

BRITISH COLUMBIA LUNG ASSOCIATION



Radon: Taking Action

Presentation to the Governance And Services Committee

[Regional District of Central Okanagan](#)

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Radon gas comes from uranium in the earth

Uranium is present in soils across Canada

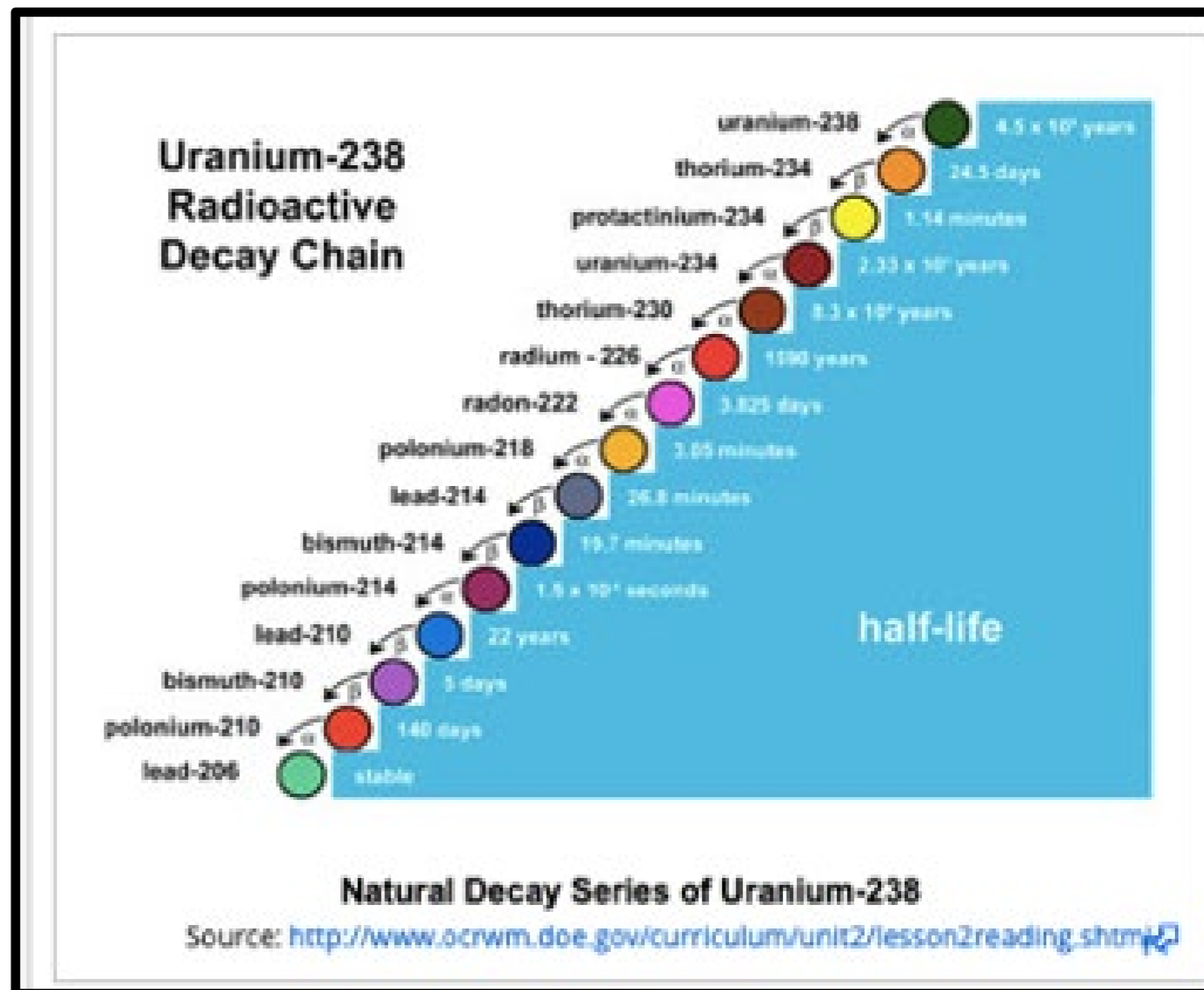
Some regions have/had uranium mines

- Saskatchewan, NWT, Newfoundland, Ontario, Interior British Columbia

Uranium is radioactive-breaks down over time

Radon is the only gas phase of uranium decay

- Radon gas is *mobile* in the soil



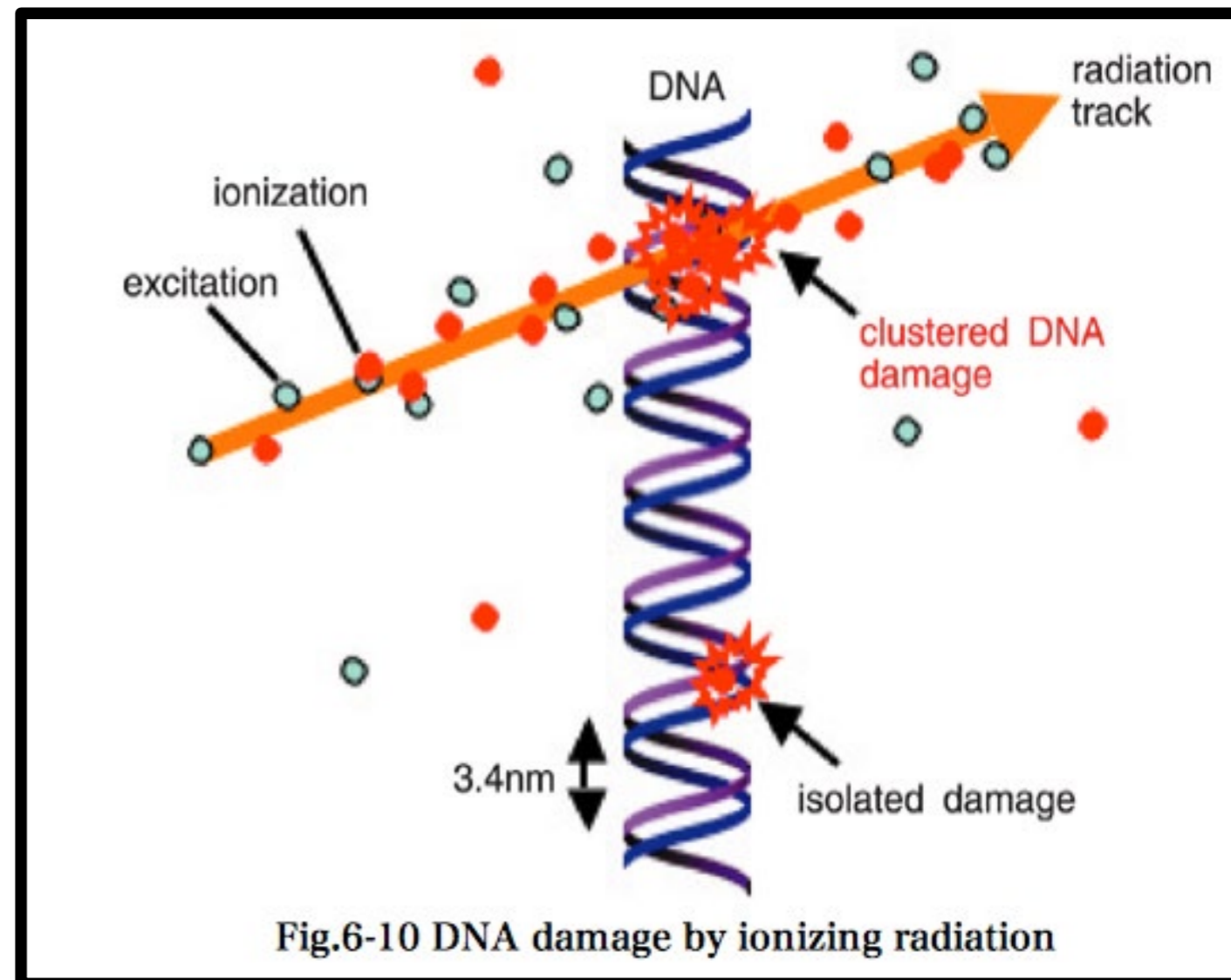
Radon leads to DNA damage in lung tissues

Alpha particle radiation can completely break DNA bonds

clustered damage is difficult for cells to repair

More dangerous to chromosomes than other forms of radiation

The *International Agency for Research on Cancer* defines radon as a category 1 carcinogen.

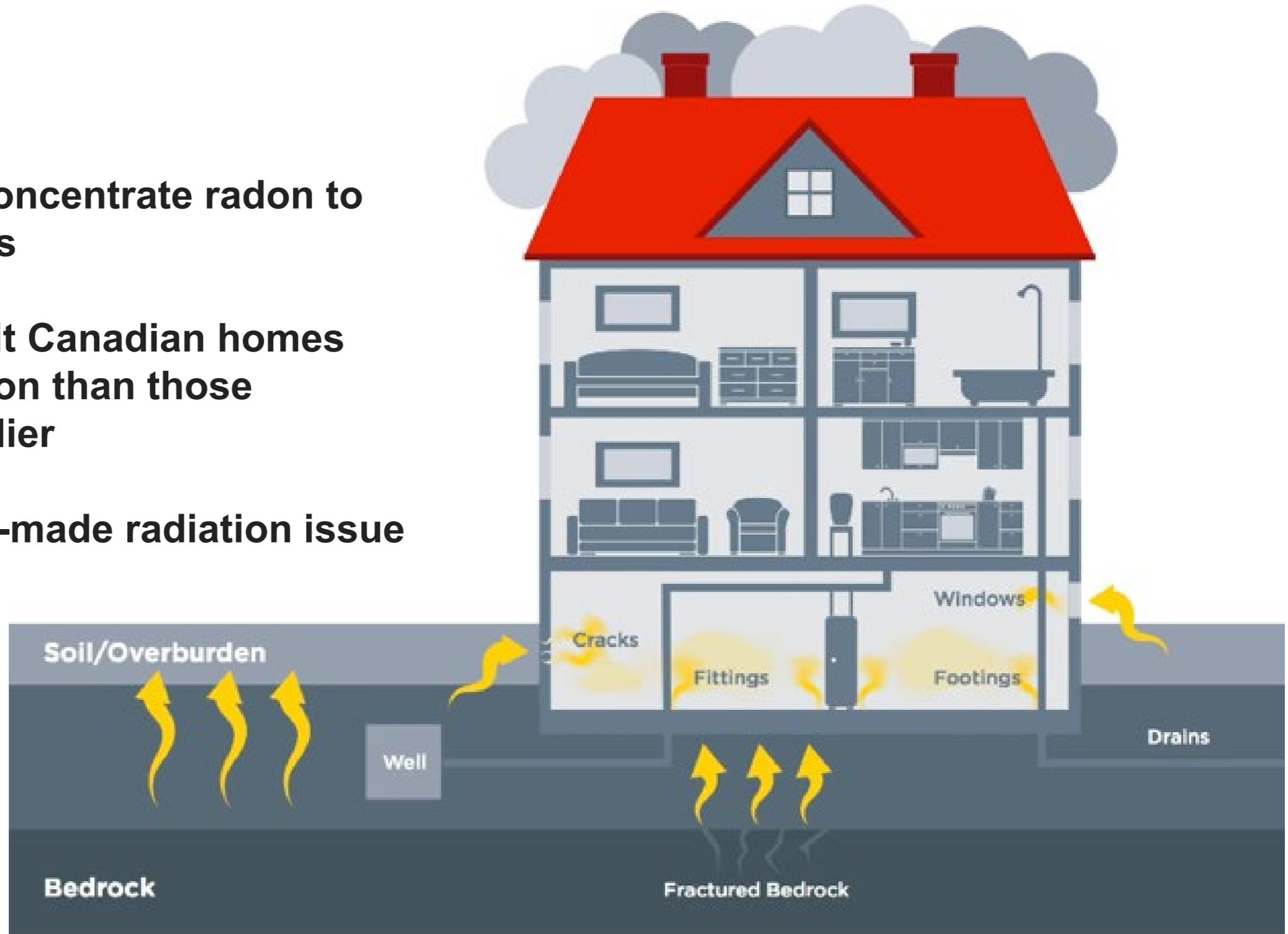


Radon enters through cracks and other gaps

Buildings can concentrate radon to hazardous levels

21st century-built Canadian homes have higher radon than those constructed earlier

This is a human-made radiation issue



Radon is a radioactive gas that is released when uranium breaks down in the ground. It can infiltrate our homes in the various ways pictured here but mitigation strategies can reduce this exposure in both new and existing structures.

Radon Action is Key to Lung Health

- Lung cancer causes approximately 40% of cancer-related deaths
- Tobacco induced lung cancer is decreasing, but lung cancer rates are increasing
- Radon inhalation is the leading cause of lung cancer after smoking.
- The 5-year survival rate for lung cancer in Canada is 19%—4 out of 5 lung patients die.
- Children are particularly susceptible with fast breathing and little lungs.
- 16% of lung cancer deaths among Canadians are attributable to indoor radon exposure.
- This equates to 3,360 deaths from radon in 2020.

Radon Action is About Controlling Risk

- Radon is measured in Becquerels per metre cubed (Bq/m³).
- 1 Bq/m³ means one radioactive decay per second in a cubic metre of air.
- A 16% increase in relative lifetime risk of lung cancer occurs per 100 Bq/m³ long term radon inhalation
- The Canadian Radon Guideline is 200 Bq/m³
- Researchers estimate a home with 450 Bq/m³ would give a radiation dose over the allowable limit for radiation workers (20 mSv per year).
- Risk from radon increases for smokers
- Regular smokers who live in 800 Bq/m³ over their lives face a 1 in three chance of lung cancer– compared to 1 in 20 for non-smokers
- Can target smokers– e.g. renters who live in ground floor and basement apartments

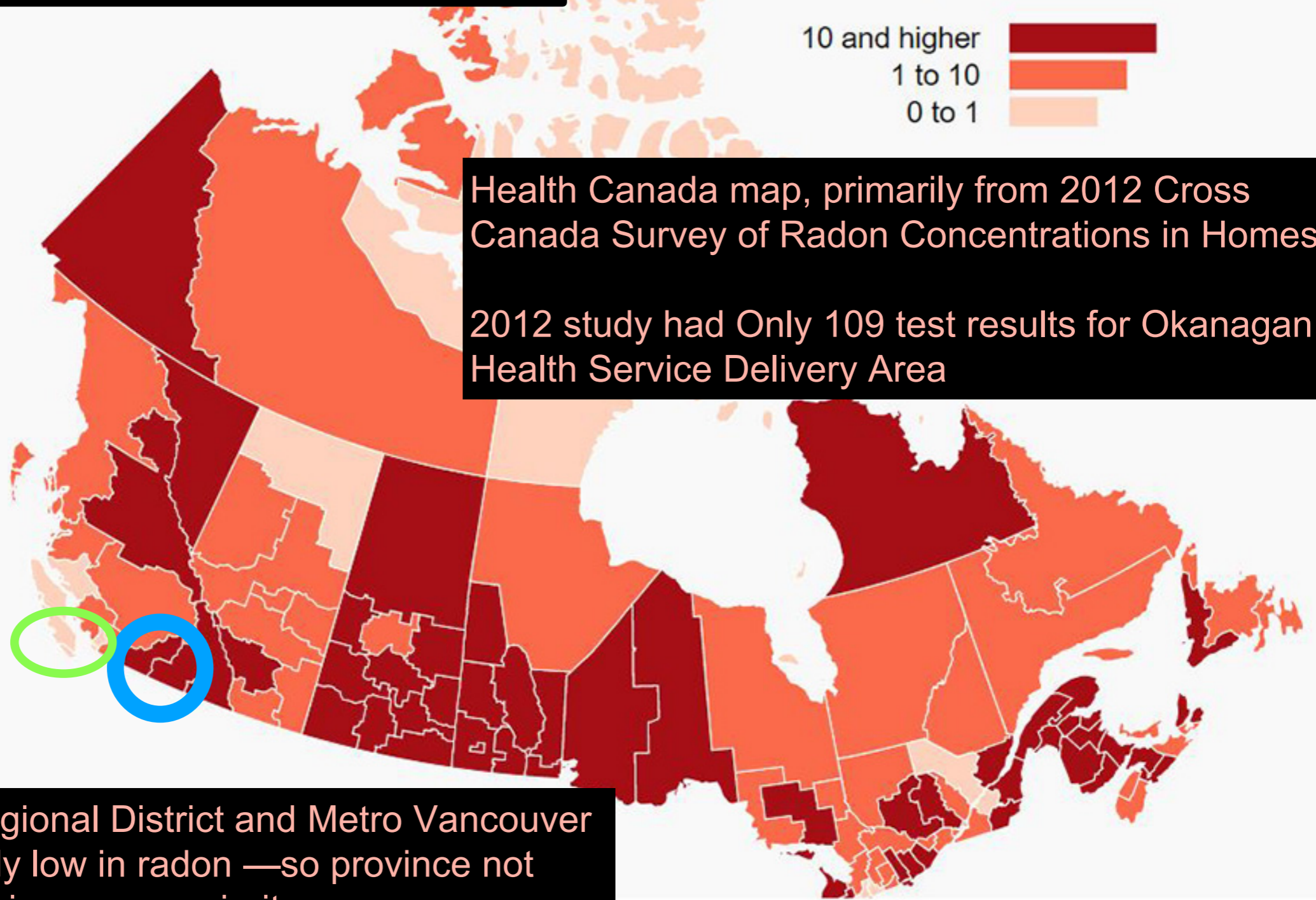
Radon levels vary in Canada

Percentage of homes with high radon levels*



Health Canada map, primarily from 2012 Cross Canada Survey of Radon Concentrations in Homes

2012 study had Only 109 test results for Okanagan Health Service Delivery Area



Capital Regional District and Metro Vancouver consistently low in radon —so province not seeing the issue as a priority

Why Radon Action?

Public health—saving lives

Consumer and workplace protection

- spaces need to be fit for living and working

Environmental governance

Cost-effective intervention

- Better to act in prevention than wait for disease
- Cheaper way to save lives than some drugs

Avoid risk for governments

- Existing duties as landlords and employers

Natural extension of strategies

- Healthy Built Environments
- Sustainability

Different Types of Buildings



New and older owner occupied homes



Rented homes



Schools and daycares



Workplaces

What is Already Happening in BC

Building Code Changes	<p>Requirements in Code, in some municipalities (mostly east of Coast Mountains) written by Building Standards Branch.</p> <p>BC Lung has an assessment project in the Interior.</p>
Testing, database and mapping initiatives	<p>BC Radon Data Repository at BCCDC BC Lung Association- Community Testing Projects SFU Citizen Science projects</p>
Education and awareness	<p>Take Action on Radon, some public health authorities</p>
Real Estate Transactions	<p>BC Real Estate Associations —Property Disclosure Statement Real Estate Council of BC— guidance for real estate licensees</p>
Testing of Government Buildings	<p>BC government—Real Property Division; Federal government—Health Canada; schools in some school districts</p>
Daycare Licensing	<p>Interior Health Authority requires daycares to test for radon as part of licensing</p>

What Can Municipalities Do?

Set a Goal	“reduce the number of homes in this city with elevated radon by half within 10 years”
Monitoring and Surveillance	Radon Testing in Municipal Buildings Community Testing Initiatives Library Lending Projects
Reference level	Use Canada Radon Guideline of 200 Bq/m ³
Education and Awareness	Municipal awareness campaigns, working with local health authorities
Radon Reduction in New Construction	Enforce Building Code Ensure building inspectors understand radon
Radon Reduction Older Homes	Standards of Maintenance, Testing Social Housing, subsidies/incentives, link to energy efficiency

Guidance from Health Canada's National Radon Program

Radon Action Guide for Municipalities

- Appendix—with easy to access examples of action

Radon Action in Municipal Law

- municipalities are “creatures of the provinces”
- powers that municipalities have to address radon in enabling laws

Justifications and Policy Rationales for Radon Action

- why governments should take action
- Linking radon to existing initiatives



Staged Approach

Local governments can gradually begin radon action

Take time to build up interest

Four Potential Levels of Action

1. Take stock of what is already happening
2. Clarify and act on current duties
3. Easier new radon specific measures
4. Longer term measures and a full action plan

Radon Policies for Local Governments

- **Funding to work with local governments on radon action**
- **Created BC specific analysis on what local governments can do on radon**
- **Start with Health Canada's Radon Action Guide for Municipalities**
- **Through consultation with your staff we tailor action plans to your communities needs**



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Thank you

Noah Quastel

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