a radon awareness and disclosure bill. The bill would provide homebuyers with basic self-protective information about the risks of radon and mandate a general warning statement about the dangers of radon exposure be added to the Kentucky *Form for Seller's Disclosure of Conditions*. The Form would also include an enhanced disclosure in which the seller must clearly communicate current radon testing and mitigation records and reports, and information regarding any radon mitigation system installed in the home (American Lung Association, 2018a). The proposed bill was met with opposition and the bill's sponsor subsequently did not file, or introduce, the bill in the Senate chamber, thereby halting the proposed bill from becoming law during the regular session of the 2018 Kentucky General Assembly. Because Kentucky leads the nation in incidence and mortality from lung cancer (American Cancer Society, 2018), policies aimed at reducing radon-related lung cancer deaths in the state of Kentucky are critically needed. The purpose of this article is to analyze radon awareness and disclosure policy during the 2018 Kentucky General Assembly using Kingdon's Multiple Stream Framework (Kingdon, 2011).

Background

As of December 2019, there is no federal policy requiring home radon testing. In 1988, the Indoor Radon Abatement Act was enacted, which authorized the EPA as the federal agency responsible for oversight of studies, standards, programs, and technical and financial assistance to states with regard to radon (Environmental Law Institute, 2012; United States Environmental Protection Agency, 1988). Since then, the Environmental Law Institute (ELI) has developed various policy initiatives for state legislators, program officials, policy makers, and regulators to consider when developing or revising radon laws and programs, with the intent of protecting the public from indoor radon (Environmental Law Institute, 1993). The ELI is a nongovernmental research and education organization located in Washington, District of Columbia. The organization aims to strengthen environmental protection by providing insightful and impartial analysis of environmental issues, leading to improvement in laws and governance worldwide (Environmental Law Institute, n.d.). As of December 2017, 40 states and the District of Columbia had policies addressing radon control (Environmental Law Institute, 2018).

The most common public policy strategy employed by states involves the disclosure of, or making known, home radon levels to buyers during the sale of a home (Environmental Law Institute, 2012). Although no state or federal policies mandate radon testing during the sale of a home, many states require specific disclosure of home radon levels on a *Seller's Disclosure of Conditions Form* to buyers when the seller is aware of previous radon testing and the radon value is known to the seller (Environmental Law Institute, 2012). However, this type of disclosure, in which issues can be marked “no” or “not applicable” may not raise buyer’s awareness to the possibility of radon being present in the home. As a result, buyers may believe that the absence of radon information on a disclosure form means there is not a radon problem in the home (Bernstein, 2018). In addition, the Environmental Law Institute (2012) suggests that even buyers who carefully review a *Seller's Disclosure of Conditions Form* may not consider addressing the possibility of radon in the home during real estate transactions if they are not knowledgeable of the health effects of radon and the need for testing to determine the radon level.

In addition to specific disclosure of radon levels, some states mandate the disclosure of general radon information to buyers during a real estate transaction. As a means of educating buyers on the dangers of radon exposure, the ELI suggests the provision of a short warning statement about radon or other radon information be disclosed to buyers (Environmental Law Institute, 2018). For example, Florida law mandates the following general statement on at least one document, form, or application at the time of, or prior to, contract for sale and purchase of a home:

RADON GAS: Radon is a naturally occurring radioactive gas that, when it has accumulated in a building in sufficient quantities, may present health risks to persons who are exposed to it over time. Levels of radon that exceed federal and state guidelines have been found in buildings in Florida. Additional information regarding radon and radon testing may be obtained from your county health department. (Florida Statutes ch. 404 § 56, 2019)

As another example, the state of Illinois mandates distribution of the Illinois Emergency Management Agency's (IEMA; 2007) "Radon Testing Guidelines for Real Estate Transactions" (or equivalent pamphlet approved for use by IEMA) to any potential buyer before he or she is obligated under any contract to purchase the property (Illinois Compiled Statutes, 2008). The trifold IEMA "Radon Testing Guidelines for Real Estate Transactions" pamphlet strongly recommends all home buyers test for indoor radon prior to purchase or taking occupancy of a home (IEMA, 2007). The brochure outlines radon testing and mitigation, and the buyer must sign an acknowledgment of the receipt of both disclosure information and the IEMA pamphlet. Furthermore, the real estate agent must acknowledge that they have informed the seller of their obligations under this law.

In Kentucky, KRS 324.360 *Form for Seller's Disclosure of Conditions* allows for the Kentucky Real Estate Commission (KREC) to promulgate an administrative regulation authorizing a "seller's disclosure of conditions form" (Kentucky Regulatory Statutes, 2000). The form requires the seller to disclose various matters related to the overall condition of the home, including "matters the commission deems appropriate." The KREC is an agency of the Commonwealth of Kentucky and is in place to protect public interests through regulation, examination, and licensing of Kentucky real estate agents and brokers (Commonwealth of Kentucky: Kentucky Real Estate Commission, 2018). Members of the KREC are appointed by the Governor. The KREC developed *Form for Seller's Disclosure of Conditions* asks the seller to respond to this question: "Are you aware of any testing for radon gas?" ("N/A," "Yes," "No," "Unknown"). If the seller marks "yes," they are asked to provide the results (Kentucky Real Estate Commission, 2016). Thus, the buyer is only made aware of the presence of radon in the home if the seller is knowledgeable of past radon testing on the property. Furthermore, the *Form for Seller's Disclosure of Conditions* does not address disclosure of a radon mitigation system on the property, nor is it mandated that the buyer or seller be provided with any type of general radon information during real estate transactions.

Kingdon's Multiple Stream Framework

Kingdon's Multiple Streams Framework was developed as a way to analyze government agenda setting. Kingdon (2011) proposes three major process streams including (a) problem recognition, (b) the formation and refining of policy proposals, and (c) politics involved in policy development. These three streams are generally independent of each other; however, at critical points in time, the three streams undergo coupling which leads to the opening of a policy window of opportunity where policy proposals are pushed higher on the agenda (Kingdon, 2011).

The *problem stream* refers to the recognition, and framing and defining of a problem; this includes the value a policymaker places upon the issue. In order for an issue to become a problem, the policymaker must believe that something should be done about it (Kingdon, 2011). Problems often arise from indicators (i.e., rates of disease), focusing events or crises, personal experience, findings from research studies, or feedback from the public or other policies. Key players in the problem stream are government officials, constituents, industry, academia, media, and special interest groups. Kingdon (2011) refers to the *policy stream* as

the “primeval soup” (p. 117) of ideas. In this stream, the formation and refining of a policy proposal is accomplished in order to develop a solution(s) to the problem. Kingdon describes the primeval soup as an evolutionary process in which a wide range of ideas are initially considered that give way to smaller set of policy alternatives before a final decision is made. Key players in policy formation include special interest groups, policy entrepreneurs, bureaucrats, media, and academia. Together, these key players formulate and debate policy solutions. In order for policy solutions to remain as possibilities, Kingdon suggests that key players must take into consideration the technical feasibility and compatibility of the solution(s) with the values of those in political power and the public mood in addition to anticipation of any future constraints (Kingdon, 2011). The last stream Kingdon describes is the *politics stream* consisting of the public mood, election results, partisanship, pressure group campaigns, and changes of administration. Kingdon suggests that changes in this stream influence how policy agendas are set; policies move up on the political agenda when those in power value a particular problem and are motivated to find a solution. Problems that fit easily into the public mood and political ideology are more likely to make it onto the agenda. Kingdon believes that while problems and politics can themselves set government agendas, the coupling of all three streams dramatically increases the probability of an item rising high on the decision agenda.

Policy Analysis

Problem Stream

Indicators such as disease rates are often used to define problems. In 2015, Kentucky had 4,957 new cases of lung cancer and 3,444 deaths from the disease (Kentucky Cancer Registry, 2019a, 2019b). Tobacco smoke is the major contributor to the development of lung cancer; yet radon-induced lung cancer contributes to approximately 21,000 cases of lung cancer each year in the United States with 2,900 of those occurring in nonsmokers (National Research Council, 1999). The synergism between tobacco smoke exposure and radon is of particular concern in the state of Kentucky as 21.1% of adults report current cigarette use (Centers for Disease Control and Prevention, 2018). In addition, approximately 26% of Kentucky homes lacked smoke-free home rules (Centers for Disease Control and Prevention, n.d.). Furthermore, as of 2019 only 35.3% of Kentuckians were protected by smoke-free laws covering all indoor workplaces and public places (Kentucky Center for Smoke Free Policy, 2019).

To date, the population attributable risk of radon-induced lung cancer in Kentucky is unknown. However, the EPA lists the majority of Kentucky counties as having moderate to high radon potential, indicating that much of the state’s population is at risk for elevated radon exposure (United States Environmental Protection Agency, 1993). Yet, it is estimated that annually, fewer than 1% of homes in Kentucky complete radon testing (total housing units, 1,965,556; Radon Policy Research Program, unpublished data; United States Census Bureau, 2017). The moderate to high radon potential throughout the state, high prevalence of smoking, limited smoke-free protections, and the lack of radon testing means that many Kentuckians are at risk for radon-induced lung cancer, particularly those who smoke or are exposed to secondhand smoke.

Focus Events are another element of the problem stream and they capture the attention of people in and around government (Kingdon, 2011). On February 27, 2018, the American Lung Association (ALA) held an advocacy day at the state capitol in Frankfort, Kentucky. This event helped further define the problem by having health professionals and citizen activists meet with legislators to bring attention to the poor state of lung health in Kentucky. Prior to the meeting, the ALA briefed participants and provided supporting documents which participants were encouraged to leave with the legislators. Participants then met with legislators and advocated for policies that promote lung health, including a higher tax on tobacco products and radon awareness and disclosure during real estate transactions. The advocacy day ended with a press conference in the Capitol Rotunda, where physicians and patients with lung disease spoke about the dangers associated with tobacco smoke exposure and the benefits of higher tobacco tax. Kingdon (2011) refers to this as “feedback” (p. 100) where personal accounts and complaints are brought to the attention of government officials and leads to the awareness of a problem. Unfortunately, no one spoke on the personal experience of developing lung cancer from radon exposure, or their personal experience with radon awareness and disclosure during a real estate transaction. The lack of attention on radon during the press conference may have contributed to the fading of the problem as tobacco exposure and the benefits of a higher tobacco tax was the primary point of discussion. In addition, several real estate agents in Kentucky contacted the bill’s potential sponsor to voice their opposition, providing negative feedback. The real estate agents believed that a law mandating awareness and disclosure was not necessary as the KREC had been given the authority via *KRS 324.360* to promulgate administrative regulations regarding the *Seller’s Disclosure of Conditions Form* to include matters the commission deemed appropriate (R. Phillips, personal communication, 2018). The potential bill sponsor, a Republican in a primarily Republican Senate, had been a legislative champion for radon control in Kentucky, having sponsored past radon-related and public health legislation. However, without full support of Kentucky Realtors, the potential bill sponsor decided not to proceed with filing the bill.

To further hinder agenda setting, radon gas awareness and disclosure during real estate transactions was not a high priority for legislators during the 2018 Kentucky General Assembly. During the 2018 session, the biennial budget bill and revenue bill were high priorities and much of the public and legislators’ attention was focused on the state’s underfunded public pension system (Sonka, 2018). Although the radon awareness and disclosure bill would not have affected the government’s budget, budgetary considerations often force items higher on the governmental agenda, forcing other items lower or even off the agenda altogether as in this case (Kingdon, 2011). Kingdon (2011) suggests that there is a limit to what can be placed on an agenda and while a real problem may have an available solution, items often do not make a place on the agenda because of more pressing business.

Policy Stream

Kingdon (2011) refers to policy communities as a community of specialists in a given policy area which serve to float ideas and form specific proposals to address a problem. The ALA in Kentucky was the primary nonprofit organization advocating for the proposed radon awareness and disclosure bill. The ALA worked with the Kentucky Association of Radon

Professionals, the Governor-appointed Kentucky Radon Program Advisory Committee, and the Kentucky Association of Realtors (KAR) in drafting the proposed radon awareness and disclosure bill (C. Nolan, personal communication, 2018). The Kentucky Association of Radon Professionals (KARP) is a state organization composed of members of the radon testing, mitigation, and laboratory analysis industry. Members of KARP are dedicated to preventing radon-induced lung cancer through various avenues including supporting effective radon policy (Kentucky Association of Radon Professionals, 2018). The Kentucky Radon Program Advisory Committee was created under *KRS 211.9103* for administrative purposes to work with the Cabinet for Health and Family Services (CHFS). The Advisory Committee establishes requirements for a quality control program plan for certified radon personal and promotes control of radon in the Commonwealth in collaboration with the CHFS, the regulatory agency tasked with radon control in the Commonwealth of Kentucky. The KAR represents over 10,600 real estate professionals in the state of Kentucky and serves as “the voice for real estate” by representing its members in regulatory and legislative matters (Kentucky Realtors, 2018a).

The proposed radon awareness and disclosure bill was intended to protect the public from the dangerous health consequences from radon exposure and was modeled after the *Illinois Radon Awareness Act of 2008*. The *Illinois Radon Awareness Act of 2008* includes an enhanced approach to radon awareness and disclosure during Illinois real estate transactions. Sellers are required to provide buyers with the IEMA state-developed pamphlet entitled “Radon Testing Guidelines for Real Estate Transactions” (or equivalent pamphlet approved for use by the IEMA; Illinois Compiled Statutes, 2008). The “Illinois Disclosure of Information on Radon Hazards” form must be completed before the buyer is obligated under any contract to purchase the property. The Form includes a general radon disclosure statement warning that radon is a Class-A human carcinogen and is the leading cause of lung cancer in nonsmokers and second leading cause overall. The property in question may present exposure to radon and may place the occupants at risk of developing radon-induced lung cancer. In addition, the statement includes a recommendation that all homebuyers perform an indoor radon test prior to purchase or taking occupancy, and mitigate if elevated levels are found. Furthermore, sellers are required to disclose specific records and reports on elevated radon test results when available. Finally, the seller, buyer, and seller’s agent all must acknowledge receipt of the information (Illinois Compiled Statutes, 2008). The IEMA estimates that prior to implementation of 2008 *Illinois Radon Awareness Act*, approximately 8% to 10% of homes sold in Illinois were tested and mitigated for radon (R. B. Clark, personal communication, January 8, 2019). Since the Act took effect, more than 55% of homebuyers have tested for radon, and one third of those with elevated radon levels have mitigated their homes (American Lung Association, 2018).

Policy Alternative.—The Environmental Law Institute (1993) recommends several policy alternatives that would promote radon awareness and testing and/or mitigation of homes for radon prior to or during a real estate transaction. These legislative options have been reviewed by the National Conference of State Legislatures, the EPA, and the National Conference of State Legislatures’ Radon Working Group and are listed in Table 1 (Environmental Law Institute, 1993). The proposed Kentucky bill was to provide home

buyers in Kentucky with basic self-protective information about the risks of radon and bring awareness to the possibility that radon may be present in the home. In addition, the bill was to provide the opportunity for the home to be tested for radon prior to real estate transaction, and if elevated levels were found, have the opportunity to have the home mitigated for radon (American Lung Association, 2018).

Political Stream

During the 2018 Kentucky General Assembly, the Republican Party had control of both the House and the Senate, as well as the Governor's office. Traditionally, the Republican Party is less willing than the Democratic Party to support the use of government to regulate the private sector (Kingdon, 2011). As an example, Kentucky Governor Bevin (R) launched the "Red Tape Reduction Initiative" (Red Tape Reduction, 2018). This initiative was designed to amend or repeal government regulations that affect small businesses, making it easier for businesses to thrive in Kentucky (Red Tape Reduction, 2018). The proposed radon awareness and disclosure bill was considered a protective regulatory policy. This type of policy "seeks to protect the public and consumers from market problems, such as deceptive advertising, faulty products, or negative externalities (e.g., pollution)" (Birkland, 2016, p. 253). Such policies are often highly controversial and spark debate as those who are being regulated may resist while the regulatory agencies insist the regulations are intended to protect the public. As the proposed bill was a regulatory policy, it is likely that if it had been filed and survived to the point of voting, those who were against government regulation of the private sector would likely have voted against the bill, suggesting that home buyers could voluntarily request radon testing without a government mandate.

Potential Unintended Consequences

Raising radon awareness and disclosure during a real estate transaction is intended to make buyers aware of the radon risk potential in their home, either through disclosure or potential testing of the home. In doing so, buyers may request the home be mitigated prior to purchase. Although the EPA suggests that mitigating a home "costs about the same as other common home repairs, the actual expense can vary from \$1,250 to \$3,000 (Hahn et al., 2014; United States Environmental Protection Agency, 2016). This additional expense may present a problem to sellers. One way to overcome this is to adjust the price of the home to account for the expense of radon mitigation (Environmental Law Institute, 2012). As testing may lead to increasing mitigation rates, Kentucky may also experience an issue of supply and demand. For example, in 2014 Minnesota enacted legislation that mandated the disclosure of known radon testing and mitigation, the provision of a general radon warning statement and the provision of state developed radon education during a real estate transaction (Minnesota Department of Health, 2019). Since the legislation was enacted, radon mitigations have increased by 300% (American Lung Association, 2018). In 2017, the KAR reported over 53,058 homes were sold and the National Radon Proficiency Program (NRPP) lists 73 NRPP certified radon measurement providers and 40 NRPP certified radon mitigation providers in the state of Kentucky (Kentucky Realtors, 2018b; National Radon Proficiency Program, 2019). Although not all home sales would result in testing or mitigation, the potential demand may be too great for the number of certified radon

professionals available in the state and could potentially prevent or delay the timing of real estate transactions.

Furthermore, the effectiveness of the radon warning statement on prompting radon testing would rely on the real estate agent's knowledge of the dangers of radon and how comfortable they are addressing the dangers with sellers and buyers. The provision of radon education with real estate agents as part of their continuing education holds promise in furthering radon policy in Kentucky.

Discussion

Kingdon's Multiple Streams Framework was a suitable framework to analyze radon awareness and disclosure policy during the 2018 Kentucky General Assembly. By analyzing the three major streams (problem, policy, politics) proposed by Kingdon (2011), we evaluated why a proposed bill mandating radon awareness and disclosure during real estate transactions did not rise on the governmental agenda. As Kingdon points out, problem recognition is critical to agenda setting. Despite many indicators pointing to a public health problem, little was done to bring widespread attention to radon-induced lung cancer. The dangers of radon were largely overshadowed by efforts to raise the tax on tobacco products, and the negative feedback from real estate agents resulting in lack of support for the legislation by the proposed sponsor. Furthermore, legislature attention during the 2018 Kentucky General Assembly was largely focused on the biennial budget bill, revenue bill, and the underfunded public pension system. Collectively, efforts were ineffective in defining the problem and capturing the attention of people in and around government.

The proposed policy solution was in line with recommendations by the ELI and modeled after legislation enacted in Illinois. By all accounts, the legislation passed in Illinois was effective in raising awareness to the dangers of radon and resulted in increased radon testing and mitigation during real estate transactions. Unfortunately, the opposition to the proposed policy by those within the real estate business halted the progression of the bill through the Kentucky legislature. As the bill's progression was halted, we were unable to fully analyze the politics stream. However, given that the Kentucky legislature is largely Republican and the proposed bill was a protective regulatory policy, one could speculate that building support for the policy would have been challenging and most likely would have been met with resistance.

Although the coupling of the three streams (problem, policy, and politics) did not occur, efforts have continued by the American Lung Association, Kentucky Association of Radon Professionals, Kentucky Radon Program Advisory Committee, and the Kentucky Association of Realtors to urge the KREC to adopt an administrative regulation to amend the *Seller's Disclosure of Property Condition Form* to include a general warning statement about the dangers of radon. The proposed statement was deemed agreeable to those in the business of real estate as well as those intent on protecting the public from radon. Despite the *Kentucky Realtor 2018 Legislative Priorities* including "eliminating regulations that burden small businesses and independent contractors" the KAR leadership voiced support for administrative regulations which would ensure home buyers take occupancy of a property

that is safe and free from radon (Kentucky Realtors, 2018c; R. Phillips, personal communication, 2018). Furthermore, KAR leadership felt more comfortable supporting regulations that its governing body, the KREC, developed rather than radon control legislation enacted by the General Assembly (R. Phillips, personal communication, 2018).

Although not as comprehensive as the proposed bill, the inclusion of a general radon warning statement on the *Seller's Disclosure of Property Condition Form* is an alternative supported by the ELI. The ELI suggests that the provision of a general radon warning statement during real estate transactions helps buyers make informed decisions about the property and brings attention to the real or potential danger within the home (Environmental Law Institute, 2012). The use of an administrative regulation to amend the form, promulgated by a government agency, holds promise and has the same force and effect of any law passed by legislature (Birkland, 2016). As the policy window of opportunity did not open for radon awareness and disclosure during the 2018 Kentucky General Assembly, the promulgation of administrative regulations by the KREC may prove to be an effective alternative. States experiencing difficulty enacting public policy to increase radon awareness and disclosure during real estate actions may consider administrative regulations as a politically feasible alternative to passing a radon awareness and disclosure bill through the legislature.

In conclusion, radon-induced lung cancer continues to be a national health problem, yet the disease remains highly preventable. Although policy alternatives for radon control have been suggested, more attention must be placed on defining the problem and bringing public and political attention to the serious dangers associated with radon exposure and the methods available to reduce exposure. In our role as nurses, we are charged with promoting and protecting the health of our patients. As such, nurses can take advantage of teachable moments by educating and empowering patients in disease prevention activities, including testing their homes for radon. In addition, nurses and state and national nursing organizations can advocate for legislation and/or administrative regulations that lead to reduction in radon exposure such as mandating radon awareness and disclosure as part of real estate transactions. Finally, when the window of opportunity opens, nurses are well-positioned to seize the opportunity to push radon control policy higher on the decision agenda.

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Biography

Stacy R. Stanifer is an assistant professor at the University of Kentucky College of Nursing. Her research focuses on the avoidance of cigarettes and reducing exposure to two environmental carcinogens, radon and secondhand smoke, as a means of cancer prevention.

Ellen J. Hahn is professor in the College of Nursing and College of Public Health at the University of Kentucky. Additionally, Dr. Hahn directs UK-CARES, BREATHE and the Kentucky Center for Smoke-free Policy.

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Table 1.

Radon Control During Real Estate Transactions Policy Alternatives.

Option	Description
Encourage voluntary disclosure	<ul style="list-style-type: none"> • Include language in state radon or consumer protection laws which encourages sellers who have tested their home to voluntarily pass along test results to potential buyers.
Require general disclosure	<ul style="list-style-type: none"> • Refers to the provision of information intended to educate the buyer about the dangers associated with radon exposure. Examples may include the EPA developed <i>Citizen's Guide to Radon</i> (EPA, 2016).
Require specific disclosure and/or testing	<ul style="list-style-type: none"> • Refers to the provision of radon information that relates directly to the home in question. This could include requiring all homes for sale be tested for radon and results be disclosed to potential buyers. Mitigation information would also be disclosed if applicable; the provision of general radon information and the opportunity for a prospective buyer to request the home be tested prior real estate transaction; or the disclosure of radon test results to prospective buyers if the home has already been tested for radon.
Require testing and mitigation	<ul style="list-style-type: none"> • Requires the seller to test for radon and mitigate (when appropriate) before the home is sold. The seller would then disclose proof of mitigation or acceptable radon test results to the potential buyer.
Require general or specific disclosure by professionals involved in the home purchase and sale transaction	<ul style="list-style-type: none"> • Require real estate professionals, such as real estate agents, home inspectors, or appraisers, to disclose general radon information as well as specific radon information (if available) to potential buyers.

Note. List of policy alternatives adapted from Environmental Law Institute (1993).