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# What can really do EPR retrospective dosimetry? Feedback experience on 25 years of radiological accident management

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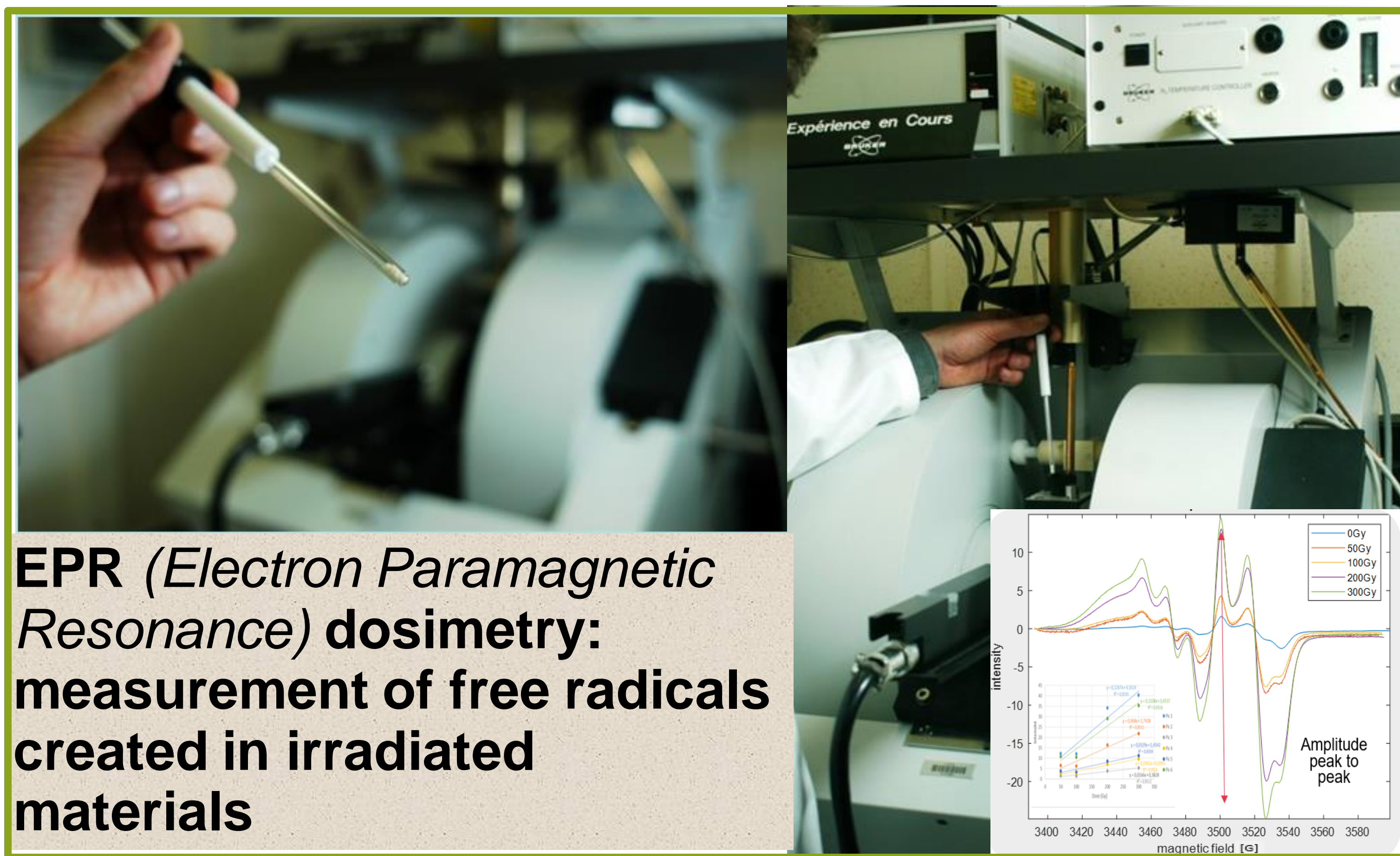
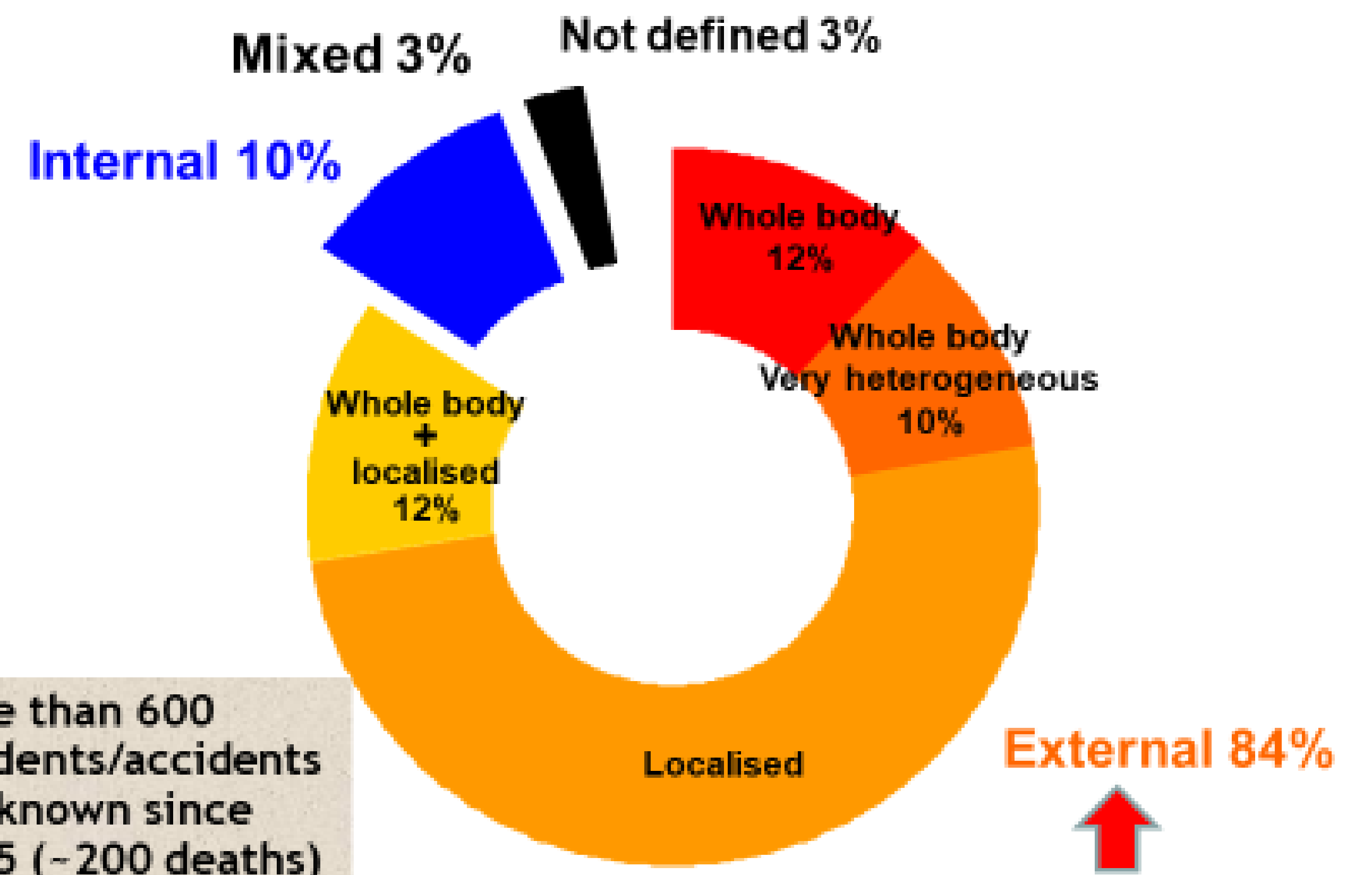
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## Main lessons learnt of radiological accidents:

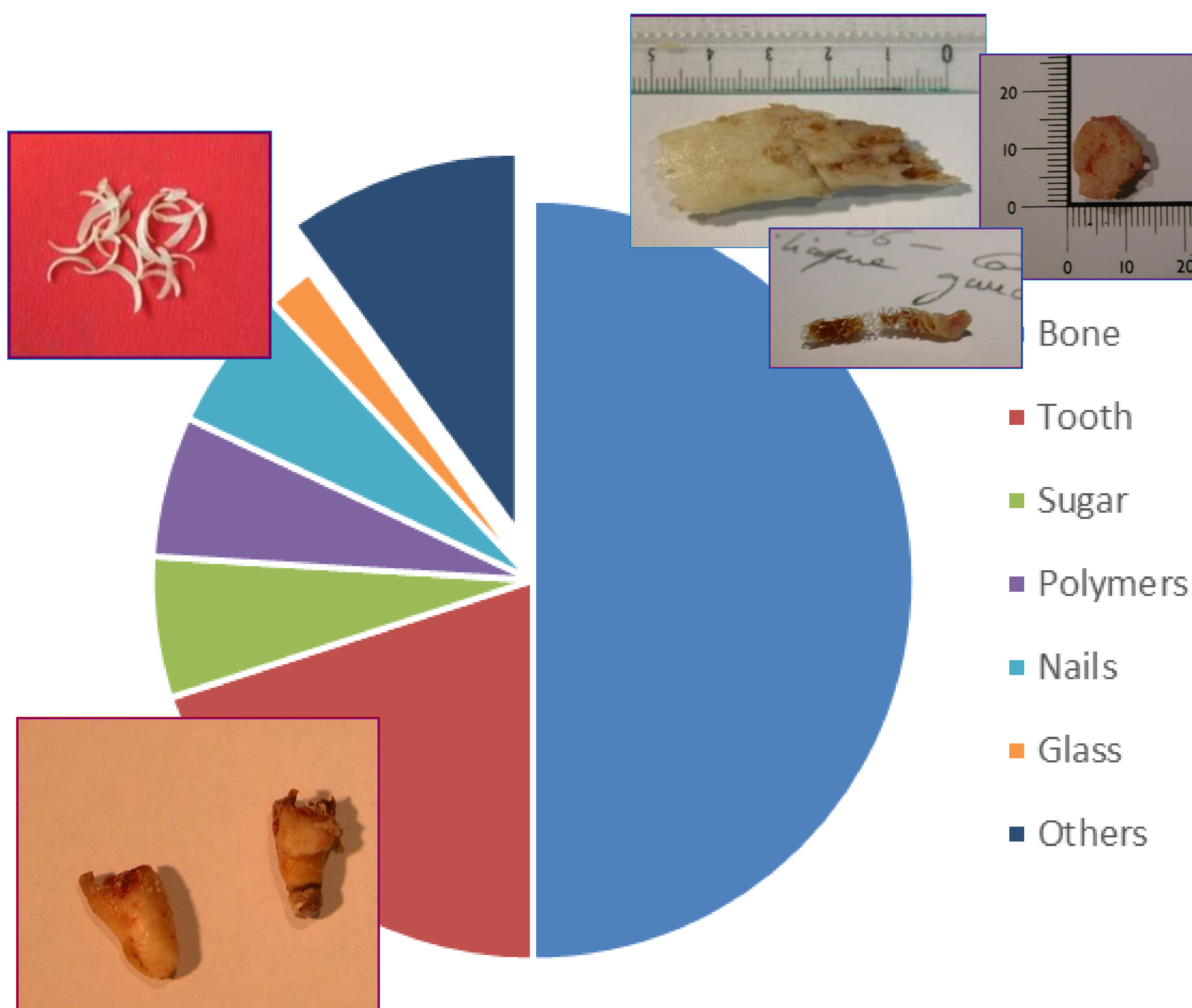
- Dose distribution is always **heterogeneous** even for whole body irradiation
- For most cases: partial body and **localized irradiation with high dose**
- For localized irradiation: estimation of **maximal dose** and doses at organs at risk
- **Dose distribution** is far more important than whole body dose for medical management decisions
- **Multi-techniques approach** with biological dosimetry, calculation and retrospective dosimetry on biological tissue or objects is requested.
- **No gold technique**: toolbox of retrospective dosimetry techniques needed to address all possible situations
- **EPR dosimetry** on biological tissue very pertinent for high local dose (bone, nails)



EPR dosimetry techniques



Examples of published expertise having used EPR dosimetry



## Main feedbacks:

- Versatile technique, numerous types of samples used
- Bone sample the most used
- EPR dosimetry pertinent for localized irradiation to estimate maximal dose (bone, nails)
- For whole body irradiation, can provide an index of heterogeneity of dose distribution
- Successfully used with other techniques or alone
- New approaches of EPR can limit the invasiveness of sampling (cf. EPR Q-band)
- New materials such as glass in smartphone promising