



Education and Training of the veterinarians in radiation protection: The initiatives of the Greek Atomic Energy Commission

S. Economides, K. Karfopoulos, C.J. Hourdakis, V. Kamenopoulou
Greek Atomic Energy Commission (EEAE)



6th EUTERP WORKSHOP-Legislative change in Europe: the implications for training in radiation protection-Rising to the challenge (September 30 – October 2, 2015 Athens, Greece)

Contents

- Radiation protection in veterinary radiology
- Current situation in Greece
- Legislative framework (National/European)
- National programme on E&T
- Quality Management System
- Courses on radiation protection in veterinary radiology
- Conclusions – Challenges



Radiation protection in veterinary radiology

- Veterinary radiology is a well-developed specialty mainly based on the diagnostic uses of x-rays to small (canines, cats, etc) and large animals (horses, food animals, etc).
- There is an increase in nuclear medicine and radiation therapy applications.
- Radiographic examinations performed outside the premises of the vet clinics require additional protection measures (for the operators, the animal owners, and the public).
- Low workload (<10 exams/week) and exposure parameters of veterinary radiography facilities should be considered.



Radiation protection in veterinary radiology

- **Main issues:**
 - ✓ Immobilization of the animals-Presence of vet owners in the radiology room;
 - ✓ Set up of exposures outside the vet clinics - Use of mobile equipment;
 - ✓ Second hand equipment
- Veterinarians should be educated and trained on the examination techniques as well as on radiation protection.
- HERCA has set up a Task Force (TF) with the mandate of analysing the different radiation regulatory approaches in Europe in the veterinary field and to look into the radiation protection education and training requirements for veterinarians.



Current situation in Greece

- According to the National Radiation Protection Data Base (NRPDB) there are:
 - 280 conventional radiography systems
 - 2 fluoroscopy systems and
 - 2 CT systems



installed in 280 veterinary clinics countrywide.

- EEAE issues the license and performs on-site inspections to veterinary clinics on a five years basis.
- No significant radiation protection issues have been observed.
- Radiation protection is not included as a topic in the radiology courses of the veterinarian schools in Greece.



Legislative framework (National)

Radiation Protection Regulations (issued in 2001 – implementing EC 97/23, 96/29 Directives)

1.1.7. Staff

- a. All scientific, technical and ancillary staff participating in any activity which involves danger from ionizing radiation **must be suitably trained** and contribute to implementing these Regulations.
- b. From the radiation protection point of view, the performance of any practice and the safe operation of ionizing radiation laboratories requires **specialized and suitably trained staff** whose employment in the laboratory, as well as the general attitude, supervision and accountability, guarantee the protection of individuals and the environment from ionizing radiation through compliance with the radiation protection rules.



Legislative framework (European)

Council Directive 2013/59/Euratom

Recital 31

In veterinary practice the use of ionizing radiation for imaging is growing, often with second-hand equipment from the medical sector. Especially in the case of larger animals, or in the administration of radiopharmaceuticals to animals, there is a substantial risk of high occupational exposures and of exposure of accompanying persons. **This calls for the provision of adequate information and the education of veterinarians and their staff.**

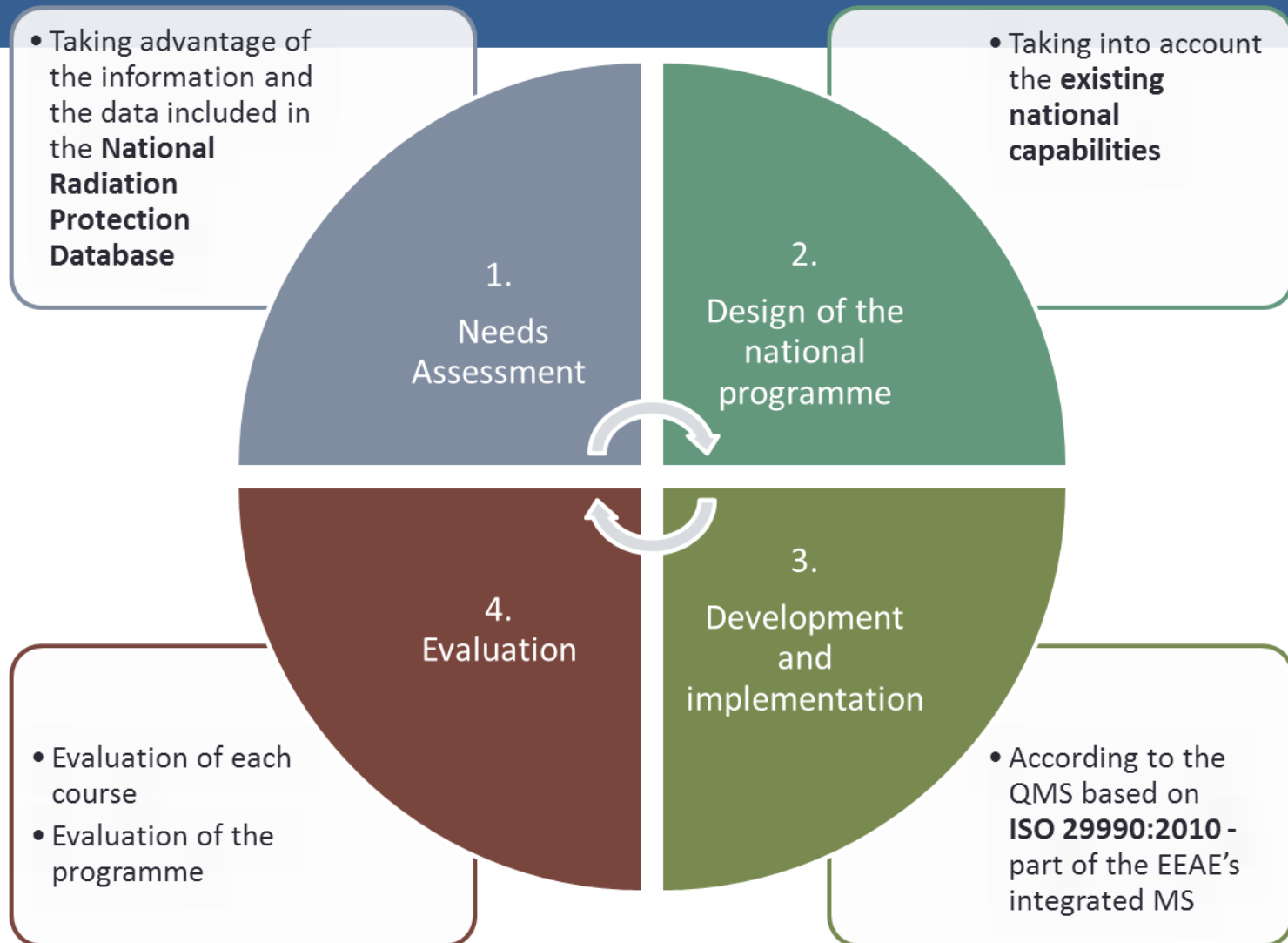


National programme for E&T



- A 3-years national programme for E&T in Radiation, Transport and Waste Safety is in place;
- It was approved by the Board of EEAE in 2013;
- The Division of Research, Development and Education of EEAE, in ad hoc collaboration with the relevant stakeholders, as well as with other E&T providers, could be considered the national committee on E&T.

National programme for E&T

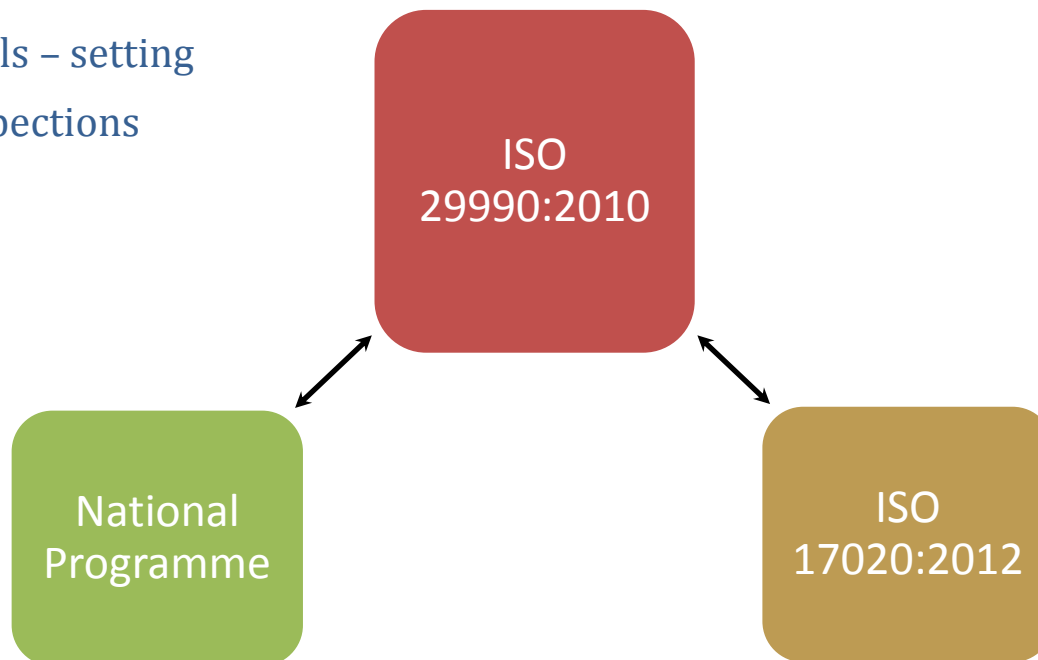


Practices / Activities	Category of personnel	Training course	# of Training Courses	Leading to
Medical Physics applications	MPE	Inter – University Postgraduate Course in Medical - Radiation Physics	3	MSc
	RPE	PGEC	1	certificate of participation
Interventional Radiology	Radiation Health Professionals	Radiation protection in Interventional Cardiology	3	certificate of competence
Interventional Radiology	Technologists	Radiation protection in Interventional Radiology	3	certificate of participation
Transfer of Radioactive Material	Advisors for the transportation of dangerous goods	Transportation of class 7 goods	12(=3x4)	certificate of participation
Industrial Radiography	Radiographers / Assistant radiographers	Radiation protection in Industrial Radiography	3	certificate of participation
Veterinary Radiology	Health Professionals	Radiation protection in Veterinary Radiology	3	certificate of competence
Scrap Metal Industries	Portal Operators	Principles of Radiation Detection (on-the-job-training)	3	certificate of participation
Mineral extraction and processing companies (NORM)	Operators		2	certificate of participation
Research activities: use of sealed and unsealed sources	Operators	Principles of radiation protection	<5	certificate of participation
Security Equipment	Operators	Principles of Radiation Detection (on-the-job-training)	for all customs in Greece	certificate of participation

Quality Management System

An effective national programme on E&T in RP presupposes that the E&T provider, has a well established Quality Management System (QMS).

- In 2013 EEAE retained its certification on design, development and delivery of non-formal education based on ISO 29990:2010
- EEAE is certified according to ISO 9001:2009 and accredited according to ISO 17020:2012
 - ✓ Communication
 - ✓ Goals – setting
 - ✓ Inspections



Courses on radiation protection in veterinary radiology

- Within the framework of the national programme the EEAE collaborates with the Veterinary School of Aristotle University of Thessaloniki in terms of design, development and provision of courses on radiation protection in veterinary radiology.
- The courses will cover theoretical (presentations) and practical (laboratories) aspects of radiation protection in veterinary radiology.
- Participants will be veterinarians already operating or in the phase of installing at their premises conventional veterinary radiography systems.
- The courses will be funded by the Unit of Lifelong Learning of Aristotle University of Thessaloniki.



ARISTOTLE
UNIVERSITY OF
THESSALONIKI

Courses on radiation protection in veterinary radiology

- Already scheduled:
 - 1 course in **Thessaloniki** (29.11.2015)
 - 1 course in **Athens** (20.03.2016)
- A maximum of **30 participants** per course.
- Speakers: **scientific personnel** from the EEAE and the Aristotle University of Thessaloniki.
- A **certificate of competence**
- The training material will be available on EEAE **e-learning platform**.



Courses on radiation protection in veterinary radiology

Objectives

- Theoretical and practical training of the participants on:
 - ✓ the proper use of radiography systems in veterinary radiology
 - ✓ radiation protection
- Development of the necessary safety culture.

Most specifically, the participants are expected to become familiar with:

- the biological effects of ionizing radiation;
- the basic operation principles of ionizing radiation systems used in veterinary radiology;
- the basic radiographic techniques used in veterinary radiology (theoretical & practical aspects);
- the radiation protection principles and their practical implementation.



Course programme

Register
NOW!

8:30-9:00	Registration
9:00-9:15	Welcome
9:15-10:00	Introduction to physics of radiation
10:00-10:45	Biological effects of ionizing radiation- Relative dosimetric quantities
10:45-11:15	<i>Break</i>
11:15-12:00	Techniques of conventional, CR and DR radiography
12:00-12:30	Basic principles of radiation protection
12:30-14:00	<i>Break</i>
14:00-14:45	Radiation protection in veterinary radiology-Legislative framework
14:45-15:30	Veterinary radiography-Radiation protection in practice
15:30-16:00	<i>Break</i>
16:00-18:00	Demonstration-Practical training on the most common projections in veterinary radiography
18:00-19:00	Demonstration-Practical training on radiation protection in veterinary radiography
19:00-19:45	Written examinations
19:45-20:00	Closure of the course

Courses on radiation protection in veterinary radiology

- Following the established procedures of the EEAE QMS (29990:2010), the evaluation of the courses will be based on:
 - ✓ Questionnaire;
 - ✓ Pass rate at the examinations;
 - ✓ Feedback from participants and the speakers;
 - ✓ Annual review of educational activities.
- Identification of new training needs will lead to additional training to specific groups
- The NRPD is continuously updated with new data. The evaluation of training needs is a continuous process.



Conclusions - Challenges

1. The topic of radiation protection must be included in the radiology courses of the veterinarian schools.
2. Adoption of the Council Directive 2013/59 Euratom – relative requirements.
3. Development of a safety culture.
4. The results of the two courses in Thessaloniki & Athens will be used for the first evaluation of the initiative.
5. e-learning platform is expected to contribute significantly to the continuous training of the veterinarians.
6. New techniques/technologies.



Thank you very much for your attention!!!

Greek Atomic Energy Commission

P.O. BOX 60092

Ag. Paraskevi 15310, Greece

T: + 30 210 650 6700

F: + 30 210 650 6748

E: info@eeaeg.gr

www.eeaeg.gr

www.facebook.com/eeaegr

www.twitter.com/#eeaegr

