ACVR Residency Training Program Application

Submission Date	2017-01-09 22:25:11
Institution Name:	University of Minnesota
Succinctly state the objectives of the training program.	The U of MN radiology residency program has the following objectives: To train residents in order to successfully achieve board certification To offer a varied program in order that the resident is exposed to all aspects of medical imaging, is allowed more in-depth study of an area of interest, and is given experience in teaching, research, and service To provide the opportunity for interested residents to pursue a graduate degree should they have an interest in an academic future To train residents to serve the veterinary profession as an imaging specialist with sufficient insight to be able to apply their skills either in an academic or private practice environment
What is the total length of the training program?	36 months with potential extended length for graduate studies
If this is a four year program, during what year will the resident be eligible to take the ACVR Preliminary Exam?	4
If the resident is not eligible to take the exam during the beginning of the third year (September), please state the reason.	The clinical residency is a three-year program. However, if the training program includes a Master of Science, the resident will be eligible to take the ACVR Preliminary Exam during the beginning of the 4th year (September). The change in timing of the Preliminary exam is because the mid-portion of the training program will be used for graduate courses and research.
What are the responsibilities of the resident in the remaining non-clinical portion of the program?	The resident is expected to accomplish a variety of activities during the non-clinical portion of the residency. The resident is expected to prepare for and lead monthly board review rounds with the radiologists. The board review rounds are based upon the ACVR exam objectives and study guide, as well as other topics deemed important by the radiologists. The resident is expected to participate in biweekly radiology journal club, biweekly known clinical case conference, weekly MRI rounds, weekly small animal Grand Rounds, and monthly morbidity and mortality rounds. The resident will prepare and present one seminar yearly in the VMC small animal Grand Rounds series. The resident will prepare and present approximately two didactic lectures and one laboratory yearly as part of the DVM didactic radiology curriculum. The resident is expected to complete a research project, submit a manuscript from the project for publication in a peer-reviewed journal, and present the results at the annual scientific meeting of the ACVR. The resident is also encouraged to prepare and submit other publications such as case reports, What is Your Diagnosis, etc., during the three-year residency. Non-clinical time will also be used for self-study and for vacation.
Who is the Director of Residency training?	Christopher P. Ober, DVM, PhD, Dipl ACVR
What percentage of this individual's time is committed to clinical service and teaching of residents?	80% clinical service: this includes teaching of radiology residents, other house officers, and fourth-year DVM students. Of the remaining 20% of time commitment, a portion is dedicated to mentoring of residents' research.
Roentgen diagnosis	Kari Anderson 80

Diagnostic ultrasound	Kari Anderson 80
Computed Tomography	Christopher Ober 80
Magnetic Resonance Imaging	Dan Feeney 50
Nuclear Medicine	Kari Anderson 80
List the names and percentage clinical commitment of additional imaging faculty in the program, and their area(s) of instructional responsibility.	There are no additional imaging faculty. This represents a change in faculty relative to the most recent annual update, as Frédéric H. David, DEDV, MVetMed, Dipl ECVDI left the institution in late 2016.
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ACVIM	Christopher Stauthammer
ACVIM	Alistair McVey
ACVS	Gregory Anderson
ACVS	Michael Conzemius
ACVP	Anibal Armien
ACVP	Arno Wunschmann

Briefly describe how the program meets the facility requirements.

Radiology suites:
*Vet Ray by Sedecal all-purpose small animal radiographic room (500 mA, 125 kVp)
integrated ViviX 17x17 digital flat panel detector
*Infinity XMA all-purpose small animal radiographic room (300 mA, 125 kVp)
Kodak DirectView CR
*Shimadzu Platinum One digital small animal radiographic/fluoroscopic high-voltage generator room
Kodak DirectView CR
*Acoma Overhead Tube Crane system in combination with a TransWorld machine (two tube heads) all-purpose large animal radiographic room
Kodak DirectView CR
*MinXray portable unit for use in small animal imaging (ICU cases)
*MinXray HF80+ portable units for use in large animal imaging
*Leatherdale Equine Center:
Varian Rad 92 x-ray tube with Sedecal SHF-835 generator (800 mA, 150 kVp) with MT Dual Overhead Tube Crane with Master and Slave configuration
Vet Rocket portable digital radiography

Special Procedures:
*Shimadzu Platinum One digital radiographic/fluoroscopic system with overhead tube with spot film as well as digital capture
*GE OEC C-arm fluoroscopic unit

Ultrasound:
*Toshiba Aplio 500 with Doppler, harmonics, contrast imaging, 4D capabilities, elastography, and image fusion capabilities
*GE Logiq 9 with triplex Doppler, harmonics, contrast imaging, and 3D capabilities
*Siemens Acuson Sequoia with triplex Doppler, harmonics, contrast imaging, 3D capabilities and cardiac package
*Phillips iE33 echocardiography unit

Computed Tomography:
*Toshiba Aquilion 64 CFX multi-detector row scanner

Magnetic Resonance Imaging
*GE Signa HDx 3T with imaging table for equine patients

Nuclear Medicine:
*NuCam gamma camera on Equistand II and Mirage computer system

Radiation Therapy
*6MV Clinic iX linear accelerator (Varian Medical Systems)
o 6MV photon and 6-12 MeV electron capabilities
o Intensity Modulated Radiation Therapy enabled
o on-board electronic portal imaging and kV cone beam CT imaging
*MIM Maestro contouring (MIM), Pinnacle treatment planning system (Phillips), and Mosaiq record-and-verify system (Elekta)

Interventional Radiology
*Covidien Evident Microwave ablation system with 3 microwave generators

Positron Emission Tomography / Computed Tomography
*Siemens Biograph mCT PET/CT scanner – 64-slice CT scanner, 3D PET TrueV wide detector allowing full list mode, HD-PET for higher resolution and 2X contrast, respiratory and cardiac triggering on both PET and CT
*Available at Center for Clinical Imaging Research on Minneapolis campus

Kodak Carestream PACS

Nuance PowerScribe 360 voice recognition software integrated with Carestream PACS is used for dictation of all cases.

Indicate the approximate number of patients seen annually by the home institution?	41,896 patient visits representing 16,407 distinct patients in calendar year 2016.
What is the annual imaging caseload?	13,352 (calendar year 2016)
	Small Animals (canine, feline): 93% Large Animals (equine and food animals): 7% Exotic Animals: <1%
	Small Animal Radiology: 7634 Large Animal Radiology: 77 Abdominal Ultrasound: 1496 Computed Tomography: 904 Nuclear Medicine: 41 Magnetic Resonance Imaging: 615 Other (specify): Special Procedures: 141
What percentage of imaging reports are typically available within 48 hours after the examination is conducted in typewritten or electronic form?	99%
If your answer is less than 75%, please explain how reports are generated and how long it takes for the report to be available for review in typewritten form.	N/A
If your answer is less than 75%, please explain how reports are generated and how long it takes for the report to be available for review in typewritten form.	N/A
Of the preliminary reports generated from the imaging caseload what percentage are initially produced by the resident?	Early in the residency (first couple of months), the resident does not produce the imaging reports. The percentage of reports produced will increase throughout the program. The resident will begin dictation within the first few months of the residency. At that time, it would be anticipated that the resident will produce 15-25% of the initial reports. Prior to the written exam, the resident will be producing approximately 50-75% of the imaging reports when on duty. The senior radiologist will be producing the remainder of the reports. After the written exam, the resident may have primary duty, and would therefore produce up to 100% of the reports.
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?	< 5%
	Small Animal Radiology: 8900 Large Animal Radiology: 890 Abdominal Ultrasound: 1150 Computed Tomography: 1390 Nuclear Medicine: 35 Magnetic Resonance Imaging: 1500 Elective (any of above): dependent on resident Required elective (specify): SA cardiology: 20 Total: 13865
Radiobiology	NA NA
Nuclear Medicine	NA NA
Ultrasonography	NA NA
CT	NA NA
MRI	NA NA
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 "Upload Files" button to upload additional information as necessary.	If the resident chooses to pursue a graduate degree, formal graduate courses are available. If the resident chooses to pursue a clinical residency only, formal courses are not available. The radiologists meet with the resident monthly for board review rounds. Each didactic area as specified in the ACVR board objectives is studied by the resident under direction of a lead radiologist. Study may include self-study and presentation by the resident, textbook chapter and/or literature assigned readings, formal lecture by a radiologist, or invited presentation. Both classic and current material is used. Material is selected by the responsible faculty and assigned to the resident; however, it is expected that the resident will also perform literature searches as needed. See attached for an example schedule for board review rounds:
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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?	A total of 28 authorships on published or accepted (in press) peer-reviewed publications – an average of 5.6 total publications per year. (This is 9.3 publications per person over the span, or 1.9 publications per person per year.)
What is the number of publications/submissions expected of a resident completing the program?	The resident is expected to submit and publish 1-2 publications pertaining to a project designed and implemented by the resident, to a peer-reviewed journal.

If this is an established program, what percentage of residents have made formal research presentations at the annual ACVR or equivalent national meeting?	80%
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?	The resident will prepare and present one seminar yearly in the VCS Department Grand Rounds series. The resident will prepare and present 2-3 didactic lectures and one laboratory yearly as part of the CVM didactic radiology curriculum.
Did all of your current resident(s) adequately complete the last six months of training?	Yes
If no, please explain:	NA
List the current members of the residents' review committee.	Christopher Ober Kari Anderson Dan Feeney
List the internal mechanisms in place to protect your resident if conflicts arise.	*Discussion with and through chief officers *Mediation through Medical Imaging section chief *Mediation through Veterinary Clinical Sciences department chair *Mediation through Human Resources department
What is the nature and scope of the teaching file available to residents?	There are several types of teaching files available to residents. There are teaching files that are used for teaching DVM students in both the didactic courses as well as senior rotations. Files are both electronic (digital) and film. These are indexed and coded. There is also a medical imaging server that houses digitized interesting cases that are indexed and coded. The Kodak Carestream PACS supports a digital teaching file of interesting cases that are identified by the radiologists (beginning March 2005). Finally, the hospital information system (UVIS) can be searched for specific cases via the radiology reports with a link to the digital images.
How is it maintained/updated?	The teaching files (including the Kodak Carestream PACS digital teaching file) are maintained and updated by the faculty. The resident has access to all radiology reports through UVIS when searching for other interesting cases.
On average how many Known Case Conferences are conducted annually?	22

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

The College of Veterinary Medicine houses a veterinary medical library with extensive veterinary and medical journals, publications, and textbooks. The CVM library also offers significant online journal access to faculty, house officers, students, and staff. The CVM library is on the St. Paul campus in a separate building from the teaching hospital that is reached via a skywalk. There are a large number of physician-oriented journals that are carried in the Veterinary Library including Radiology, Investigative Radiology, Seminars in Roentgenology, Seminars in Ultrasound, CT, and Nuclear Medicine, Radiologic Clinics of North America, American Journal of Roentgenology, Ultrasound in Medicine and Biology, Clinics in Diagnostic Ultrasound, International Journal of Radiation Oncology Therapy and Biology, and The Journal of Clinical Ultrasound.

The University of Minnesota also has an extensive Biomedical library at the School of Medicine housed on the east bank of the Minneapolis campus (the CVM is on the St. Paul campus). If faculty and staff do not have time to make the easy bus ride to the other bank of the campus, there is an inter-library loan that allows delivery of books and journals generally within 48 hours. Additionally, there is on-line access to all journals that are electronically available at the University of Minnesota.

The Medical Imaging section of the Veterinary Medical Center also maintains a small library in Medical Imaging that covers basic references on radiation therapy, nuclear medicine, diagnostic radiology, physics, radiation safety, and radiographic anatomy, as well as some species-specific textbooks.

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	1				1
Passed preliminary exam 2nd time				1	
Passed preliminary exam after 2nd time					
Passed certifying exam 1st time	1			1	1
Passed certifying exam 2nd time					
Passed certifying exam after 2nd time					
Unsuccessful in all attempts					

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