Regional Workshop on the International Basic Safety Standards

Session 6: Human imaging for purposes other than medical diagnosis or treatment

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Introduction

- Lots of anecdotal evidence that non-medical human imaging is occurring in many countries

Anti-smuggling

Immigration

Security

Age determination of asylum seekers
Old BSS

• BSS 115 had 2 relevant requirements
  • Both in the Medical Exposures Section
    • Both in the Justification sub-section
1st Requirement:

- Exposures for occupational, legal or health insurance purposes undertaken without reference to clinical indications
  - Default position that these were not justified
  - But there were 2 caveats:
    - Unless expected to provide useful information on the health of the individual examined; or
    - Unless the specific type of examination was justified by those requesting it in consultation with relevant professional bodies
BSS 115 – Non-medical human imaging

1st Requirement:

• However, there were problems:
  • The 1st caveat would suggest it was really a medical exposure
  • With the 2nd caveat
    • The requester was being asked to perform the justification
    • Further, who were the relevant professional bodies?
      • Medical?, Legal? Insurance? Worker?
1st Requirement:

- More problems
  - If such an exposure were considered justified
    - What radiation protection was being afforded to the irradiated person?
    - Was it medical, occupational or public exposure?
  - No answer in BSS 115
    - The implication was medical exposure
    - But the definition of medical exposure excluded it
BSS 115 – Non-medical human imaging

2nd Requirement:

• Exposures for theft detection purposes
  • Deemed to be not justified
• But if they did take place, they were:
  • Not medical exposure, but
  • Subject to the requirements for occupational and public exposure
2nd Requirement:

- However, there were problems:
  - Was the irradiated person subject to occupational or public requirements?
    - Not clear
    - Did it depend on the circumstances?
    - If so, what circumstances?

- And also
  - Nothing covered the various forms of security screening
Revision of the BSS

An opportunity to introduce a consistent and comprehensive approach

and noting that since BSS 115 was published

- Focus on security has increased dramatically, worldwide
- Inspection imaging technology has evolved
Revision of the BSS

“Categories” of non-medical human imaging

**Category 1** – Non-medical human imaging that:
- Takes place in a medical radiation facility
- Using medical radiological equipment
- Performed by radiology personnel
- With the image reported by a radiologist/doctor

for
- *Obtaining legal evidence*
- *Insurance purposes*
- *Employment purposes*
- *Immigration purposes*
- *Age determination*
- *Assessing physiological suitability/status*
- *Detection of drugs within a person*
“Categories” of non-medical human imaging

**Category 2** – Non-medical human imaging that:
- Takes place in a non-medical facility (often in a public place)
- Using specialized inspection imaging equipment
- Performed by non-radiology personnel
- With the image viewed by a non-medical person

for

- *Detection of concealed weapons:*
  - Airline passengers; persons crossing a national border; visitors to prisons, court houses, public buildings, etc; prisoners within a prison
- *Theft detection*
- *Screening cargo containers and vehicles*
New BSS – Justification (1)

• Deemed not justified:
  • Human imaging using radiation performed for:
    • Theft detection purposes
    • Art or publicity purposes

• Default position of being normally deemed not justified:
  • Human imaging using radiation performed for:
    • Occupational, legal or health insurance purposes, and undertaken without reference to clinical indication
    • The detection of concealed objects for anti-smuggling purposes

• Justified by government only
  • Human imaging using radiation performed for:
    • The detection of concealed objects for anti-terrorism and national security purposes
New BSS – Justification (2)

• **Exceptional circumstances:**
  • Responsibility on government
• Justification process has to consider, *inter alia*,
  • The benefits and detriments of implementing the type of human imaging procedure
  • The benefits and detriments of not implementing the type of human imaging procedure
  • Any legal or ethical issues associated with the introduction of the type of human imaging procedure
  • The effectiveness and suitability of the type of human imaging procedure, including the appropriateness of the radiation equipment for the intended use
  • The availability of sufficient resources to conduct the human imaging procedure safely throughout the intended period of the practice
If it has been determined that a particular practice of non-medical human imaging is justified, then such a practice has to be subject to regulatory control.

The regulatory body has to establish the requirements for regulatory control:
- In cooperation with other relevant authorities, agencies and professional bodies, as appropriate.
New BSS – Optimization of RP

• The starting point:
  • Irradiated persons afforded the same level of protection for:
    • Category 1
      • As if they were undergoing a medical exposure
    • Category 2
      • As a member of the public
Category 1

- Dose constraints established for such non-medical human imaging procedures
- The appropriate optimization requirements for medical exposures are applied, with the exception that dose constraints are to be used instead of diagnostic reference levels

Note:
- Such a dose constraint may be lower than the DRL for the “equivalent” diagnostic procedure
Category 2

- The requirements for public exposure in planned exposure situations are to be met
- Optimization of protection and safety is subject to any dose constraints set by the government or regulatory body
- Person to be informed if an alternative exists
- IEC standards invoked for the imaging equipment
Summary – Non-medical human imaging

• A radiation protection framework based on
  • Justification
  • Purpose-specific optimization
  • Public dose limitation, where applicable

• The next stage
  • These requirements will need to be implemented by Member States
  • Guidance is needed to facilitate this process
    • DS471 – Safety Guide
    • Proposed Title: Radiation Safety of X-ray Generators and Radiation Sources Used for Inspection Purposes and for Non-Medical Imaging
Thank You!