Training Programme Description for acquiring Add-on title of Veterinary Radiation Oncologist

Updated by ROECC (June 2016) based on the EBVS minutes from 13.04.2013

1. Introduction
This document describes the structure and content of a temporary veterinary radiation oncology add-on training programme. This add-on programme is a way of moving forward and bringing together enough people with experience in radiation therapy to eventually develop a full residency training programme in radiation oncology. The add-on programme is intended for ECVIM-CA [Oncol] and ECVDI Diplomates or other eligible\(^1\) trainees of these specialties.

Proposed add-on training programmes in radiation oncology must be approved by the Radiation Oncology Education and Credentials Committee (ROECC). This committee is formed by two ECVIM-CA [Oncol] Diplomates and two ECVDI Diplomates, preferably also being Diplomates ACVR-RO.

This Training Programme Description has to be approved by the Boards of the ECVIM-CA and ECVDI. Any structural changes proposed by the ROECC will have to be approved by both Boards before they can be implemented.

2. Objectives of the Training Programme
The primary aim of the add-on training programme is to advance veterinary radiation oncology in Europe and ensure the competence of those who work in this field by

- establishing guidelines for post-graduate education and clinical experience necessary for certification in veterinary radiation oncology\(^2\)
- examining and certifying trainees in veterinary radiation oncology

Specifically, an approved veterinary add-on radiation oncology programme is intended to qualify the trainee in

- therapeutic use of ionizing radiation
- understanding of radiation biology and physics
- safe application of radiation in clinical veterinary practice

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\(^1\) Candidates will be eligible to be a trainee provided they have fully satisfied the requirements of the credential committees of their respective colleges to sit their certifying examination.

\(^2\) This add-on training will lead to the add on title (DipECVDI (add Rad Oncol) or ECVIM-CA [Oncol] (add Rad Oncol) and European Veterinary Specialist in Diagnostic Imaging and Radiation Oncology or European Veterinary Specialist in Small Animal Oncology and Radiation Oncology.

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• imaging techniques as a critical part of radiation oncology – especially for treatment planning
• biologic behaviour and clinical signs of various types of animal cancer
• understanding of other treatment modalities and their clinical application

3. Training programme details
All add-on training programmes must be approved by the ROECC. There will be two different types of training programmes – one for ECVIM-CA [Oncol] Diplomates or other eligible\(^3\) trainees of this specialty and one for ECVDI Diplomates or other eligible trainees of this specialty.

3.1 Training content
The training period must include:
• Exposure to veterinary patients with a varieties of tumours, syndromes and conditions
• Pre-treatment evaluation of cancer patients
• Knowledge of treatment modalities as a single entity or combinations thereof
• Formulation of radiation treatment plans
• Administration of treatments
• Patient follow-up, including assessments of tumour response and normal tissue toxicities

The programme must enable the trainee to gain adequate knowledge of:
• Biology of cancer
• Radiobiology
• Basic radiation physics
• Radiation physics applied in radiation therapy
• Radiation safety

3.2. Case log
An adequate case variety treated with both curative and palliative intent should be continuously monitored by means of a log-book. The case log is a systematic collection of treated animals for which the trainee was the primary person responsible and must include:

\(^3\) Candidates will be eligible to be a trainee provided they have fully satisfied the requirements of the credential committees of their respective colleges to sit their certifying examination.

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● Patient identification
● Tumour description (type, site and information on regional or systemic metastasis)
● Treatment intent (curative, palliative) and treatment regimen (total dose, number of fractions, number of fractions per week and combinations with other treatment modalities)
● Treatment response and acute side effects
● follow-up information

The case log template to be used by the trainee is provided in the supplementing documentation, available on the respective web sites.

3.3. Congress attendance

Attendance of at least one international meeting covering topics of radiation oncology is required during the training programme.

3.4. Library, literature resources

The programme must provide access to sufficient variety of journals, references, and resource materials pertinent to progressive levels of education in radiation oncology and associated fields all of which should be readily accessible for trainee study.

3.5. Presentations, Seminars and teaching rounds

Seminars and teaching rounds must be provided for progressive trainee participation and also involve other major specialties. They must include both trainees and diplomate participants on a regular basis.

The trainee must attend
● Weekly journal clubs or continuing education related to oncological / radiobiological / physical issues.
● Combined grand rounds / continuing education with surgery, pathology/clinical pathology, diagnostic imaging and medical oncology once a month.

Further, the trainee must give
● A minimum of one in house presentation in an educational setting such as a Grand Round during the training programme

3.6. Types of Training Programmes
3.6.1. Standard Training Programmes

Standard add-on programmes consist of a period of 65 weeks of supervised training. The standard add-on training programme time shall not exceed 104 weeks (equivalent to 24 months). The ROECC establishes the conditions as outlined in this document. The individual programme directors will provide the detailed programmes for their institution, which will have to be approved by the ROECC.

The training programme must include:

| 46 weeks | Training in radiation oncology under direct supervision from a supervisor as defined under 5.2. If the home facility does not offer a multi-leaf collimator and/or intensity modulated radiation therapy (IMRT) treatment planning, this period must include a supervised external rotation of four weeks at another veterinary radiotherapy site and/or facility. Exposure to stereotactic radiosurgery and human radiation oncology is encouraged, but not mandatory. This training time is also used for exposure to radiation oncology related anaesthesia. |
| 12 weeks | Period of variation. See 3.7.1.1 and 3.7.1.2 below |
| At least 7 weeks | unsupervised training time |

3.6.1.1. Variation in standard Training Programmes for ECVIM-CA [Oncol] Diplomates or eligible trainees with ECVIM-CA [Oncol] background

| 7 weeks | Training in diagnostic imaging under direct supervision from a Diplomate in Veterinary Diagnostic Imaging (ECVDI or ACVR). About 4 weeks of this time should be spent in advanced imaging (CT, MRI), about one week in standard radiology, one week in ultrasound and the remaining week can be spent focussing on diagnostic imaging modality of choice. |

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4 Supervised time excludes vacation, conference attendance and study time. Unsupervised training time includes study time and conference attendance. Vacation time is not accounted for in the supervised or unsupervised training time.

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<th>5 weeks</th>
<th>Training can be chosen for further rotations in areas of interest (for example anaesthesia, surgery, clinical pathology, more radiation oncology and others under supervision of an European or American Diplomate in the selected specialty) pending approval. 2 weeks of this time may be used as additional unsupervised time for self-study or course/conference attendance.</th>
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<tr>
<td>During on-clinic times</td>
<td>Weekly diagnostic imaging round, this can be a combined round for residents/trainees from different programmes; one daily combined round with radiation oncology would be desirable.</td>
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### 3.6.1.2. Variation in Standard Training Programmes for ECVDI Diplomates or eligible trainees with ECVDI background

| 7 weeks | Training in veterinary medical oncology under direct supervision from a European or American Diplomate in Veterinary Medical Oncology |
| 2 weeks | Training in Oncologic Surgery under supervision from a European or American Diplomate in Veterinary Surgery |
| 1 week | Training in Clinical Pathology under supervision from a European or American Diplomate in Veterinary Clinical Pathology |
| 2 weeks | Training can be chosen for further rotations in areas of interest (for example Veterinary Anaesthesia, Veterinary Surgery, Veterinary Clinical Pathology, more Radiation Oncology and others under supervision of an European or American Diplomate in the selected specialty) pending approval. Alternatively this time may be used as additional unsupervised time for self-study or course/conference attendance. |
| During on-clinic times | Participate in Veterinary Medical Oncology rounds at least twice a week; one daily combined round with Veterinary Radiation Oncology would be desirable. |
3.6.2 Individual (Alternative) Programme

Alternative programmes are only accepted for an individual candidate and must be approved by the ROECC prior to the start of the training programme. In an alternative programme the 65 weeks (equivalent to 15 months) supervised training period does not have to be continuous, but must offer a minimum of 16 training weeks per year in blocks of at least 8 consecutive weeks and must be completed within a 4-year period.

3.7. Training Materials and activities

3.7.1. Patient / Imaging report numbers

The following patient / imaging report numbers are required

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| 100 patients receiving radiation therapy | ● The case log should contain patients with a variety of different tumour types treated with curative or palliative intention  
● A detailed written case report is required from 2 patients  
These cases should have been personally handled by the trainee and the case reports should be written by the trainee. The case reports should allow the analytical approach of the trainee to be assessed to be at the level of a specialist as confirmed by a veterinary radiation oncologist. The cases should discuss in detail the planning process, including contouring, choices for margins, calculations for possible late toxicities, and choice of treatment schedule / treatment plan. The case report should be 1400-1800 words. |

For candidates with ECVDI Background

| 30 Veterinary Medical Oncology patients seen during the Veterinary Medical oncology rotation | ● The case log should contain the date, case number, signalment, diagnostic work up (staging), procedures, treatment and follow-up of patients with a variety of tumours typically treated with chemotherapy alone or with adjuvant chemotherapy as outlined in the case log template  
● A detailed report is required for one patient |

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This case should have been personally handled by the trainee and the case report should be written by the trainee. The case report should allow the analytical approach of the trainee to be assessed as confirmed by a veterinary medical oncologist. The cases should discuss confirmation of diagnosis, choices for treatment plan / chemotherapy protocol, potential side effects of chemotherapeutic agents / their management and follow-up. The case report should be 1400-1800 words.

For candidates with ECVIM-CA [Oncol] Background

| Written diagnostic imaging reports of 20 CT/MRI cases, 15 radiology cases, 10 ultrasound cases seen during the Veterinary Diagnostic Imaging rotation | ● The reports should contain a variety of tumour cases staged / diagnosed / rechecked via diagnostic imaging. The reports should be structured and contain: ID, Imaging study performed, imaging findings, imaging diagnosis/conclusions, differentials and if further work-up is recommended, comments on this point as outlined in the case log template as confirmed by a veterinary diagnostic imaging specialist. |

3.7.2. Study materials

The following references are used to validate the examination and will be updated annually.

A) Textbooks

● Any veterinary anatomy text (E.g. Miller’s Anatomy, 4th Ed., Elsevier Saunders 2012, 787pg)
● Any veterinary anaesthesiology text as it applies to daily radiation treatments (E.g. Handbook of Veterinary Anesthesia, Muir & Hubbel 5th Ed. 2012, 557p)
Bushberg JT, Seibert JA, Leiholdt EM, Boone JM. The Essential Physics of Medical Imaging. Williams & Wilkins, 3rd Ed. 2012 (1030pg)

Current Veterinary Therapy XV, XIV – only sections that relate to radiation and medical oncology (such as section V on both volumes), Saunders, Philadelphia, (235pg)

Gillette, EL: Radiation Oncology. Seminars in Veterinary Medicine & Surgery (Small Animal), Vol 10, No 3, November 1995 (82pg)


Kahn FM: The Physics of Radiation Therapy, 5th Ed., Williams & Wilkins, Baltimore, 2014 (760pg)

Kahn FM: Treatment Planning in Radiation Oncology, Editors Kahn & Gerbi, 3rd, Lippincott, Williams, Wilkins, 2012 (527pg)

Olgivie, GK, Moore, AS: Managing the Veterinary Cancer Patient, Vet Learning Systems, Trenton, 2006 (656pg)

Ogilvie GK, Moore AS: Feline Oncology, Veterinary Learning Systems, Trenton, 2001 (503pg)


Schwarz T and Saunders J: Veterinary Computed Tomography, Blackwell Publishing 2011 (557 pg)


• Withrow and MacEwen: Small Animal Clinical Oncology, 5th Ed., Saunders, Philadelphia, 2012 (750pg)

B) Journals
The literature relevant to veterinary radiotherapy is not extensive. The trainee should be familiar with all relevant articles published in the journals listed below in the preceding 5 years. The trainee should also have knowledge of published studies, which have made a significant contribution to the development of veterinary radiotherapy by way of large clinical studies involving, but not limited to irradiation of specific tumour types, application of new techniques or methods of delivering radiotherapy (e.g. neoadjuvant) as well as radiation biology and protection in the same journals for up to 10 years previously.

Journal list
• Veterinary Radiology & Ultrasound (VRUS)
• Veterinary Comparative Oncology (VCO)
• Journal of Veterinary Internal Medicine (JVIM)
• Journal of the American Animal Hospital Association (JAAHA)
• Journal of the American Veterinary Medical Association (JAVMA)
• Journal of Small Animal Practice (JSAP)
• American Journal of Veterinary Research (AJVR)
• Journal of Feline Medicine and Surgery (JFMS)

Articles addressing veterinary radiation oncology and general concepts in radiation oncology in human journals
• International Journal of Radiation Oncology Biology and Physics
• European Journal of Cancer

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4. The trainee
The trainee of the add-on programme must be ECVIM-CA [Oncol] or ECVDI Diplomate or an eligible\(^5\) trainee of these specialties. Trainees must have a satisfactory moral and ethical standing in the veterinary profession. Trainees are only allowed to sit the examination for the add-on certification after they have achieved ECVIM-CA (Oncol) or ECVDI Diplomate status.

5. The Institute
5.1 Training Programme Director
The Programme Director of the Add-on training programme shall be responsible for the administration and continuity of the programme. The Programme Director must be a Diplomate of ECVIM-CA [Oncol] or ECVDI.

5.2 Clinical Supervision
Each trainee must be directly supervised when engaged in radiation oncology clinical activity by at least one Diplomate [Oncology] of the ECVIM-CA or by one Diplomate of ECVDI, or of one Diplomate ACVR [radiation oncology]. If the ECVIM-CA [Oncol] or ECVDI Diplomate is not also an ACVR-RO Diplomate this person must be de facto recognised in Add-on Radiation Oncology as mentioned under section 9. For the other required clinical activities direct supervision of a European or American Diplomate of that specialty is required.

5.3 Facilities
The programme must provide adequate clinical and diagnostic facilities and personnel to ensure an effective educational experience for trainees. Access to an external beam radiation therapy machine in the megavoltage range, advanced diagnostic imaging and computerized radiation treatment-planning capabilities are required. These resources are not limited to those in the primary training institution; requirements may be provided by resources available at affiliated institutions.

5.4 Clinical resources
The programme must provide a sufficient volume and variety of patients for instruction. It is expected that the trainee will be exposed to a sufficient number of new cancer patients treated with ionizing radiation over the course of the training programme to provide: (1) the material necessary to expose trainees to the majority of situations likely to be encountered in

\(^5\) Candidates will be eligible to be a trainee provided they have fully satisfied the requirements of the credential committees of their respective colleges to sit their certifying examination.
the practice of veterinary radiation oncology; and (2) the opportunity for reinforcement of important radiation oncology principles. The number of cases seen may vary among training sites and also may vary depending on the species, disease types, and depth of study. Emphasis should be on diversity and quality rather than quantity, although a sufficient caseload must be available. The minimum veterinary radiation therapy caseload to be managed by the trainee is 100 cases.

5.5 Programme affiliation, multi institutional agreement
When the resources of two or more institutions are used for the clinical education of a trainee, one institution must be designated as the primary institution. Affiliated institutions are not limited to schools of veterinary medicine and may include schools of medicine or private veterinary specialty clinics. Letters of agreement, signed on behalf of the institution by the appropriate individual, must be provided from the affiliated institution.

5.6 Treatment documentation and patient follow up information
An efficient system of recording, filing, and locating medical records must be in operation.

5.7. Evaluation of trainees
The evaluation of trainee performance and progress must be documented and submitted to the ROECC by an evaluation form and by copies of the trainees case-log signed by the programme director. The supervisor must evaluate the trainee twice during the training period (after the first half and at the end of the training programme).

6. Examination guidelines
Applicants to the certifying examination will be reviewed by the ROECC to ascertain that training programme guidelines have been met and that the required training programme has been completed.

The certification examination will be administered annually, provided there are candidates, by the Examination Committee and will involve detailed principles of radiation oncology. The examination can be taken only by individuals with ECVIM-CA (Oncol) or ECVDI Diplomate status after completion of the 65 week Add-on training period and acceptance of the application. The application must be submitted 4 months prior to the examination date to ROECC.

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An Examination Committee will be formed by two Diplomates of ECVIM-CA [Oncology] and two Diplomates of ECVDI, all preferably also ACVR-RO Diplomates, or at least de facto recognised.

For both Dipl ECVIM-CA [Oncol] and Dipl ECVDI the exam sections General Clinical (Radiation) Oncology, General Basic Sciences and Radiation Biology, Physics and Dose Calculation, and Clinical and Imaging aspects of Radiation Oncology will be required. The Examination Committee will come up with a proposal for the format of the examination, which will have to be approved by the two Colleges.

Candidates must pass the examination within eight years of completion of the training programme. The candidate may sit the examination on four (4) occasions only.

After passing the certifying examination the add on title (DipECVDI (add Rad Oncol) or ECVIM-CA [Oncol] (add Rad Oncol) and European Veterinary Specialist in Diagnostic Imaging and Radiation Oncology or European Veterinary Specialist in Small Animal Oncology and Radiation Oncology may be used.

7. De facto recognition

Diplomates who will de facto acquire the add-on title veterinary radiation oncologists are:
- Those that are Diplomate ECVIM-CA [Oncol] or Diplomate ECVDI and also have the title Diplomate ACVR Radiation Oncology,
- Those that are Diplomate ECVIM-CA [Oncol] or Diplomate ECVDI and:
  a. Have at least seven years of experience in Veterinary Radiation Oncology and are currently active in this field.
  b. Spend at least 50 per cent of his or her time in Radiation Oncology.
  c. Have published at least three original articles in refereed journals as first author and at least three additional articles as co-author related to Radiation Oncology, excluding reviews and proceeding abstracts.

Closing date for applications for de facto recognition is the April 12, 2018 (5 years after EBVS has provided provisional recognition of the add-on).
Appendix

I. Recommended further activities for the trainee during the training period

- Training may additionally be acquired by attending formal national or international teaching courses, training provided by the staff of the primary or affiliated intuitions and by self-study. Attendance of special lecture courses in Radiobiology and Physics is strongly encouraged
- The trainee is encouraged to participate in other resident/trainee rounds / continuing education programmes (e.g. Anaesthesia rounds, internal medicine and medical oncology journal clubs, clinical pathology rounds)
- Trainees should be provided ample opportunity to present formal lectures or seminars, it is expected that each trainee will prepare and present journal club, lecture(s) or seminar(s).
- During the supervised training time, the trainee should help with teaching students and interns in the clinic on a daily basis

II. Calculation of approximate number of study material pages

BOOKS
Total pages books = 9927, of which 20% are considered as relevant.
9927 X 0.2 = 1985 pages

JOURNALS
Veterinary Radiology and Ultrasound,  600 X 5 = 3000
Veterinary Comparative Oncology 300 X 5 = 1500
JVIM 1400 X 5 = 7000
JAAHA = 350 X 5 = 1750
JAVMA = 1400 X 5 = 7000
JASPJSAP = 700 X 5 = 3500
AJVR = 1600 X 5 = 8000

Of these pages the following is considered as relevant part:
30% of journal pages for VCO
10% of journal pages for all other

Total pages (Journals) 3475

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TOTAL pages books + journals 5460