

ACVR Diagnostic Imaging Residency Training Program Application

This application is required for institutions desiring ACVR accreditation of a new residency training program and for institutions requesting re-accreditation of an existing program. Before beginning the application process, all applicants should review the most recent version of the [ACVR Residency Program Essential Training Standards and Requirements](#) (RPE) document (accessed from the Essentials Homepage) in detail. Use the RPE as a reference when completing the application form, as the contents you provide herein will be evaluated by the Residency Standards and Evaluation Committee (RSEC) against the published RPE standards. This application form follows the headings of the RPE. All terms used in this application have same definitions as those in the RPE, and no information provided in the application form itself will supersede that published in the RPE. During the application review process, the Chair or Assistant Chair of the RSEC may contact the applicant for additional information or clarification.

**Note: If you wish to save your submission and complete it later, click the save button located at the bottom of the pages. You will be emailed a link to complete your form at a later date.*

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Program Summary

The Residency Director of the program is expected to be the primary applicant and contact person for this application. The Residency Director must be located at the primary training institution.

Institution Name	Massachusetts Veterinary Referral Hospital
Residency Program Director Name	David Schmidt
Residency Program Director Email	dschmidt@ethosvet.com

Program Type

What type of residency program is being requested?	Traditional Residency Program
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If approved, what is the proposed start date of this residency program?	Monday, July 10, 2023
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Objectives

Succinctly state the objectives of the training program.

1. To provide clinical training to residents in all modalities of veterinary diagnostic imaging.
2. To provide the clinical experience and didactic work necessary to become well-educated diagnosticians.
3. To prepare candidates for successful completion of the board examinations and certification process with the American College of Veterinary Radiology.

Training Period

What is the total length of the training program?	36
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What is the anticipated length of supervised clinical training a resident will experience during this program? 30

Will the resident(s) in this program be eligible to take the ACVR Preliminary Exam in September of their third year? Yes

What are the responsibilities of the resident(s) during non-clinical portions of the program?

Self-study and preparation for the board examinations.

Participation in short courses, continuing education events, and webinars sponsored by other institutions.

Research and manuscript preparation.

Teaching rounds with students and other house officers.

House officer lecture series.

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Direction and Supervision

When calculating time commitment in this section, you may consider a 100% (full time) duty schedule to consist of 48 weeks per year with 8 hours per day or 40 hours per week.

Residency Director

Please review the Residency Director requirements and responsibilities in the [ACVR Residency Program Essential Training Standards and Requirements](#) (RPE) document. Note that the Residency Director will be required to provide at least 24 weeks of clinical duty per year in primary support of residents in this program and to meet all other qualifications of a Supervising Diplomate.

Is the applicant Residency Director for this program prepared to meet these requirements? Yes

What percentage of the Residency Director's time is committed to clinical service at the primary training institution? 100

How many weeks per year will the Residency Director be on clinical service and teaching residents at the primary training institution? 48

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Additional Training Diplomates

Please review the definitions and responsibilities of [Supervising Diplomate and Supporting Diplomate](#) in the RPE document. Note that Supervising Diplomates will be required to provide at least 10 weeks of clinical duty in primary support of residents in this program, and are expected to participate in all facets of residency training. Supporting Diplomates aid in residency training, but provide support that is limited, as by modality (e.g. only works in ultrasound), time commitment (e.g. clinical duty < 10 weeks per year), or other constraints that prevent them from qualifying as a Supervising Diplomate.

Provide a copy of affiliation agreements with any diplomates that are located at an external institution (see Affiliation Agreement item at the end of this section).

Excluding the Residency Director, please list all training diplomates who will act as Supervising Diplomates of this residency program. Indicate the approximate number of hours per year each supervisor will be scheduled on clinical duty with primary support of residents and, if applicable, any specific areas of instructional responsibility (e.g. trains mostly in small animal, trains mostly in MRI, etc). If a 'Supervising Diplomat' position will be comprised of multiple radiologists, please list the cohort as a single entity or institution for this question (e.g. "teleradiologists" or private institution name)

Name: Jennifer Brisson

Hours/Year: 960

Specific Areas and/or Limitations of Instructional Responsibility: Small animal Rads, US, CT, MR, Fluoro, IR procedures

Institution: Massachusetts Veterinary Referral Hospital

Name: Tonya Tromblee

Hours/Year: 1920

Specific Areas and/or Limitations of Instructional Responsibility: Small animal Rads, US (including MSK), CT, MR, Fluoro

Institution: Massachusetts Veterinary Referral Hospital

Name: Amanda Masciarelli

Hours/Year: 1920

Specific Areas and/or Limitations of Instructional Responsibility: Small animal Rads, US, CT, Fluoro

Institution: Massachusetts Veterinary Referral Hospital

Please list all training diplomates who will act as Supporting Diplomates of this residency program. Indicate how many hours per year each Supporting Diplomat will be scheduled on clinical duty with primary support of residents and any specific areas of instructional responsibility and/or limitations in the scope of this support (e.g. only trains residents in ultrasound, does not participate in large animal training, does not finalize imaging reports, etc).

Name: Katherine Logwood

Hours/Year: 200

Specific Areas of Instructional Responsibility: KCC, limited offsite supervision of small animal Rads

Institution: Bulger Veterinary Hospital

Name: Kathryn Wulster

Hours/Year: 120

Specific Areas of Instructional Responsibility:
Large animal imaging, nuclear medicine

Institution: University of Pennsylvania (New Bolton)

In addition to ACVR/ECVDI Diplomates, the program must arrange for the resident(s) to have direct access to specialists in other areas. Please identify one member in each of the specialty colleges listed below that has agreed to support this program through clinical activity that allows regular interactions between the specialist and the diagnostic imaging residents (e.g. discussion of diagnostic work up, imaging findings, or patient outcomes, and/or participation in interdisciplinary rounds, etc). Indicate whether the specialist is located on-site at the primary institution at an external institution. Provide a copy of affiliation agreements with any non-ACVR/ECVDI diplomates that are located at an external institution (see Affiliation Agreement section at the end of this application). Upon completion of this application, the below individuals will receive an email requesting acknowledgement of their support of your residency program.

ACVIM Member Name	Gena Silver
ACVIM Member Institution	Massachusetts Veterinary Referral Hospital
ACVIM Member Email	gsilver@ethosvet.com
ACVS Member Name	Nicole Amato
ACVS Member Institution	Massachusetts Veterinary Referral Hospital
ACVS Member Email	namato@ethosvet.com
ACVP Member Name	Heather Kridel
ACVP Member Institution	Zoetis Reference Lab
ACVP Member Email	hkridel@ethosvet.com

Upload any affiliation agreement(s) with Supervising Diplomates, Supporting Diplomates, or Diplomates in other specialties that are located at external institutions. (see Affiliation Agreement section at the end of this application.) Refer to the RPE document for an explanation of what information should be included in such agreements.



76_MVRH affiliation agreeme....pdf

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Resident:Supervising Diplomate Ratio

The number of residents in the program cannot exceed twice the number of Supervising Diplomates **on-site**. Remote Supervising Diplomates will not count when calculating the maximum residents allowed in a given program.

What is the maximum number of imaging interns you will have enrolled in this training program at any given time?

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Facilities

Review the Facility Requirements listed in the RPE document. Note also that residents should have opportunities to be involved with image acquisition and protocol set-up. Does this residency training program provide on-site access to modern equipment for the following modalities?

Digital or Computed Radiography	<div>Yes</div>
Fluoroscopy	<div>Yes</div>
Ultrasound with Doppler Capability	<div>Yes</div>
MRI	<div>Yes</div>
Fan-beam CT	<div>Yes</div>
Nuclear scintigraphy	<div>No</div>

Briefly describe how this program meets the facility requirements, including the specific type of CT and MRI units available. Explain how your program will train residents in modalities for which equipment is not located on site, providing affiliation agreements if applicable. (see Affiliation Agreement item at the end of this section)

2 Digital Radiography (DR) rooms with Canon plates
2 Canon Aplio 700 Ultrasound machines with micro, macro, and linear probes
Toshiba (Canon) Aquilion 64 slice CT with power injector
Siemens 1.5T MRI
OEC 9900 C-arm for fluoroscopic and interventional procedures

Upload any affiliation agreement(s) required for training residents in the above core modalities of-site or otherwise outside of the primary institution. Refer to the RPE document for an explanation of what information should be included in such agreements.



MVRH affiliation agreement... .pdf

Please describe how residents will gain experience in image acquisition and protocol set-up for each of these modalities (excluding nuclear medicine).

Residents will gain experience in image acquisition and protocol set-up through hands-on instruction from the Radiology technicians and consultation with the Radiologists.

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Clinical Resources and Training Content

Review the clinical resource and training content requirements listed in the RPE document

What is the average annual caseload at the primary institution over the past 3 years? This number will include all patient visits whether or not they contribute to the annual imaging caseload. 54928

What is the average annual imaging caseload at the primary institution over the past 3 years? Each body region imaged for a given patient (e.g. thorax, abdomen, spine, etc) will count as a single study. 19425

What is the average annual imaging caseload at the primary institution over the past 3 years in the following categories?

Small animal radiology 10127

Large animal radiology 0

Abdominal ultrasound 6184

Non-abdominal ultrasound 126

Computed tomography 816

Magnetic Resonance Imaging 1151

Nuclear scintigraphy 0

Other (Specify) 62 Fluoro, 358 FNA, 49 Bx, 1701 Echo

Indicate the approximate species breakdown of the imaging caseload at the primary institution in the following categories:

Small animals (canine, feline): 99

Large animals (equine, bovine, porcine, etc.): 0

Avian, Exotic, and Wildlife animals: 1

Which of the following types of imaging cases will the resident(s) have direct, on-site exposure to at the primary institution during the residency program?

Echocardiography Yes

Large animal ultrasound No

Nonabdominal small animal ultrasound (i.e. cervical, musculoskeletal) Yes

Food/fiber animal imaging

No

Exotics imaging

Yes

Teleradiology/Referral imaging

Yes

Explain how the resident(s) in this program will gain experience in any of the above types of imaging cases that are NOT available at the primary institution. Provide affiliation agreements, if applicable. (see Affiliation Agreement item at the end of this section).

Our residents will have 6 weeks of externship experience at the University of Pennsylvania School of Veterinary Medicine, New Bolton Center for training in Large Animal Diagnostic Imaging (Equine and Food Animal) and Nuclear Medicine. Additionally, the residents will have access to the teaching file from this institution during their externships to further their large animal imaging knowledge.

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What percentage of the total imaging caseload at the primary institution results in a written imaging report being generated by either the residents or the training radiologist diplomates in this program? 94

If < 99%, please provide a brief explanation and account for this when calculating the number of cases that each resident will interpret.

Spinal and Brain MRI is primarily interpreted by our 3 board-certified neurologists (with 22, 18, and 7 years of clinical experience since obtaining board certification). On weeks that the resident is assigned to MR, they are responsible for drafting all MR studies that are conducted during the week. The neurologist on duty discusses the report with the resident and then makes any edits before finalizing it. As the report is finalized by a board-certified specialist with training in MR interpretation, this should not have any negative effect on caseload calculations. The resident functions mostly as a member of the Neurology department that week and is expected to observe neurologic exams on the patients to aid in neurolocalization prior to imaging, participate in case discussions, and attend Neuro rounds. All three neurologists enjoy clinical teaching and have conducted a successful neurology specialty internship for the past 8 years, achieving an 85% residency match rate.

Non-neuro MRs (about 40/year, mostly MSK) are drafted by the residents and finalized by training diplomates. Training in equine MRI will occur during externships at New Bolton.

What percentage of the preliminary reports generated from the imaging caseload are initially produced by the resident(s) in this program? 33

Does this institution concurrently support the training of diagnostic imaging interns?

Yes

If yes, indicate the maximum number of imaging interns the institution will train concurrently, what percentage of the preliminary reports generated from the imaging caseload will be initially produced by the intern(s), and how this affects the resident imaging report caseload.

We only train one DI intern per year. This rarely affects the resident caseload as the residents are currently drafting reports for less than half of the imaging cases that are interpreted by the department.

What percentage of resident-generated reports are reviewed by training diplomates prior to finalization of the report? 90

What is the average turnaround time for resident-generated preliminary reports to be finalized by training diplomates?

Average turnaround times:
same day for US and Fluoro
same day to 24 hours for CT
same day to 48 hours for Rads and MR

The 10% of reports not reviewed by training diplomates refers to Rad and US cases that the third-year resident may choose to finalize on their own during the last 6 months of residency if they feel confident enough to not seek faculty approval.

What percentage of all imaging reports (resident and diplomate generated) is finalized and available to requesting clinicians within 48 hours after the exam is submitted for radiologist consult? 99

Please describe how after-hours/weekend/holiday cases are handled at the primary institution. How does this affect resident-reported imaging caseload?

Our department is staffed by diplomates 7 days/week. After-hours cases are read the following morning. Holiday cases are read the following morning.

For each category below, calculate the approximate number of cases that a single resident will interpret at the primary institution with radiologist feedback during the course of the entire residency program. These numbers should be calculated using the annual imaging caseload adjusted to include only those with written reports generated by the residents. In general, this number should then be divided by the total number of residents in a program during a given year.

If external rotations for the resident(s) are employed to increase the resident caseload in any given category, please be sure to upload affiliate agreements that include the expected number of reports that residents can expect to generate (with radiologist feedback) for cases in those categories.

Small animal radiology	6000
Large animal radiology	0
Abdominal ultrasound	1600
Non-abdominal ultrasound	50
Computed tomography	500
Magnetic resonance Imaging	300
Nuclear scintigraphy	0
Other (specify)	50 Fluoro

How many ultrasound exams will a single resident perform with radiologist supervision and feedback during the course of the entire program? Scans for which the resident writes a report but does not acquire images are excluded.

1500

Do residents in this program have ample hands-on training and practice opportunities to become proficient in the performance of ultrasound guided fine needle aspirates and biopsies?

Yes

Please indicate whether this training program includes formal courses in any of the following topics:

Physics of Diagnostic Imaging

No

Radiobiology

No

Nuclear Medicine

No

Ultrasonography

No

Computed Tomography

No

Magnetic Resonance Imaging

No

Other

No

Briefly describe the formal courses that are available for the resident(s) in this program by indicating the institution, course title, course number, and credit hours as well as any other relevant information. For any topics for which formal course work is not provided for the resident(s), please explain how educational objectives in these topics will be met.

No formal courses are provided. Education in these areas occurs as independent study and chapter rounds from pertinent texts (e.g. Bushberg, Hall, Kremkau, etc.). Attendance is also expected at various short courses available in-person or online (e.g. Nuke Med, Brain Camp (Imaging portion), LADIS, RSNA Physics Modules, etc.)

Do residents have access to a majority of the written pathology reports that are generated from patients included in this imaging caseload?

Yes

Will the resident(s) in this program attain an advanced degree (MS, PhD) at the conclusion of the program?

No

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Research Environment

Review the Research Requirements listed in the RPE document.

Over the last five years, what is the average number of peer reviewed publications on which the training diplomates (Supervising and Supporting diplomates) of this program are included as authors? (total number of publications in last 5 years among all training diplomates divided by the number of training diplomates) .5

How many peer-reviewed publications are 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? 0

Briefly describe if/how residents are encouraged to engage in investigative work and what mechanisms are in place for training diplomates to support this work.

Residents are encouraged to ask a clinical question that can be answered with a retrospective or prospective study within the time frame of their residency. This process starts within the first few months of residency and requires compiling a study protocol that is submitted for IACUC approval. Grant writing may also be included in this process. Training diplomates are supported in this work with colleagues from Ethos Discovery that provide expertise in study design, data acquisition, statistical analysis, and manuscript preparation.

Educational Environment

Review the Educational Environment expectations listed in the RPE document.

Please list and enumerate the formal presentations that are expected of each resident during the course of their training. In general, didactic lectures, departmental seminars, scientific presentations, Continuing Education presentations, and similar are considered "formal". Informal topic rounds, journal club, small group teaching (like student rounds), student labs, and similar events should not be included.

Residents are required to give 6 CE lectures (2/year).

Residents are expected to submit their research project as an Abstract to the ACVR Scientific Meeting in their 3rd year.

Briefly describe the type and extent of teaching opportunities that are provided to the resident throughout the training program.

The residents are expected to help clinically train and round with 4th-year students that rotate through the department. Similarly, residents are expected to educate house officers from other departments (Surgery, Neurology, Emergency) when they consult with us about clinical cases.

Briefly describe the nature and scope of the teaching file available to the resident(s) in this program and how it is maintained/updated.

Our teaching file is maintained as a Google spreadsheet that is available to all house officers and radiologists. The teaching file contains tags for each historical section of the Certifying Exam, important findings/diagnoses, cytology/histology when available, and links to the PACS system for

easy viewing. The teaching file currently contains over 400 studies from the last 4 years. A teaching file with over 700 studies is also available that contains older cases on a different server (although some cases were lost during data migration). Both radiologists and residents are able to add and update entries as they are read on the floor, as reports are finalized, or as sample results are available.

How many Known Case Conferences are conducted annually? 25

Describe the nature and frequency of resident rounds ("other educational events") planned for this program. You may upload an example schedule with the general program schedule that is requested at the end of this application.

Journal Club: Weekly
Topic Rounds: Monthly
IDEXX Rounds: Several times/month
MRI Rounds with Hecht: Biweekly-to-Monthly
OSU Equine Rounds: Monthly

Describe how the resident(s) in this program will attain direct and consistent medical library access and/or how they will access research tools and medical literature including the suggested references listed in the ACVR Preliminary Examination study guide.

The closest medical libraries are in Boston (e.g. Harvard, Boston University, Tufts; all are about 15 miles away). The closest veterinary medical library is at Tufts in North Grafton (about 40 miles away). Ethos provides free online access to 18 major veterinary journals to all employees. The Radiology department also maintains a current library of textbooks for clinical reference and board preparation.

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Evaluation and Protection of Residents

For existing programs, list the names, email contact information, and start/end dates of your current residents.

2021-2024 Ann Bartlett abartlett@ethosvet.com
2022-2025 Winter Herron wherron@ethosvet.com

Did all of your current residents adequately complete the last 6 months of training?

Yes

List the current members of the resident review committee.

David Schmidt
Jennifer Brisson
Tonya Tromblee
Amanda Masciarelli

Describe the internal mechanisms in place at your institution to protect the resident(s) if personal or organizational conflicts arise. Include the management hierarchy for residents and procedures by which residents would report workplace misconduct.

The resident is expected to bring any concerns to the attention of the Resident Director. If the matter involves the Resident Director or if the resident feels uncomfortable discussing the problem with the radiologists in the department, the resident can contact the Hospital Service Manager for Imaging or any member of the People & Organizations Department (HR) to discuss the matter. A veterinary social worker is also available in-house 5 days/week to discuss any conflicts that the resident may be experiencing.

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Appendix

Please provide the following information regarding preliminary and certifying board exam pass rates for residents in your program over the past five years.

Preliminary Board Exam Pass Rate

2020

Number Of Prelim Board Eligible Residents: NA

Number of Residents That Took Prelim Exam: NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2019

Number Of Prelim Board Eligible Residents: NA

Number of Residents That Took Prelim Exam: NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2018

Number Of Prelim Board Eligible Residents: NA

Number of Residents That Took Prelim Exam: NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2017

Number Of Prelim Board Eligible Residents: NA

Number of Residents That Took Prelim Exam: NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2016

Number Of Prelim Board Eligible Residents: NA

Number of Residents That Took Prelim Exam: NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

Certifying Board Exam Pass Rate

2020

Number of Certifying Board Eligible Residents: NA

Number of Residents That Took Certifying Exam:
NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2019

Number of Certifying Board Eligible Residents: NA

Number of Residents That Took Certifying Exam:
NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2018

Number of Certifying Board Eligible Residents: NA

Number of Residents That Took Certifying Exam:
NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2017

Number of Certifying Board Eligible Residents: NA

Number of Residents That Took Certifying Exam:
NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

2016

Number of Certifying Board Eligible Residents: NA

Number of Residents That Took Certifying Exam:
NA

Number of Residents That Passed On 1st Attempt:
NA

Number of Residents That Passed After Multiple
Attempts: NA

Number of Residents That Have Not Passed: NA

Program Schedule

Upload a schedule for your residents that outlines their clinical and non-clinical work over the course of the residency program. This may be a master schedule or duty roster for your entire radiology section, if desired. If available, an example weekly or monthly rounds schedule can also be included.

Program Schedule



Imaging Resident Schedule b... .pdf

Affiliation Agreements

Upload digital copies of any affiliation agreements that have not been included elsewhere in this document. Refer to the RPE document for an explanation of what information should be included in such agreements.