

## **Annex I: Survey:**

**The following survey aims to assess the health professionals' knowledge about the radiation risk associated with imaging tests, as well as knowledge of the available recommendations. Please complete the sections of the entire survey and if you have any comment, you can fill in the comments section at the end of it.**

### **Identification data:**

- Sex:
- Age:
- Specialty:
- Professional level (resident or consultant):
- Years of practice (including specialty):
- Type of health facility (public, private or both):

### **1- Have you received training on radiation exposure associated with medical imaging?**

Yes ( )      No ( )

#### **If yes, context of training**

During undergraduate training ( ) During hospital residence ( ) At work ( ) Other (explain)

### **2- Awareness of the European recommendations on radiation protection and safety?**

Yes ( )      No ( )

#### **If yes, which aspects do you know?**

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### **3- Awareness of the regulation regarding the need to justify all radiological tests?**

Yes ( )      No ( )

#### **If yes, adherence of this regulation in daily practice**

Yes ( )      No ( )

#### **Which difficulties do you find when applying them?**

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### **4- What is the relation between the radiation doses of a chest x-ray compared with the annual dose received by a person related environmental radiation?**

1/100 ( )      1/10 ( )      The same ( )      10 times more ( )      100 times more ( )  
) I do not know ( )

**5- How much radiation is absorbed by the patient when having a chest x-ray?**  
**(mSv - milliSieverts - derived unit of effective dose of radiation) (mSv - milliSieverts)**

0.02 mSv ( )    0.2 mSv ( )    2 mSv ( )    20 mSv ( )    200 mSv ( )    I  
do not know ( )

**6- If a chest x-ray is assigned one unit, how many units would absorb a patient in the following tests?**

IMAGING TEST	0-1 u	1-10 u	10-50 u	50-100 u	100-500 u
Abdomen x-ray					
IVU					
Barium enema					
Abdominal ultrasound					
Brain MRI (with contrast)					
Brain MRI (without contrast)					
Scanner ventilation / perfusion lung					
Abdominal CT (contrast)					

**7- Do you inform patients about the medical radiation exposure?**

Yes, always ( )    Yes, sometimes ( )    No ( )

**If yes:**

**7.1 Type of information given:**

Oral ( )    Written (informed consent) ( )    Both ( )

**7.2 Amount of information given:**

Very little ( )    Not much ( )    Just enough ( )    A lot ( )    Too much ( )

**7.3. Opinion regarding patients' understanding:**

Very difficult to understand ( )    Difficult to understand ( )    Can be understood  
without too much difficulty ( )    Easy to understand ( )    Very easy to understand ( )

**7.4. Do you share the decision to order an imaging test with the patient?**

Yes ( )    No ( )

**Which are the main limitations to do it?**

**7.5 What information should be provided to the patient?**

**Observations:**

**Annex II: Information sheets to be given to patients detailing the radiation exposure associated with imaging, which were evaluated by the clinician participants.**

**a) The official information given in current clinical practice in these hospitals.**

*Most frequently associated risks*

*Irradiation:*

*A CT is associated with ionizing radiation (x-rays) so it should be avoided in the case of pregnant women. In the rest of the population, the CT is only carry out when there is a precise indication to do it, because it has associated a high amount of radiation exposure.*

*As a guideline it should be noted that the dose received by the patient with the practice of a Skull CT scan radiation (2.3 mSv) is equivalent to 115 chest X-rays and is similar to 1 year of background radiation. Spiral CT (8mSv) radiation is equivalent to 400 chest X-rays and 3.5 years of background radiation. Abdominal CT scan is equivalent to 500 chest X-rays and 4.5 years of background radiation.*

*The potential risk of radiation includes a slightly elevated risk of cancer within a few years. This risk is less than 0.5%, so it can be considered very low compared to the normal incidence of cancer in the population, which is 33% for women and 50% for men, according to the American Society of Cancer.*

**b) An adapted radiation equivalence table<sup>7</sup>, showing the effective radiation dose received by the different imaging tests under study expressed as radiation exposure units (u) equivalent to one chest X-ray.**

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*As a guideline, the following table shows the equivalence between different imaging tests. For instance, the skull CT, with a radiation dose associated of 2.3 mSv, is equivalent to 115 chest x-rays and 1 year of background radiation (a person is exposed to 2.4 mSv of background radiation by year). The risk of cancer associated is from 1/100.000 to 1/10.000 (which is 33% for women and 50% for men, according to the American Society of Cancer)*

<b>Imaging test</b>	<b>Effective dose (mSv)</b>	<b>Chest x-rays equivalent</b>	<b>Background Equivalent Radiation Time</b>
Chest x-rays	0.02		3 days
Skull CT	2.3	115	1 year
Chest CT	8	400	3.6 years
Abdomen CT	10	500	4.5 years

**c) A figure showing a visual representation of the medical radiation exposure (compared to background radiation exposure).**

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*As a guidelines, the following graphs shows the equivalences between the radiation absorbed by each imaging test and other radiation sources, according to the long-term potential risk: low (green), medium (yellow) and high (red):*

