Teleconference:
Canada
1-855-950-3717
USA
1-866-398-2885
Code: 239 172 3909#

We will start at 2 p.m. Eastern

Public Health Ethics:
A Case in Environmental Health
Webinar | November 29, 2016

Michael Keeling & Olivier Bellefleur
National Collaborating Centre for Healthy Public Policy

Anne-Marie Nicol
National Collaborating Centre for Environmental Health

Presented by:
Can you hear us?
We are talking right now... If you cannot hear us:

For audio, you can use your computer’s speakers or headset, or dial in to the teleconference line by dialling:

The teleconference toll-free number
- Canada: 1-855-950-3717
- USA: 1-866-398-2885

Enter the teleconference code 239 172 3909#

For participants calling from outside of Canada or the US, please check the instructions on this page:
http://www.ncchpp.ca/645/Instructions.ccnpps?id_article=1353

Talk to you soon!
To ask questions during the presentation

Please use the chatbox at any time.

Please note that we are recording this webinar, including the chat, and we will be posting this on the NCCHPP’s website.
Your presenters today

Michael Keeling
National Collaborating Centre for Healthy Public Policy

Olivier Bellefleur
National Collaborating Centre for Healthy Public Policy

Anne-Marie Nicol
National Collaborating Centre for Environmental Health
Declaration of real or potential conflicts of interest

Presenters:
Anne-Marie Nicol, Olivier Bellefleur and Michael Keeling

I have no real or potential conflict of interest related to the material that is being presented today.
The National Collaborating Centres for Public Health
What you said...

• The results from our questionnaire, in brief:

![Bar chart for Radon]

- I don’t know: 1
- I have read a bit on the subject: 2
- I am an expert: 4

![Bar chart for Ethics]

- I don’t know: 1
- I have read a bit on the subject: 2
- I am an expert: 4
Our goals today:

• Present the main characteristics of radon, the risks it poses to health, methods of remediation and the regulatory structures that are in place,

• Suggest and then try out an approach to identifying ethical issues in public health,

• Provide you with additional resources on radon and on public health ethics.
Let’s start with a problem...

The problem:

Radon is Canada’s second leading cause of lung cancer, after smoking, and the leading cause among non-smokers. Despite this, the general public knows very little about radon, the risks it poses to health and protective measures that can be taken.

Drawing from measures recently taken by the Government of Québec, imagine that your provincial government has sent a letter to all daycare owners and managers to inform them about the problem of radon and to ask them to undertake radon testing in their facilities. A follow up six months later reveals that very few daycares have done the testing.

‘Radon’ http://commons.wikimedia.org/wiki/File%3ARadon.svg
Photo credit: SA 2.5. Licence: http://creativecommons.org/licenses/by-sa/2.5

What to do? How to decide?

Numerous factors can be involved in **framing**, **motivating**, **influencing**, **informing** and **justifying** our responses to a problem.

- Blind spots/biases
- Legal/regulatory environment
- Institutional culture/norms
- Acceptable to public/decision makers
- Feasibility
- Supervisor’s directive
- Professional standards
- Social status/privilege
- Values
- Scientific + other evidence
- Cost-effectiveness
- Ethics: analysis
- Analysis of the ‘problem’

These are just a few among many. All of these are important and call for critical attention.
Your public health unit has been asked to comment on a proposed law that, as a condition for obtaining or renewing operating licences, would require daycares to:

- Perform radon tests,
- Post the results such that they are visible from the exterior of the building, and
- Undertake, if necessary, remedial work within the time limits outlined by Health Canada.

The law would use a pictorial system of traffic lights to inform parents, workers and the public about the problem of radon. The green light indicates a site’s tested levels were within the acceptable limit of 200 Bq/m³ established by Health Canada. The yellow light indicates a result between 200 and 600 Bq/m³ and the red light indicates levels exceeding 600 Bq/m³.

Several daycare owners and operators have approached you to express their concerns, such as the fact that the law could cause them to lose clients. They also fear having to eventually close their businesses, which could have major impacts for children and families, especially in lower-income neighbourhoods.

1Inspired by a law in the state of Illinois: [http://www.idph.state.il.us/envhealth/factsheets/radon_daycare.htm](http://www.idph.state.il.us/envhealth/factsheets/radon_daycare.htm)
At first glance, should your public health unit support the proposed law?

Hmmm. Maybe?
Radon 101

Radon is the second leading cause of lung cancer worldwide after smoking

-Leading cause in non-smokers

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
Radon and its decay products are carcinogenic to humans (Group 1).

In 2010, ICRP concluded that radon presents a greater risk than has been previously calculated in 1993
Decay chain of uranium -> radon

For every atom of Rn$^{222}$ inhaled, **four α-particles** are emitted, three in the first week.

Slide created by Dr. Aaron Goodarzi, Canada Research Chair for Genome Damage and Instability disease used with permission
Radon is a soil gas and it is drawn into buildings through pressure differential between ground and home.
Burden of Radon-related lung cancer

• Every year 3,300 Canadians die of lung cancer due to radon exposure (Health Canada)
• Public Health Ontario-> 2016
  – 1,080-1,550 new cancer cases each year

US EPA- Radon
In the lung and respiratory track, the alpha radiation “rips through” DNA bonds.

This type of clustered damage is more difficult to repair properly than other forms of DNA damage.

↑ DNA damage = ↑ error = ↑ genetic mutation = ↑ cancer
How Much Damage Does an Alpha Particle Really Do?

Plastic chip from radon test device

150 Bq/m$^3$ of radon

3 months

Thanks to Winnie Cheng for slide
Less than 40% of Canadians are aware of that radon poses a health threat.
Households* (%) that have tested for radon gas†

Worse, very few Canadian households have tested for radon

*As a percentage of all households that did not live in an apartment and had heard of radon
†Survey notes to use data with caution, z
Are children more vulnerable?

• Research suggests that children are at greater risk from radiation *in general* than adults

• Beyond lung cancer:
  – Leukemia and other blood cancers main research focus for children
  – Some weak evidence for and some evidence against
  – Limited data set for both adults and children

• Question for childhood exposure: timing
  – In utero? first few years?

• Bottom line- reducing exposure during early years reduces overall lifetime burden
Current guidelines and impacts

• Canada 200 bq/m³
• USA ~150 bq/m³
• WHO 100 bq/m³
• Linear relationship
  – No safe level
• PHO example (Peterson 2013)
  – 91 people saved at 200
  – 233 saved at 100

Figure 1. Lifetime relative risks (LRRs) of lung cancer for Canadian males (solid lines) and for Canadian females (broken lines) based on the EPA model and a submultiplicative interaction between smoking and exposure to radon progeny.
Radon Potential Map
Canada

Relative Radon Hazard*
- Zone 1 – High
- Zone 2 – Elevated
- Zone 3 – Guarded

*All dwellings need to be tested for radon; wide variations can occur in all three zones.
What prevention strategies exist?

• **Existing homes:**
  – Colourless, odourless gas
  – Testing recommended in areas where people spend >4 hours
    • Workplaces, homes, schools, institutions
  – Requires testing, remediation and retesting
  – Various remediation options
    • Active radon removal systems- sub slab depressurization
    • Sealing floors and cracks
    • Temporary measures: moving bedrooms and play rooms upstairs while waiting, increasing ventilation

• **New homes:**
  – Changes in Building codes to build radon out
Radon Testing: 91 days or more

- Electret Ion Chamber
- Alpha Track Detector (ATD)
- Continuous Radon Monitor (CRM)
Sub-Slab Depressurization
Regulatory initiatives

• Health Canada radon recommendations guideline only—not law, **no legal requirements to test**
  – New building code doesn’t require *testing*

• Reducing exposure during early life effective at reducing lifetime risk
  – Quebec only province that has mandatory school testing
  – Daycare testing not yet required as part of licensing

• Others
  – Provincial government in Ontario reviewing changes to rental tenancy to incorporate radon testing
  – Real estate transactions/home inspection opportunities
  – New home owners warranty- Ontario only
Questions? Comments?

Next:

An ethical dimension in decision making

‘Questions’ Photo credit: Derek Bridges. Flickr.com
Licence Creative Commons: https://creativecommons.org/licenses/by/2.0/
Why should we take an interest in public health (PH) ethics?

Because to act with professionalism, one must know:

- The health effects of radon exposure
- The best means for prevention or remediation
- Guidelines and best practices
- The regulatory environment, etc.

But we also need to:

- Pay attention to the direct and indirect effects that our decisions have on communities, groups, individuals and ourselves.
- Recognize the values that are being promoted and those that are being diminished.
- Be able to deliberate about options, make decisions, and justify them.

Ethics can help you to do these!
What can we use to help us think about ethical issues in public health?

- Codes of ethics
- Values
- Frameworks
- Cases
- Principles
- Ethical theories
- Intuitions

Nothing
There are also different levels to consider...

Macro

At the level of public policy or population health (e.g., provincial regulation on radon)

Meso

At the level of organizations or groups (e.g., how can public health support daycare operators?)

Micro

Between one or a few individuals (e.g., how to help a low-income parent in moral distress when the daycare posts a sign indicating high radon levels?)

Each perspective reveals different ethical issues - every level is important
What can we use to help us think about ethical issues in public health?

- Codes of ethics
- Values
- Frameworks
- Cases
- Principles
- Ethical theories
- Intuitions
- Nothing
Professionalism at the Canadian Institute of Public Health Inspectors (CIPHI)

• Code of Ethics
• Standards of Practice
• Discipline-specific competencies
• Professional development model

http://www.ciphi.ca/info-centre/continuing-professional-competencies-cpc-program/
Code of Ethics

6 PRINCIPLES

• Promoting Justice
• Being Accountable
• Maintaining Privacy and Confidentiality
• Promoting Evidence-Informed Decision making
• Promoting Health, Well-Being & Collaboration
• Competent Practice

3.3 Ethical Standard

Environmental public health professionals demonstrate the ethical standard by:
(7 indicators, including…)

“Identifying ethical issues and communicating them to their employers, colleagues, and members of their teams”

Ethics frameworks for public health

• A framework is a guide that can help professionals to adopt an ethical perspective – no prior expertise in ethics is required.

• Alas, it will only help to guide you – the work is still up to you (especially the critical thinking) and so are the decisions.

• Many frameworks exist (see the resources at the end of this presentation).
Let’s discuss our case with the help of the framework by Nancy Kass

**Case:**

In order to obtain or renew a daycare licence, it would be necessary:
- To undertake **radon testing**;
- To **post the results** such that they will be visible from outside the building; and
- In the case of elevated radon levels, to undertake **remedial work** within the time limits outlined by Health Canada.

**The framework:**

**Its goal:**

“to help public health professionals consider the ethics implications of proposed interventions, policy proposals, research initiatives, and programs” (2001, p. 1777).


Our adapted summary is available at: [http://www.ncchpp.ca/docs/2016_eth_frame_kass_En.pdf](http://www.ncchpp.ca/docs/2016_eth_frame_kass_En.pdf)
1. **What are the public health goals of the proposed program?**
   The ultimate health goal(s)
   
   Reduce morbidity and mortality caused by radon.
Few people who are aware of radon test their homes (approx. 6%)

– About 12% of those whose homes test between 150 and 800 Bq/m³
– About 32% of those whose homes test at over 800 Bq/m³

(NCCEH, 2008; Dessau et al., 2004).

1. What are the public health goals of the proposed program?

2. How effective is the program in achieving its stated goals?

The “greater the burdens posed by a program” (liberty, costs, etc.) the stronger the evidence should be.
1. What are the public health goals of the proposed program?

2. How effective is the program in achieving its stated goals?

3. What are the known or potential burdens of the program?

   What are the risks
   - to privacy and confidentiality?
   - to liberty and self determination?
   - to justice?
   - to individuals’ health?
1. What are the public health goals of the proposed program?
2. How effective is the program in achieving its stated goals?
3. What are the known or potential burdens of the program?
4. Can burdens be minimized? Are there alternative approaches?

“[W]e are required, ethically, to choose the approach that poses fewer risks to other moral claims, such as liberty, privacy, opportunity, and justice, assuming benefits are not significantly reduced” (p. 1780).
1. What are the public health goals of the proposed program?
2. How effective is the program in achieving its stated goals?
3. What are the known or potential burdens of the program?
4. Can burdens be minimized? Are there alternative approaches?

5. Is the program implemented fairly?
   - Is there a fair distribution of benefits and burdens?
   - Will the program increase or decrease inequalities?
   - Should the program be universal?
   - Should it target certain populations?
   - Is there a risk of stigmatizing certain groups?
1. What are the public health goals of the proposed program?
2. How effective is the program in achieving its stated goals?
3. What are the known or potential burdens of the program?
4. Can burdens be minimized? Are there alternative approaches?
5. Is the program implemented fairly?
6. How can the benefits and burdens of a program be fairly balanced?

“[T]he greater the burden imposed by a program, the greater must be the expected public health benefit”. the more that “burdens are imposed on one group to protect the health of another...the greater must be the expected benefit”
Balancing these calls for a democratic, equitable process.
Now, do you think that your public health unit should support the proposed law?

Hmmm.
Maybe?

YES!

?  

NO!
Questions and discussion
Links to a selection of NCCEH resources on radon


Other resources on radon

- Canadian national radon proficiency program. C-NRPP and CARST have developed some resources to help when it comes to testing child care centres. http://c-nrpp.ca/professionals/testing-child-care-centres/
- Canadian national radon proficiency program. http://c-nrpp.ca/
Some NCCHPP resources on public health ethics

http://www.ncchpp.ca/708/Repertoire_of_Frameworks.ccnpps


http://www.ncchpp.ca/127/Publications.ccnpps?id_article=1527

http://www.ncchpp.ca/127/Publications.ccnpps?id_article=1517

http://www.ncchpp.ca/128/presentations.ccnpps?id_article=1553

http://www.ncchpp.ca/127/Publications.ccnpps?id_article=1426
References

http://www.ncceh.ca/documents/evidence-review/radon-testing-and-remediation-programs-what-works

Evaluation and continuing education credits

- We will send you an email with a link to an evaluation form for this webinar.

- In order to receive continuing education credits, you will have to fill out the evaluation form.

- To obtain continuing education credits, once you have filled out the evaluation form, you can click on a link that will take you to another form requesting your credits. Your evaluation form responses will remain confidential and will not be connected to your request for continuing education credits.
Thank you for joining us

This subject interests you?

Visit NCCEH’s (www.ncceh.ca) and NCCHPP’s (www.ncchpp.ca) websites for more resources

Or, write to us:
– Anne-Marie Nicol at NCCEH (Anne-Marie.Nicol@bccdc.ca)
– Olivier Bellefleur at NCCHPP (olivier.bellefleur@inspq.qc.ca)
– Michael Keeling at NCCHPP (michael.keeling@inspq.qc.ca)