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IMPLEMENTING THE BSS FROM THE PERSPECTIVE OF THE VETERINARIAN

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France

- A systematic approach
- Balance between benefits and risks incurred
- Challenges and solutions to how a regulatory body for RP needs to consider its' functions in this area

IAEA Safety Report

- Veterinary Field mentioned in « Scope » GSR (Part3) 2014
- Recognition of a specific situation
  - Use of medical equipment for non-medical applications
  - Handling of animal patients (various species) implies specific facilities, controlled areas and procedures
- Information available for Veterinarians
  - « Human » documents, Regulatory Authorities
  - Veterinary Specific recommandations (in English, mostly with a focus on radiology)
  - Published occupational surveys (80's-2018) / low exposure / inadequate protections / poor understanding of doses

Veterinary professionals

- Formal training and recognition
- Appropriate competencies - Specific roles and responsibilities
- Radiological veterinary practitioner or radiation technologist

→ RP training optional in most countries for veterinarians (School or later)

→ Purchase of radiological equipment by all possible

Non-exposed workers
General public

- our Client = Animal-Owner
- our Patient = Animal-Patient
- Carer or Care-Giver ; Animal holders
  - (untrained) animal-owner, family, farm worker...
  - (trained) non-exposed worker

  → members of the general public (GP)

  → Can not be exposed to radiological doses > GP

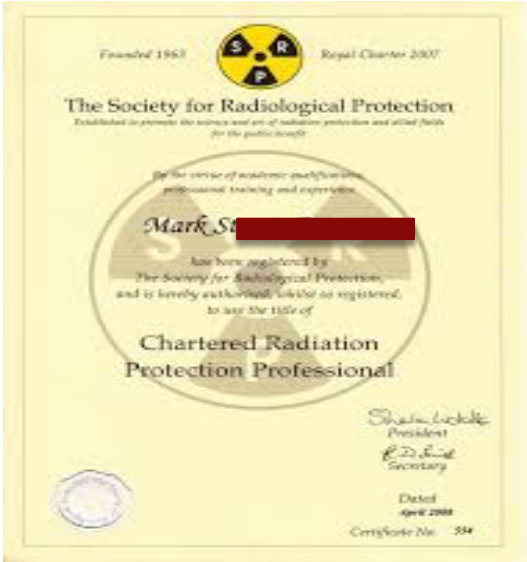
  → Often to assist veterinarians (small practices, + outdoor: farm, zoo, wild-life)

RPO

- Application of requirements (occupational and public RP)
- General radiation protection advice (registrant + staff)

- Can be a veterinarian, a radiation technologist
- Education and training (complexity of the technology and practice)
- Multiple RPOs may be designated

→ Time to be dedicated !!


The Society for Radiological Protection

Chartered Radiation Protection Professional

Radiological Equipments

- New vs. Refurbished
- Specific Veterinary **Radiology** Equipment
  - Specific Software
  - Parameters
  - Table Couch
- Other modalities = Medical « human » equipment

→ Maintenance contracts

→ QA procedures *vs.* standard procedure (safety of use *vs.* dose quality)

General Considerations

- Positioning aids (inc. sedation and anesthesia)
- Trained staff (vet, nurses, animal holder)
- Shielding, Distance, Time of Exposure
- Dose monitoring (individual, areas)

→ ALARA

Challenges

- Implement Safety Culture within practice
- Implement Image QA procedures
  - Reduced number of exposures
- Justification
  - Specialists vs. Non-Specialists
  - Service Industry
- Increased demand = lack of specialists
  - teleradiology

Small Practices

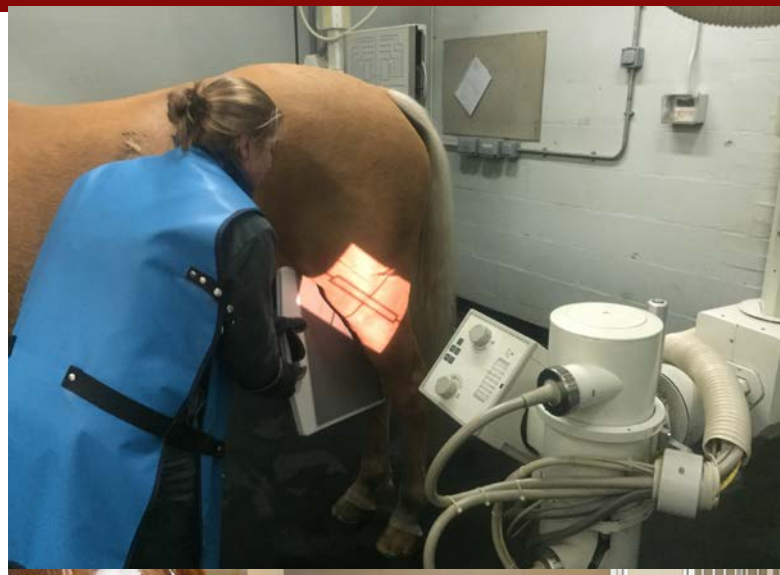
- 1-5 veterinarians (general practitioners)
- 1-8 nurses (often low qualification)
- Radiological case-load is small
- Safety Culture may be low
- Modality limited to:
  - Radiology (on-site fixed / off-site portable)
  - +/- Computer Tomography

Large Hospitals

- 5-50 veterinarians (including specialists)
- 10-80 nurses (higher level of qualification)
- Radiology / Radiotherapy Technicians (« human training »)
- Clinic Manager / Hospital procedures and standards
- Radiological case-load is high to very high
- Safety Culture is high
- All modalities may be present

Main Challenges in Radiology

- Fixed Equipment
  - All staff (exposed worker)
    - various training
    - little supervision
    - hold vs. anesthesia
- Ambulatory practices
  - Controlled area
  - Member of General Public
- No human body part to be exposed directly



Main Challenges in Nuclear Medicine

- Usually strict procedures
  - Sources Safety
  - Restricted access (dedicated staff)
- Animal isolation boarding
  - Excreta (inc. large volumes/horses)
  - No visit allowed for pet-owners
  - Medical care to the animal
- Release of animal
  - variable times between regions

  →regulatory authority

Main Challenges in Radiotherapy I

- Strict procedures and dedicated staff

- External Beam RT
  - Forbidden access to all during exposure
  - All procedures under GA

Main Challenges in Radiotherapy II

- Strict procedures and dedicated staff
- Source Safety

- HDR brachytherapy (Ir-192 ; Co-60)
  - Risk of blocked source (large animal under sedation)
- LDR brachytherapy
  - Damage / Loss of a source after implantation
  - Permanent sources (I-125), not to use in animal-patients

Regulatory Authorities

- Specific Challenges and Solutions
- Long experience for Radiology setting
- Less comfortable with setting up of radiotherapy, brachytherapy, nuclear medicine suites

→ Need to meet the veterinary team, visit the facility

→ Make the effort to understand the veterinary practice (without judgement)

→ Participate in more complex projects from early stage

In the future…

- Protection Laws for Animals
  - Domestic animals (pet and farm)
  - Research animal models
  - Wild Life
- Recognition of the animal-patient?
  - Dose monitoring?
  - Equipment dose QA?

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Radiological protection and the exposure of animals as patients in veterinary medicine.

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Vet Clin North Am Small Anim Pract. 2018 Aug 24. pii: S0195-5616(18)30088-3. doi: 10.1016/j.cvsm.2018.07.009. [Epub ahead of print]

Radiation Emergencies: Dogs and Cats.

Hooser SB[1].

Questions?