

## Radon Daycare Testing Project Report

### Overview

The Radon Daycare Testing Project is a pilot project to raise awareness about the risks of radon gas and to encourage childcare centers to test, and when necessary, mitigate their centers. This project is funded by Health Canada and has provided the Lung Association of Nova Scotia (LANS) much needed data and feedback around awareness and perceptions of radon in childcare centers. These insights will support our advocacy initiatives to incorporate radon testing and mitigation policies as part of provincial childcare center licensing requirements.

This is a two-phase project. Phase one was just completed and included sending free long-term radon test kits to over three hundred childcare centers across the province. The initial outreach started in October 2020, and included phone calls and emails to centers. In-person outreach was not possible due to the COVID-19 pandemic. Of the three hundred centers we did outreach to, only 46 centers (of 100 centers we were able to contact) agreed to participate.

There were several challenges associated with the Radon Daycare Project that we had to navigate, which include:

- When we approached childcare centers to request participation in this project, it was a challenge to get in touch with the owner or director of the facility. Often an ECE would answer the phone. Who would not have the authority to agree to participate. Staff members typically indicated that they would pass along the message and get back to us but we often never received a response. When we followed up on our initial request, we'd typically end up speaking with a different employee, and would have to start the request process all over.
- The majority of childcare staff had very little time to talk on the phone and were surrounded by children who required their attention, meaning that staff members were rushed on the phone, regardless if they had authority to make decisions or not.
- Many childcare facilities, while privately-owned, were in provincial facilities or schools and had already been tested for radon. Others were leasing space in buildings owned by other companies and required permission to test the facility. Typically, these people indicated they would get back to us, and rarely did.
- Some childcare centers answer to a Board of Directors and said they would present this to their board and get back to us. Most times we did not hear back from them.
- Some childcare centers indicated they had already tested.

### Phase One Results

Of the 46 childcare centers who agreed to participate only 17 centers completed testing. Those who completed testing were located across the province with participating centers in each zone, excluding Cape Breton. LANS used both phone and email communication to participating childcare centers to ensure they had received their radon testing kit and had started testing their facility, along with reminders of when the testing period was nearing completion and that it was time to send to the lab for analysis. We learned email seemed to be the most effective method for contacting the owner/executive

directors, who have the authority to make decisions and receive updates. Email correspondence also allowed them to respond on their own timeline. LANS provided pre-paid labels to the childcare centers to cover shipping costs to the lab. Of those who did not complete testing, one closed down their center, several communicated they had started testing their center, but at the 3-month mark for reminders of testing completion backtracked and stated they never started testing due to time constraints. The remaining childcare centers who did not complete testing did not respond to either phone or email communication.

Of the 17 childcare centers who completed testing, none tested above 200 Bq/m<sup>3</sup> and were all within Health Canada's recommended safe levels with the lowest reading of 15Bq/m<sup>3</sup> and the highest of 104 Bq/m<sup>3</sup>.

### Radon Surveys

Because all childcare centers that completed testing were within the recommended safe levels, the planned mitigation contest became irrelevant. Taking into consideration the low test results coupled with the low rate of participation, we realized we did not have enough data to support our advocacy objectives. Therefore, we reallocated the mitigation budget to create three surveys with prize incentives targeted at three different groups to collect data on awareness of radon in childcare centers in Nova Scotia, and perceptions on including radon testing in childcare licensing requirements. One survey targeted childcare centers who completed the radon testing, one targeted parents whose children currently or previously attended childcare in Nova Scotia, and one that targeted childcare staff who did not participate in this pilot program. Each survey ran from September 1, 2021- October 31, 2021, and was promoted via paid posts on social media.

### Participating Childcare Center Survey Results

Of the seventeen childcare centers that participated in testing their center(s) for radon gas with the provided long-term testing device, only seven went on to complete the survey. We wanted to know the number of children in the care of these centers to better understand how many children could be impacted by radon. The number of children in their care ranged from fifteen to ninety-six. We then wanted to identify (1) the awareness that these owner/operators had of radon, including their knowledge about the dangers of long-term exposure to high levels of radon gas. (2) Gauge whether participation in this project increased their knowledge of radon gas. (3) Their perceptions on the importance of testing for radon in childcare centers and (4) their thoughts on whether radon testing should be included in licensing requirements for childcare centers. We provided opportunities for respondents to provide additional comments to these questions to better understand any barriers to implementing this requirement.

To achieve this we asked the following questions:

*Were you aware of what radon gas is before this project?*

- Yes 100%

*Were you aware of the dangers of long-term exposure before participating in this project?*

- Yes 57.14%
- No 42.86%

*Has your understanding of what radon gas is and the potential dangers of long-term exposure to high levels of radon increased after participating in this project?*

- Yes 100%

*On a scale of 1 (low) to 5 (high) do you feel more at ease knowing the radon level that the radon levels at your childcare facility are not putting your staff and children in your care at risk?*

- 4.9

*On a scale of 1 (low) to 10 (high), how important do you think radon testing is for childcare centers?*

- 9.7

*Currently, it is mandatory for all public schools in Nova Scotia to be tested and mitigated (if required) for radon gas. Do you think radon testing should be mandatory for childcare center licensing requirements?*

- Yes 85.71%
- No 14.29%

*Additional comments to the above question*

- “If available for free”.
- “I think that it should be a recommendation, not a requirement, especially in areas known to have high levels of radon gas”.
- “Cost is always a concern so it was very helpful that the Lung Association of Nova Scotia provided this non-profit center with support in this area”.

*Please provide any additional comments regarding this project.*

- “If this becomes part of licensing of childcare centers there should be financial supports in place to remediate for radon. As I understand it can be very expensive. Many childcare centers do not have extra cash for emergencies or huge operating budgets”.
- “It was an easy process to test for the presence of [radon] gas”.
- “This is a great idea, testing centers for radon”.

## Summary

What we learned from this survey is that those who participated in this project gained a better understanding of radon gas and the potential danger that it poses to the lung health of those who have long-term exposure to high levels of radon. A consideration to note is that because these respondents may be more supportive of radon testing due to previous knowledge of radon and their willingness to complete radon testing in the initial phases of the project. This may have been supported by their prior awareness of radon before the project as shown from survey results. Moving forward, cost concerns with remediation (if required) are a priority to address for these respondents to minimize the financial burden that remediation poses within the childcare sector. There is also the need to facilitate more awareness and education regarding the importance, low cost and ease of testing for radon gas to ensure the safety and health of children and staff.

## Owner/Operator & Staff Survey Results

This survey was for childcare owner/operators and staff at these centers in Nova Scotia who did not participate in the free long-term testing phase of this project. The survey objectives were to (1) understand the awareness of radon and the danger of long-term exposure to high levels at centers who we could not reach through phase one of this project. (2) If they had ever completed radon testing in their center. (3) Whether they had any awareness of the outreach to childcare center across the province that LANS completed. (4) Perceptions of radon testing in childcare centers including willingness to complete radon testing in their center. This helped to gauge support and to identify considerations for implementing radon testing as a licensing requirement. To reach our intended audience this survey was promoted heavily on social media using paid advertisements and the survey received ninety-six responses.

*Are you aware of what radon gas is?*

- Yes 58.33%
- No 41.67%

*Are you aware that radon gas is the 2<sup>nd</sup> leading cause of lung cancer in Canada?*

- Yes 34.38%
- No 65.63%

*On a scale of 1 (low) to 5 (high) how important is the health and safety of the staff and children at your childcare center?*

- 4.9

*Has the building your center is located in already been tested for radon gas?*

- Yes 15.29%
- No 18.82%
- Unsure 65.88%

*a. Were the results of the radon test above Health Canada guidelines of 200 Bq/m<sup>3</sup>?*

- Yes 30.77%
- No 46.15%
- Unsure 23.08%

*b. Was the building/facility mitigated to reduce radon levels?*

- Yes 25%
- No 50%
- Unsure 25%

*c. Do you know what year the building/facility was tested for radon?*

- No 23.08%
- Yes 76.92%: 2000, 2019, 2020, 2020, 2010, 2018, 2020, 2019 & 2020, 2020 & recommended test in 2021 as levels just above 200 Bq/m<sup>3</sup>.

*Were you aware that the Lung Association of Nova Scotia did outreach to over 300 childcare centers in Nova Scotia to offer free radon test kits?*

- Yes 3.28%
- No 96.72%

*Would you be willing to complete radon testing of your childcare center to protect the lung health of staff and the children in your center now knowing the risks?*

- Yes 90.77%
- No 9.23%

*What would make radon testing more accessible to complete?*

- “Delivered to us”.
- “I think it just needs to be done no matter what”.
- “More information out about the effects radon has on people”.
- “It is already accessible”.
- “Mandatory testing and results posted”. -Multiple responses of mandatory testing
- “More awareness of what testing entails”. -Multiple responses of more awareness of testing.
- “The government”.
- Some responses included inaccurate responses due to unawareness of how testing is completed.
- Multiple responses of unsure due to not knowing how testing is completed.

*On a scale of 1 (low) to 10 (high) how importance do you think radon testing is for childcare centers, knowing it is the 2<sup>nd</sup> leading cause of lung cancer?*

- 9.7

*Currently all public schools in Nova Scotia have been tested and mitigated (if required) for radon. Do you think radon testing should be required for childcare center licensing?*

- Yes 93.75%
- No 6.25%

*a. Additional comments*

- “Childcare centers should be a priority, anywhere children spend most of their time should be”.
- “Nothing more important than the health of our children. Children should be kept safe at all times. Children and staff need to be safe!”
- “Our children should not be exposed to radon gas even at young ages”.
- “Need to consider day homes as part of this rule”.
- “The majority of children are not in licensed care. A huge portion of children are in smaller, legal day homes who don’t require a license provided they care for six or fewer children. These are always forgotten. In a pandemic, smaller groups have been more popular than ever as the bubble of exposure is smaller”.
- “This would be great”.

*Please provide any additional comments on radon testing and childcare centers.*

- Multiple responses of “very important”.
- “I hope this becomes accessible and done at all daycares”.
- Multiple responses of “we need to ensure our children are in a healthy environment”.
- “Our children’s safety is important, they are the future”.
- “We should be more aware in childcare”.
- “This is of the utmost importance to have done”.
- “Extremely important, especially in Nova Scotia”.
- “I think it should be tested prior to receiving a license to open their first day”.

- “We did radon testing to purchase our home it was something that was very important to us. So I would hope all daycares would test their facility as well it should be mandatory”.
- “This should be done just like other schools and workplaces”.
- “This should already be done the same as it is in schools”.
- Multiple responses of “it should be made mandatory”.
- “It should be free”.
- “All possible testing should be done”.
- “Hard to answer. Other than this handful of questions, I didn’t know anything about radon, but any potential environmental issue where small children are should be considered, shouldn’t they”?
- “I haven’t heard of this before this survey. How come government isn’t talking about this, or the childcare sector”?
- Multiple responses of “needing more information and awareness of the test”.
- “Considering health and safety concerns INCLUDING air quality, mold, radon etc. should be as mandatory as a smoke detector and CO detector”.
- “For non-profit centers there should be a grant if they need to modify the building”.
- “It is important because the children are our future and growing up with radon may have a health impact on children and staff”.
- “What is there to say, who would want or even think of their kids being exposed at childcare.”

### Summary

We learned from this survey that almost all of the respondents were not aware of the outreach that was done by LANS in phase one this the Radon Daycare Testing Project. However, it is important to note that we did not collect data on whether the respondent was the owner/operator or a staff member, as staff members would not have had authority to agree to participate in the free long-term radon testing. The survey showed that there is potential within the Nova Scotia childcare industry for willingness to complete radon testing in childcare centers. While the majority of responses support radon testing, the survey has only reached a small subset of this population, and we do not have data on whether this is support from staff or decision makers at these centers. The open responses within the questions show that there is a desire for more information on radon gas and testing to better understand radon risk, radon testing, and what would be required of childcare centers. Centers who participated in phase one expressed similar concerns with those who participated in phase one of the project regarding mitigation. The potential high costs of remediation and limited operating budgets of childcare centers was a concern highlighted in the open answers of both surveys. This survey brought day homes to our attention as well, that there are many children in these legal but unlicensed settings, which could indicate a gap in protecting young children from high levels of radon gas.

### Parent Survey Results

This survey was for parents whose children are currently or have previously attended childcare in Nova Scotia. The objective was to better understand their awareness of radon and the dangers associated with long-term exposure to high levels of radon gas. We also wanted to understand parent perceptions regarding radon testing in childcare centers, as these are spaces where they send their children to spend

long periods of time with the expectation of a safe environment. The survey was promoted heavily using paid advertising on social media. The survey received a hundred-thirty-eight responses.

*Are you aware of what radon gas is?*

- Yes 69.35%
- No 30.65%

*a. How did you learn about radon gas?*

- Social Media 22.62%
- Friend 19.05%
- Lung Association of Nova Scotia 9.52%
- Library Radon Detector Loan Program 9.52%
- TV 9.52%
- Other 29.76%
  - Real Estate
  - Government
  - News
  - Healthcare
  - Education/School
  - Work

*Did you know that radon gas is the 2<sup>nd</sup> leading cause of lung cancer in Canada?*

- Yes 26.23%
- No 73.77%

*Are you aware that the only ways to know whether or not you are exposed to dangerous levels of radon is to test for it?*

- Yes 63.11%
- No 36.89%

*On a scale of 1 (low) to 5 (high), how much does it concern you that radon gas which is the 2<sup>nd</sup> leading cause of lung cancer, could be present in Nova Scotia childcare centers?*

- 4.5

*Did you know that all public schools in Nova Scotia have been tested and mitigated (if necessary), but not all childcare centers?*

- Yes 7.38%
- No 92.62%

*With children spending up to 12 hours a day in childcare center compared to 6 hours in public schools, do you think radon testing should be a requirement for childcare center licensing?*

- Yes 98.36%
- No 1.64%

*Would you feel more at ease knowing that the childcare center your child attends has taken action to ensure that your child is protected from the dangers of radon gas?*

- Yes 99.17%
- No 0.83%

*On a scale of 1 (low) to 10 (high), how important do you think radon testing and mitigation is for childcare centers?*

- 9.4

### Summary

This survey indicated that these parents believe in the importance of radon testing in childcare settings and that they would feel more at ease knowing that their child's center is not putting their child's lung health at risk due to high levels of radon gas. Again, it is important to note that this is a small subset of the parent population. While a large portion of respondents had some awareness of what radon gas is and had learned about radon through a variety of avenues only a small percentage were aware of the health risks that radon gas poses. These parents were unaware that exposure to high levels of radon gas could increase their risk of getting lung cancer (or that radon is the 2<sup>nd</sup> leading cause of lung cancer). There was little knowledge that public schools have already been tested and mitigated (if required), but not childcare centers. This knowledge brought strong support from respondents for the inclusion on radon testing in childcare licensing requirements.

### Next Steps

Next steps include more education around the risks of radon gas in childcare settings. Our efforts will include advocating to government to include mandatory radon testing as a part of childcare center licensing requirements. We will be hosting stakeholder meetings in 2022 to discuss the importance of childcare centers being tested and identify opportunities for radon testing inclusion in childcare licensing requirements. The Lung Association of Nova Scotia plans to engage the following stakeholders who include, but are not limited to: Nova Scotia Early Childhood Education Associations, Minister of Education and Early Childhood Development, Licensing Inspectors, Department of Natural Resources, Department of Active Transportation and Infrastructure in stakeholder discussions regarding the dangers of radon in childcare settings. These meetings will provide LANS the opportunity to bring awareness and education on radon in childcare settings to those at the policy level in hope of addressing this gap in the health and safety of childcare centers across the province.