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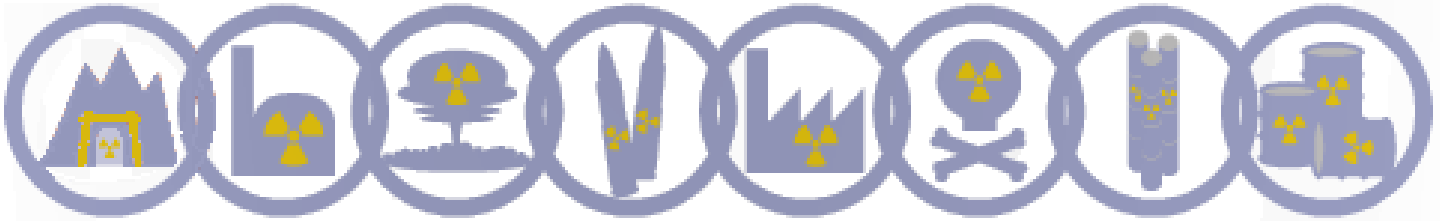

Our nuclear legacy

The toxic inheritance of future generations

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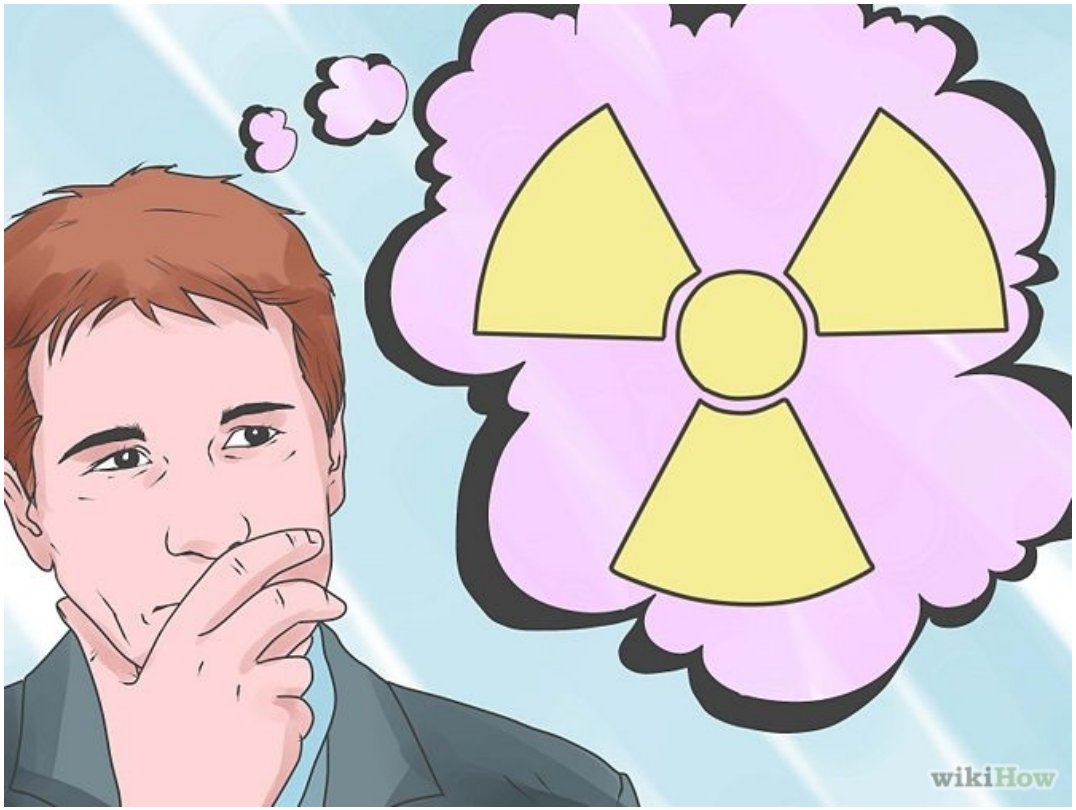
Nuclear waste - what are we talking about?



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Nuclear waste - what are we talking about?

Generally, there are 6 types of radioactive waste:

- High level waste (HLW)
- Intermediate level waste (ILW)
- Low level waste (LLW)
- Very low level waste (VLLW)
- Very short-lived waste (VSLW)
- Exempt waste (EW)

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High level waste (HLW)

- Spent or damaged fuel rods and reprocessing waste
- Generates significant amounts of heat for many centuries
- Contains large amounts of long lived radionuclides
- Recommendation: Indefinite deep geological disposal

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Intermediate level waste (ILW)

- Ion-exchange resins and certain parts of a decomissioned reactor
- Requires shielding, containment and isolation for long periods of time
- Requires limited or no provisions for heat dissipation
- Recommendation: Long-term underground disposal

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Low level waste (LLW)

- Contaminated equipment (protective shoe covers and clothing, rags, mops, filters, sheeting, maintenance equipment, pipes, etc.)
- Contains limited amounts of long-lived radionuclides, but may contain high activity levels of short lived radionuclides
- Requires robust isolation and containment for hundreds of years
- Recommendation: Long-term near-surface or underground disposal

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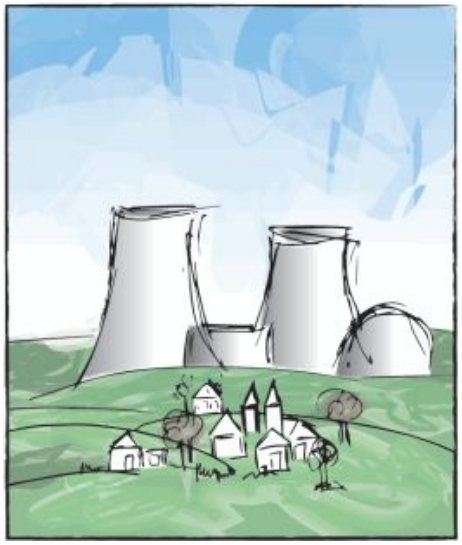
Very low level waste (VLLW)

- Contaminated construction materials such as steel, concrete or plastic
- Very limited concentration of longer lived radionuclides
- Does not require high levels of containment or isolation
- Recommedation: disposal in special surface landfills



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Very short-lived waste (VSLW)

- Usually materials from research or medical facilities
- Contains only radionuclides with short half lives (< 100 days) such as Iridium-192 or Technicium-99m
- Recommedation: safe storage for a few years, then clearance from regulatory control

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Exempt waste (EW)

- Materials that meets politically defined criteria for clearance, examption or exclusion from regulatory control
- These can include contaminated and non-contaminated waste produced during the decomissioning of nuclear power plants
- Recommendation: disposal in conventional landfills or recycling, as long as effective individual doses do not exceed 10 μSv per year

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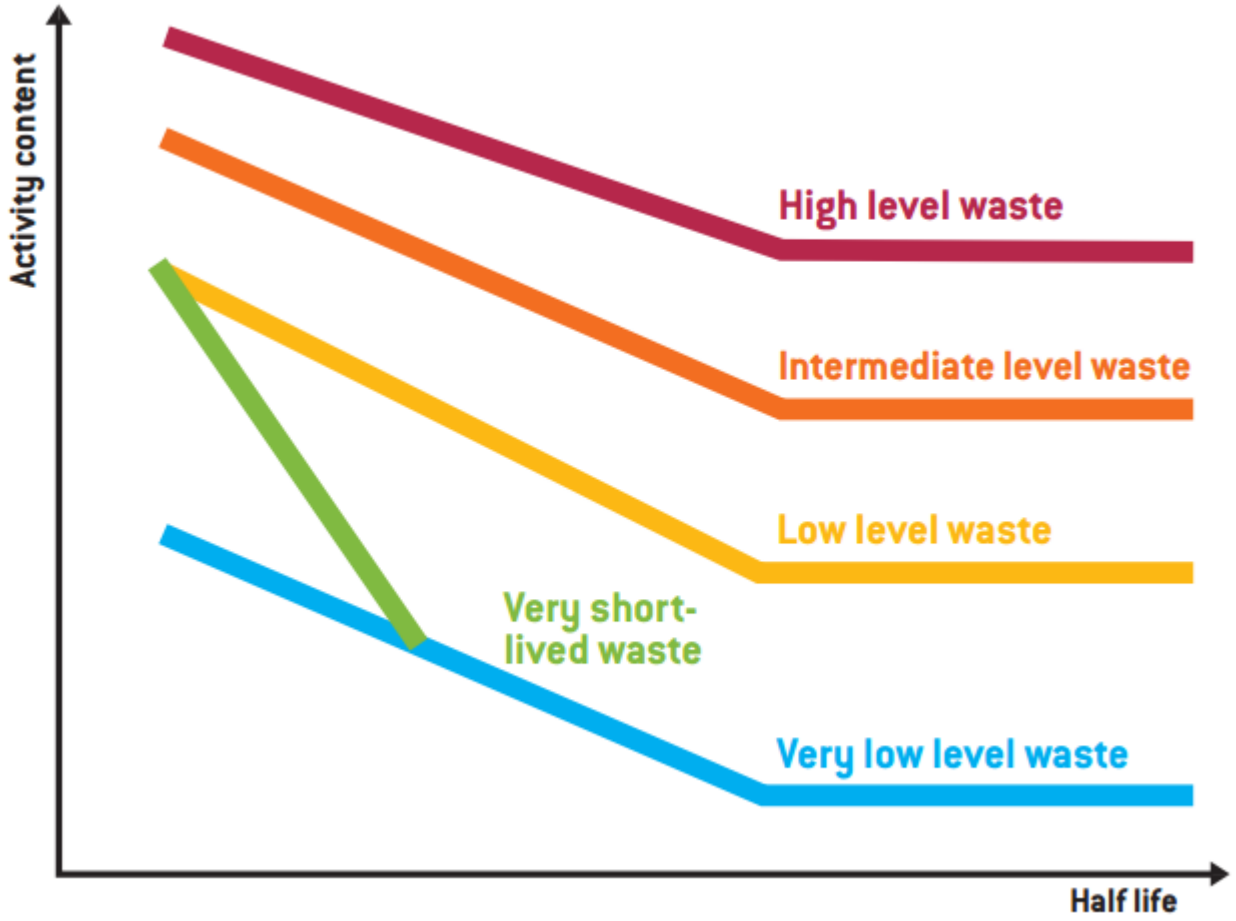

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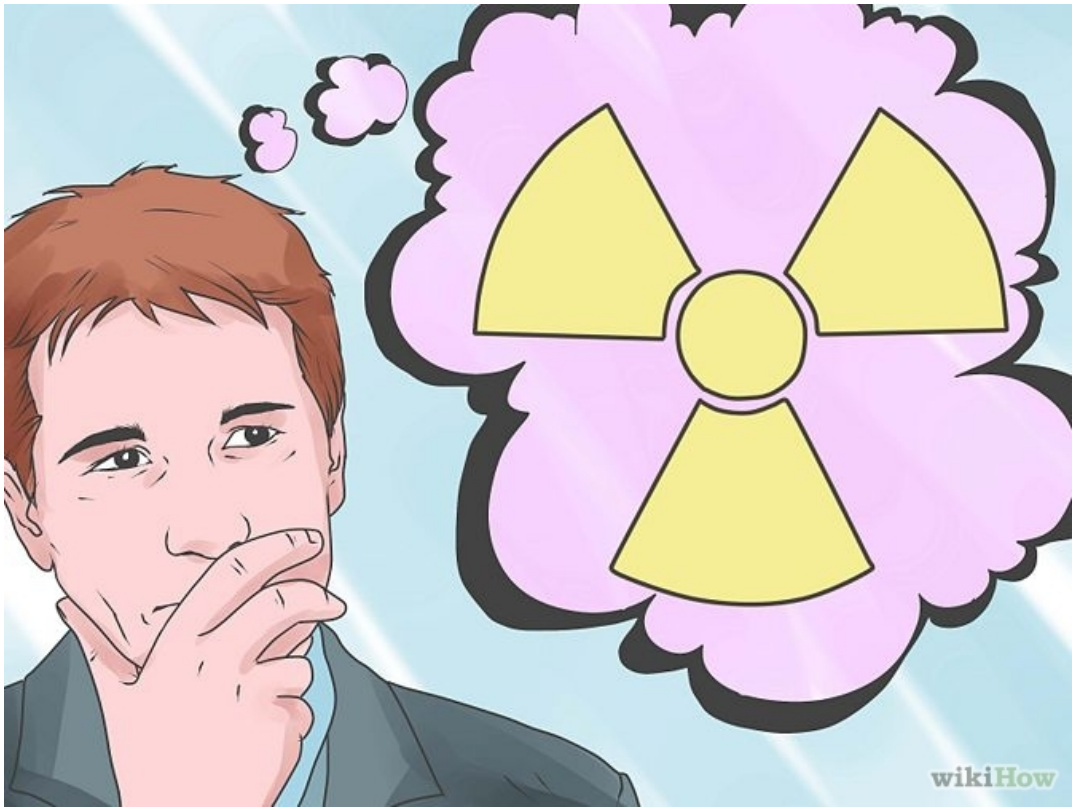
Why should doctors worry about this subject?



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Why should doctors worry about this subject?

- Proliferation risk of high level nuclear waste
- Public health hazard of storage and disposal sites:
  - Disposal sites could be a target for terrorists or foreign armies
  - Natural catastrophes
  - Human error
- Clearance of very low level nuclear waste could lead to radioactive materials accumulating in household appliances, construction materials or on normal landfills without any regulations or radiation protection measures

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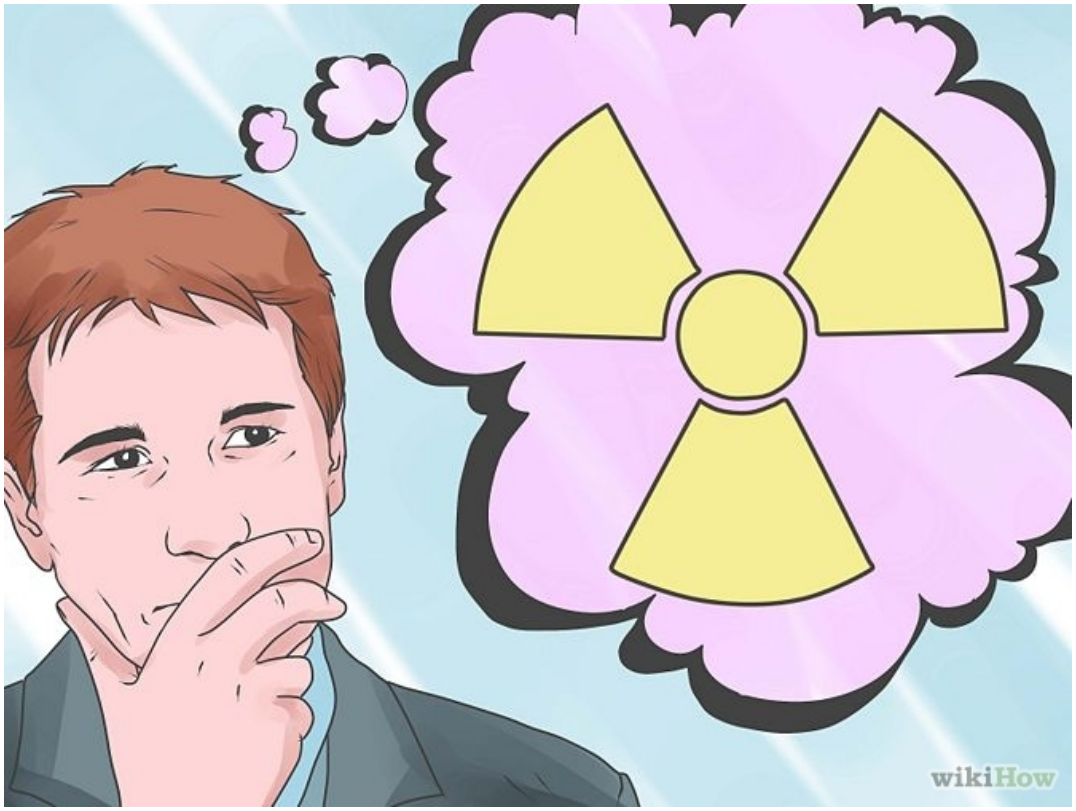
How urgent is the problem?



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How urgent is the problem?

- At hundreds of uranium mines, radioactive waste has accumulated
- High level radioactive waste at enrichment and reprocessing sites poses a safety and proliferation risk not only a safety issue
- Of the approximately 440 nuclear power plants worldwide, over 160 will be shut down by 2030, creating a huge rise in nuclear waste
- Millions of tons of radioactively contaminated construction material are slated to be cleared and distributed to normal wase disposal sites, causing a rise in background radiation for the general public

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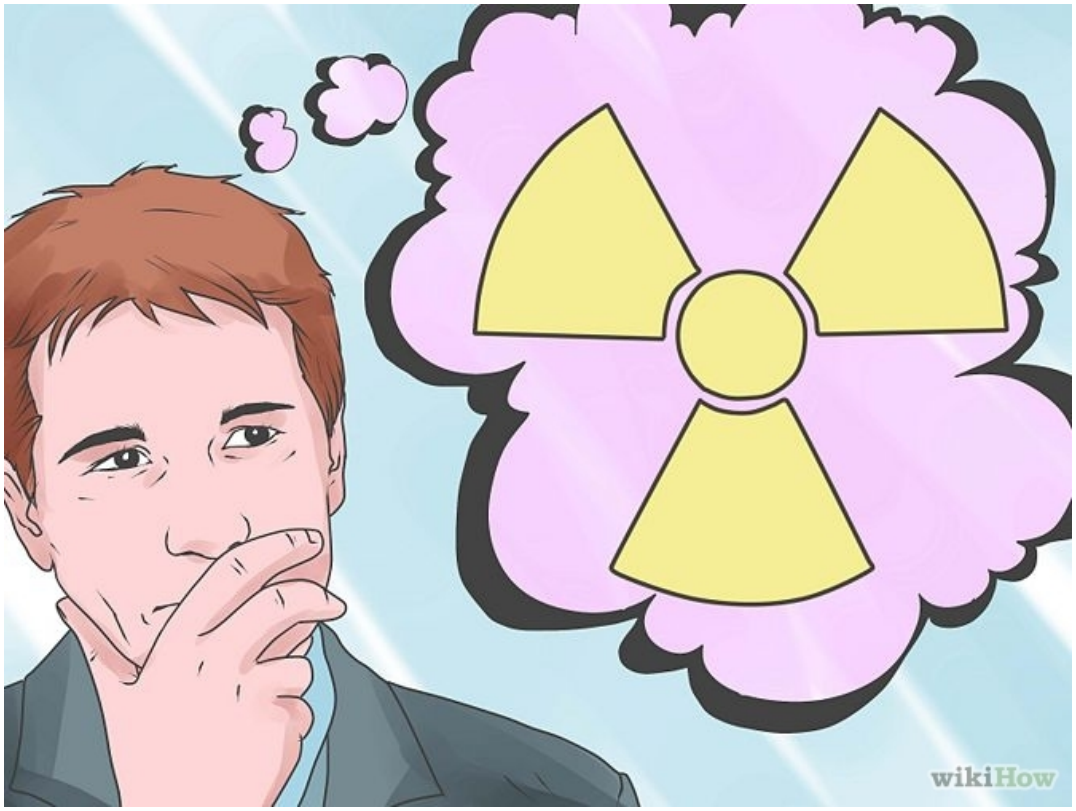
What is the situation in different countries?



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What is the situation in different countries?

- **Canada:** Gordon Edwards
- **The United Kingdom:** Sean Morris
- **Switzerland:** Claudio Knüsli