

ACVR Residency Training Program Application

Submission Date	03-05-2018 12:23:55
Institution Name:	UNIVERSITY OF PENNSYLVANIA
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Succinctly state the objectives of the training program.	<ol style="list-style-type: none">1. To provide basic science and clinical training in small and large animal imaging modalities of radiology, ultrasound, nuclear medicine, computed tomography and magnetic resonance imaging.2. To fulfill the residency training requirements of the American College of Veterinary Radiology so that the resident is eligible to become ACVR certified as a clinical specialist (veterinary radiologist) and can practice successfully in either an academic or specialty practice.3. To provide the resident with a clinical research experience.
What is the total length of the training program?	4 years
If this is a four year program, during what year will the resident be eligible to take the ACVR Preliminary Exam?	3
What are the responsibilities of the resident in the remaining non-clinical portion of the program?	Time off clinics is used for ACVR Board preparation, clinical research project, optional external rotations and vacation.
Who is the Director of Residency training?	Dr Wilfried MAI
What percentage of this individual's time is committed to clinical service and teaching of residents?	60%
Roentgen diagnosis	Dr. Jantra Suran 60%
Diagnostic ultrasound	Dr Ana Caceres 60%
Computed Tomography	Yael Porat-Mosenco 40%
Magnetic Resonance Imaging	Dr Wilfried Mai 60%
Nuclear Medicine	Dr Jennifer Reetz 60%
List the names and percentage clinical commitment of additional imaging faculty in the program, and their area(s) of instructional responsibility.	<p>Dr. Virginia B. Reef, DVM, DACVIM, Assoc Dipl ECVDI: Large animal ultrasound 60%</p> <p>Dr Kathryn B. Wulster, VMD, Dipl ACVR Assistant Professor of Large Animal Diagnostic Imaging 70%</p> <p>Dr. Lillian E. Duda, VMD, DACVR (RO): Radiation Oncology 70%</p>

ACVIM	Beth Callan
ACVIM	Rebecca Hess
ACVS	David Holt
ACVS	Michael Mison
ACVP	Amy Durham
ACVP	Elizabeth Mauldin

Briefly describe how the program meets the facility requirements.

Imaging equipment at Ryan Small Animal Hospital of the University of Pennsylvania

Diagnostic Radiology:

Room #1: General Electric Proteus XR/a (65 kW, 800 mA, 150 kVp) high frequency generator with automatic exposure control; MX100 X-ray tube with double focus (0.6/1.25 mm), anode angle 12.5 degrees; Proteus XR/a elevating, four-way float radiographic table; XR/a automatic collimator, color LCD Touch Screen operator console.

Rooms #2: General Electric Premium Legacy units in 2 rooms with Enhanced DRS: GE Advantx high frequency, multi-pulse 65 kW generator; Advantx Legacy 90/15 (88 degrees to 15 degrees Trendelenberg) radiographic and fluoroscopic table, motorized 8-way tabletop; oscillating table Bucky with 12:1, 36 lines/cm (90 lines/inch) grid; Maxiray 100 fluoroscopic x-ray tube (under table), 0.6/1.0 mm double focal spot; Maxiray 100 overhead x-ray tube, 0.6/1.25 mm double focal spot; Advantx 9 inch image intensifier, 9/6/4.5 inch triple field image tube, motorized 10:1, 60 line/cm (152 lines/inch) grid, Primicon B camera, spot film device (2 images/second); Advantx Digital Radiology System (DRS) Productivity Enhancement Package with real-time and post-processing edge enhancement, contrast/brightness adjustments, last hold image, digital acquisition up to 6 frames/sec, 1200 image storage.

Both rooms are equipped with Eklon DR System- Canon CXDI-50G sensor panel.

Radiology reading room:

- o Philips (Stentor) PACS system (iSite Enterprise),
- o Empiric RIS system,
- o 5 workstations with dual medical grade Barco monitors;
- o Wall mounted large monitor for KCC rounds and presentations.

Computed Tomography: GE BrightSpeed Elite Select 16 Slice CT Scanner

- o AW VolumeShare2 with 2 Monitors
- o Vessel IQ Express
- o AutoBone Express
- o Perfusion Multi-Organ Package
- o VolumeViewer2 on CT console
- o Floor mounted power injector (Nemoto Dual Shot CT injector)

Ultrasound:

One - General Electric Logiq S8 Ultrasound machine with spectral, color flow and power Doppler capability, B-flow, harmonic imaging. Transducers: C1-5-D convex, 9L-D linear, L8-18i-D linear (hockey stick), ML 6-15-D Matrix ArrayL Linear, and 10C-D Microconvex.

One - Philips Epiq 5G Ultrasound machine with spectral, color flow and power Doppler capability, Contrast imaging, iScan, Autoscan, Vascular High-Q Automatic Doppler, AutoDoppler flow optimization, Tissue Harmonics and Pulse Inversion Harmonic imaging. Transducers: L12-5, L18-5, C8-5 and C9-2.

One - General Electric Logic e-Vet in the Emergency Service.

One - Philips iE33 in Cardiology.

One - General Electric Vivid-i in Cardiology.

Magnetic Resonance Imaging:

GE LX 1.5 Tesla MR scanner. [UPGRADE PLANNED IN APRIL 2018 TO A 1.5T GE SIGNA EXPLORER]

GE Signa workstation, 1.5T, 9.1. Software M4.

Linear Accelerator:

Siemens 6MV Linear Accelerator with photon and electron beams and 3D computerized planning system (3DCRT).

Imaging Equipment at University of Pennsylvania New Bolton Center Large Animal Hospital:

Diagnostic Radiology:

- " Three - Sound/Canon EDR3 wired DR (small panel)
- " One - Sound/Canon EDR5 wired DR (large panel)
- " One - VetRocket/Canon X1 wireless DR (small panel)
- " One - VetRocket/Canon X1 wireless DR (large panel)
- " Philips (Stentor) PACS system (iVault, iRadiology, and iSite Enterprise)
- " Five diagnostic workstations
- " Array 2905 laser film digitizer
- " Fuji film printer (DryPix 4000)
- " One - Sedecal High Frequency 100 KW Generator; Varian x-ray tube, 350

Indicate the approximate number of patients seen annually by the home institution?	31,000
What is the annual imaging caseload?	14,420
	Small Animals (canine, feline): 75% Large Animals (equine and food animals): 23% Exotic Animals: 2%
	Small Animal Radiology: 6,400 Large Animal Radiology: 2,500 Abdominal Ultrasound: 3950 Computed Tomography: 672 Nuclear Medicine: Large animal 240 Magnetic Resonance Imaging: 560 Other (specify): image guided procedures (700) and contrast studies (200)
Please check which of the following types of imaging cases the residents will have exposure to during the residency:	Small Animal Echocardiography Large Animal Ultrasound Nonabdominal Small Animal Ultrasound (i.e. cervical, musculoskeletal) Food Animal Exotics Teleradiology/Referral Imaging
What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form?	100%
Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the resident?	90%
What percentage of the resident reports are reviewed by the imaging faculty prior to finalization of the report?	100%
When preliminary resident reports are reviewed and edited by the imaging faculty responsible for training, what percentage of the time are two or more faculty present?	Every day, all radiologists on clinic duty attend daily resident rounds where previous day's cases are reviewed. Typically 2-3 imaging faculty are present during rounds. A radiologist on duty finalizes preliminary reports and these reports are provided to the residents.

Small Animal Radiology: 3,600
Large Animal Radiology: 400
Abdominal Ultrasound: 1,300
Computed Tomography: 450
Nuclear Medicine: 30
Magnetic Resonance Imaging: 370
Elective (any of above): Variable
Required elective (specify): 30
Total: 6,150

Radiobiology

Human radiology residents physics course 6 hours

Nuclear Medicine

Human radiology residents physics course 20 hours

Ultrasonography

Human radiology residents physics course 10 hours

CT

Human radiology residents physics course 10 hours

MRI

Human radiology residents physics course 10 hours

If your program does not offer formal courses in any or all of these topics please indicate how these educational objectives for each are met. Use the button below to upload additional information as necessary.

Additional courses include:
VCSN 649 - Large Animal Diagnostic Imaging;
VCSN646 - Equine Lameness;
VCSN647 - Equine Orthopedics;
VANB601 - Veterinary Gross Anatomy;

Over the last five years, what is the average number of peer reviewed publications, on which the IMAGING faculty listed under Direction and Supervision in IV, are included as authors?

0;6;8;12;15 so about 8.2 per faculty

What is the number of publications/submissions expected of a resident completing the program?

1

If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting?

70%

Is an advanced degree a requirement of the training program?

no

How many lectures or scientific presentations are expected of each resident during the course of their training?

3

Did all of your current resident(s) adequately complete the last six months of training?

Yes

List the current members of the residents' review committee.

Drs Mai, Reetz, Caceres, Mosenco, Suran, Wulster

List the internal mechanisms in place to protect your resident if conflicts arise.

If there is a conflict between a resident and other staff or faculty member, the resident would be encouraged to seek advice and support from both Human Resources and the Department Chairman. Each graduating resident undergoes an exit interview with the hospital director and department chair, and provides feedback on quality of specialty training received as well as fills out an evaluation form of the radiology faculty. The Penn Vet administration retains record of these interviews and surveys. If problems are identified, the residency director will be asked to provide a report with explanations and propose solutions.

What is the nature and scope of the teaching file available to residents?

There is a large radiographic archive of proven cases and artifacts containing more than 2400 cases available to the residents using the American College of Radiology diagnostic code system. In addition, since 2002, many of the previous slides and hard copy images used for teaching have been digitized and are available on the department's radiology server (over 100 cases of small, large and exotic animal teaching cases). With the PACS system, images can be retrieved from the web-based image retrieval files. A teaching file is available on the PACS for large and small animal imaging, which is continuously expanded by the faculty. Currently it contains about 1200 small and large animal imaging cases. In addition, most of the known case conferences presented to or by the residents are done using Power Point Presentations that are then made available on a server for the residents to access.

How is it maintained/updated?

This is a faculty responsibility.

On average how many Known Case Conferences are conducted annually?

At least two monthly, not including mock boards and pathology rounds.

What is the geographic relationship between the nearest medical library and the training program?

All relevant veterinary journals are available online through the University of Pennsylvania library. Most reference books are available in radiology. Those that are not in the Radiology Section library can be found in the veterinary school library. A radiology library with virtually all current radiology textbooks across all species and modalities as well as the main physics books and reference internal medicine, cardiology and surgery textbooks is maintained by the Residency Director, and updated on a regular basis.

Both Philadelphia and New Bolton Center veterinary school campuses have libraries, plus the University of Pennsylvania Bio-Medical School library is within two blocks of the Veterinary School - Philadelphia campus. All faculty and residents have electronic access to the entire University of Pennsylvania Library System.

The Veterinary School Library, together with its branch, the Jean Austin duPont Library located at the New Bolton Center, supports all phases of veterinary medicine and surgery and also includes basic science works pertaining to mammals, general biomedical texts, and materials on the care of exotic and domestic animals. The collection includes 34,000 volumes and 475 current serials. All holdings are catalogued in Franklin, the Penn Library online catalogue.

The services and collections of the Biomedical Library (located at the School of Medicine) support research, education, and patient care for the University of Pennsylvania Health System, the School of Nursing, Biomedical Graduate Studies and graduate programs in the Biology Department. Emphasis is on the most current information available. The collection consists of more than 181,000 volumes and 2,900 current serials. The Biomedical Library houses over 60 public computers which connect to the Library Web via Netscape, allow you to access and search Penn's Digital Library, and use productivity software. The Biomedical Library Microcomputer Center (MCC) is located on the ground floor. The MCC has over 40 computers in either Windows or Macintosh platforms which can access various word-processing, presentation, communication, Internet/web, and medicine-specific applications.

Provide the pass rate for first time, second time, etc for both the preliminary and certifying exams for your residents for the past 5 years. For example, for all residents finishing your program 5 years ago (Year 5): x number passed prelim 1st time, y number passed certifying exam 1st time, z number was unsuccessful.

	Year 5	Year 4	Year 3	Year 2	Year 1
Passed preliminary exam 1st time	2	1	2	2	1
Passed preliminary exam 2nd time					
Passed preliminary exam after 2nd time					
Passed certifying exam 1st time	2	2	1	2	2
Passed certifying exam 2nd time					
Passed certifying exam after 2nd time					
Unsuccessful in all attempts	0	0	0	0	0

[RESIDENTS SCHEDULE 2017-2018_REVISIED Jan 4 2018.doc](#)