Hot topics in Environmental Health: Radon and Lyme Disease

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Thunder Bay District Health Unit

Conflict of Interest Declaration: Nothing to Disclose

Presenter: Dr. Emily Groot

Title of Presentation: Hot topics in Environmental Health: Radon and Lyme Disease

I have no financial or personal relationship related to this presentation to disclose.

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Overview

1. Tuberculosis update
2. Radon
3. Lyme disease

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Audience participation

To participate in live polls during this session:

1. Go to **slido.com** on your mobile, laptop, or tablet
2. Enter event code #M616

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TUBERCULOSIS UPDATE

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Tuberculosis update

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RADON

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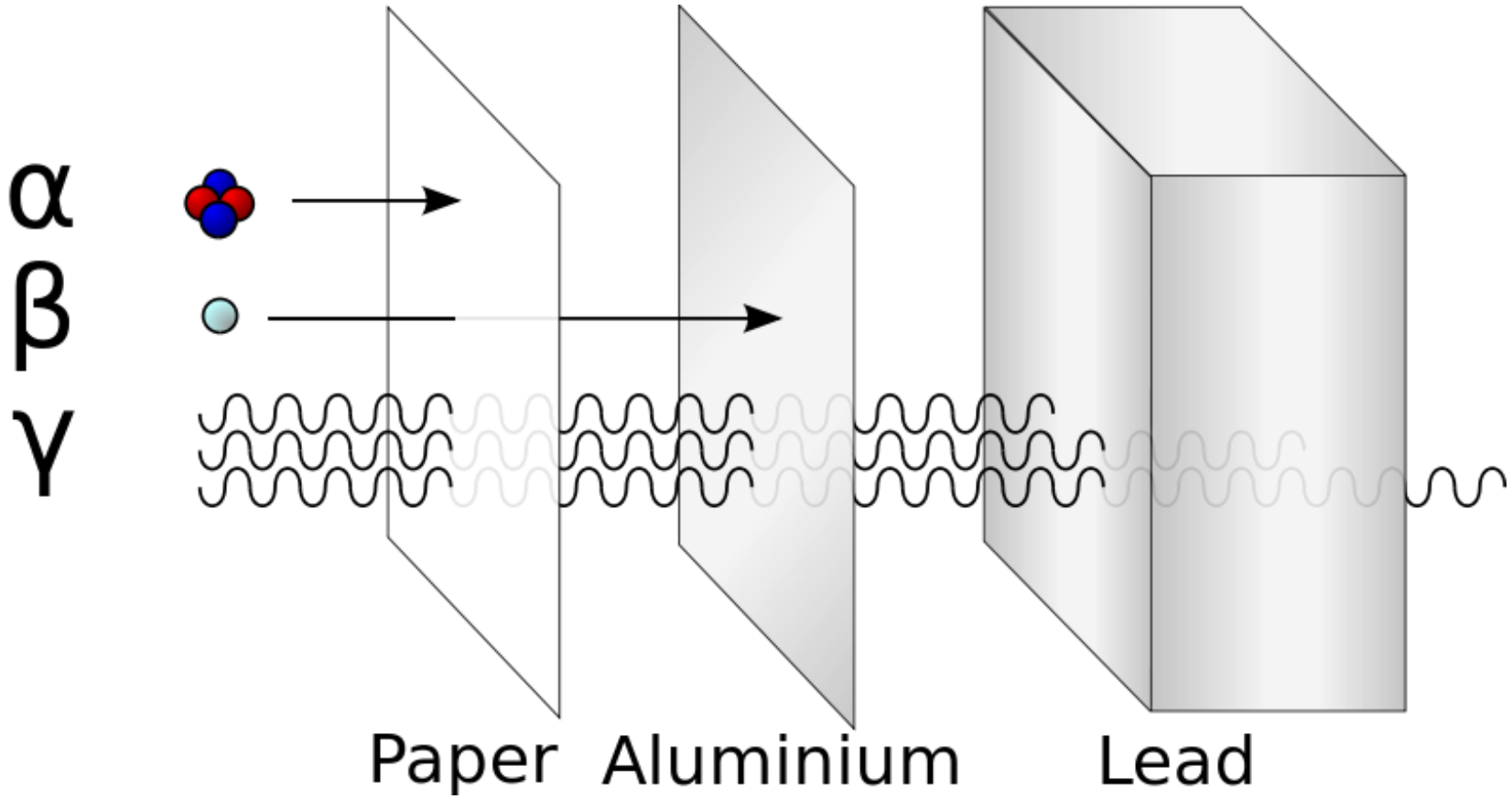
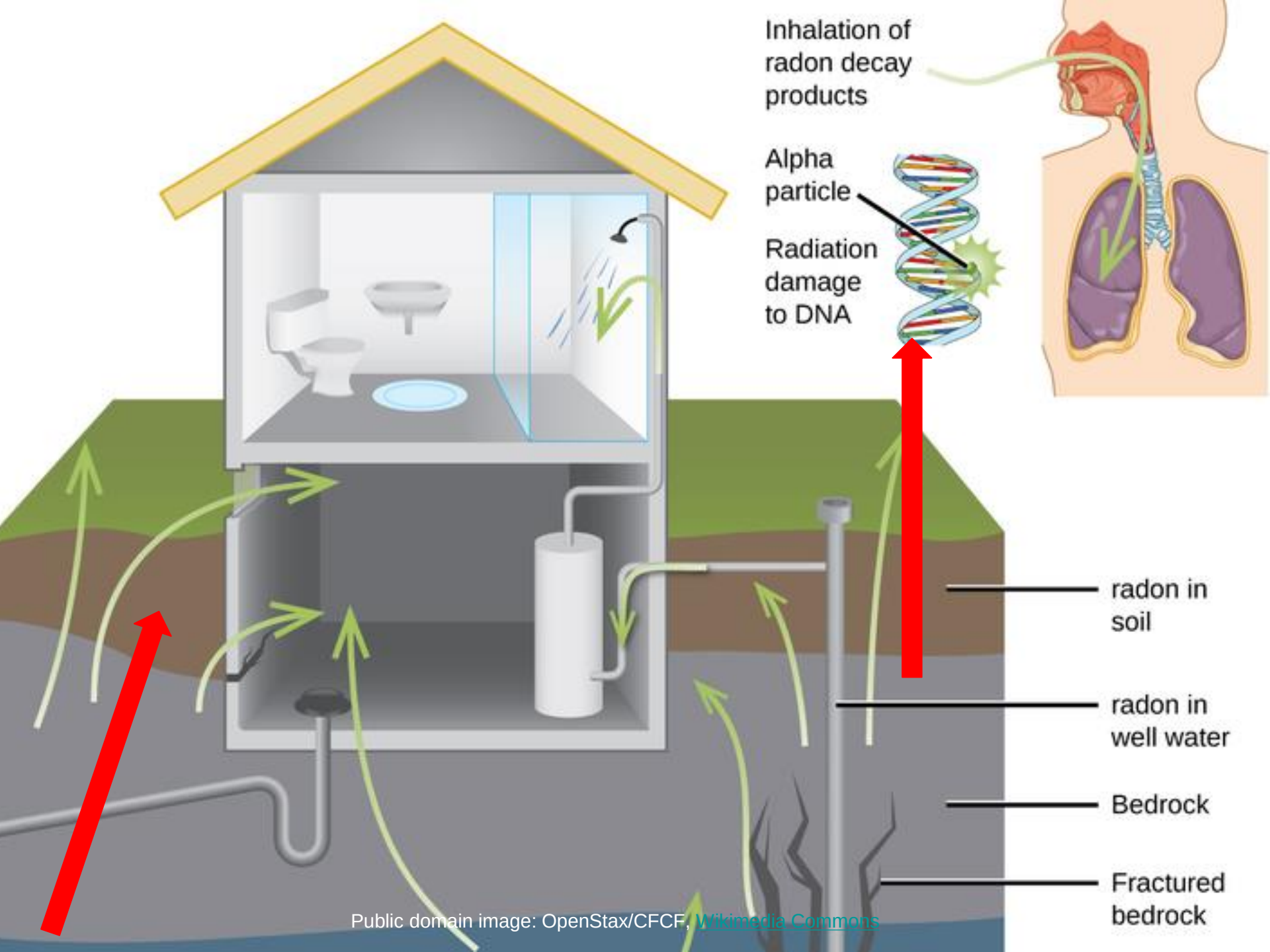
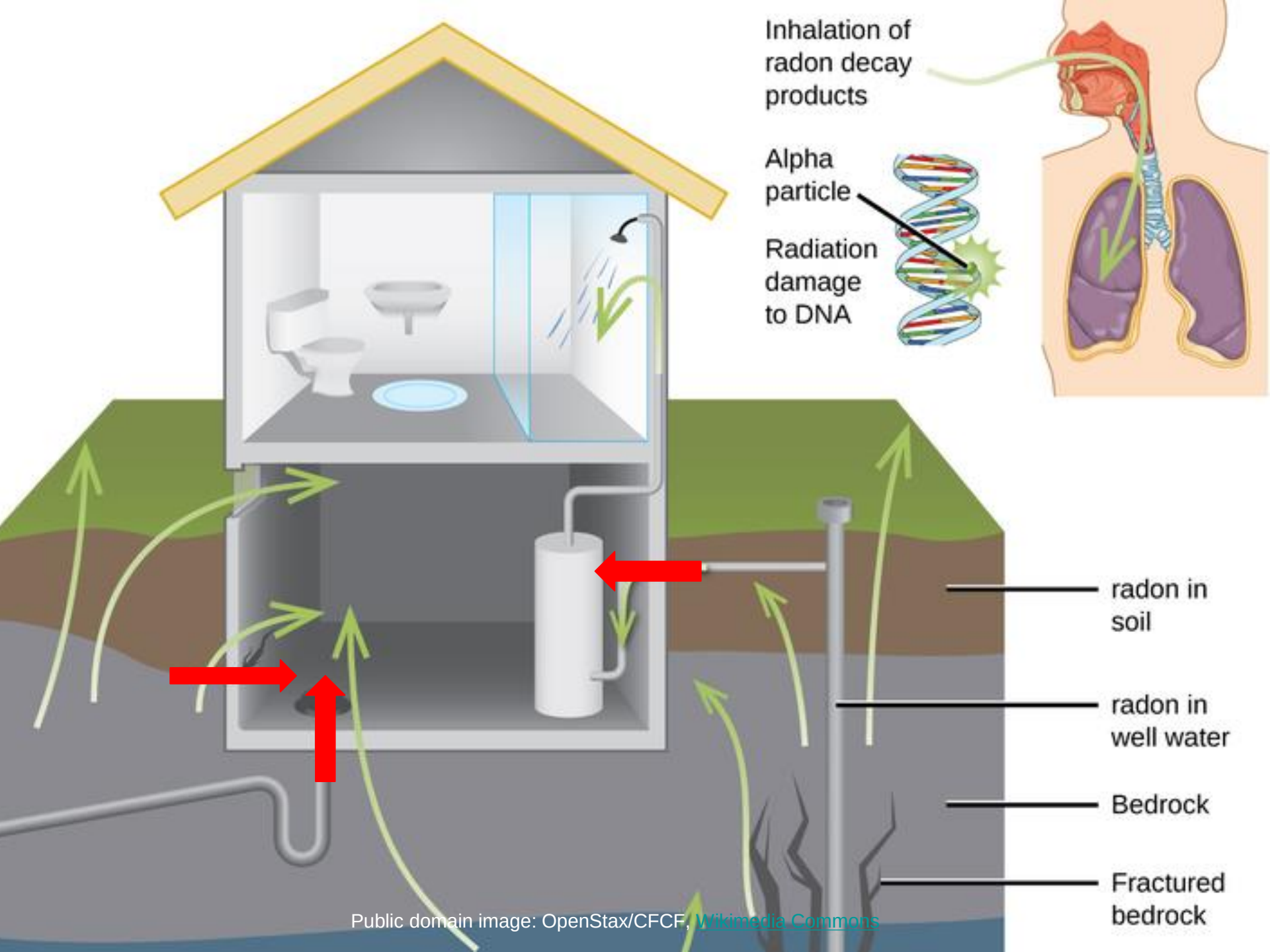
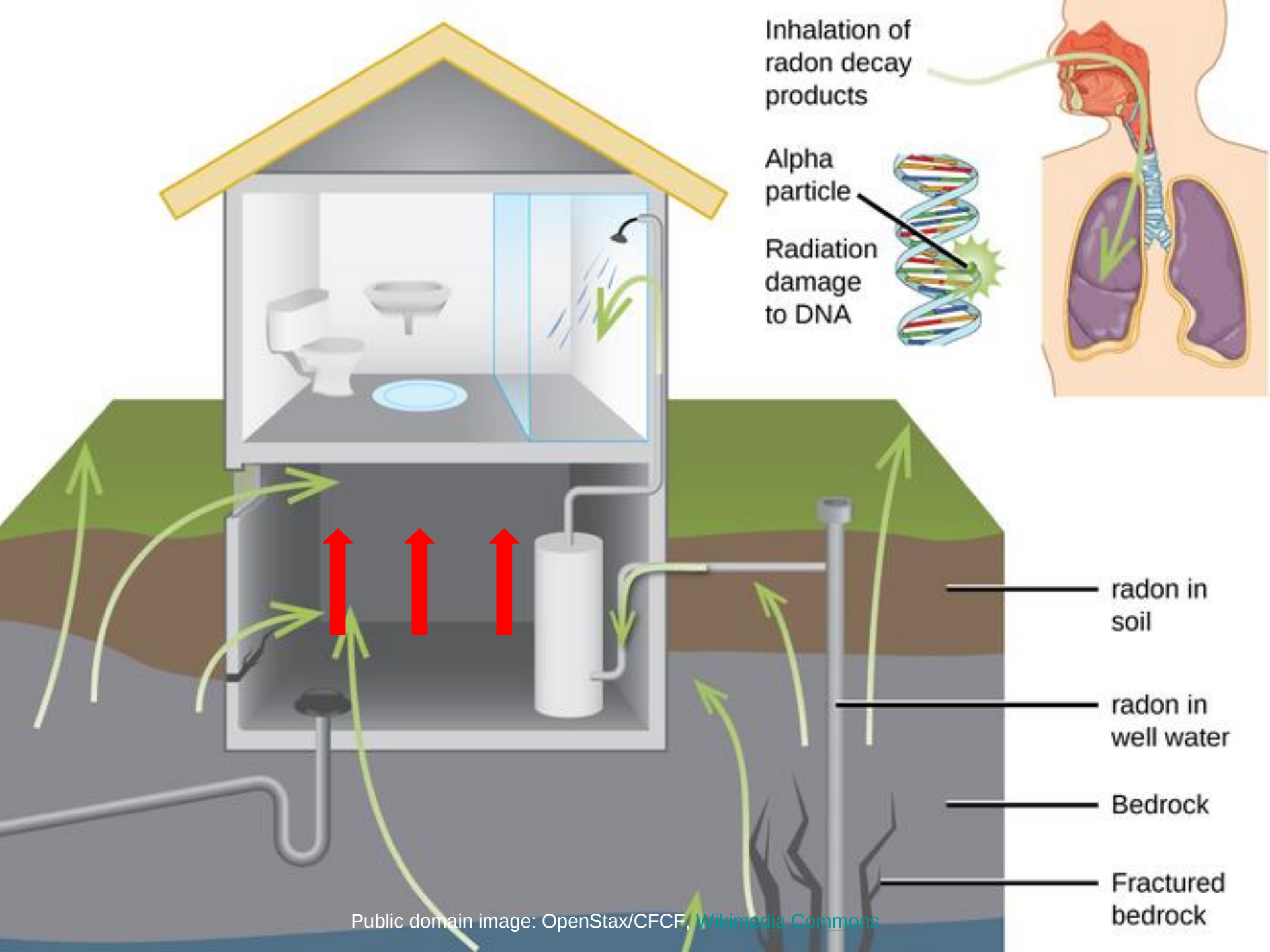
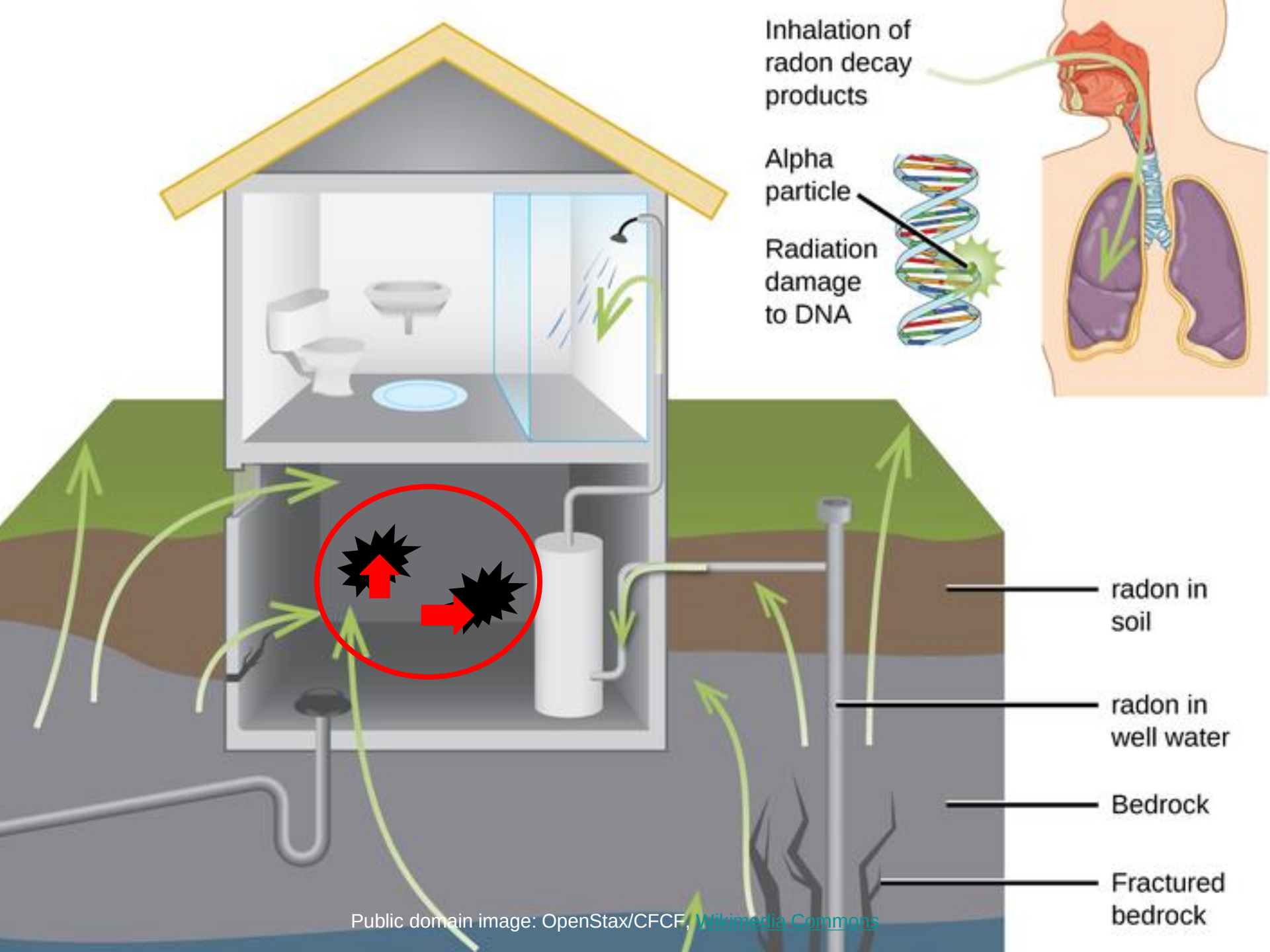
What is radon?

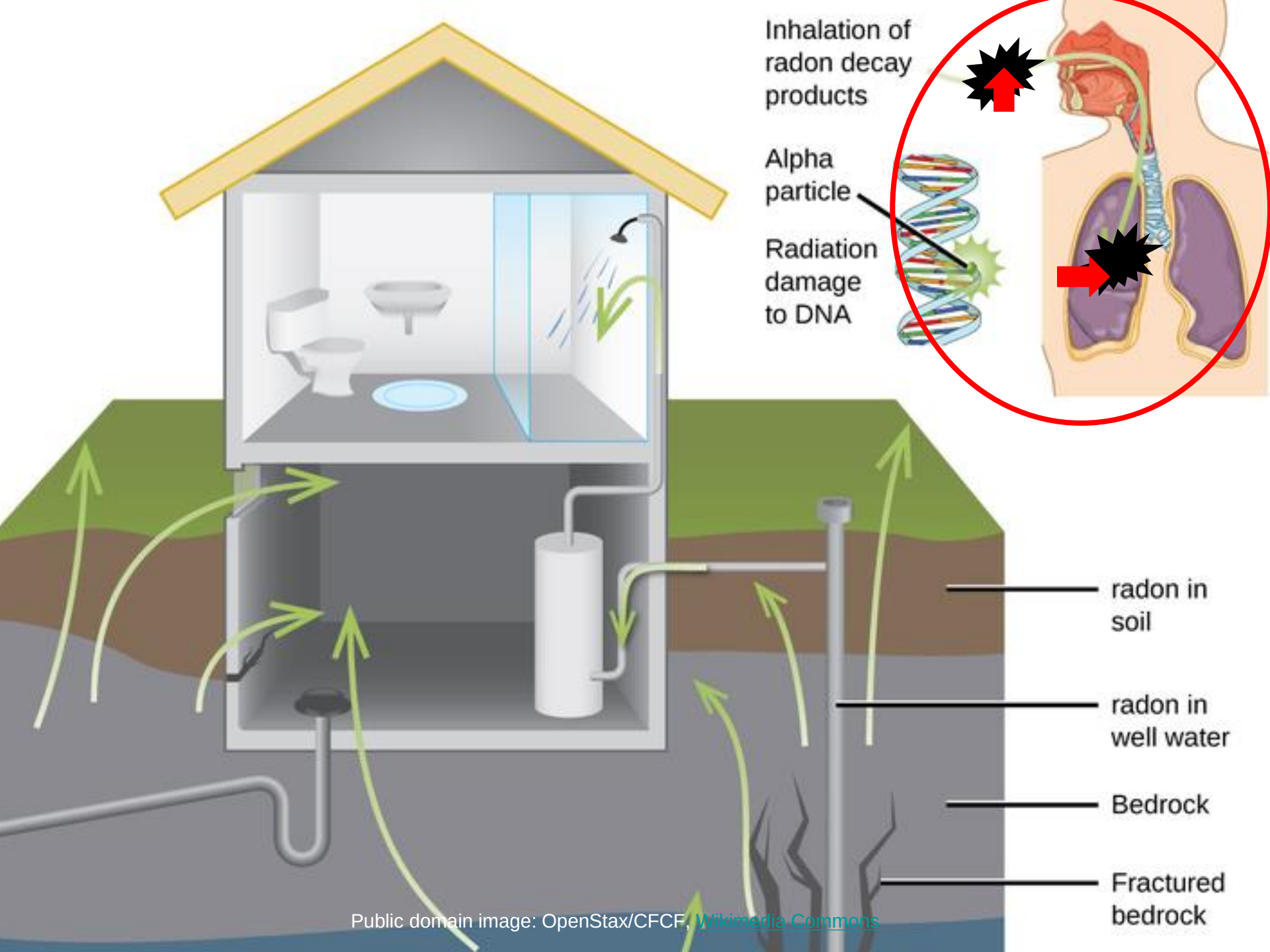


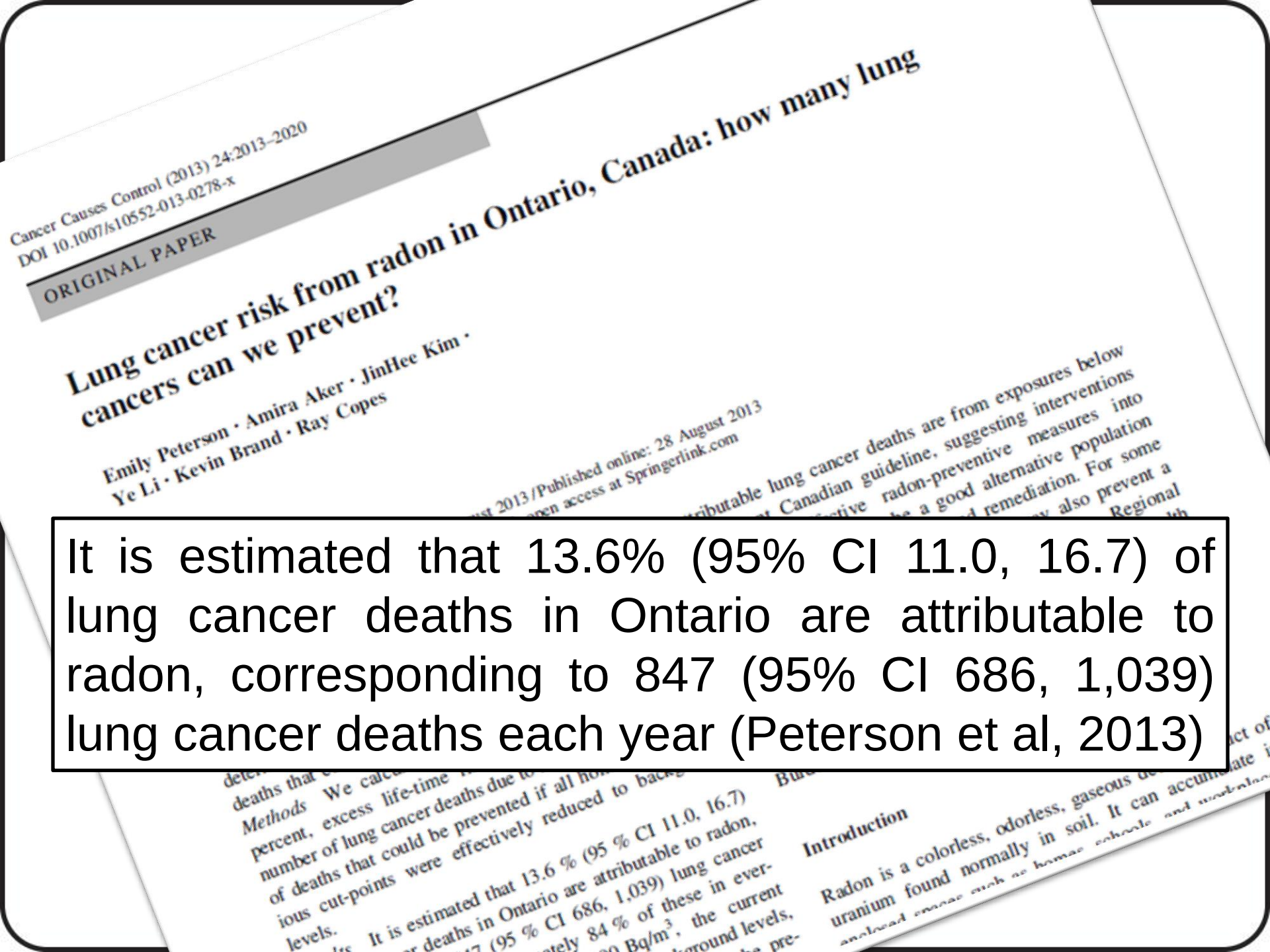











Cancer Causes Control (2013) 24:2013–2020
DOI 10.1007/s10552-013-0278-x
ORIGINAL PAPER
Lung cancer risk from radon in Ontario, Canada: how many lung cancers can we prevent?
Emily Peterson · Amira Aker · JinHee Kim · Ye Li · Kevin Brand · Ray Copes
It is estimated that 13.6% (95% CI 11.0, 16.7) of lung cancer deaths in Ontario are attributable to radon, corresponding to 847 (95% CI 686, 1,039) lung cancer deaths each year (Peterson et al, 2013)
Introduction
Radon is a colorless, odorless, gaseous

Audience poll

Who is at highest risk of lung cancer due to radon exposure?

a) Smokers
b) Non-smokers

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Testing and mitigation

Public domain image: US NIH/Vale maio, Wikimedia Commons

Prevalence of residences with radon levels that exceed Canadian guidelines

Geographic location	Proportion of residences exceeding 200 Bq/m^3
City of Thunder Bay	16%
District of Thunder Bay	12%
Ontario	4.6%
Canada	6.9%

Key messages for patients

1. Quit or reduce smoking
2. Test the lowest level of your residence that is regularly used
3. Remediate your residence if necessary

LYME DISEASE

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Audience poll: Clinical vignette

A healthy 37-year-old male with NKDA visits your office after finding a blacklegged tick attached to his L axilla. His only recent outdoor exposure was a local hike 2 days ago. You remove the tick, and then you:

a) Offer doxycycline, 100 mg PO BID x 14 days
b) Offer doxycycline, 200 mg PO x 1
c) Ask the patient to bring the tick to TBDHU for testing
d) Order serologic testing for Lyme disease

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White-tailed deer

White-footed mice

Blacklegged ticks

Public domain images: Clay Heaton, Wikimedia Commons; NIAID, Wikimedia Commons; D. Gordon E. Robertson, Wikimedia Commons

Who should receive post-exposure prophylaxis?

The IDSA Guidelines recommend considering a single dose of doxycycline following a blacklegged tick bite for patients >8 years old if:

- Lyme-endemic area AND
- PEP will be taken <72h from tick removal AND
- Tick is engorged or has been attached for >24h AND
- No contraindication exists

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Lyme-endemic areas

- IDSA definition: Areas where the prevalence of *B. burgdorferi* in blacklegged ticks is >20%
- In Ontario, the following areas meet this definition:
  - Rouge Park and Morningside Park in the GTA
  - Brighton
  - Kingston and surrounding areas
  - Thousand Islands, Brockville, Perth-Smith Falls, and surrounding areas
  - Ottawa and surrounding areas
  - Rondeau Provincial Park

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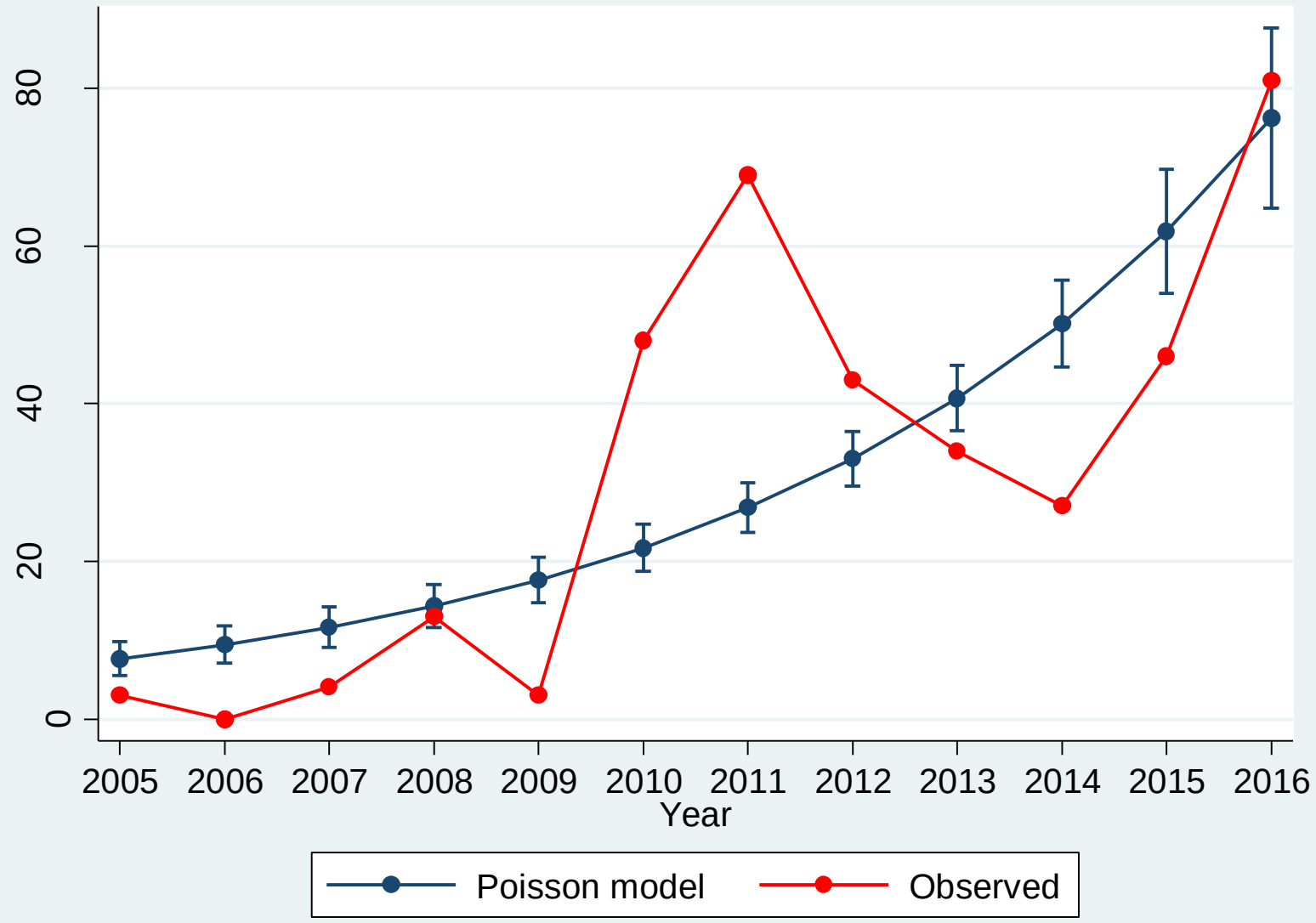
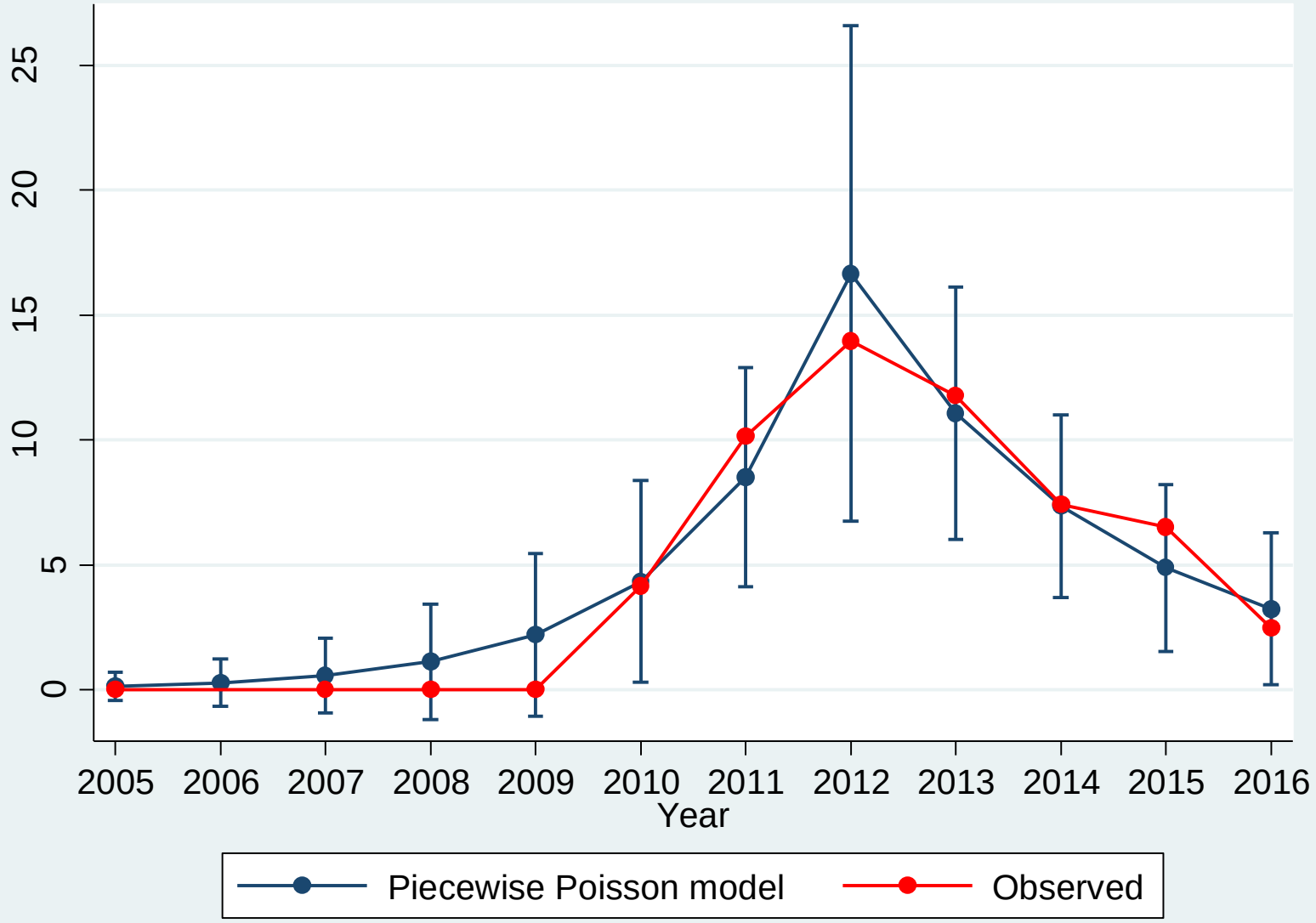
Blacklegged ticks in TBDHU



Borrelia-positive blacklegged ticks in TBDHU



Clinical presentations

Early localized disease	• 1-2 weeks after tick bite • Erythema migrans (>5 cm)
Early disseminated disease	• Weeks to months after tick bite • Wide range of presentations
Late disease	• Months to years after tick bite • Arthritis of large joints; rarely, neurological manifestations
Post-Lyme disease syndrome	• Subjective MSK pain, cognitive impairment, or fatigue despite appropriate treatment in patients with well-documented Lyme disease

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Audience poll: Clinical vignette (again)

A healthy 37-year-old male with NKDA visits your office after finding a blacklegged tick attached to his L axilla. His only recent outdoor exposure was a local hike 2 days ago. You remove the tick, and then you:

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Take-home messages

1. Thunder Bay District is *not* a Lyme-endemic area
2. Ticks must be attached for at least 24 hours to transmit Lyme disease
3. Tick testing is for surveillance only, and should not guide diagnosis

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Audience poll

Which section of the presentation was most relevant to your practice?

a)Tuberculosis update

b)Radon

c)Lyme disease

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Resources for patients and providers

Radon

Patient resources

- Radon: Another Reason to Quit (handout for patients who smoke)
- Radon Reduction Guide for Canadians
- TBDHU Radon webpage

Provider resources

- MacHealth online radon course for healthcare providers
- Health Canada Radon Information for Health Professionals

Lyme disease

Patient resources

- TBDHU Lyme Disease Fact Sheet

Provider resources

- Public Health Ontario Lyme Disease website
- 2006 Infectious Disease Society of America (IDSA) Lyme Disease Clinical Practice Guidelines (note that updated guidelines are expected in the next year or two)

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