

Radon is a colorless, tasteless and odorless gas that causes lung cancer. Exposure to radon is the second leading cause of lung cancer in the United States, after smoking. Radon-related lung cancers result in an estimated 21,000 deaths annually in the United States. Most cases of radon-related lung cancer are preventable, and dangerously high levels of radon in homes can be mitigated to lower levels.

It was not until the 1980s that radon was recognized as a potentially deadly threat for millions of households nationwide. Since that time, the federal, state and local governments, environmental health organizations and industry groups have worked together to raise public awareness about radon, and to promote sustainable policy approaches to address the problem. Significant progress has been made. January is annually designated as National Radon Action Month, spawning awareness and testing campaigns across the country. Millions of homes have been tested and more than 90,000 have high levels of radon fixed each year. At least forty-one states and the District of Columbia have one or more radon-related laws on the books.

Most radon reduction occurs during home sales and in the construction of new homes. In many places, people buying and selling houses expect to be required to share information about and fix potential hazards in the home, including radon. Radon notification and disclosure requirements during real estate transactions are one of the most successful strategies to spur testing and mitigation.



These actions have served to protect many people and have saved many lives that would have otherwise been lost to lung cancer. But many people, especially those that are low-income, are not homeowners and are not in a position to reduce their risk. The [National Radon Action Plan 2021-2025](#) recognizes the disproportionate health impact of radon exposure on low-income individuals and lays out a charge to expand radon risk reduction efforts to all people and all buildings.

It is time to examine radon programs through an equity lens. Decisionmakers, radon professionals and health equity advocates are called on to identify who is not being protected and why, and what needs to change to ensure that all people living in the U.S. have the benefit of policies and practices that protect them from the health harms of deadly radon gas.

The Roots of Radon Risk Inequity

Radon is an “equal opportunity pollutant.” Unlike many pollutants caused by human activity, elevated levels of naturally occurring radon have been found in homes and other buildings throughout the country. The occurrence of high levels of radon in an area is not a function of the race, ethnicity or socioeconomic status of the people who live there. But how communities and individuals are able to respond to high levels of radon once it gets into the buildings where they live, work and go to school is affected by those factors.

Inequity can be defined as a difference that disadvantages one group in favor of another, stemming from historical or current unfair practices and policies. For radon, the inequities in level of risk from one group to another are mainly about differences in access – to protective policies, to financial resources and to culturally competent information and services.

The role of home ownership

Most radon risk reduction activity is focused on testing and fixing homes, as that is where most people spend the majority of their time. For many years, radon awareness campaigns have encouraged homeowners to voluntarily test and mitigate if needed. A growing number of states and municipalities have enacted notification and disclosure laws that require information about radon to be provided to home buyers during the sales transaction. These laws have been quite successful driving radon testing and mitigation. The mortgage financing process is also an opportune moment to build in the cost of installing a mitigation system if necessary.

Of the roughly 144 million housing units in the United States, 65% are occupied by their owners and 35% are rentals. Nearly 90% of homeowners live in freestanding or attached single unit housing, compared with roughly 35% of renters¹. The tens of millions of people living in rental housing are at a disadvantage when it comes to radon risk reduction. Most importantly, they cannot access existing policies and practices that embed radon protections during a home sale. In addition, they do not have the built-in protection of laws requiring testing of rental properties, though that is starting to change. Nor are they likely to have the authority or incentive to test and mitigate their residence, especially if they live in a multiunit dwelling.

Financial barriers to radon testing and mitigation

Considering the potential life-saving value of reducing elevated radon levels in a home, the cost of mitigation could be considered a real bargain. Averaging between \$1,500 and \$3,000, installation of a radon mitigation system carries a price tag that is similar to or lower than that for many other home repair projects. But unlike a leaking roof or peeling paint, elevated radon levels can be “out of sight, out of mind.” For low and moderate income homeowners having difficulty making ends meet, the cost of radon mitigation may seem prohibitive. Financial assistance programs for radon risk reduction are very limited.

Access to information and services

Communications campaigns on any public health topic are successful only if they are heard, understood and believed, and if they are able to motivate the desired behavior change. Risk communications experts have shown that the best approach to reaching the largest audience is to tailor communications to provide individuals with information that is relevant for them and that fits with their particular situation. Most radon awareness campaigns have been designed to reach a general audience through traditional communications channels. People with limited English proficiency, low literacy skills, or who get their information through nontraditional channels are less likely to be reached.

Even well designed culturally-tailored awareness campaigns are unlikely to be effective at increasing radon testing and mitigation in under-resourced communities in the absence of policies to protect renters and financial mitigation assistance for building owners and low-income homeowners. In fact, there are ethical concerns about alerting people to a danger without empowering them to take action to protect themselves.

¹U.S. Census Bureau, 2021 American Housing Survey. Accessed <https://www.census.gov/programs-surveys/ahs.html> Sep 6, 2023.

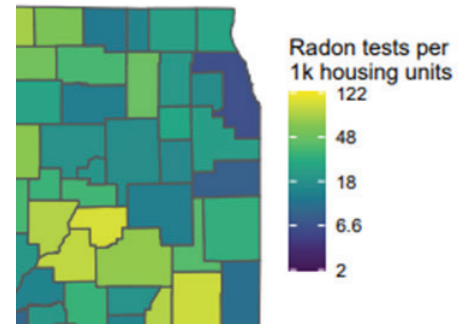
Fixing the Problem

Advancing health equity in radon risk reduction will require policy and practice changes that eliminate inequities in exposure and ensure equitable access to information and resources. Since the factors that contribute to radon risk inequities are complex, truly solving the problem takes a multi-pronged approach.

Understand where the disparities lie

Every community is different, with its own unique mix of racial and ethnic populations, socioeconomic levels, language needs, housing types and rates of home ownership. It would be wrong to assume that the pattern of disparities in radon testing and mitigation looks the same everywhere. Reviewing some existing data sources to understand the nature of local disparities is an important first step to addressing them.

In 2019, the Minnesota Department of Health analyzed testing and mitigation data that had been collected as part of their Environmental Public Health Tracking program and saw clearly that in Twin Cities metro neighborhoods with higher poverty, a higher percentage of rental homes and homes of lower financial value had lower mitigation rates. This enabled them to target awareness messages and distribution of test kits in those underserved communities. They also shared their findings with local public health organizations, healthcare providers and other partners around the state working in communities to address low radon testing and mitigation rates.²



Testing rates vary county by county (from [State Testing Disparities Reports](#), American Lung Association 2022)

Institute requirements to protect tenants

Housing codes and landlord-tenant laws provide some very basic protections for the healthfulness and safety of rental housing, but they are usually inadequate to protect tenants from exposure to elevated levels of radon. Some landlords undoubtedly test and mitigate their rental properties voluntarily, but the only sustainable approach to reducing radon risk for people living in rental housing is to adopt laws and policies that require building owners to test and mitigate all of their properties according to consensus standards.

Only a very few municipalities, and no states, require landlords to test and mitigate privately-owned rental housing. Iowa City, Iowa and South Brunswick Township, New Jersey are both implementing ordinances that require rental homes to be tested and fixed if test results are higher than the EPA action level of 4.0 picoCuries of radon per liter of air (pCi/L). Montgomery County, Maryland is the most recent example, having passed its law in November 2022.

Maine, Illinois and Florida all have state laws that include some combination of testing and notification requirements.³ But notifying potential tenants – especially lower income people who may have limited housing options available to them – that there is a radon problem, with no expectation that anything will be done about it is not sufficient to address inequity.

²Minnesota Department of Health. [Radon mitigation rates in metro area reflect disparities in income, housing, home values](#). Accessed September 2023.

³American Lung Association. [Radon Risk Reduction in Rental Housing](#). 2023.

⁴[Reflections on the National Radon Action Plan's \(NRAP\) Progress, 2015–2020](#), 2021.

Expand funding and services in targeted areas

Advancing health equity through an increase in radon awareness, testing and mitigation in underserved communities requires a targeted investment of resources. Unfortunately, there is no one robust national program that can fulfill that need. State and Tribal radon programs and advocacy organizations are instead left in the position of having to piece together funding from a variety of sources, then getting the word out to homeowners, contractors and builders that funding is available.

Some states and municipalities fund their own home rehabilitation programs, intended to provide lower income homeowners financial assistance with repairs that address health and safety issues. Radon mitigation is often listed as an eligible expense. Colorado may be unique in having a dedicated program to provide financial assistance to low-income individuals exclusively for radon mitigation services.⁵

HUD's Community Development Block Grants program awards annual grants on a formula basis to states, cities, and counties for the development and maintenance of decent housing, public facilities and economic opportunities in urban low- and moderate-income areas. Local governments administer the program, identify community priorities and objectives and determine which local projects receive funding. Radon testing and mitigation can be considered an eligible expense in funded communities, but it is competing with a wide array of community needs, including public infrastructure improvements.

USDA Rural Development has a Single Family Housing Repair Loans & Grants program that provides loans to very-low-income homeowners in eligible rural areas to repair, improve or modernize their homes, as well as grants to elderly very-low-income homeowners to remove health and safety hazards. Radon mitigation should be considered an eligible expense.

HUD's Office of Lead Control and Healthy Homes makes several million dollars in grants each year, through several different grant programs, to municipalities, Tribes, public housing agencies and nongovernmental organizations for addressing health hazards in homes. Depending on the grant program requirements, radon testing and mitigation may be required, and is certainly encouraged.

Some nongovernmental and charitable organizations may also have grant programs for healthy housing that could be tapped for radon mitigation, but they are likely to be small and localized.

Increase risk reduction in other buildings, including schools, daycares and workplaces

As part of an increased focus on health equity, the National Radon Action Plan 2021-2025 calls for addressing radon in all buildings. Laws and policies that require radon testing and mitigation in schools, daycares and workplaces add a layer of protection for those who may or may not be protected at home.

Testing requirements for HUD-owned multifamily dwellings are saving lives

New requirements to test for and fix high radon through the Federal Housing Authority's (FHA) multifamily mortgage insurance programs—changes that radon advocates have pushed for and supported at every step—have already contributed to saving between 1,800 to 2,000 lives annually by 2020, and work completed to date through FHA will save between an estimated 13,000 to 26,000 total lives over time.⁴

⁵Colorado Department of Public Health and the Environment. [Financial assistance to reduce radon in your home](#). Accessed September, 2023.

High radon levels have been found in schools across the country, and a number of states have created laws and regulations to address the problem. Where such laws exist, most require schools to conduct radon testing and mitigation or to incorporate radon-resistant new construction (RRNC) techniques when building new schools.

Others only encourage or facilitate such actions. The Environmental Law Institute synopsised these laws in the 2023 [Radon in Schools Overview of State Laws](#).

As with all things school-related, tight budgets and conflicting priorities make testing and fixing radon a challenge, especially for under-resourced schools. Currently, however, the availability of federal COVID-relief and Inflation Reduction Act funds for facility-related expenditures is providing an excellent opportunity to invest in improving indoor air quality in schools without impacting school operating budgets.

Licensed childcare facilities are another setting where millions of children as well as childcare professionals spend many hours a day. States and localities can improve public health and advance health equity by establishing policies to address radon risks in childcare, and there are several well-established means for doing so. According to the Environmental Law Institute's [Radon in Child Care Review of State Policies](#), the most common approach is to establish radon requirements within the framework of daycare licensing.

All 50 states, the District of Columbia and many tribes and local governments require licensing of daycare facilities and have established programs to oversee a wide range of licensing requirements. Physical facility standards that establish facility-related requirements are one of several core components of state licensing regulations. Because these licensing regulations are revised regularly, and include mechanisms for oversight and enforcement, they are a good, practical tool for establishing radon testing and mitigation provisions.

Build radon protection into new construction

Building codes that require taking steps to prevent radon entry into a building when it is first being built are a sustainable, economical risk reduction measure that benefits all building occupants. State and local governments can include radon control requirements in residential building codes— both local building codes and statewide building codes that are mandatory at the local level. States can also include radon control standards in their model state building codes.

Recommendations for Taking Action

It is time to close the equity gap in radon risk protection. Lawmakers, state radon programs, housing agencies, public health officials and community advocates all have an important role to play in ensuring a more equitable approach to radon policies and practices. Working together and making sure that all voices are heard, and no one is left behind, are key to making change.

- Bring together a diverse group of stakeholders, including agencies and organizations that would be responsible for implementing change, as well as representatives of groups that would be affected.
- Gather the information needed to define the scope of the problem, including an assessment of the existing policy landscape, and identify areas of inequity that can be addressed through some of the policy and systems changes outlined in this document.
- Work together as a stakeholder group to identify priorities and develop a plan of action to accomplish them.
- Ensure that the affected communities have the support they need to continue to be involved in the process, including information and resources.
- Keep all stakeholders informed on progress and celebrate successes.

Disclaimer

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement 84021001 to the American Lung Association. The contents of these documents do not necessarily reflect the views and policies of the Environmental Protection Agency.