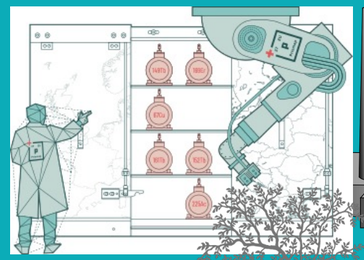

What is that sign?

Time is ticking

How much can I transport?

Who decides what?

HOPITAL

What if something happens on the way?

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What is that sign?

Time is ticking

How much can I transport?

Who decides what?

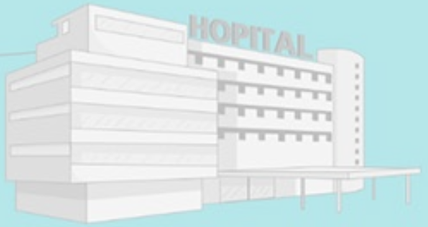
No time to waste!

Radionuclides disintegrate with time: the half-life $T_{1/2}$ is the time it takes for 50% of your material to decay away.

After 2 half-lives, you are left with 25%.
After 3 half-lives, it's only 12.5%.
After 4 half-lives, it's just 6.25%...

Medical radionuclides span half-lives from hours to days: time is of the essence to bring this medical good to a patient!

Tb 149	Tb 155
4.12 h	5.32 d



What if something happens on the way?

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What is that sign?

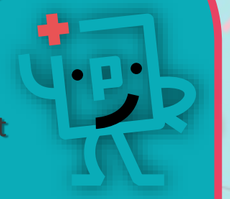
Time is ticking

How much can I transport?

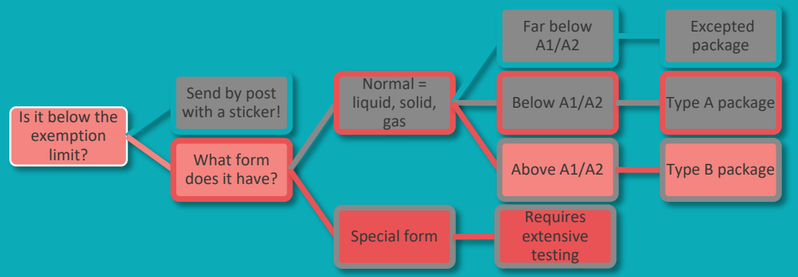
Who decides what?

What if something happens on the way?

How much can I transport?



Each radionuclide is different and requires to be considered individually. The flow chart below gives an idea of how to decide how much to ship and how to pack it.



» But what are those A1/A2 values?

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What is that sign?

Time is ticking

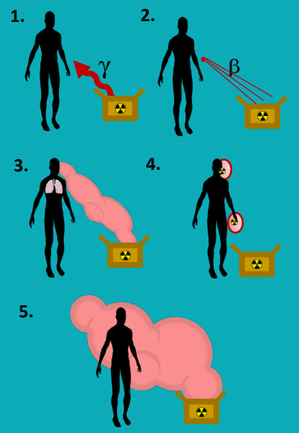
How much can I transport?

Who decides what?

What if something happens on the way?

Avoid danger on the way

Danger to someone during transport must be avoided. A1/A2 values represent the maximum activity authorized according to 5 scenarios.



1. Exposure to γ rays in the absence of shielding
2. Exposure to β particles in the absence of shielding
3. Inhalation of a volatile radionuclide
4. Skin contamination or ingestion
5. Immersion in a radioactive cloud

» Download the table with A1/A2 values for PRISMAP radionuclides

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What is that sign?

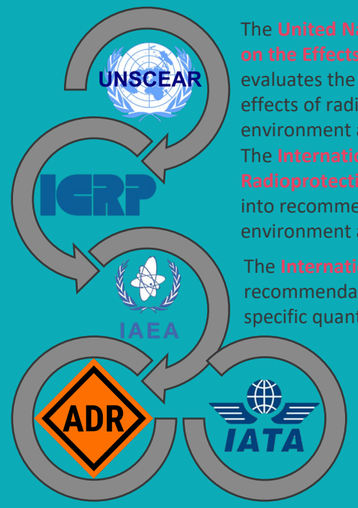
Time is ticking

How much can I transport?

Who decides what?

What if something happens on the way?

Who decides what can be transported?



The **United Nations Scientific Committee on the Effects of Atomic Radiations** evaluates the data on the biological effects of radioactivity on the environment and people.
The **International Commission on Radioprotection** translates that scientific input into recommendation to protect the environment and people.

The **International Atomic Energy Agency** turns those recommendations to regulations for its members, with specific quantification for each radionuclide.

The **Agreement for the International carriage of Dangerous goods by Road** (ADR) and the **International Air Transport Association** (IATA) define how these regulations are to be applied on the road and in the air.

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What is that sign?

Time is ticking

How much can I transport?

Who decides what?

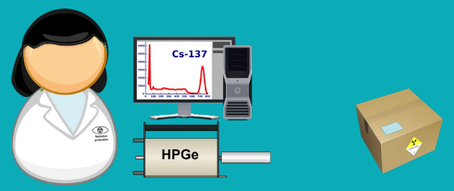
What if something happens on the way?

What does this sign mean?

The UN have a classification code for all dangerous goods for easy identification. UN2910 is for excepted packages

Other packages (Type A & B) have a sign to provide information about the dose OUTSIDE the package according to a Transport Index:

- TI = 0 means that the dose at any point on the surface is negligible (<0.5µSv/h) and one uses a white RADIOACTIVE I sign
- TI up to 1 means that the dose is below 0.5 mSv/h – 1000 times more – and one uses a yellow RADIOACTIVE II sign.
- Beyond TI = 1 and only up to 10 mSv/h, one must then use a yellow RADIOACTIVE III sign.



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