

Perception of radiological risk mental models

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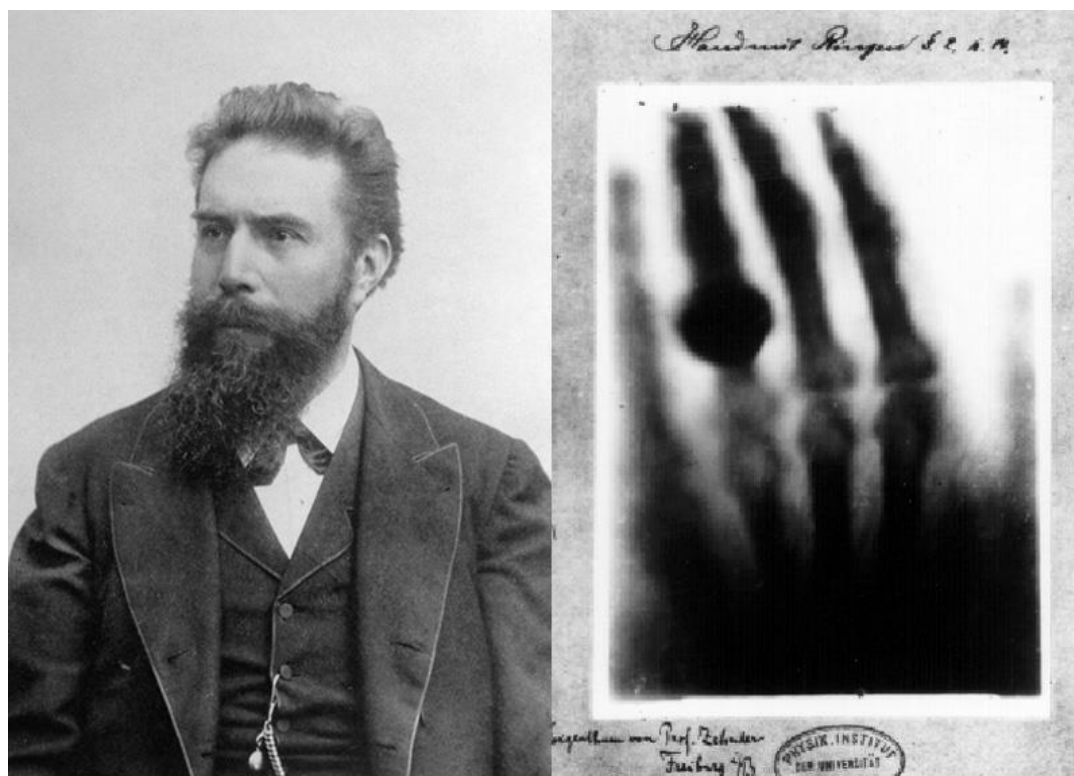
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Fig. 1 Wilhelm Röntgen discovered X-rays in 1895



Henri Becquerel, Marie Curie and Pierre Curie discover radioactivity in 1898

Fig. 2. Marie Curie (ca. 1920)



Fig. 3. Pierre Curie (1923)



From 1898 to 1950s mental model



Fig. 4. Pedoscope, England 1930-1955



Fig. 5. Advertisement for the pedoscope (ca. 1951)

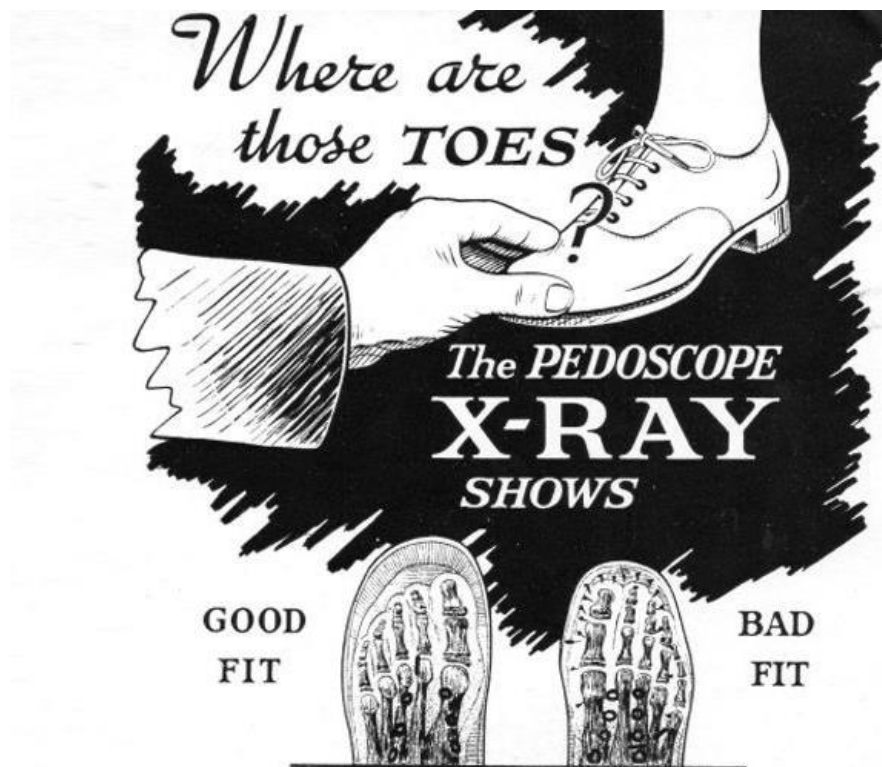


Fig. 6. Tho-Radia cream and powder poster (ca. 1933)

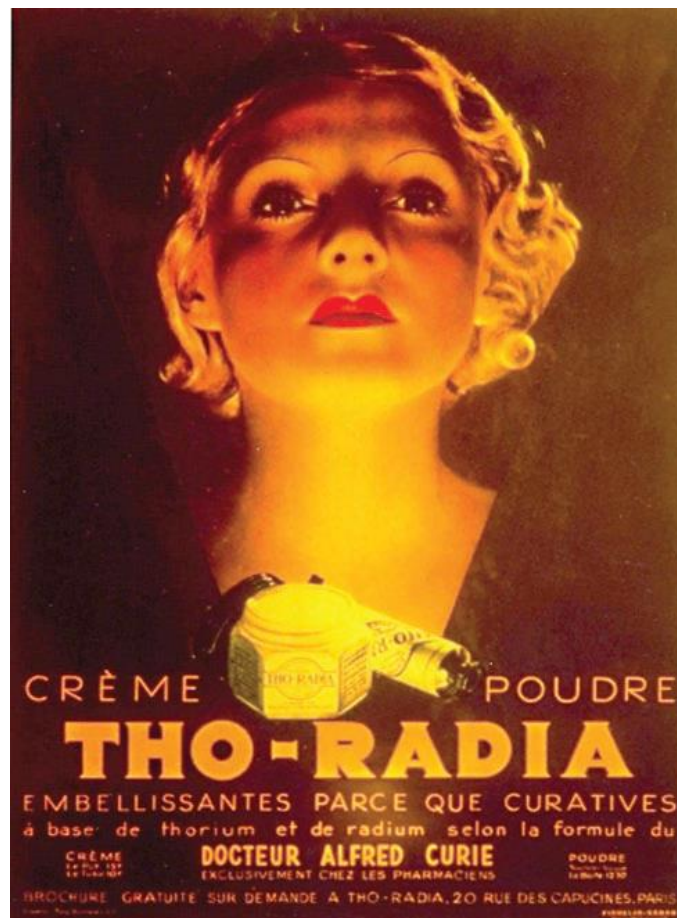


Fig. 7. “Água Radium – the most radioactive water in Portugal” (ca. 1933)

A G U A R A D I U M

A mais Radio activa de Portugal

Uma das mais radioactivas do mundo

Estas águas actuam quer junto das fontes, quer longe delas. (Palavras do Prof. Dr. Armando Narciso).

De efeito seguro na arterio-esclorose, dissolvendo a cal das artérias assim como nos edêmas nas doenças de coração e rins.

Reguladora da pressão arterial, evitando o perigo das apoplexias.

Aconselhada com êxito no atriismo e em outros defeitos da nutrição.

Nas diabetes, elimina o açúcar das urinas.

Revigoradora do sistema glandular, desenvolvendo o seu funcionamento, tonificando poderosamente o organismo debilitado.

Um remédio eficaz contra reumatismo e guta.

A grande superioridade da AGUA RADIUM, é conter, além da sua emissão de Rádio, Sais de Rádio em dissolução - vantagem que nenhuma outra possui. (Relatório do Prof. Karl von Noorden).

Devido aos Sais de Rádio em dissolução que contém, conserva perfeitamente todo o seu valor. (XIV.º Congresso Internacional de Hidrologia, Climatologia e Geologias Médicas - Toulouse (França) 1933).

AS TERMAS RADIUM em CARIA — Beira Baixa,
ESTÃO ABERTAS DE 1 DE JULHO A 15 DE OUTUBRO

Depositário: Farmácia Grave - Castelo Branco

Experts interviewed

Mário Reis (Radiological Protection and Security Group, Técnico Lisboa) – environment radioactivity

Isabel Paiva (Radiological Protection and Security Group, Técnico Lisboa) –radioactive waste and sealed sources management



Octávia Gil (Radiological Protection and Security Group, Técnico Lisboa) – biological effects of ionizing radiation

Armin Ansari (Centers for Disease Control and Prevention, USA) – radiological assessment



Elisabete Freitas (Laboratory of Instrumentation and Experimental Particle Physics - LIP, University of Coimbra, Portugal) – instrumentation for X ray detection



Vitaly Chepel (LIP, University of Coimbra, Portugal; graduated in Moscow Institute of Physics and Technology, Russia) - technologies in radiation detection

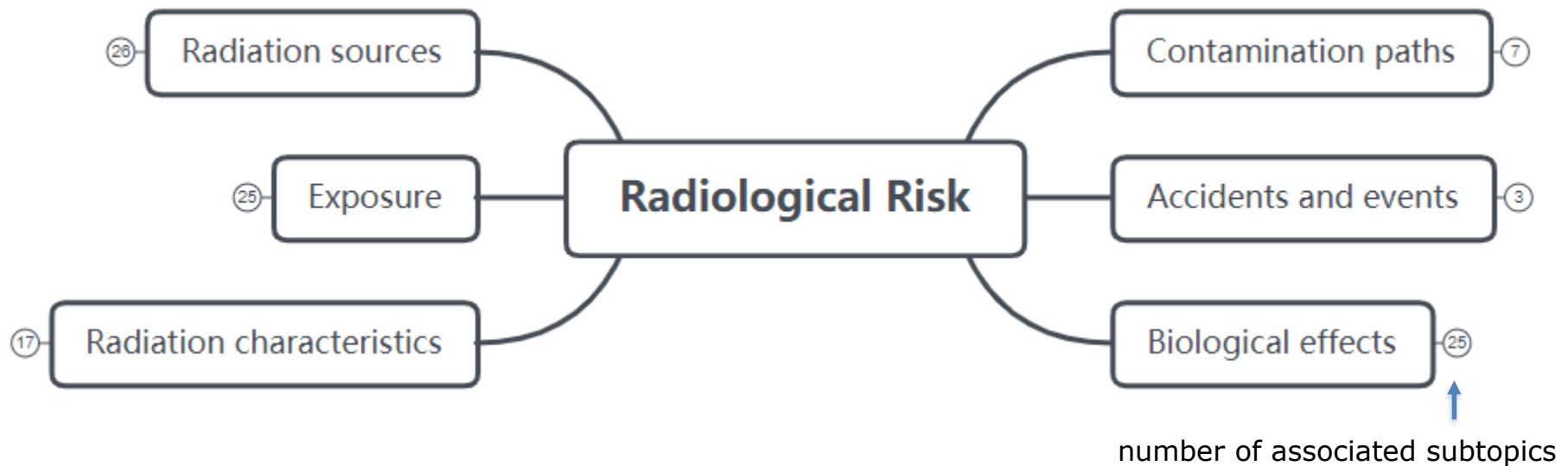
Hiroshi Yasuda (Hiroshima University, Japan) –radiation biophysics

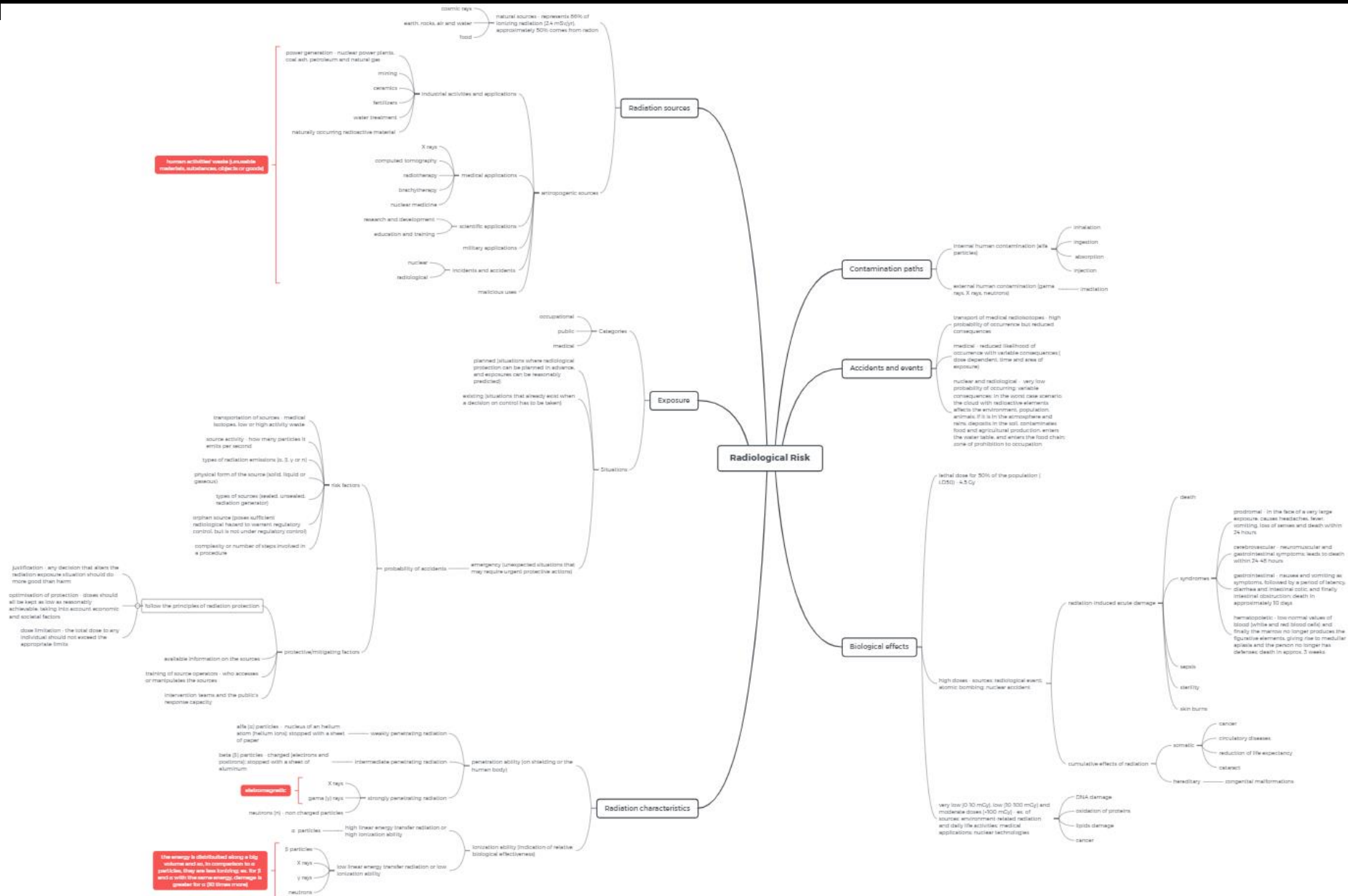


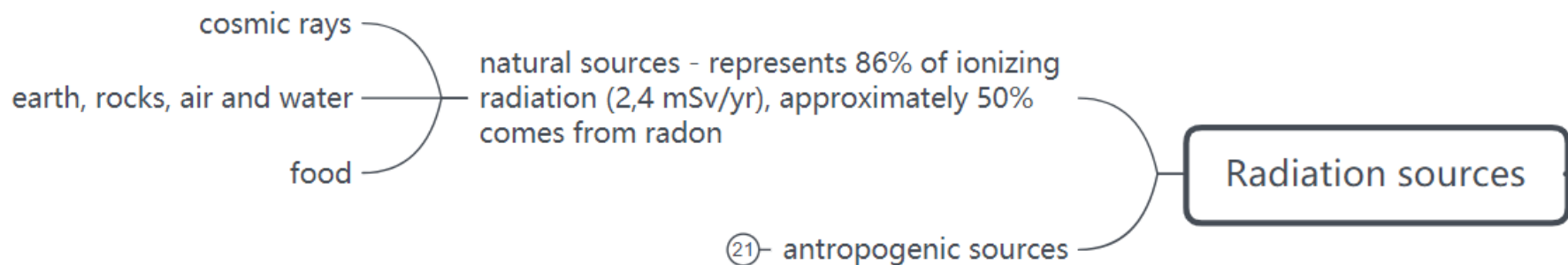
Luís Prudêncio (Santa Maria University Hospital, Portugal) - health physics

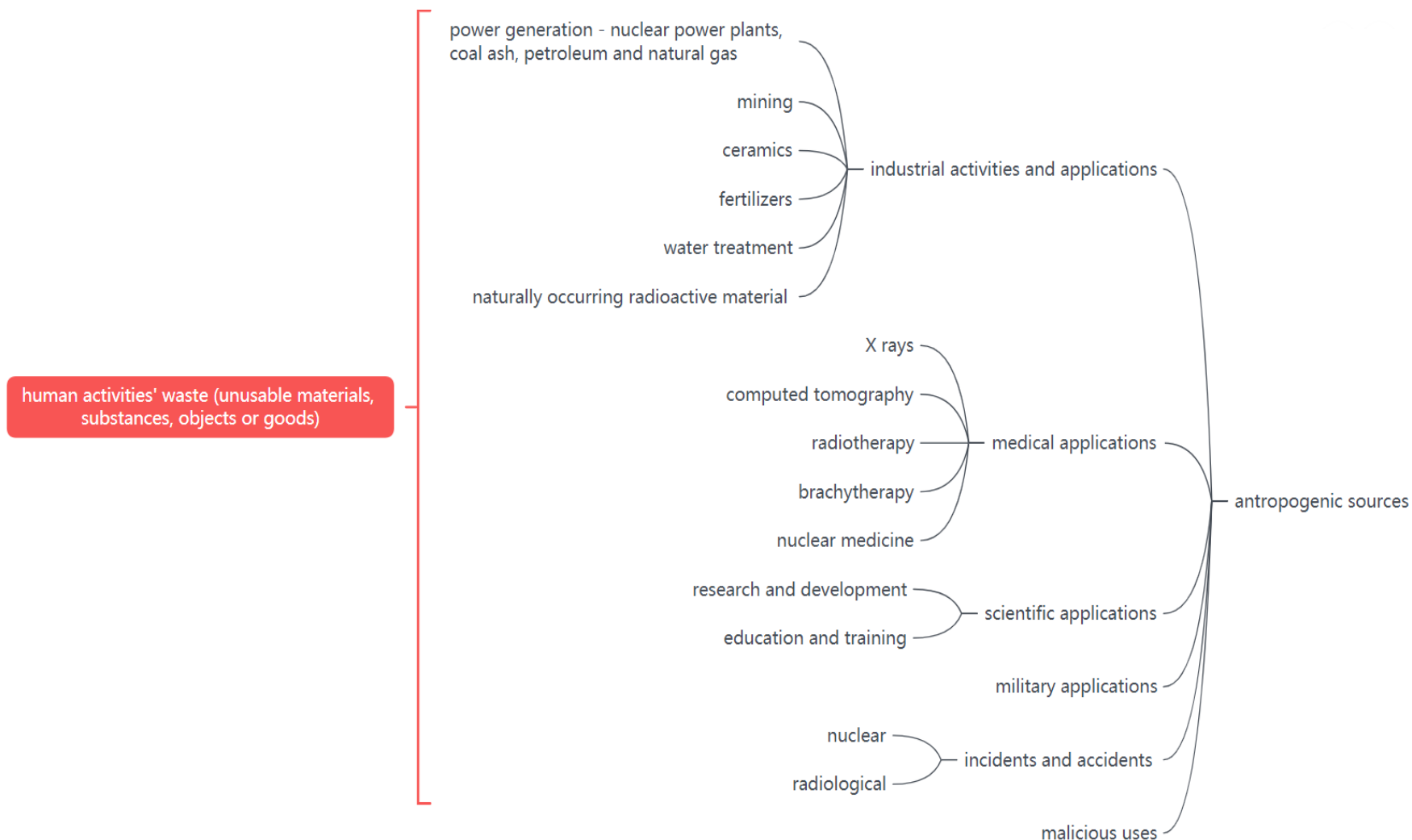


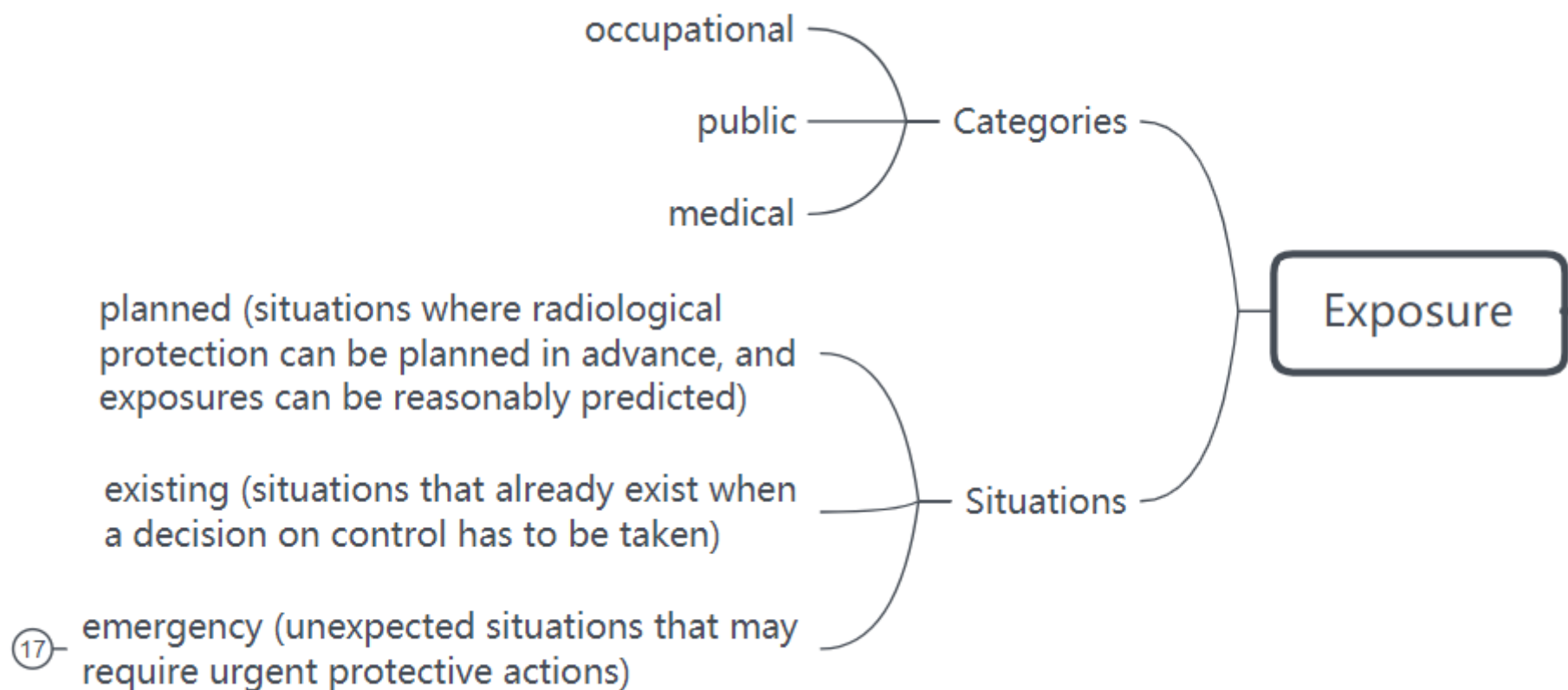
Present day experts mental model

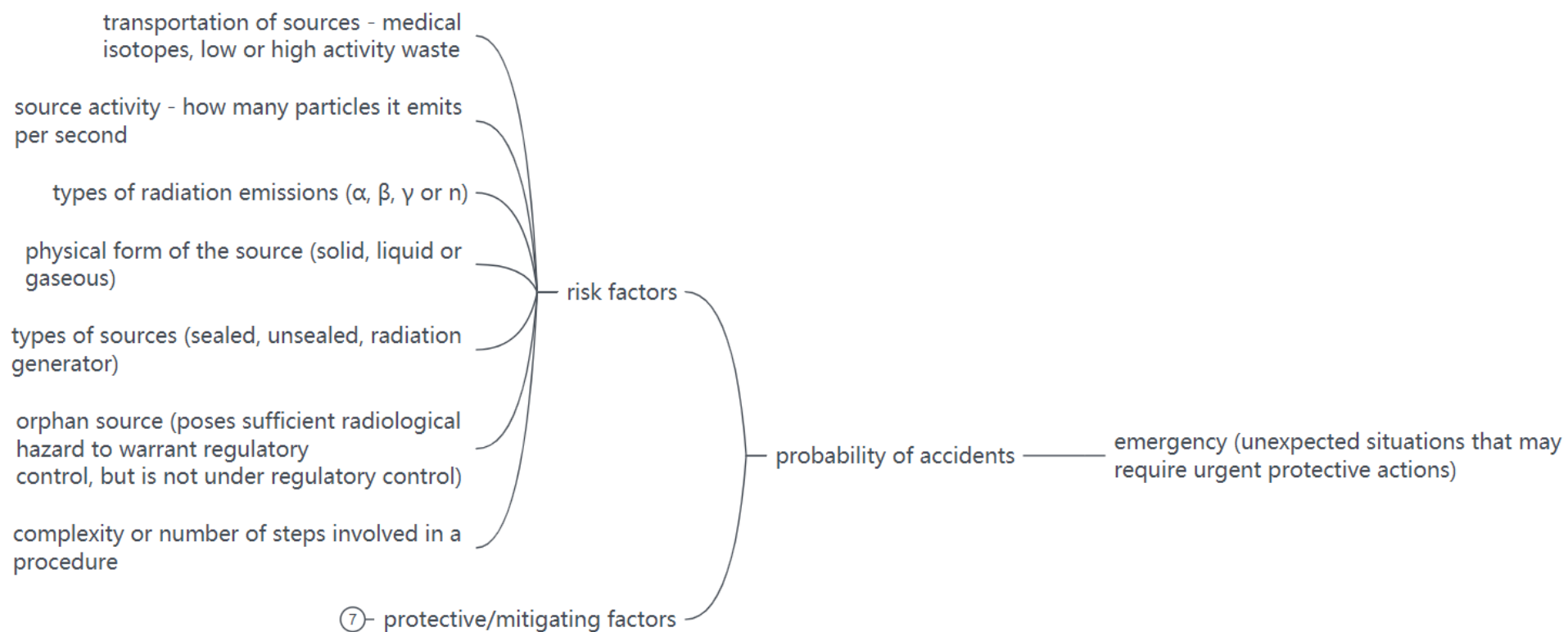


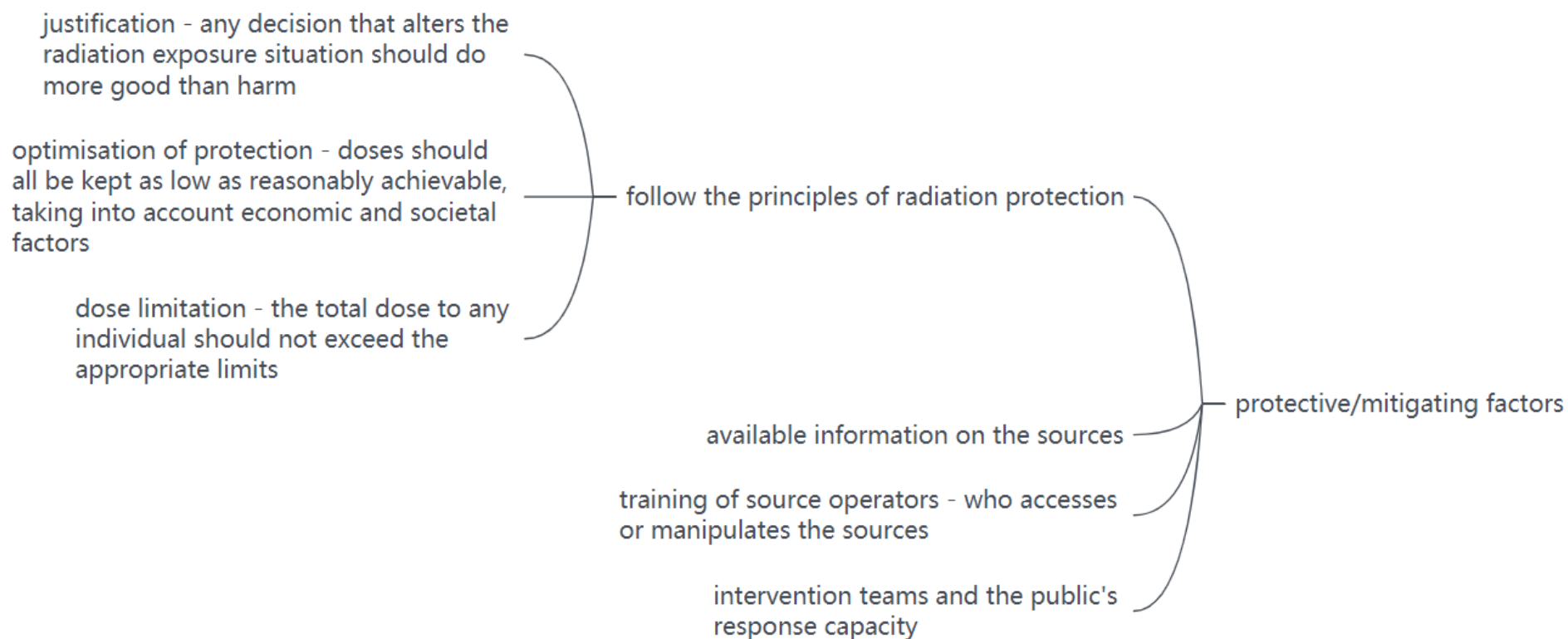




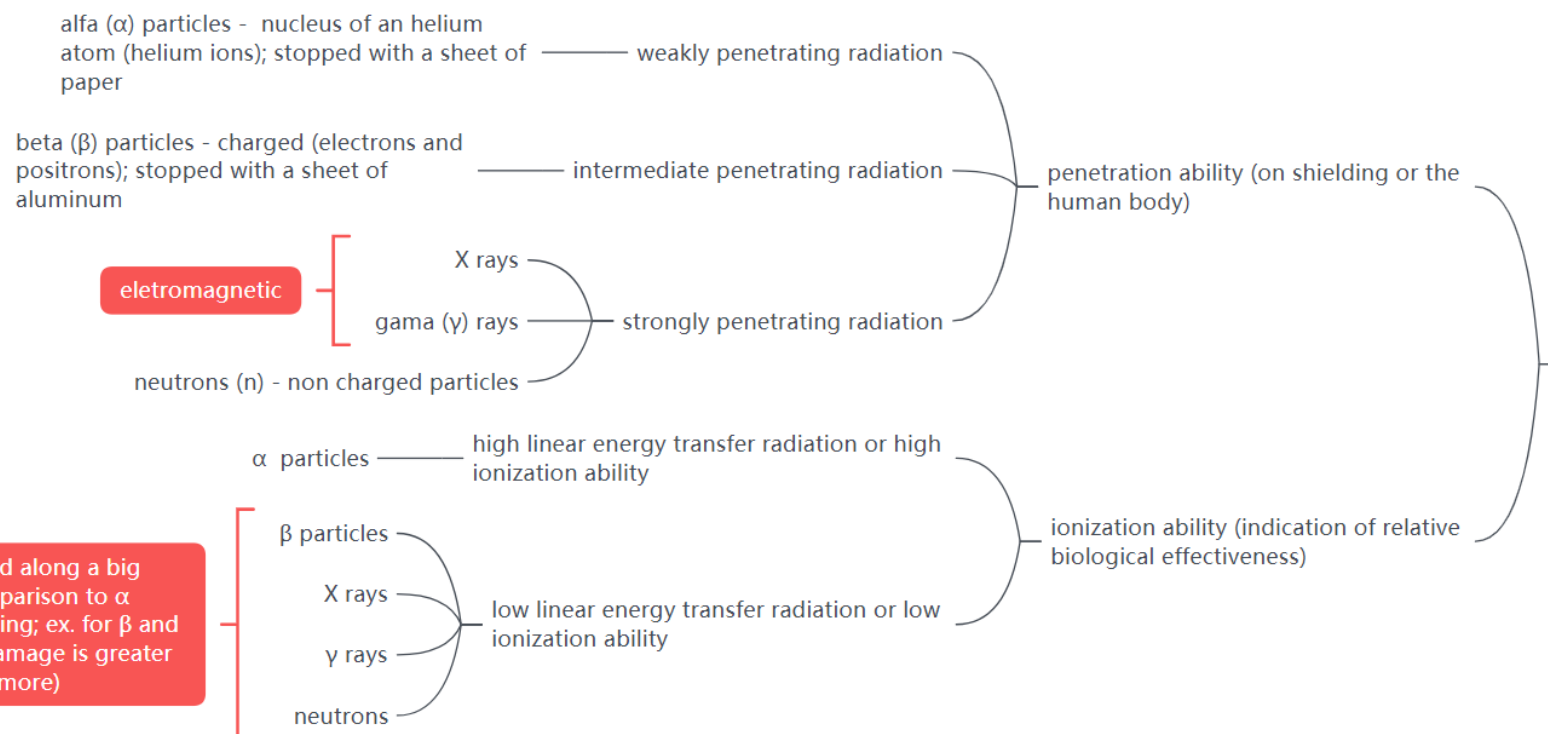








Radiation characteristics



Contamination paths

internal human contamination (alfa particles)

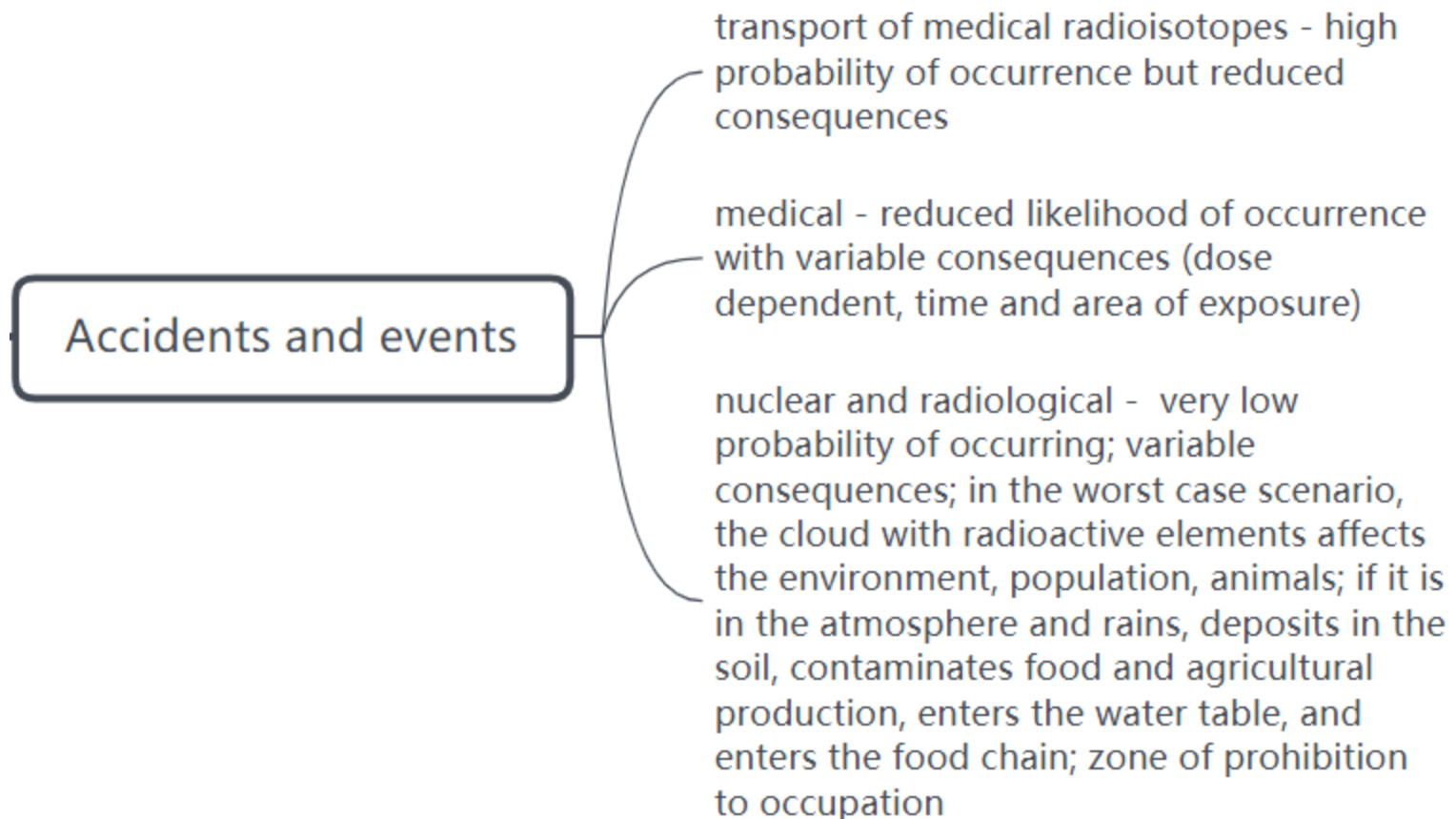
inhalation

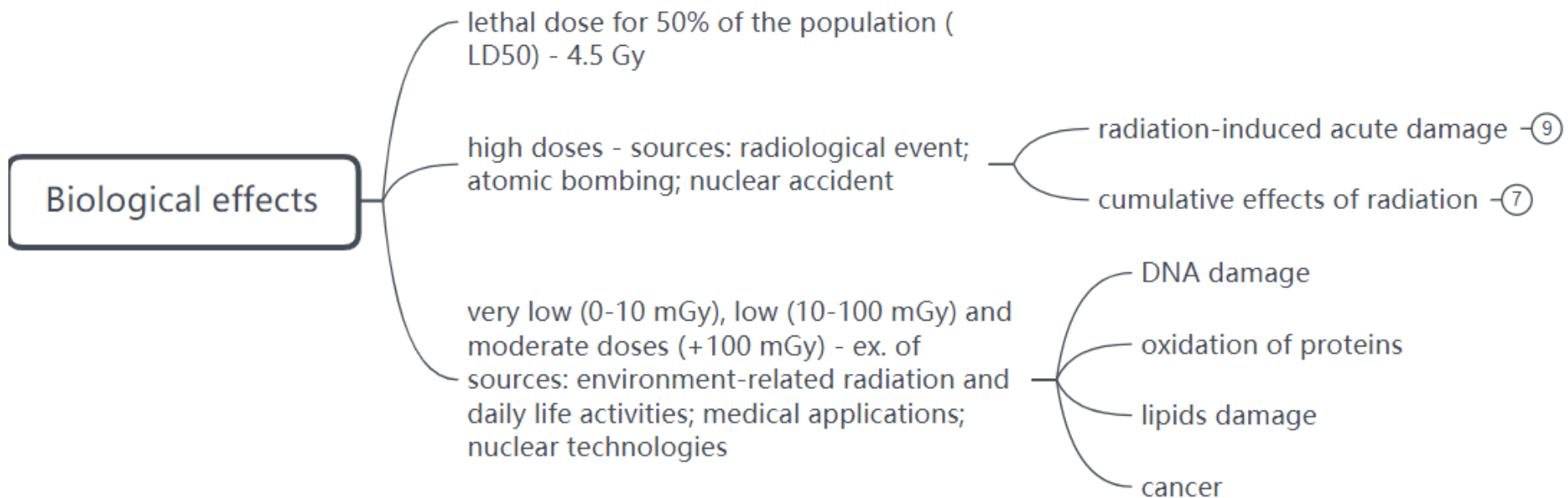
ingestion

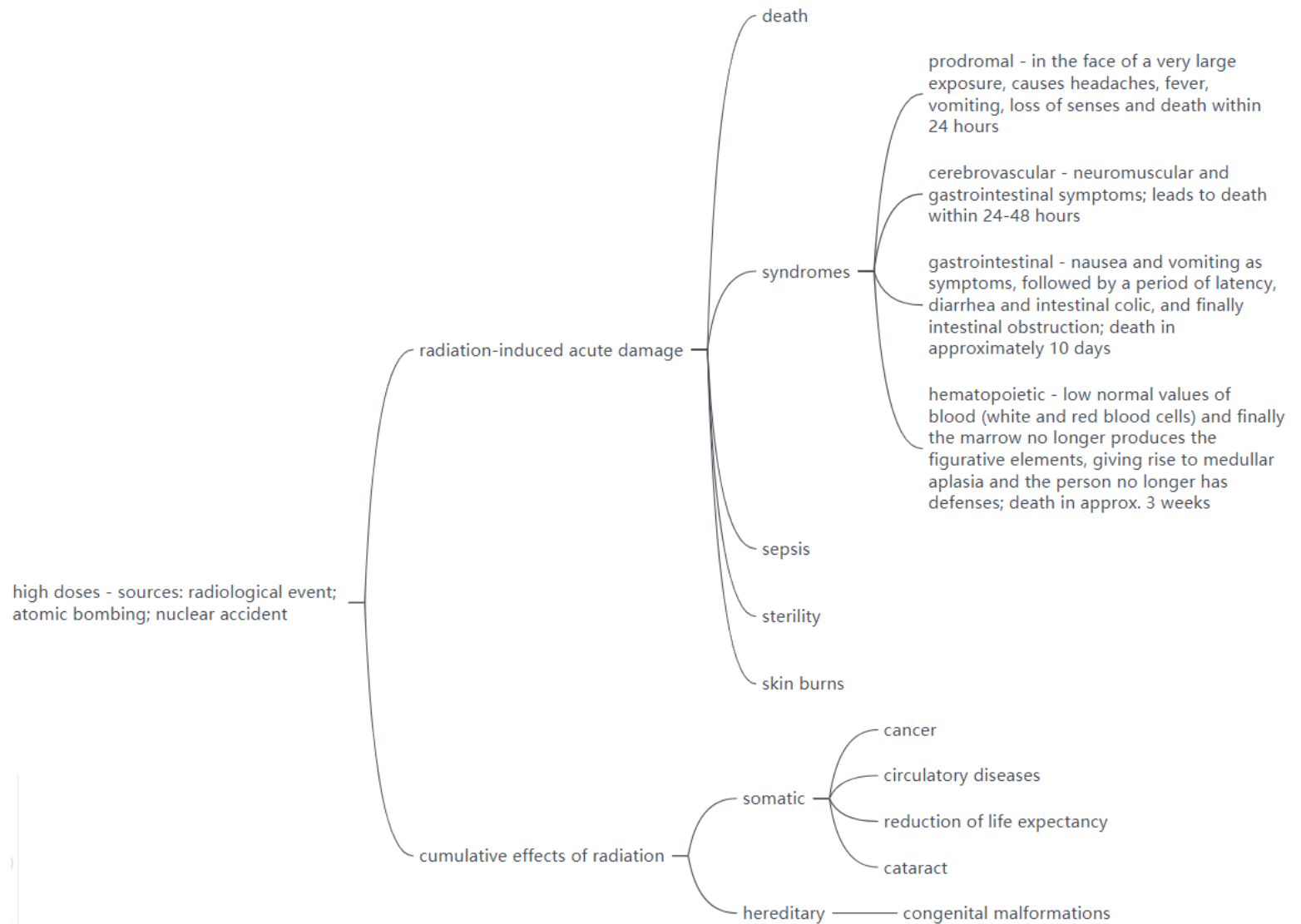
absorption

injection

external human contamination (gama rays, X rays, neutrons) — irradiation







Public perception about ionizing radiation

Past



Present



Future



Figures credits

1. Röntgen and his X Ray - <https://en.wikipedia.org/wiki/X-ray>
2. Marie Curie - https://pt.wikipedia.org/wiki/Marie_Curie#/media/Ficheiro:Marie_Curie_c1920.png
3. Pierre Curie - <https://upload.wikimedia.org/wikipedia/commons/9/9f/Curie-pierre.jpg>
4. Pedoscope - <http://broughttolife.sciencemuseum.org.uk/broughttolife/objects/display?id=92774>
5. Pedoscope's advertisement- <http://shoegazing.se/english/2018/09/18/history-x-ray-shoe-fitting-machine/>
6. Codman's publication - <https://archive.org/stream/philadelphiamedi09philuoft#page/438/mode/2up>
7. Edison and his assistant in the press - <https://newspaperarchive.com/new-york-world-aug-03-1903-p-1/>
8. Tho-Radia Cream card - <http://www.larevuedupraticien.fr/histoire-de-la-medecine/le-mystere-tho-radia>