

**Perspectives of a
Radiation Protection Officer
*The IAEA Safety Standards – Radiation
Protection in Veterinary Medicine***

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IAEA



Mandate to Develop Safety Standards

IAEA Statute (Article III.A.6)

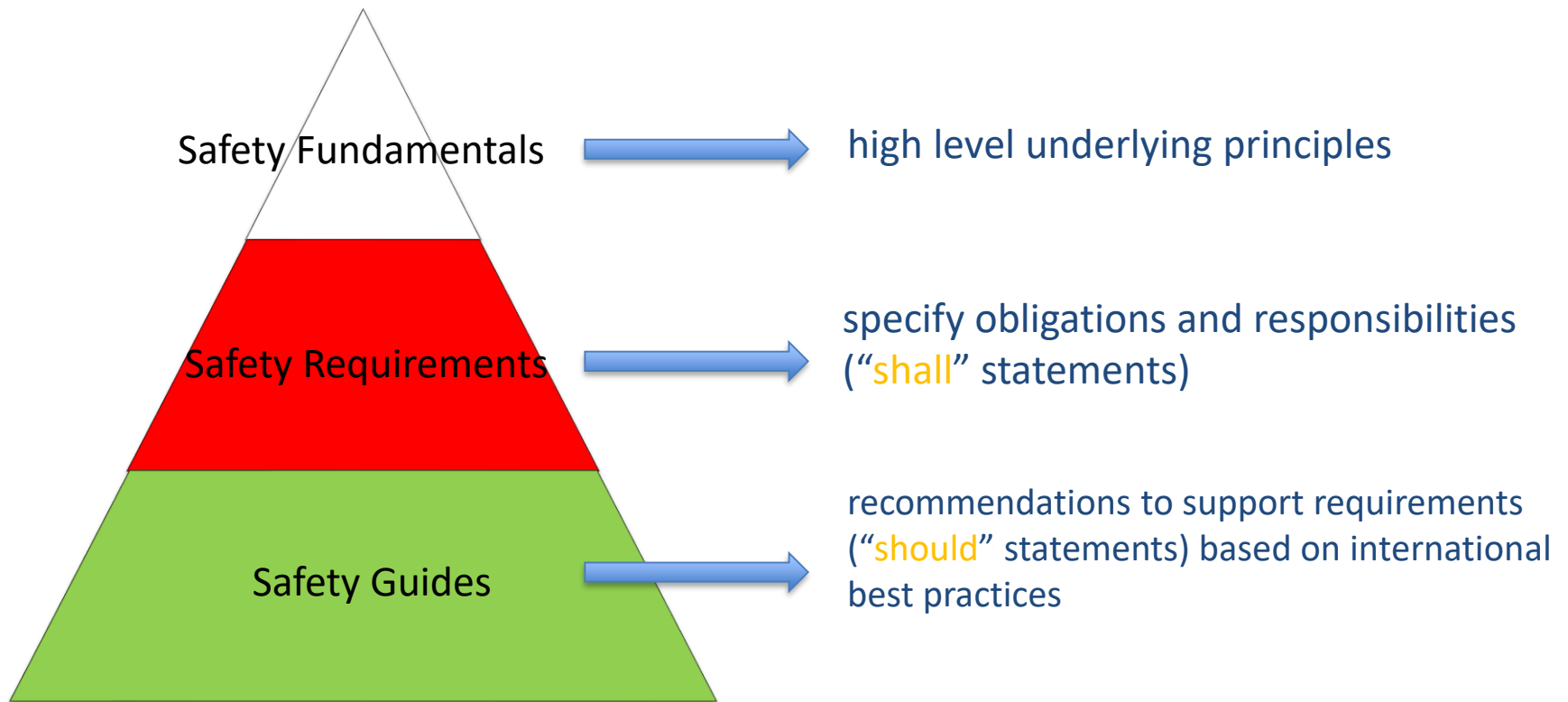
To establish or adopt, in consultation and, where appropriate, in collaboration with the competent organs of the United Nations and with the specialized agencies concerned, standards of safety for protection of health and minimization of danger to life and property (including such standards for labour conditions), and to provide for the application of these standards to its own operation as well as to the operations making use of materials, services, equipment, facilities, and information made available by the Agency or at its request or under its control or supervision; and to provide for the application of these standards, at the request of the parties, to operations under any bilateral or multilateral arrangements, or, at the request of a State, to any of that State's activities in the field of atomic energy

IAEA Safety Standards

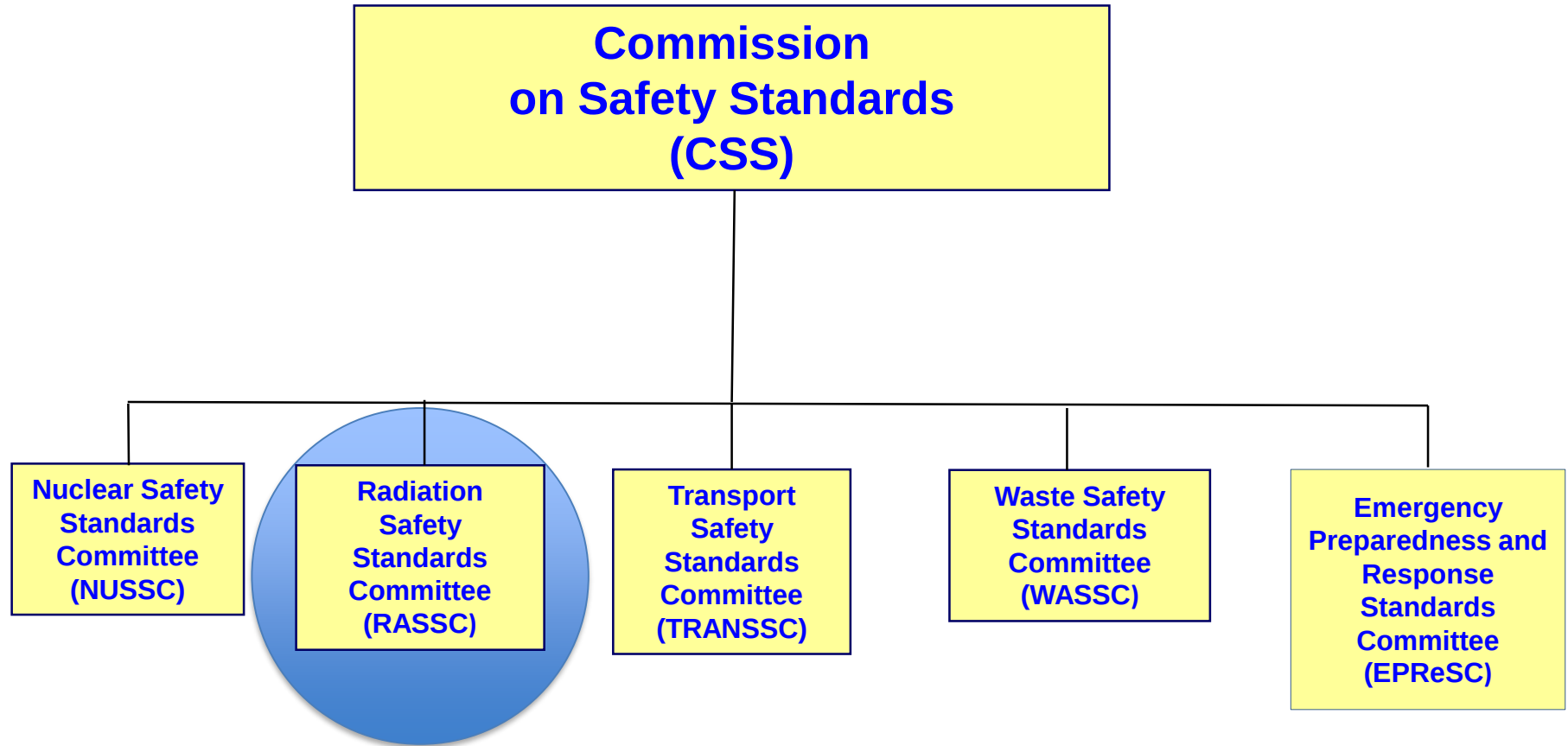
**THE IAEA SAFETY STANDARDS: A GLOBAL REFERENCE
FOR PROTECTING PEOPLE AND THE ENVIRONMENT**

- Not binding on Member States but may be adopted by them
- Binding for IAEA's own activities
- Binding on Member States in relation to operations assisted by the IAEA
- Binding on Member States entering into project agreements with the IAEA

IAEA Safety Standards



IAEA Safety Standards



Radiation Safety Standards Committee (RASSC)

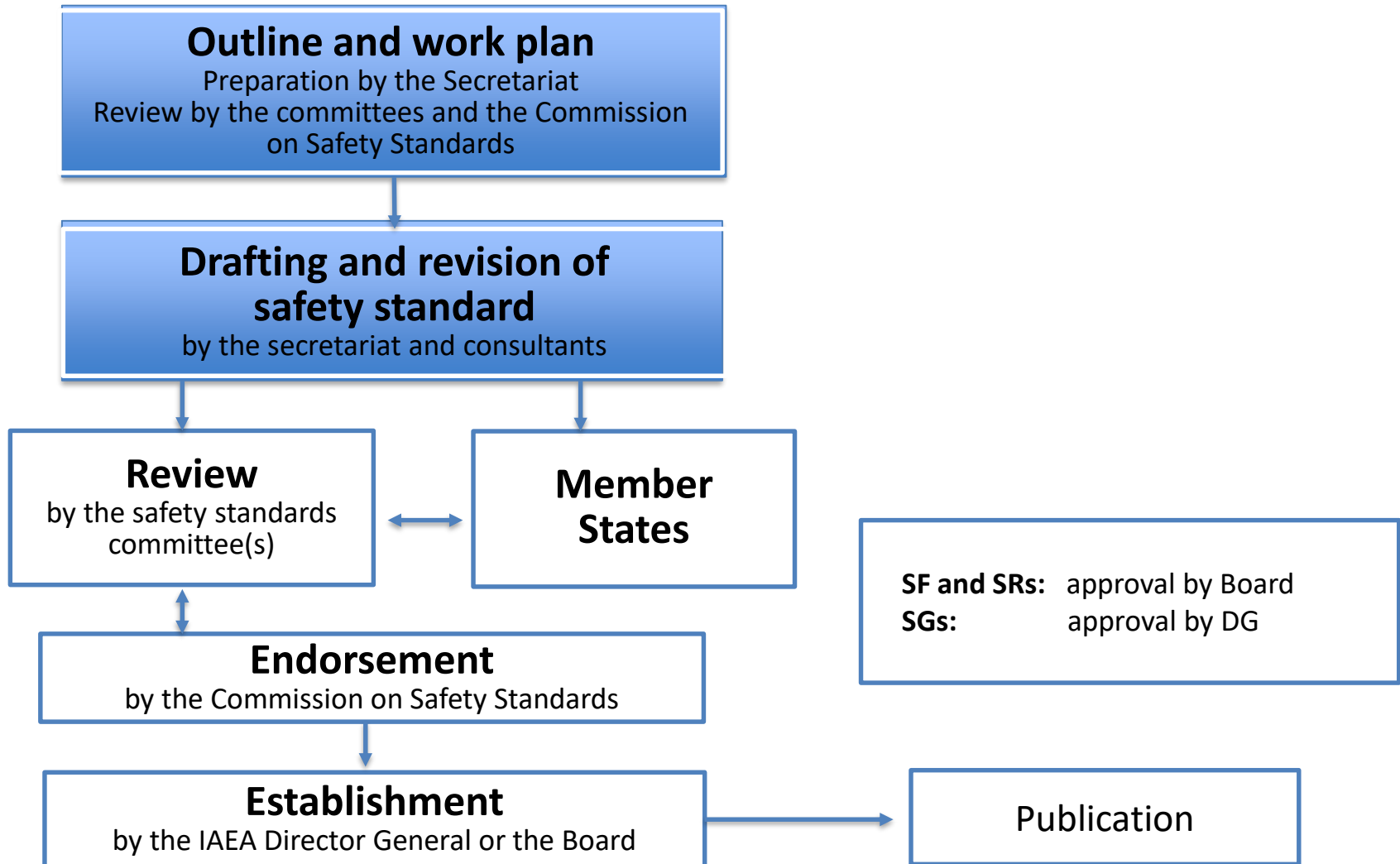
The Radiation Safety Standards Committee (RASSC) is a standing body of senior experts in radiation safety..... RASSC advises on the radiation safety programme for the development, review and revision of standards relating to radiation safety and the programme for their application. Its objectives are to provide feedback and recommendations to the Agency on the radiation safety programme and areas for improvement, and to achieve consensus, quality, coherence and consistency in the development of IAEA safety standards.

Membership is open to all Member States

Radiation Safety Standards Committee (RASSC)



IAEA Safety Standards



International Basic Safety Standards 2014



During the Board's consideration of measures to strengthen nuclear safety and security, **the body approved** the revised IAEA Safety Standards on the Safety of Nuclear Power Plants: Design (Safety Standards Series No. NS-R-1), as well as a **revision of IAEA Safety Series No. 115, or Draft Safety Requirements: Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards**. Subsequently, safety guides are developed in support of the BSS.

http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1578_web-57265295.pdf

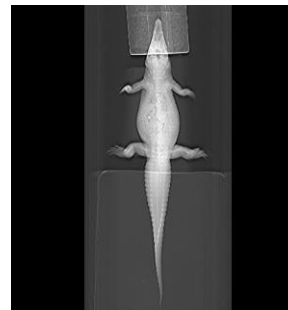


Radiation Protection in Veterinary Medicine

Justification

- Most of the techniques used or developed for humans will eventually be used also for animals
- Staff are often poorly trained in radiation protection issues
- Old disused equipment from human medicine is often used
- Justification of exposure is a key consideration, it is often absent as the market is driven by insurance considerations
- Exposures take place in many different environments – from state-of-the-art dedicated facilities to farmyards
- The use of radiation for the diagnosis and treatment of animals is not a “medical exposure” – cannot include in DS399
- pet-owners akin to comforters and carers in medical exposures
- Occupational and public exposures are key issues

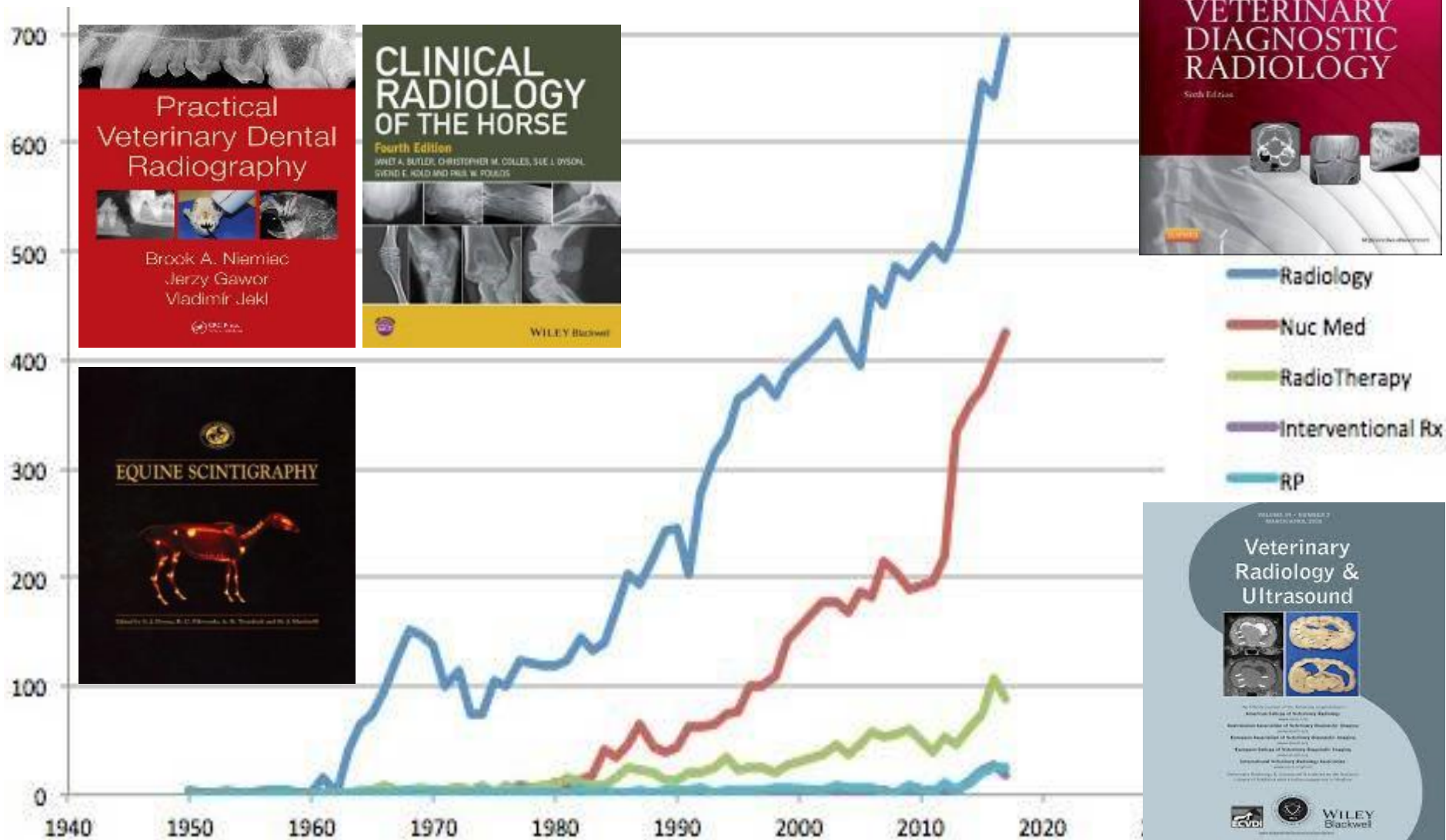
Novel aspects of veterinary radiation safety



Veterinary World

- Academic institutions (variable equipment)
- Large Private Networks (all possible equipment)
 - US, UK, EU
- Independent clinics and hospitals (radiology suite +/- CTs)
 - France, 85% practices (6300) equipped with 1 + Xray
- Teleradiology
- Tele-RT planning

Pubmed Trends / Literature



Veterinary Radiology



Veterinary Computer Tomography



2-64 slices CTs
Cone-Beam CTs

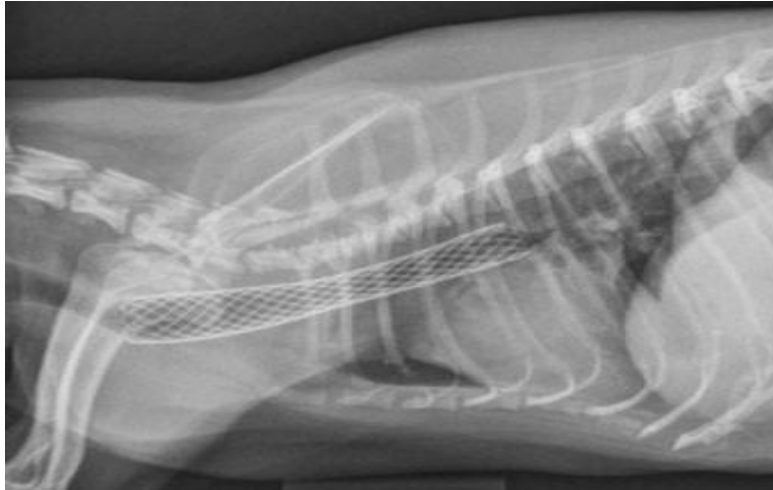
Veterinary Dentistry



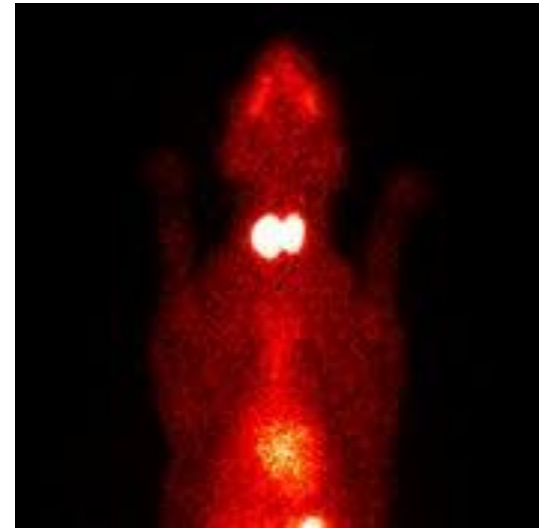
At institutions
with dentistry experts



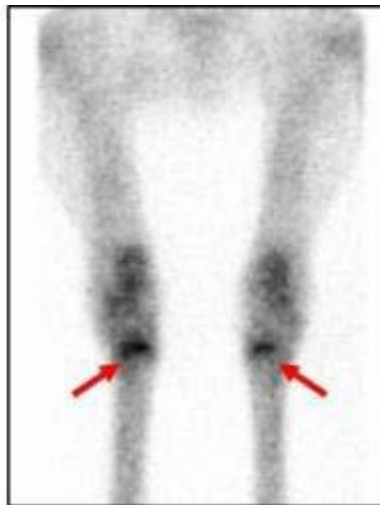
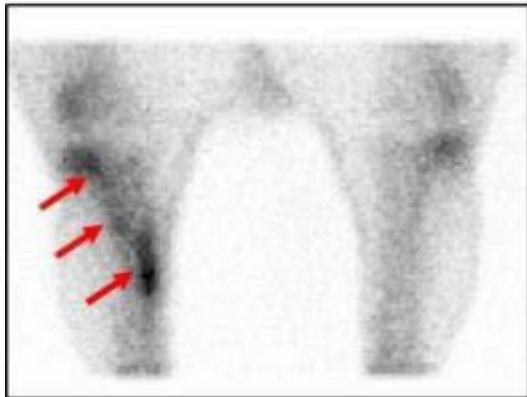
Veterinary Interventional Radiology



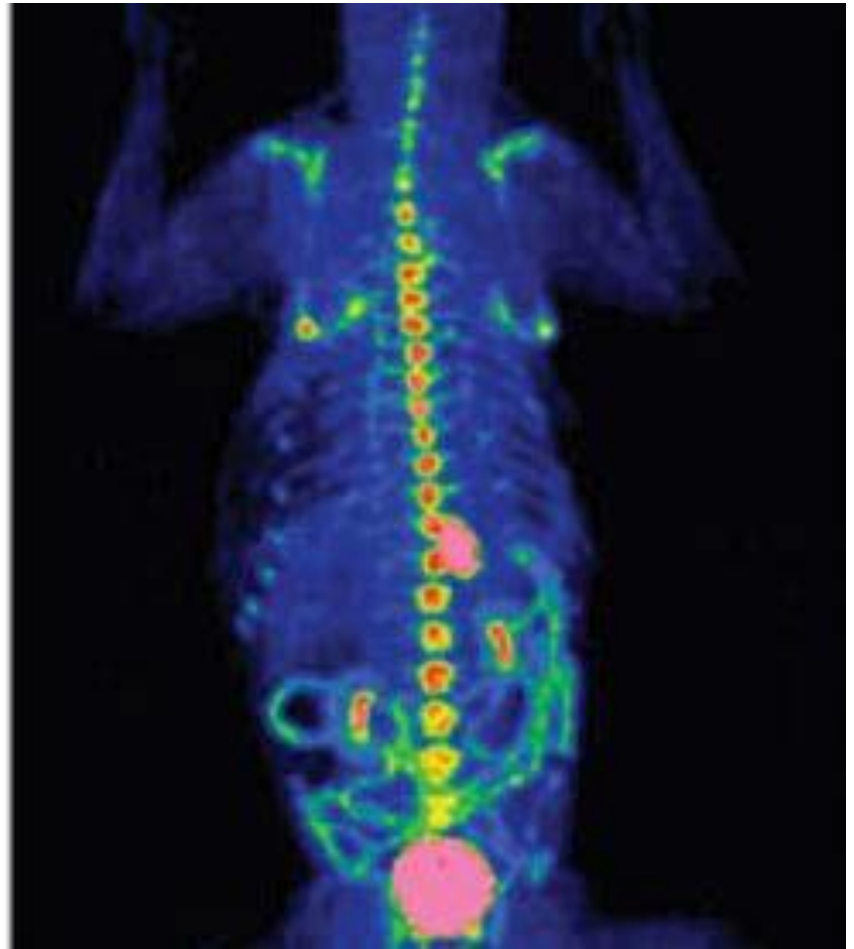
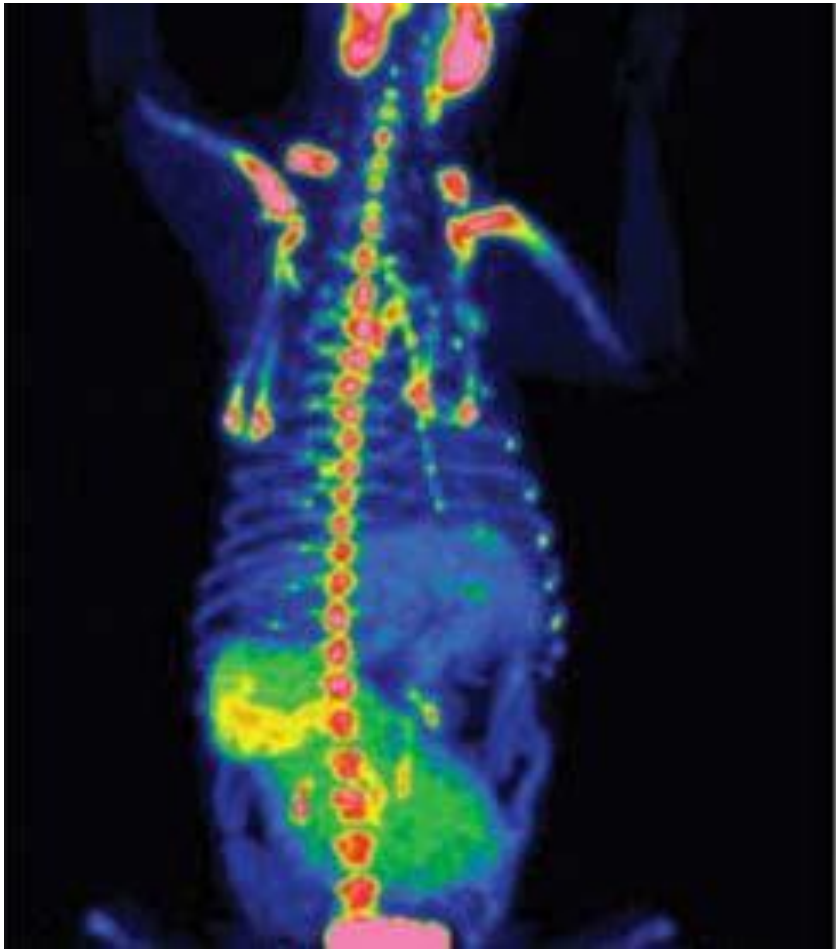
Veterinary Nuclear Medicine



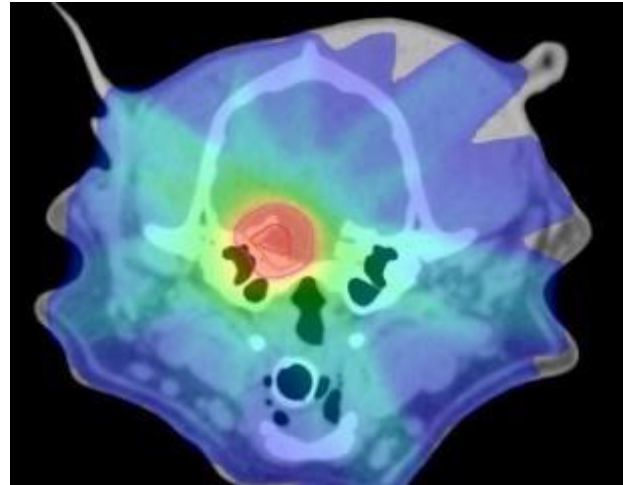
+ Iodine 131
for hyperthyroidism



Veterinary PET imaging



Veterinary Radiotherapy



40 US/CA
20 EU
+ Australia
+ Japan
+ ...



Safety Culture and the BSS

- Organizational safety systems and behaviors
- Staff perceptions of management
- Risk perceptions
- Teamwork and communication
- Regulatory burden and expectations



ALARA challenges in academic and research environments



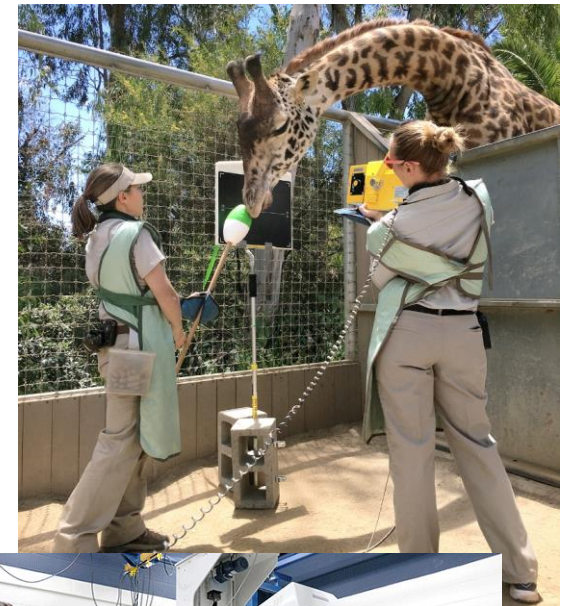
- Occupational concern from increased density = increased ALARA considerations
- Authentic imaging situations = ALARA second to worker safety
- Diagnostic quality = situational dependent versus safety as situational independent

Policy implementation via communication and practicality

Conventional diagnostic and interventional methodologies do not extend to all use cases

Situational awareness of challenges associated with veterinary imaging modalities, inclusive of x-ray generating devices, radioactive materials, non-ionizing radiation options

Collaborative network of professionals extending beyond the radiation worker to public/owners and unique location where services are needed



Conclusion



Implementation of BSS principles must remain agile and adapt with levels and expectations of patient care, as well as access to advanced technologies and techniques



Practicality of application must meet the regulatory burden of safety and compliance without diminishing diagnostic, therapeutic or research opportunities



Novel patients require novel risk management and mitigation. Communication and shared understanding of goal is paramount to worker safety