

**IRSN**

INSTITUT  
DE RADIOPROTECTION  
ET DE SÛRETÉ NUCLÉAIRE

*Faire avancer la sûreté nucléaire*

## Key issues in Radiation protection

**D. Laurier**

Kids 1 RP Science

13th International Congress  
of the International Radiation  
Protection Association

14May 2012, Glasgow, Scotland

# Open questions in radiation protection



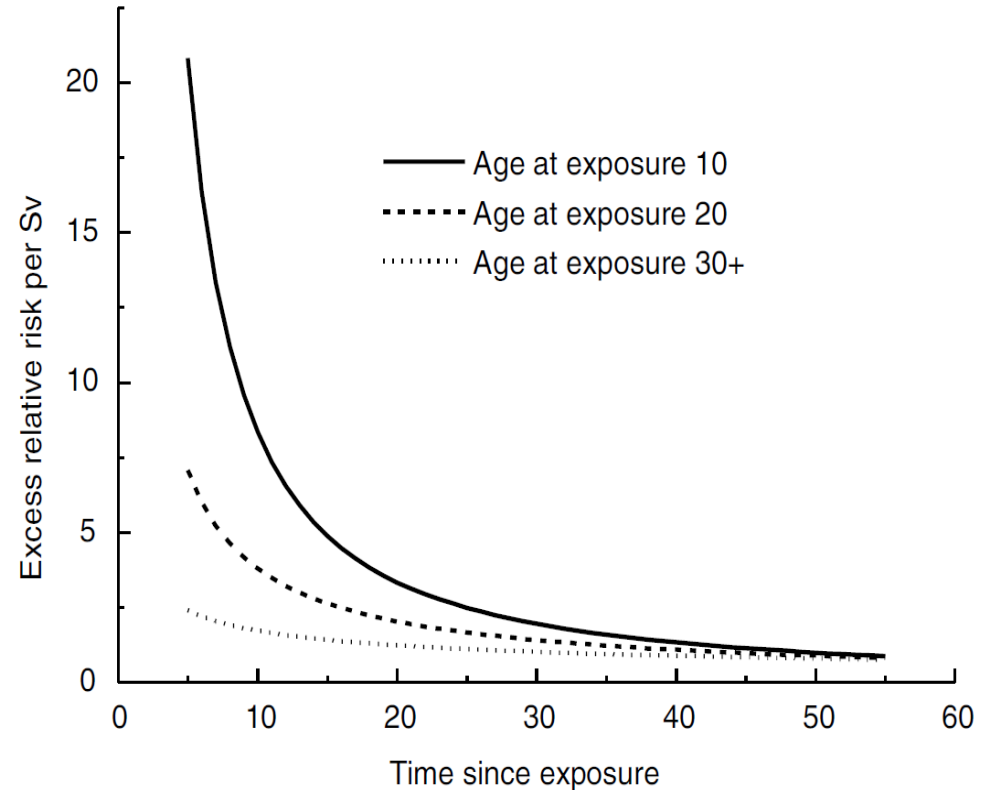
## High Level and Expert Group report 2009

Scientific issues about health effects at low dose and dose rate

- Shape of the dose-risk relationship for cancers
- Tissue sensitivity to cancer induction
- Individual variability of cancer risk
- Radiation quality
- Risks associated to internal contamination
- Radiation induced non cancer risk

# Cancer risks associated to exposure during childhood

Results from the  
A Bomb survivors study



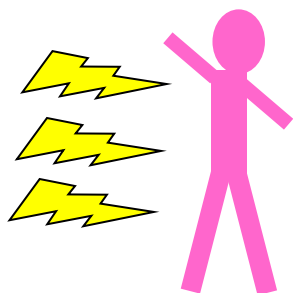
## Additional knowledge needed

- Studies of childhood CT scans ?
- Studies of childhood leukemia risk and natural background radiation ?
- Biological/epidemiological approaches ?



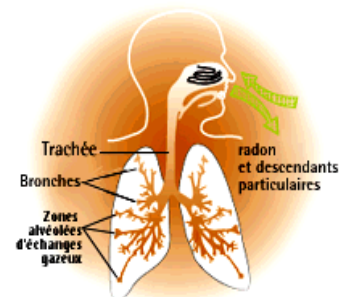
# Health effects of internal contamination

## External exposure



Transposition ?

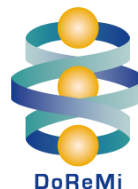
## Internal contamination



## Additional knowledge needed

- Improvement of exposure and doses assessment (uncertainties) ?
- What studies are the most pertinent ?
- Possibilities of collaboration between biology-dosimetry-epidemiology-toxicology approaches ?

➔ Dedicated task in the DoReMi NoE



[Laurier et al, Radioprotection 2012]