

# Justification and authorization in relation to non-medical human imaging

**Olga German**

**Radiation Protection Unit, IAEA**

# Non-Medical Human Imaging

Is this practice justified?

- If yes: subject to the system of protection and safety.
- If no: reject application and ensure that practice is not used.

## Requirement 10: Justification of practices

- ✓ **Only justified practices can be authorized.**
- ✓ The following human imaging practices are **deemed to be not justified**:
  - performed as a form of art or for publicity purposes
  - performed for occupational, legal or health insurance purposes\*, without reference to clinical indication
  - performed for theft detection purposes
  - for detection of concealed objects for anti-smuggling purposes
  - for detection of concealed objects that can be used for criminal acts that pose a national security threat (Only Government can justify).
- ✓ If justification of such human imaging is to be considered, req. 18 shall apply.

\* Such purposes for performing human imaging using radiation include: assessment of fitness for employment (prior to employment or periodically during employment); assessment of physiological suitability for a career or a sport; assessment of athletes before a selection or transfer; determination of age for legal purposes; obtaining evidence for legal purposes; detection of drugs concealed within the body; immigration or emigration requirements; pre-insurance checks; and obtaining evidence for the purposes of a compensation claim.

## Requirement 18: Human imaging using radiation for purposes other than medical diagnosis, medical treatment or biomedical research



The government shall ensure that the **justification process shall include** the consideration of:

- benefits and detriments of implementing the type of human imaging procedure;
- benefits and detriments of not implementing the type of human imaging procedure;
- legal or ethical issues associated with the introduction of the type of human imaging procedure;
- effectiveness and suitability of the type of human imaging procedure, including the appropriateness of the radiation equipment for the intended use;
- availability of sufficient resources to conduct the human imaging procedure safely throughout the intended period of the practice.

If justified, such a practice shall be **subject to regulatory control**.

# Requirement 18: Human imaging using radiation for purposes other than medical diagnosis, medical treatment or biomedical research



For human imaging performed by medical personnel using medical radiological equipment:

- dose constraints are established and used instead of diagnostic reference levels;
- optimization requirements for medical exposure are applied.

Expose of persons for the purpose of detection of concealed weapons, contraband or other objects on or within the body

- considered to give rise to public exposure;
- apply the requirements for public exposure in planned exposure situations;
- optimization of protection and safety is subject to any dose constraints for public exposure set by the government or the regulatory body.

All persons who are to undergo procedures with inspection imaging devices are informed of the **possibility of requesting the use of an alternative inspection technique** that does not use ionizing radiation, where available.

# Types of Equipment Used for Non-medical Human Imaging

- **Category 1** non-medical human imaging procedures are performed using **medical radiological equipment**, as defined in GSR Part 3 - Radiological equipment used in medical radiation facilities to perform radiological procedures that either delivers an exposure to a person or directly controls or influences the extent of such exposure.
  - **X ray generators** - radiography X ray units, dental X ray units,
  - **CT scanners**
- **Category 2** non-medical human imaging procedures are performed using inspection imaging devices
  - **Transmission technology** - displays objects concealed on and within the body
  - **Backscatter technology** - displays only objects concealed on the body (e.g. hidden in or under clothing)



## Examples of non-medical human imaging devices

(Disclaimer: This is not a commercial, but a random choice of images from the internet)

# Regulatory controls non-medical human imaging



If **Category 1** non-medical human imaging is considered to be justified:

- Specific authorization for a particular medical facility,
- Process for justification of the procedure for specific individuals,
- Training of the staff in relation to the types of procedures to be performed,
- Imaging protocols to be used for the procedures to be performed.
- The normal regulatory activities of the regulatory body with respect to medical radiation facilities performing radiological procedures for medical diagnosis will apply to Category 1 non-medical human imaging

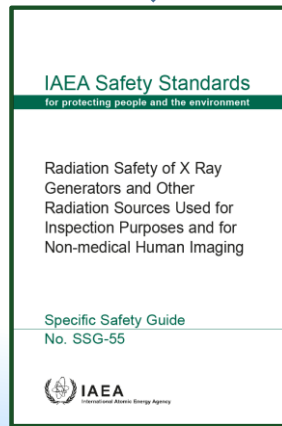
If **Category 2** non-medical human imaging is justified:

- Authorisation by registration or licensing,
- If located in busy public place (airport) verify that all operational aspects of radiation protection can be achieved in such an environment,
- Ascertain that key personnel with responsibilities for radiation protection and safety have the necessary competences,
- Design and layout of facility including any inspection zones, controlled areas and supervised areas if applicable;
- Design of inspection imaging devices and local rules and other procedures for operation.



# Specific Safety Guide

- Increase in the use of inspection imaging devices to detect concealed objects in postal items, baggage and cargo or within vehicles.
- Workers and members of the public may be exposed to radiation during the use of such equipment.
- May lead to the inadvertent exposure of people inside cargo containers, or the exposure of drivers and passengers inside vehicles being inspected.



*Thank you!*

