Small Animal Diagnostic Imaging II
Clinical Mentorship

VM 21600

Criteria Handbook and Logbook
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Introduction to Essential Tasks and Criteria

- Veterinary Facility Standard Operating Procedure for X-ray Machine
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NOTE: Digital imaging may be used to produce the following images. The files should be saved and submitted on a disc or flash drive.

- Mediolateral Projection of the Shoulder (scapulohumeral) Joint
- Mediolateral Projection of the Radius/Ulna (Antebrachium)
- Cranio-caudal Projection of the Radius/Ulna (Antebrachium)
- Mediolateral Projection of the Stifle Joint (Femorotibial)
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- Lateral Projection of the Pelvis
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STUDENT INFORMATION
GOALS OF VM 21600 SA DIAGNOSTIC IMAGING II CLINICAL MENTORSHIP

Working with a small animal veterinary care facility, the student will perform tasks under the supervision of a clinical mentor (veterinarian or credentialed veterinary technician).

In order to achieve the goals for this Clinical Mentorship, the tasks must be performed to the level of competency as outlined by the Criteria for each task.

The student is responsible for providing documentation for each task as defined by the Materials Submitted for Evaluation and Verification section on each task.

In addition to the documentation, the Clinical Mentorship site supervisor will verify that the student met the outlined Criteria for each task.

Final approval of successful performance and completion of the Clinical Mentorship will be made by the Purdue University instructor in charge of the Clinical Mentorship. This approval will be based upon the documentation provided by the student.

The Purdue University instructor in charge has the option to require additional documentation if, in their judgment, the student has not performed and/or documented the task to the level set by the Criteria.

Documentation of completed tasks is essential to validating the educational process and insuring that the performance of graduates of the Veterinary Technology Distance Learning Program meets the standards of quality required by the Purdue University College of Veterinary Medicine faculty and the American Veterinary Medical Association accrediting bodies.

CONTACT PERSON

Any questions regarding the Clinical Mentorship process should be directed to:

Pam Phegley, BS, RVT
Purdue University
Veterinary Technology Program
625 Harrison Street, Lynn Hall G171
West Lafayette IN 47907
(765) 496-6809
phegleyp@purdue.edu
PRE-REQUISITES FOR VM 21600 SA DIAGNOSTIC IMAGING II CLINICAL MENTORSHIP

Course Pre-requisites

VCS 14200 Imaging for Veterinary Technicians I
VCS 14300 Imaging for Veterinary Technicians II

Contracts and Agreements

Because of legal, liability and AVMA accreditation issues, the following documents must be completed prior to beginning the Clinical Mentorship:

1. Facility Requirement Agreement
2. Clinical Mentorship Agreement
3. Supervisor Agreement
4. Health Risk and Insurance Acknowledgment
5. Professional Liability Insurance Coverage
6. Agreement and Release of Liability
7. Technical Standards Acknowledgment

These forms are available on the VTDL website for downloading, printout, and completion, or by phone request from the VTDL office (765-496-6579).

If more than one Clinical Mentorship course is taken, a separate Facility Requirement Agreement, Clinical Mentorship Agreement and Supervisor Agreement must be completed for each course.

Failure to complete and return the listed documents and the payment for Student Professional Liability Insurance Coverage will prevent the student from enrolling in the Clinical Mentorship.

Insurance

Two types of insurance are recommended or required for the student working in a Clinical Mentorship.

Health Insurance is highly recommended to cover medical expenses should the student become injured while on the job. It is the student’s responsibility to procure such insurance.

Liability insurance is required to protect the student in the event of a suit filed against the student for acts he/she performed while in the Clinical Mentorship. Each VTDL student is required to purchase, for a nominal fee, Professional Liability Insurance through Purdue University. Completing the Professional Liability Insurance Coverage form and sending a check for the fee activate coverage. The fee covers from the time of initiation of coverage until the subsequent July 31st.

Students will not be enrolled in Clinical Mentorships until the Professional Liability Insurance is paid, and the student is covered by the policy.
SELECTING THE CLINICAL MENTORSHIP SITE – FACILITY REQUIREMENTS

You must visit the Clinical Mentorship Site and determine if the following equipment is readily available to you for use during your Clinical Mentorship. You must complete and have the facility veterinarian sign the Clinical Mentorship Site Facility Requirements Agreement.

The veterinary care facility must be equipment with the following equipment:

- Practical Diagnostic Imaging for Veterinary Technicians by Han and Hurd (textbook)
- VCS 14300 Module 4 Worksheet
- 300 mA (or greater) /125kVp x-ray machine
- Intensifying screens with compatible film (no specifics)
- Measuring calipers
- Thyroid shields (2)
- 0.5mm lead aprons (2)
- 0.5mm lead gloves (2 pr)
- Right and Left identification markers and oblique markers
- Patient identification labeling system
  - X-rite tape®
  - Manual printer
  - Photo labeler
  - Lead letters
- Manual processor with chemicals*
  - Tank
  - Stir rod
  - Thermometer
  - Replenishing chemistry
  - Film hangers
- Automatic processor with chemicals*
- Safelight with appropriate filter and bulb
- Single bank view box
- Dosimetry – film badge

*The veterinary facility is required to have either manual processing or automatic processing for radiographs.
ATTENTION:

Please read this before beginning your VM 21600 Diagnostic Imaging II for Veterinary Technicians.

1. All tasks must be done using a dog between 40-50 pounds (18-23 kg).

   *Note: For a dog this size, ALL tasks will be achieved using a grid technique EXCEPT mediolateral and craniocaudal radius/ulna and mediolateral stifle, which will be done tabletop.

   *Note: If the mentorship site has no grid and/or no slow speed (detail) cassettes, refer to Appendices II and III.

2. The following tasks will require you to use an anesthetized** patient
   - Preparation of a Radiographic Technique Chart
   - Mediolateral Projection of the Shoulder (Scapulohumeral) Joint
   - Mediolateral Projection of the Radius/Ulna (Antebrachium)
   - Cranio-caudal Projection of the Radius/Ulna (Antebrachium)
   - Mediolateral Projection of the Stifle Joint (Femorotibial)
   - Caudo-craniolateral Projection of the Stifle Joint (Femorotibial)
   - Lateral Projection of the Pelvis
   - Ventrodorsal Projection of the Pelvis-extended
   - Lateral Projection of the Cervical Vertebral Column
   - Lateral Projection of the Thoracolumbar Vertebral Column
   - Lateral Projection of the Lumbar Vertebral Column
   - Lateral Projection of the Skull
   - Ventrodorsal Projection of the Skull
   - Rostro-caudal Projection of the Canine Open Mouth Tympanic Bulla
   - Rostro-caudal 90 degree Projection of the Frontal Sinus
   - Rostro-caudal 20 degree Projection of the Open Mouth Maxillary Skull
   - Extraoral Ventrodorsal Left to Right 30 degree Lateral Oblique Projection of the Maxillary Dental Arcade
   - Extraoral Dorsoventral Left to Right 30 degree Lateral Oblique Projection of the Mandibular Dental Arcade

**The anesthesia must be administered and monitored by a veterinarian or a registered veterinary technician for specific reasons:

   a) This is your diagnostic imagining mentorship and you need to focus on the radiographic procedures.
   b) Unless you have had your anesthesia mentorship, you have not been educated in the administration of anesthesia.

3. The “Preparation of a Radiographic Technique Chart” task is lengthy and can take anywhere from 2-3 hours to complete. It is wise to seek help ahead of time and have all materials prepared prior to anesthetizing the dog. This is why we require a DVM or RVT to assist you in this task.

4. You need your technique chart worksheet from VCS 14300 Module 4 to complete this task.

5. Task 1 requires that you provide the Standard Operating Procedure (SOP) for the particular machine that is in use. Please provide the technique chart for the machine and any special
instructions or other material that are used in conjunction with the machine and the type of film and screens used.

If you have further questions either prior to or during this mentorship, do not hesitate to contact the mentorship coordinator or the instructor.
**SELECTION OF CLINICAL MENTORSHIP SUPERVISOR**

The Clinical Mentorship Supervisor is the person who will sign your Logbook and verify performance of tasks at the Clinical Mentorship site. This person must be a credentialed veterinary technician (have graduated from an AVMA accredited program or met State requirements for credentialing as a veterinary technician) or a licensed veterinarian.

An individual who claims to be a “veterinary technician” but has not met the criteria for credentialing above is not eligible to be a mentorship supervisor.

The individual is not considered to be an employee of Purdue University when acting as your Clinical Mentorship supervisor.

Each Clinical Mentorship Supervisor must complete the *Clinical Mentorship Supervisor Agreement*. You must return this agreement with the other agreements prior to beginning your Clinical Mentorship.

Should your Clinical Mentorship Supervisor change during the course of the Clinical Mentorship, you will need to have your new supervisor complete a *Clinical Mentorship Supervisor Agreement* and return it to the Purdue VTDL office. These forms are available on the VTDL website for downloading and printing.
This Criteria Handbook and Logbook contains the list of tasks that must be successfully completed in order to receive credit for this Clinical Mentorship. You are expected to have learned the basics of how, why, and when each procedure is to be done from the courses listed as pre-requisites for this Clinical Mentorship. This booklet contains the directions and forms that must be followed and completed in order to meet the standards set for successful completion of this Clinical Mentorship.

Please read each component of each task carefully before doing the task to minimize the number of times you have to repeat the task. The components of each task are summarized:

**Goal** – Describes the ultimate outcome of the task you will perform.

**Description** – Lists the physical acts that you will perform, and under what conditions these acts will be completed.

**Criteria** – Lists specific, observable, objective behaviors that you must demonstrate for each task. Your ability to demonstrate each of these behaviors will be required in order to be considered as having successfully completed each task.

**Number of Times Task Needs to be Successfully Performed** – States the required number of times to repeat the tasks. The patient’s name and the date each repetition of the task was performed must be recorded on the Task Verification Form.

**EACH REQUIRED REPETITION OF THE TASK MUST BE PERFORMED ON A DIFFERENT ANIMAL.** You cannot use the same animal to do all of the repetitions of a task. However, you can use the same animal to perform different tasks. In other words, you can’t do three ear cleanings on the same animal, however, you can do an ear cleaning, an anal sac expression, and a venipuncture on the same animal.

**Materials Submitted for Evaluation and Verification** – These specific materials, which usually include some video or photographic materials, must be submitted to demonstrate that you performed the task as stated. Each evaluation states specifically what must be shown in the submitted materials.

The Purdue University course instructor for this Clinical Mentorship has the option to request further documentation if the submitted materials do not clearly illustrate the required tasks.

It is recommended that the video materials document all angles of the procedure. The purpose of the video and photographic material is to provide “concrete evidence” that you were able to perform the task to the standard required.

If you do not own a video camera, one may be borrowed or rented. Preplanning the video procedures will help reduce the need to redo the video documentation. Feel free to explain what you are doing as you perform the video documentation. Sometimes, voiceovers may need to be done to clearly explain what task is being performed.

Videotapes, pictures, radiographs, slides, written projects, the Criteria Handbook and Logbook and any other required documentation will not be returned. These items will be kept at Purdue as documentation of the student’s performance for accreditation purposes.
This validation is essential to help the Purdue VTDL meet AVMA accreditation criteria. Therefore, it is essential that you follow the evaluation and validation requirements.

**Task Verification Forms** – Each task has a form that must be completed and signed by the Clinical Mentorship Supervisor. Each form requires the patient’s name and the date the task was performed. *Remember that for each task you must use different patients for each repetition of the task.*

**Supplementary Materials** – Logs, written materials, photographs, or other forms/documentation may be required for specific tasks. Be sure to read the Materials to be Submitted for Evaluation section very carefully and return all documented evidence as prescribed.
COMPLETION OF THE CLINICAL MENTORSHIP

The Clinical Mentorships are designed to follow the semester format of Purdue University. However, you may complete the Clinical Mentorship and submit materials any time prior to the end of the semester.

If you are unable to complete the Clinical Mentorship by the end of the semester deadline, you must contact the course instructor for the Clinical Mentorship, the VTDL office (765) 496-65779, or Pam Phegley, BS, RVT (phegleyp@purdue.edu, 765-496-6809) to request an “Incomplete grade” for the semester. The Clinical Mentorship will be treated by the University as it would any other Incomplete graded course. See the VTDL Student Handbook for specific information on incompletes.

When you have completed all of the tasks and the documentation, send the complete compilation of materials to:

Vet Tech Distance Learning  
Clinical Mentorship Evaluation  
Purdue University  
625 Harrison Street, Lynn Hall G171  
West Lafayette IN 47907

You will be contacted after the materials have been reviewed. The Purdue University instructor in charge has the option to require additional documentation if, in their judgment, the student has not performed or documented the task to the level set by the Criteria.

If additional documentation is deemed required by the course instructor or the Clinical mentorship Coordinator, the student will be contacted and the additional required documentation explained. A deadline will be given for materials to be resubmitted. Grade penalties will be assigned if resubmissions are not received by the deadline.

Final approval of successful performance and completion of the Clinical Mentorship will be made by the Purdue University Instructor in charge of the Clinical Mentorship based upon the documentation provided by the student.

Upon successful completion of the documentation, a grade for the course will be assigned by the course instructor based upon the documented performance of the tasks.
Before starting each task:

1. Read the Goal, Description, Criteria and Materials to be Submitted for Evaluation and Verification. Understand what is expected of you for each task.

2. Make sure you have whatever equipment and supplies you need to document the task. Pay particular attention to the details of what needs to be documented and submitted.

3. Make sure you obtain appropriate permissions where necessary. Please inform the facility’s owner/manager of your activities. A good relationship with the veterinarian in charge is key to having appositive Clinical Mentorship experience.

4. Remember that repetitions of the same task must be performed on different patients, but one patient can be used to document several tasks (e.g. ear cleaning, nail trimming, bathing all done on the same animal).

5. Label all items submitted so that the materials you submit for evaluation and validation at Purdue are identified as your submission.

6. Once everything is completed, package all the paper, video, photographic or other required documentation and send it to the VTDL program at the address provided in the Completion of Clinical Mentorship section above.
Certain mentorships will have required projects to complete in addition to the required tasks. These are things that are better assessed in the form of a project. Projects should be typed, and checked for correct grammar and spelling.

Before starting each project

1. Read through the project in its entirety. This will give you a description of the project and what is needed to complete it successfully.

2. Determine what materials, if any, need to be submitted for completion of the project.

3. Most projects will come with a list of questions that need to be answered. The responses should be placed inside the notebook for submission with other materials.

4. If videotaping is required for a project, it should be noted on the videotape verbally that this is for the project and not another required task. Some projects may require a verbal narration of a student doing something. Each individual project will define if that is a necessary requirement for that project.

Note: Videotaping and photographs are not for the purpose of verifying if the practice is within OSHA compliance or other government regulations. These projects are for the student’s education. It may be determined by the student that the practice is not within the current recommendations. The purpose of these projects is to make the student aware of these issues, and how to recognize the issues and develop suggestions for improvement.

There will be certain mentorships where OSHA recommendations, in regards to equipment and policies, will be facility requirements for the mentorship.
VETERINARY FACILITY STANDARD OPERATING PROCEDURE FOR X-RAY MACHINE

This information is to help us evaluate the facility’s current usage of the x-ray machine. The information you provide should be prior to the creation of the technique chart task.

1. Provide the Standard Operating Procedure (SOP) for the particular machine that is in use.
   a. Provide make and model of the machine.
   b. Provide minimum and maximum kVp output of the machine.
   c. Provide the technique chart that is currently used with the machine if one has existed prior.
   d. Provide any special instructions or other material that are used in conjunction with the machine.
   e. Specify the type of film and screens used.
Task Verification Form for Veterinary Facility Standard Operating Procedure for X-Ray Machine

Student Name: ____________________________________________________

Supervisor Name: _________________________________________________

☐ The student provided make and model of the machine.

☐ The student provided the minimum and maximum kVp output of the machine.

☐ The student provided the technique chart that is currently used with the machine if one has existed prior.

☐ The student provided any special instructions or other material that are used in conjunction with the machine.

☐ The student specified the type of film and screens used.

Signature of the Clinical Mentorship Supervisor ________________________________
Special Instructions for PREPARATION OF A RADIOGRAPHIC TECHNIQUE CHART

*If the x-ray machine in your veterinary facility has no grid, please refer to Appendix II for adaptation.

*If your veterinary facility has no detail cassettes, please refer to Appendix III for adaptations.

**Step 1:** Review Han and Hurd (textbook) for Technique Chart development.

**Step 2:** Prepare mAs matrix chart multiplying the time and mA stations on your machine. Multiply time and mA station to complete mAs matrix chart.

**Step 3:** With your project dog in right lateral recumbency, measure the abdomen at the highest point over the liver.

**Step 4:** Using the measurement obtained in Step 3, prepare kVp chart according to Han and Hurd.

**Step 5:** Ask anesthetist to induce anesthesia in your dog and get them to a stable anesthetic plane.

**Step 6:** Once the dog is anesthetized, prepare for the three trial views.
- Choose from the mAs matrix chart the three values that most closely meet the 1, 3 and 6 mAs discussed in Han and Hurd.

**Step 7:** Obtain the three trial views on the single cassette according to Han and Hurd and task criteria.

**Step 8:** Chose best exposure of the three as the known value for your mAs conversion chart
- If none of these exposures are acceptable, return to mAs matrix chart and repeat steps 6 and 7 with different mAs values.

**Remember that the technique chart is a guide for exposure factors. Adjustments may be needed based on the patient type or the pathology of the patient.**
PREPARATION OF A RADIOGRAPHIC TECHNIQUE CHART

Goal: To develop a radiographic technique chart

Description: The student, using an anesthetized dog (40-50 pounds), will develop a technique chart that will aid in the production of consistent diagnostic quality radiographs.

Notes:
1. The student will use an anesthetized dog that is being monitored by an RVT or DVM so the student may concentrate on the development of the technique chart.
2. Criteria for thoracic and abdominal views may be found in Appendix I at the end of this logbook. All other criteria may be found in the main body of this logbook.
3. Criteria adaptations for a clinic which has no grid available may be found in Appendix II at the end of this logbook.
4. Criteria adaptations for a clinic which has no detail cassettes available may be found in Appendix III at the end of this logbook.

Criteria:
The student selected the best possible film/screen combination available, and assured that the film/screen combination remained consistent throughout the technique chart development, as defined in the textbook and veterinary facility SOP (Standard Operating Procedure).

The student assured that the processing chemicals were fresh, stirred and not expired.

If using a manual processing tank, the student assured the chemical processing time and temperature relationship was consistent throughout the duration of the task.

If using an automatic processor, the student assured the chemical processing temperature was consistent throughout the duration of the task.

The student surveyed the darkroom for light leaks and examined the safelight filter for cracks.

The student maintained the same focal film distance of 36-40 inches for each radiographic projection, throughout the duration of the tasks.

The student chose a dog weighing 40-50 pounds, not grossly over-or under weight, and without ascites or dehydration.

The student had a DVM or RT anesthetize and monitor the dog for the duration of the task.

The student placed the dog in right lateral recumbency and used the calipers to measure the abdomen at the highest point over the liver.

The student interpreted the caliper measurement according to manufacturer’s instructions and used the measurement to construct a variable kVp chart as defined in the textbook and in the VCS 14300 Module 4 worksheet.

Using the time and mA stations available on the x-ray machine, the student next constructed a variable mAs matrix chart, as defined in the textbook and VCS 14300 Module 4 worksheet.
The student selected the three trial exposure values from the matrix chart that most closely matched 1.0 mAs, 3.0 mAs and 6.0 mAs as defined in the textbook and VCS 14300 Module 4 worksheet, and submitted a copy of the chart with the values circled that were used for the trial views.

Using a 14 x 17 high-speed cassette, the student placed the cassette on the x-ray table and directly underneath the right lateral recumbent dog.

The student covered 2/3rd of the cassette with thin flexible lead blocking strips and collimated to prevent x-rays from penetrating that portion of the cassette, centering the exposed 1/3rd of the cassette under the previously measured area of the liver and produced the first trial exposure. (lead gloves may be used in place of lead strips)

The student then moved the cassette and shifted the lead blocking strips underneath the dog in order to make the next 2 trial exposures of the measured area.

The student processed the film with the 3 trial exposures and chose the technique that allowed the best visualization of the differing soft tissue densities.

The student calculated the mAs conversion chart using this chosen technique as the known value of table top abdomen as described in the textbook and VCS 14300 Module 4 worksheets.

The student produced and processed a lateral tabletop abdominal radiograph using a high-speed cassette and the chosen known value, thus establishing a tabletop abdominal technique.

The student produced and processed a lateral grid abdominal radiograph using a high-speed cassette and the calculated conversion value from the mAs conversion chart, thus establishing a grid abdominal technique. If there is no grid available, refer to Appendix II.

The student produced and processed a lateral tabletop thoracic radiograph using a high-speed cassette and the calculated conversion value from the mAs conversion chart, thus establishing a tabletop thoracic technique.

The student produced and processed a lateral thoracic radiograph using grid technique using a high-speed cassette and the calculated conversion value from the mAs conversion chart, thus establishing a grid thoracic technique. If there is no grid available, refer to Appendix II.

The student produced and processed a mediolateral radiograph of the radius and ulna using tabletop technique and a detail (slow speed) cassette and the calculated conversion value from the mas conversion chart, thus establishing a tabletop technique. If there are no detail cassettes available, refer to appendix III.

The student produced and processed a lateral skull radiograph using a detail (slow speed) cassette and the calculated conversion value from the mAs conversion chart, thus establishing a radiograph, using grid technique. If there are no grid and/or detail cassettes available, refer to Appendices II and III.

If at any time during the technique chart development process the radiographs had too much or too little density with the chosen calculated conversion techniques, the student produced adjustments to the mAs values according to the textbook and the VCS 14300 Module 4 worksheets.
Number of Times Task Needs to be Successfully Performed: 1

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Preparation of a Radiographic Technique Chart skill, signed by the Clinical Mentorship supervisor.

2. Written narrative for Technique Chart to include the following:
   a. A brief statement on the importance of a technique chart.
   b. The signalment of the project dog.
   c. Detailed discussion or outline of the three trial views.
   d. Detailed discussion or outline of images and each step of the process.
   e. Describe thought process as you worked through each step.
   f. Validate the technique choices that were made for each radiograph.
   g. mAs matrix chart
   h. kVp chart
   i. mAs conversion chart

3. The developed films from the required views taken while developing the Radiographic Technique Chart, clearly marked with the following information on each:
   a. View
   b. mA used
   c. s (time) used
   d. kVp used
Task Verification Form for Preparation of Radiographic Technique Chart

Student Name: ____________________________________________________________

Supervisor Name: _______________________________________________________

☐ RVT, CVT, LVT
☐ DVM, VMD

Name: ____________________________ Date: __________________________

☐ The student selected the best possible film/screen combination available, and assured that this combination remained constant throughout chart development, as defined in the textbook and veterinary facility SOP (Standard Operating Procedure).

☐ The student assured that the processing chemicals were stirred, fresh and not expired.

☐ If using a manual processing tank, the student assured the chemical processing time and temperature relationship was consistent throughout the duration of the task.

☐ If using an automatic processor, the student assured the chemical processing temperature was consistent throughout the duration of the task.

☐ The student surveyed the darkroom for light leaks and examined the safelight filter for cracks, as defined in the textbook.

☐ The student maintained the same focal film distance of 36-40 inches for each radiographic projection, throughout the duration of the task.

☐ The student chose a dog weighing 40-50 pounds, not grossly over-or underweight, and without ascites or dehydration.

☐ The student had a DVM or RVT anesthetize and monitor the dog for the duration of the task.

☐ The student placed the dog in right lateral recumbency, used the calipers and measured the abdomen at the highest point over the liver.

☐ The student interpreted the caliper measurement according to manufacturer’s instructions and used the measurement to construct a variable kVp chart as defined in the textbook and in VCS 14300 Module 4 worksheet.

☐ Using the time and mA stations available on the x-ray machine, the student next constructed a variable mAs matrix chart, as defined in the textbook and VCS 14300 Module 4 worksheet.

☐ The student selected the three trial exposure values from the matrix chart that most closely matched 1.0 mAs, 3.0 mAs and 6.0 mAs as defined in the textbook and VCS 14300 Module 4 worksheet, and submitted a copy of the chart with the values circled that were used for the trial views.

☐ Using a 14 x 17 high-speed cassette, the student placed the cassette on the x-ray table directly underneath the right lateral recumbent dog.

☐ The student covered 2/3” of the cassette with thin flexible lead blocking strips and collimated to prevent x-rays from penetrating that portion of the cassette, centering the exposed 1/3” of the
The student then moved the cassette and shifted the lead blocking strips underneath the dog in order to make the next 2 trial exposures of the measured area.

The student processed the film with the 3 trial exposures and chose the technique that allowed the best visualization of the differing soft tissue densities.

The student calculated the mAs conversion chart using this chosen technique as the known value of tabletop abdomen as described in the textbook and VCS 14300 Module 4 worksheets.

The student produced and processed a lateral tabletop abdominal radiograph using a high-speed cassette and the chosen known value, thus establishing a tabletop abdominal technique.

The student produced and processed a lateral grid abdominal radiograph using a high-speed cassette and the calculated conversion value from the mAs conversion chart, thus establishing a grid abdominal technique.

The student produced and processed a lateral tabletop thoracic radiograph using a high-speed cassette and the calculated conversion value from the mAs conversion chart, thus establishing a tabletop thoracic technique.

The student produced and processed a lateral thoracic radiograph, using grid technique using a high-speed cassette and the calculated conversion value from the mAs conversion chart, thus establishing a grid thoracic technique.

The student produced and processed a mediolateral radiograph of the radius and ulna using tabletop technique and a detail cassette and the calculated conversion value from the mAs conversion chart, thus establishing a tabletop technique.

The student produced and processed a lateral skull radiograph using a detail cassette and the calculated conversion value from the mAs conversion chart, thus establishing a radiograph, using grid technique.

If at any time during the technique chart development process the radiographs had too much or too little density with the chosen calculated conversion techniques, the student produced adjustments to the mAs values according to the textbook and the VCS 14300 Module 4 worksheets.

The student submitted a written narrative of the process, clearly explaining choices made and why.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
MEDIOLATERAL PROJECTION OF THE SHOULDER (SCAPULOHUMERAL) JOINT TECHNIQUE

Goal: To produce a diagnostic mediolateral radiographic projection of the shoulder (scapulohumeral) joint

Description: The student will position the animal in lateral recumbency and produce a mediolateral shoulder radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate or the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the shoulder joint as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in lateral recumbency with the shoulder joint of interest nearest to the x-ray table.

The limb of interest was then extended and secured cranially such that the proximal portion of the limb was not superimposed on the rest of the body.

The opposite front limb was extended and secured caudally, such that it was not superimposed over the shoulder joint of interest.

The student positioned the animal such that the x-ray beam would enter the medial side of the shoulder joint and exit the lateral side.

The student extended and secured the head and neck dorsally such that the head and neck created a 90° angle with the extended limb of interest and the trachea would not be superimposed over the shoulder joint.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer instructions.

If a grid is available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available, the student placed the cassette directly on top of the x-ray table beneath the shoulder joint of interest and adjusted the exposure factors according to Appendix II.

The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker just cranial to the shoulder joint of interest.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic a radiograph.

The student produced the radiograph with proper collimation such that only the landmarks for the entire shoulder joint and the correct “right” or “left” marker are included.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Mediolateral Shoulder Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed Mediolateral shoulder image, clearly labeled.

3. Written Self Evaluation of Image including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Mediolateral Projection of the Shoulder (Scapulohumeral) Joint Technique

Student Name: ____________________________________________

Supervisor Name: ____________________________________________
RVT, CVT, LVT, DVM, VMD

Name: ___________________________ Date: _______________________

Name: ___________________________ Date: _______________________

☐ The student selected a size of cassette appropriate or the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the shoulder joint as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency with the shoulder joint of interest nearest to the x-ray table.

☐ The limb of interest was then extended and secured cranially such that the proximal portion of the limb was not superimposed on the rest of the body.

☐ The opposite front limb was extended and secured caudally, such that it was not superimposed over the shoulder joint of interest.

☐ The student positioned the animal such that the x-ray beam would enter the medial side of the shoulder joint and exit the lateral side.

☐ The student extended and secured the head and neck dorsally such that the head and neck created a 90° angle with the extended limb of interest and the trachea would not be superimposed over the shoulder joint.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer instructions.

☐ If a grid is available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available, the student placed the cassette directly on top of the x-ray table beneath the shoulder joint of interest and adjusted the exposure factors according to Appendix II.

☐ The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker just cranial to the shoulder joint of interest.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph with proper collimation such that only the landmarks for the entire shoulder joint and the correct “right” or “left” marker are included.
☐ No part of the lead glove appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor:______________________________________________
MEDIOLATERAL PROJECTION OF THE RADIUS/ULNA (ANTEBRACHIUM) TECHNIQUE

Goal: To produce a diagnostic mediolateral radiographic projection of the radius/ulna (Antebrachium).

Description: The student will position the animal in lateral recumbency and produce a mediolateral radius/ulna radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the radius/ulna as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in lateral recumbency with the radius/ulna of interest nearest to the x-ray table.

The student extended and secured the radius/ulna of interest cranially to prevent superimposition by the rest of the body.

The student positioned the animal such that the x-ray beam would enter the medial side of the radius/ulna and exit the lateral side.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

The student placed the cassette directly on top of the x-ray table, just beneath the radius/ulna of interest.

The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker just cranial to the radius/ulna of interest.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker and the landmarks for the entire radius/ulna, including the joints proximal and distal.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Mediolateral Projection of the Radius/Ulna (Antebrachium) Joint skill, signed by the Clinical Mentorship supervisor.

2. One processed mediolateral image of the radius/ulna, clearly labeled.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvement that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Mediolateral Projection of the Radius/Ulna (Antebrachium)

Student Name: __________________________________________________________

Supervisor Name: ________________________________________________________

Name: ___________________________ Date: __________________________

Name: ___________________________ Date: __________________________

☐ The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the radius/ulna as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency with the radius/ulna of interest nearest to the x-ray table.

☐ The student extended and secured the radius/ulna of interest cranially to prevent superimposition by the rest of the body.

☐ The student positioned the animal such that the x-ray beam would enter the medial side of the radius/ulna and exit the lateral side.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ The student placed the cassette directly on top of the x-ray table, just beneath the radius/ulna of interest.

☐ The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker just cranial to the radius/ulna of interest.

☐ The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker just cranial to the radius/ulna of interest.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker and the landmarks for the entire radius/ulna, including the joints proximal and distal.

☐ No part of the lead glove appeared on the radiograph.
☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
CRANIOCAUDAL PROJECTION OF THE RADIUS/ULNA (ANTEBRACHIUM) TECHNIQUE

Goal: To produce a diagnostic cranocaudal radiographic projection of the radius/ulna.

Description: The student will position the animal in sternal recumbency and produce a cranio-caudal radius/ulna radiograph of diagnostic quality.

Note: *Digital imaging may be used to produce this image.*

Criteria: The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the radius/ulna as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in sternal recumbency such that the caudal surface of the radius/ulna of interest was lying directly on the x-ray table with the cranial side of the limb facing up.

The student extended and secured the radius/ulna of interest cranially to prevent superimposition by any part of the body.

The student positioned the head and neck to prevent superimposition over the radius/ulna of interest.

The student positioned the x-ray tube head such that the x-ray beam would enter the cranial side of the radius/ulna and exit the caudal side.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

The student placed the cassette under the radius/ulna of interest, directly on the x-ray tabletop.

The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker on the lateral side of the radius/ulna.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker and the landmarks for the entire radius/ulna, including the joints proximal and distal.

No part of the lead glove appeared on the radiograph.

Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Cranio-caudal Radius/Ulna Radiographic Technique skill, signed by the Clinical Mentorship supervisor.
2. One processed Craniocaudal radius/ulna image, clearly labeled.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Craniocaudal Projection of the Radius/Ulna (Antebrachium) Joint

Student Name: ____________________________________________________

Supervisor Name: _________________________________________________ RVT, CVT, LVT

Name: ____________________________________  Date: ____________________

Name: ____________________________________  Date: ____________________

☐ The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the radius/ulna as defined in the textbook.

☐ The student selected a detailed (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in sternal recumbency such that the caudal surface of the radius/ulna of interest was lying directly on the x-ray table with the cranial side of the limb facing up.

☐ The student extended and secured the radius/ulna of interest cranially to prevent superimposition by any part of the body.

☐ The student positioned the head and neck to prevent superimposition over the radius/ulna of interest.

☐ The student positioned the x-ray tube head such that the x-ray beam would enter the cranial side of the radius/ulna and exit the caudal side.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer's instructions.

☐ The student placed the cassette under the radius/ulna of interest, directly on the x-ray tabletop.

☐ The student selected a lead R and L limb marker according to which limb was being imaged and placed the marker on the lateral side of the radius/ulna.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker and the landmarks for the entire radius/ulna, including the joints proximal and distal.

☐ No part of the lead glove appeared on the radiograph.
☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
MEDIOLATERAL PROJECTION OF THE STIFLE (FEMOROTIBIAL) JOINT TECHNIQUE

Goal: To produce a diagnostic mediolateral radiographic projection of the stifle joint.

Description: The student will position the animal in lateral recumbency and produce a mediolateral stifle radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the stifle as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in lateral recumbency with the stifle joint of interest nearest to the x-ray table.

The student extended and secured the stifle joint of interest ventrally and slightly caudally to prevent superimposition by the body.

The opposite rear limb was flexed and positioned dorsally and slightly cranially over the body and secured that this limb was not superimposed over the stifle joint of interest.

The student placed padding under the ischium and/or the hock as needed to prevent image distortion or obliquing of the stifle joint, and to ensure the stifle and tibial crest were parallel to the x-ray table.

The student positioned the animal such that the x-ray beam would enter the medial side of the stifle joint and exit the lateral side.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

The student placed the cassette directly on top of the x-ray table beneath the stifle joint of interest.

The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker just cranial to the stifle joint.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker and the landmarks for the entire stifle joint, including 2” proximal and distal to the joint.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Mediolateral Stifle Joint Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed Mediolateral stifle joint images, clearly labeled.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Mediolateral Projection of the Stifle (Femorotibial) Joint Technique

Student Name: __________________________________________________

Supervisor Name: _________________________________________________ RVT, CVT, LVT
DVM, VMD

Name: __________________________________ Date: ________________

Name: __________________________________ Date: ________________

☐ The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the stifle as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency with the stifle joint of interest nearest to the x-ray table.

☐ The student extended and secured the stifle joint of interest ventrally and slightly caudally to prevent superimposition by the body.

☐ The opposite rear limb was flexed and positioned dorsally and slightly cranially over the body and secured such that this limb was not superimposed over the stifle joint of interest.

☐ The student placed padding under the ischium and/or the hock as needed to prevent image distortion or obliquing of the stifle joint, and to ensure the stifle and tibial crest were parallel to the x-ray table.

☐ The student positioned the animal such that the x-ray beam would enter the medial side of the stifle joint and exit the lateral side.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ The student placed the cassette directly on top of the x-ray table beneath the stifle joint of interest.

☐ The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker just cranial to the stifle joint.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker and the landmarks for the entire stifle joint, including 2” proximal and distal to the joint.

☐ No part of the lead glove appear on the radiograph.
☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
CAUDOCRANIAL PROJECTION OF THE STIFLE (FEMOROTIBIAL) JOINT TECHNIQUE

Goal: To produce a diagnostic caudocranial radiographic projection of the stifte joint.

Description: The student will position the animal in sternal recumbency and produce a cranial stifte joint radiograph of diagnostic quality.

Note: *Digital imaging may be used to produce this image.*

Criteria: The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the stifle joint as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in sternal recumbency such that the stifle joint of interest was lying directly on the x-ray table.

The student extended and secured the limb of interest caudally in caudocranial position to prevent superimposition of the body over the stifle joint.

The opposite rear limb was positioned such that it did not superimpose over the stifle joint of interest.

Padding was placed beneath the opposite rear limb and hip to insure optimal positioning and to prevent obliquing or distortion of the stifle joint of interest.

The student positioned the animal such that the x-ray beam would enter the caudal side of the stifle joint and exit the cranial side.

The student positioned the animal such that the patella of interest was centered in the trochlear groove, and perpendicular to the x-ray beam.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid is available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table just beneath the stifle joint and adjusted the exposure factors according to Appendix II.

The student selected a lead R or L limb marker according to which limb was being imaged and placed the marker on the lateral side of the stifte.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker, the entire stifle joint, clearly defined joint spaces and 2” proximal and distal to the joint.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Caudocranial Stifle radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed caudocranial stifte image

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Caudocranial Projection of the Stifle (Femorotibial) Joint Technique

Student Name: __________________________________________________________

Supervisor Name: ________________________________________________________

☐ RVT, CVT, LVT
☐ DVM, VMD

Name: __________________________________ Date: _________________________

Name: __________________________________ Date: _________________________

☐ The student selected a size of cassette appropriate for the anatomic region to be radiographed and appropriately collimated the primary beam to include only the landmarks for the stifle joint as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in sternal recumbency such that the stifle joint of interest was lying directly on the x-ray table.

☐ The student extended and secured the limb of interest caudally in caudo-cranial position to prevent superimposition of the body over the stifle joint.

☐ The opposite rear limb was positioned such that it did not superimpose over the stifle joint of interest.

☐ Padding was placed beneath the opposite rear limb and hip to insure optimal positioning and to prevent obliquing or distortion of the stifle joint of interest.

☐ The student positioned the animal such that the x-ray beam would enter the caudal side of the stifle joint and exit the cranial side.

☐ The student positioned the animal such that the patella of interest was centered in the trochlear groove, and perpendicular to the x-ray beam.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid is available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table just beneath the stifle joint and adjusted the exposure factors according to Appendix II.

☐ The student selected a lead R or L limb marker according to which limb was being imaged and placed the maker on the lateral side of the stifle.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.
☐ The student produced the radiograph such that the collimated image included the correctly chosen lead limb marker, the entire stifle joint, clearly defined joint spaces and 2” proximal and distal to the joint.

☐ No part of the lead glove appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor ________________________________
PROJECTION OF THE LATERAL PELVIS TECHNIQUE

Goal: To produce a diagnostic lateral radiographic projection of the pelvis.

Description: The student will position the animal in right lateral recumbency and produce a lateral pelvic radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the pelvis to be radiographed and appropriately collimated the primary beam to include only the landmarks for the pelvis as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in right lateral recumbency on the x-ray table.

The student extended and secured the right hind limb cranially 20° and extended and secured the left hind limb 20° caudally.

The student placed padding between the femurs to prevent obliquing of the pelvic region.

The student positioned the animal such that the center of the x-ray beam would enter at the greater trochanter.

The student collimated the primary beam to include only the landmarks for the pelvic region.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If grid is available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available, the student placed the cassette directly on top of the x-ray table, just beneath the pelvis and adjusted the technique according to the Appendix II.

The student selected a lead R or L limb marker and placed it near the appropriate limb.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the pelvis.

No part of the lead glove appeared on the radiograph.

Number of Times Task Needs to be Successful Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Lateral Pelvic Radiographic Technique skill, signed by the Clinical Mentorship supervisor.
2. One processed lateral pelvic image.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Projection of the Lateral Pelvic Technique

Student Name: ____________________________________________________

Supervisor Name: _________________________________________________ RVT, CVT, LVT DVM, VMD

Name: __________________________________ Date: ______________________

Name: __________________________________ Date: ______________________

☐ The student selected a size of cassette appropriate for the pelvis to be radiographed and appropriately collimated the primary beam to include only the landmarks for the pelvis as defined in the textbooks.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in right lateral recumbency on the x-ray table.

☐ The student extended and secured the right hind limb cranially 20° and extended and secured the left hind limb 20° caudally.

☐ The student placed padding between the femurs to prevent obliquing of the pelvic region.

☐ The student positioned the animal such that the center of the x-ray beam would enter at the greater trochanter.

☐ The student collimated the primary beam to include only the landmarks for the pelvic region.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If grid is available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available, the student placed the cassette directly on top of the x-ray table, just beneath the pelvis and adjusted the technique according to the Appendix II.

☐ The student selected a lead R or L marker and placed it near the appropriate limb.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included only the landmarks for the pelvis.

☐ No part of the lead glove appeared on the radiograph.
The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ______________________________
PROJECTION OF THE VENTRODORSAL EXTENDED PELVIS TECHNIQUE

Goal: To produce a diagnostic ventrodorsal extended radiographic projection of the pelvis

Description: The student will position the animal in ventrodorsal recumbency and produce a ventrodorsal extended pelvic radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the pelvis to be radiographed and appropriately collimated the primary beam to include only the landmarks for the ventrodorsal pelvis as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in dorsal recumbency with the front limbs extended and secured cranially and the rear limbs extended and secured caudally.

The student positioned the animal such that each patella was perpendicular to the x-ray beam and centered in the trochlear groove and then secured the stifles to maintain this position.

The student ensured the rear limbs were parallel to the x-ray table, equally extended and as close to the table as possible to prevent increased object film distance and/or foreshortening.

The student positioned the pelvis such that the pelvic girdle was not angled in relation to the femurs.

The student placed a lead R or L marker next to the corresponding lateral side of the pelvis.

The student positioned the animal such that the x-ray beam would be centered between the coxofemoral joints at the level of the pubic symphysis.

The student collimated the primary beam to include the wings of the ilium and the stifle joints.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the pelvis and adjusted the technique according to the Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image include the correctly chosen lead limb marker and the landmarks for the ventrodorsal extended pelvic view.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Ventrodorsal Extended Pelvis Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed ventrodorsal extended pelvic image.

3. Self-evaluation of radiograph including:
   a. mAs and kVp setting
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Projection of the Ventrodorsal Pelvis – Extended Technique

Student Name: __________________________________________________

Supervisor Name: ________________________________________________ RVT,CVT,LVT DVM, VMD

Name: ___________________________ Date: _________________________

Name: ___________________________ Date: _________________________

☐ The student selected a size of cassette appropriate for the pelvis to be radiographed and appropriately collimated the primary beam to include only the landmarks for the ventrodorsal pelvis as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in dorsal recumbency with the front limbs extended and secured cranially and the rear limbs extended and secured caudally.

☐ The student positioned the animal such that the each patella was perpendicular to the x-ray beam and centered in the trochlear groove and then secured the stifles to maintain this position.

☐ The student ensured the rear limbs were parallel to the x-ray table, equally extended and as close to the table as possible to prevent increased object-film distance and/or foreshortening.

☐ The student positioned the pelvis such that the pelvic girdle was not angled in relation to the femurs.

☐ The student placed a lead R or L marker next to the corresponding lateral side of the pelvis.

☐ The student positioned the animal such that the x-ray beam would be centered between the coxofemoral joints at the level of the pubic symphysis.

☐ The student collimated the primary beam to include the wings of the ilium and the stifle joints.

☐ The student placed the calipers at the highest points of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the pelvis and adjusted the technique according to the Appendix II.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image include the correctly chosen lead limb marker and the landmarks for the ventrodorsal extended pelvic view.
☐ No part of the lead glove appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ______________________________
LATERAL PROJECTION OF THE CERVICAL VERTEBRAL COLUMN TECHNIQUE

Goal: To produce a diagnostic lateral cervical vertebral column radiographic projection.

Description: The student will position the animal in lateral recumbency and produce a lateral cervical vertebral column radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the vertebral column to be radiographed and appropriately collimated the primary beam to include only the landmarks for the cervical vertebral column as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in lateral recumbency.

The student secured the front limbs caudally while positioning the hindquarters dorsally and extending the head and neck cranially.

The student positioned the animal such that the cervical vertebrae were extended in a straight line from the tympanic bulla to halfway between the point of the shoulder and the dorsal tip of the spine of the scapula.

The student positioned the animal such that the x-ray beam was centered over the cervical (4-5) vertebrae at the level of the thoracic inlet.

The student used padding beneath the cervical region as necessary to prevent obliquing or false narrowing of joint spaces.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid is available the student placed the cassette directly on top of the x-ray table, just beneath the cervical vertebral column and adjusted the technique according to the Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the cervical vertebral column.

No part of the lead glove appeared on the radiograph.

Number of Times Task needs to be Successfully Performed: 2
Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Lateral Cervical Vertebral Column Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed lateral cervical vertebral column image.

3. Self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Lateral Projection of the Cervical Vertebral Column Technique

Student Name: __________________________________________________________

Supervisor Name: ______________________________________________________

Name: ___________________________ Date: __________________________

Name: ___________________________ Date: __________________________

☐ The student selected a size of cassette appropriate for the vertebral column to be radiographed and appropriately collimated the primary beam to include only the landmarks for the cervical vertebral column as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in appendix III for rapid speed cassette.

☐ The student positioned the animal in lateral recumbency.

☐ The student secured the front limbs caudally while positioning the hindquarters dorsally and extending the head and neck cranially.

☐ The student positioned the animal such that the cervical vertebrae were extended in a straight line from the tympanic bulla to halfway between the point of the shoulder and the dorsal tip of the spine of the scapula.

☐ The student positioned the animal such that the x-ray beam was centered over the cervical (4-5) vertebrae at the level of the thoracic inlet.

☐ The student used padding beneath the cervical region as necessary to prevent obliquing or false narrowing of joint spaces.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid is available the student placed the cassette directly on top of the x-ray table, just beneath the cervical vertebral column and adjusted the technique according to the Appendix II.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated imaged included only the landmarks for the cervical vertebral column.

☐ No part of the lead glove appeared on the radiograph.
☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor ________________________________
**LATERAL PROJECTION OF THE THORACOLUMBAR (T13-L1) VERTEBRAL COLUMN TECHNIQUE**

**Goal:** To produce a diagnostic lateral thoracolumbar (T13-L1) vertebral column radiographic projection.

**Description:** The student will position the animal in lateral recumbency and produce a T13-L1 vertebral column radiograph of diagnostic quality.

**Note:** *Digital imaging may be used to produce this image.*

**Criteria:**

- The student selected a size of cassette appropriate for the vertebral column to be radiographed and appropriately collimated the primary beam to include only the landmarks for the T13-L1 vertebral column as defined in the textbook.

- The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

- The student positioned the animal in lateral recumbency.

- The student secured the front limbs cranially and evenly from the body and extended the rear limbs caudally and evenly from the body.

- The student used padding beneath the dorsal spine, ventral abdomen or between the legs as needed to prevent obliquing or false narrowing of the joint spaces.

- The student positioned the animal so that the x-ray beam was centered over T13-L1.

- The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

- If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid is available, the student placed the cassette directly on top of the x-ray table, just beneath the T13-L1 vertebral column and adjusted the technique according to Appendix II.

- The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

- The student produced the radiograph such that the collimated image included only the landmarks for the T13-L1 vertebral column.

- No part of the lead glove appeared on the radiograph.

**Number of Times Task Needs to be Successfully Performed:** 2

**Materials Submitted for Evaluation and Verification:**

1. Task Verification Form for Lateral Thoracolumbar Vertebral Column Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed lateral thoracolumbar vertebral column image.

3. Self-evaluation of radiograph including:
   a. mAs and kVp settings
b. Positioning critique
c. Landmark critique
d. Collimation critique
e. Exposure factor critique including any improvements that could be made
f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Lateral Projection of the Thoracolumbar (T13-L1) Vertebral Column Technique

Student Name: __________________________________________________

Supervisor Name: ___________________________________________ RVT, CVT, LVT DVM, VMD

Name: _______________________________ Date: ______________________

Name: _______________________________ Date: ______________________

☐ The student selected a size of cassette appropriate for the vertebral column to be radiographed and appropriately collimated the primary beam to include only the landmarks for the T13-L1 vertebral column as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency.

☐ The student secured the front limbs cranially and evenly from the body and extended the rear limbs caudally and evenly from the body.

☐ The student used padding beneath the dorsal spine, ventral abdomen or between the legs as needed to prevent obliquing or false narrowing of the joint spaces.

☐ The student positioned the animal so that the x-ray beam was centered over T13-L1.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid is available the student placed the cassette directly on top of the x-ray table, just beneath the T13-L1 vertebral column and adjusted the technique according to Appendix II.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included only the landmarks for the T13-L1 vertebral column.

☐ No part of the lead glove appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
LATERAL PROJECTION OF THE LUMBAR VETEBRAL COLUMN TECHNIQUE

Goal: To produce a diagnostic lateral lumbar vertebral column radiographic projection.

Description: The student will position the animal in lateral recumbency and produce a lumbar vertebral column radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the vertebral column to be radiographed and appropriately collimated the primary beam to include only the landmarks for the lumbar vertebral column as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in lateral recumbency.

The student secured the front legs cranially and evenly from the body and extended the rear limbs caudally and evenly from the body.

The student placed padding between the rear limbs and/or under the dorsal lumbar area or ventral abdomen to ensure the lumbar spine was parallel to the x-ray table, and to prevent obliquing and/or false narrowing of the joint space.

The student positioned the animal such that the center of the x-ray beam would enter at a point between the 4th and 5th lumbar vertebrae.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer's instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the lumbar vertebral column and adjusted the technique according to Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the lumbar vertebral column.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Lateral Lumbar Vertebral Column Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed lateral lumbar vertebral column image.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Lateral Projection of the Lumbar Vertebral Column Technique

Student Name: ____________________________________________________

Supervisor Name: _________________________________________________ RVT,CVT,LVT

Name: ________________________________________________ Date: ______________

Name: ________________________________________________ Date: ______________

☐ The student selected a size a cassette appropriate for the vertebral column to be radiographed and appropriately collimated the primary beam to include only the landmarks for the lumbar vertebral column as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency.

☐ The student secured the front legs cranially and evenly from the body and extended the rear limbs caudally and evenly from the body.

☐ The student placed padding between the rear limbs and/or under the dorsal lumbar area or ventral abdomen to ensure the lumbar spine was parallel to the x-ray table, and to prevent obliquing and/or false narrowing of the joint space.

☐ The student positioned the animal such that the center of the x-ray beam would enter at a point between the 4th and 5th lumbar vertebrae.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the calipers measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the lumbar vertebral column and adjusted the technique according to Appendix II.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included only the landmarks for the lumbar vertebral column.

☐ No part of the lead glove appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
LATERAL PROJECTION OF THE SKULL TECHNIQUE

Goal: To Produce a diagnostic lateral skull radiographic projection.

Description: The student will position the animal in lateral recumbency and produce a skull radiograph of diagnostic quality.

Note: *Digital imaging may be used to produce this image.*

Criteria: The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the skull as defined in the textbook.

- The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.
- The student positioned the animal in lateral recumbency and placed padding as needed beneath the cervical 3-5 vertebrae region to ensure the skull was parallel to the x-ray table.
- The student adjusted the positioning of the skull using padding and/or tape as needed such that the patient’s eyes, ears and canine teeth were superimposed over one another.
- The student positioned the rostral region of the skull using padding and/or tape as needed to ensure the muzzle was parallel to the x-ray table and on the same plane with the cranial portion of the skull and proximal cervical vertebrae.
- The student positioned the patient’s ears dorsally such that no part of the ears was superimposed over the ski and to prevent additional opacity from affecting the finished radiograph.
- The student positioned the animal such that the center of the x-ray beam would enter at the level of the lateral canthus of the eye.
- The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skill and adjusted the technique according to Appendix II.

- The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.
- The student produced the radiograph such that the collimated image included only the landmarks for the lateral skull.

No part of the lead glove appeared on the radiograph.

Number of Times Task Needs to be Successfully Performed: 2
Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Lateral Skull Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed lateral skull image.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Lateral Projection of the Skull Technique

Student Name: ____________________________________________________

Supervisor Name: ________________________________________________

Name: __________________________________ Date: __________________

Name: __________________________________ Date: ________________

☐ The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the skull as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency and placed padding as needed beneath the cervical 3-5 vertebrae region to ensure the skull was parallel to the x-ray table.

☐ The student adjusted the positioning of the skull using padding and/or tape as needed such that the patient’s eyes, ears, and canine teeth were superimposed over one another.

☐ The student positioned the rostral region of the skull using padding and/or tape as needed to ensure the muzzle was parallel to the x-ray table and on the same plane with the cranial portion of the skull and proximal cervical vertebrae.

☐ The student positioned the patient’s ears dorsally such that no part of the ears was superimposed over the skull and to prevent additional opacity from affecting the finished radiograph.

☐ The student positioned the animal such that the center of the x-ray beam would enter at the level of the lateral canthus of the eye.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included only the landmarks for the lateral skull.

☐ No part of the lead glove appeared on the radiograph.
☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
VENTRODORSAL PROJECTION OF THE SKULL TECHNIQUE

Goal: To produce a diagnostic ventrodorsal skull radiographic projection.

Description: The student will position the animal in dorsal recumbency and produce a ventrodsral skull radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the skull as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in dorsal recumbency and placed padding beneath the cervical 3-5 vertebrae region to ensure the skull was parallel to the x-ray table.

If necessary, the student placed a small amount of padding under one or more areas of the skull to prevent obliquing.

Using tape, the student attached one end of the tape strip to the opposite side of the x-ray table, running the strip across the table and in between the maxillary and mandibular arcades, resting on or just caudal to the maxillary canine teeth, secured the tape to the other side of the table and adjusted the skull to prevent obliquing and to ensure the hard palate was parallel to the x-ray table.

The student positioned the patient’s ears away from the lateral sides of the skull to prevent superimposition and added opacity to the finished radiograph.

The student positioned the animal such that the center of the x-ray beam would enter at the level of the lateral canthus of the eye.

The student placed the calipers at the highest point of the area to be radiographed accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student placed a R or L lead marker on the corresponding side of the skull.

The student requested extubation of the animal.

The student produced the radiograph such that the collimated image included only the landmarks for the ventrodorsal skull and the correctly chosen lead marker.

The student requested reintubation of the animal.

No part of the lead glove or endotracheal tube appear on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Ventrodorsal Skull Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed ventrodorsal skull image.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation technique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
# Task Verification Form for Ventrodorsal Projection of the Skull Technique

<table>
<thead>
<tr>
<th>Student Name:</th>
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<tr>
<td>Supervisor Name:</td>
<td>____________________________________________ RVT,CVT,LVT</td>
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<tr>
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<td>RVT,CVT,LVT DVM, VMD</td>
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</table>

- The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the skull as defined in the textbook.
- The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.
- The student positioned the animal in dorsal recumbency and placed padding beneath the cervical 3-5 vertebrae region to ensure the skull was parallel to the x-ray table.
- If necessary, the student placed a small amount of padding under one or more areas of the skull to prevent obliquing.
- Using tape, the student attached one end of the tape strip to the opposite side of the x-ray table, running the strip across the table and in between the maxillary and mandibular arcades, resting on or just caudal to the maxillary canine teeth, secured the tape to the other side of the table and adjusted the skull to prevent obliquing and to ensure the hard palate was parallel to the x-ray table.
- The student positioned the patient’s ears away from the lateral sides of the skull to prevent superimposition and added opacity to the finished radiograph.
- The student positioned the animal such that the center of the x-ray beam would enter at the level of the lateral canthus of the eye.
- The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.
- If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.
- The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.
- The student placed a R or L lead marker on the corresponding side of the skull.
- The student requested extubation of the animal.
☐ The student produced the radiograph such that the collimated image included only the landmarks for the ventrodorsal skull and the correctly chosen lead marker.

☐ The student requested reintubation of the animal.

☐ No part of the lead glove or endotracheal tube appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ____________________________________________
ROSTROCAUDAL PROJECTION OF THE CANINE OPEN MOUTH TYMPANIC BULLA TECHNIQUE

Goal: To produce a diagnostic open mouth tympanic bulla radiographic projection

Description: The student will position the animal (canine) in dorsal recumbency and produce an open mouth bulla radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the tympanic bulla as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

Using sandbags, padding and tape if necessary, the student positioned the animal in dorsal recumbency with the base of the skull resting directly on the x-ray table and the rostral area of the skull positioned perpendicular to the x-ray table and pointing towards the x-ray tube head.

The student placed tape around the maxillary area of the skull, just caudal to the canine teeth and positioned the rostral maxillary skull 10° cranially while securing the tape to the x-ray table.

The student placed tape around the mandible at the base of the tongue where the hard and soft palate meet, also taping the endotracheal tube to the mandible, and extended the mandible 30° caudally. The tape was then secured to the end of the table.

The student verified the endotracheal tube was not kinked or superimposed over either tympanic bulla before final positioning.

The student positioned the animal such that the primary x-ray beam was centered between the tympanic bullae, entering the ventral laryngeal area and exiting the dorsal laryngeal area.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer's instructions.

The student placed R or L lead marker next to the corresponding side of the skull.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available, the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the tympanic bulla, and the correctly chosen lead marker.

No part of the lead glove appeared on the radiograph.

No part of the endotracheal tube was superimposed over either tympanic bullae.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Open Mouth Tympanic Bulla Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed open mouth tympanic bulla image.

3. Self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the tympanic bulla as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

Using sandbags, padding and tape if necessary, the student positioned the animal in dorsal recumbency with the base of the skull resting directly on the x-ray table and the rostral area of the skull positioned perpendicular to the x-ray table and pointing towards the x-ray tube head.

The student placed tape around the maxillary area of the skull, just caudal to the canine teeth and positioned the rostral maxillary skull 10° cranially while securing the tape to the x-ray table.

The student placed tape around the mandible at the base of the tongue where the hard and soft palate meet, also taping the endotracheal tube to the mandible, and extended the mandible 30° caudally. The tape was then secured to the end of the table.

The student verified the endotracheal tube was not kinked or superimposed over either tympanic bulla before final positioning.

The student positioned the animal such that the primary x-ray beam was centered between the tympanic bullae, entering the ventral laryngeal area and exiting the dorsal laryngeal area.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer's instructions.

The student placed R or L lead marker next to the corresponding side of the skull.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available, the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the tympanic bulla, and the correctly chosen lead marker.

No part of the lead glove appeared on the radiograph.
☐ No part of the endotracheal tube was superimposed over either tympanic bullae.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
ROSTROCAUDAL 90 DEGREE PROJECTION OF THE FRONTAL SINUS TECHNIQUE

Goal: To produce a diagnostic 90° frontal radiographic projection of the sinus.

Description: The student will position the animal in ventrodorsal recumbency and produce a 90° frontal sinus radiograph of diagnostic quality.

Note: *Digital imaging may be used to produce this image.*

Criteria: The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the frontal sinus as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in dorsal recumbency, placed padding beneath the cervical 3-5 vertebral region and taped the muzzle to ensure the skull was perpendicular to the x-ray table and the rostral skull was pointed toward the x-ray tube.

The student ensured the endotracheal tube was not kinked.

If necessary, the student placed a small amount of padding under one or more areas of the skull to ensure perpendicular position.

The student positioned the patient’s ears away from the lateral sides of the skull to prevent superimposition and added opacity to the finished radiograph.

The student positioned and secured the rostral skull such that the center of the x-ray beam would enter directly between the two frontal sinus cavities, with ½ of the central beam directed toward the frontal sinus cavities and the other ½ of the central beam directed just cranial to the frontal sinus cavities, casting a shadow of the frontal sinus on the x-ray table.

The student verified the endotracheal tube was not kinked or superimposed over the frontal sinus.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

The student placed a R or L lead marker on the corresponding side of the skull.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the frontal sinus and the correctly chosen lead marker.

No part of the lead glove or endotracheal tube appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for 90° Frontal Sinus Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed 90° frontal skull image.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form Projection of the Rostrocaudal 90 Degree Projection of the Frontal Sinus Technique

| Student Name: | ________________________________ |
| Supervisor Name: | ___________________________________ RVT, CVT, LVT DVM, VMD |

| Name: | ________________________________ | Date: | ________________________________ |
| Name: | ________________________________ | Date: | ________________________________ |

- The student selected a size of cassette appropriate for the skull to be radiographed and appropriately collimated the primary beam to include only the landmarks for the frontal sinus as defined in the textbook.
- The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.
- The student positioned the animal in dorsal recumbency, placed padding beneath the cervical 3-5 vertebral region and taped the muzzle to ensure the skull was perpendicular to the x-ray table and the rostral skull was pointed toward the x-ray tube.
- The student ensured the endotracheal tube was not kinked.
- If necessary, the student placed a small amount of padding under one or more areas of the skull to ensure perpendicular position.
- The student positioned the patient’s ears away from the lateral sides of the skull to prevent superimposition and added opacity to the finished radiograph.
- The student positioned and secured the rostral skull such that the center of the x-ray beam would enter directly between the two frontal sinus cavities, with ½ of the central beam directed toward the frontal sinus cavities and the other ½ of the central beam directed just cranial to the frontal sinus cavities, casting a shadow of the frontal sinus on the x-ray table.
- The student verified the endotracheal tube was not kinked or superimposed over the frontal sinus.
- The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to the manufacturer’s instructions.
- If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available, the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.
- The student placed a R or L lead marker on the corresponding side of the skull.
- The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.
The student produced the radiograph such that the collimated image included only the landmarks for the frontal image included only the landmarks for the frontal sinus and the correctly chosen lead marker.

No part of the lead glove or endotracheal tube appeared on the radiograph.

The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: _____________________________
ROSTROCAUDAL 20 DEGREE PROJECTION OF THE OPEN MOUTH MAXILLARY SKULL

Goal: To produce a diagnostic projection of the open mouth maxillary skull.

Description: The student will position the animal in dorsal recumbency and produce a 20° open mouth maxillary skull radiograph of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the maxilla to be radiographed and appropriately collimated the primary beam to include only the landmarks for the open mouth maxilla as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in dorsal recumbency and placed padding beneath the C3-5 cervical neck region to ensure the skull was parallel to the x-ray table.

If necessary, the student placed a small amount of padding under one or more areas of the skull to prevent obliquing.

Using tape, the student attached one end of the tape strip to the opposite end of the table, running to the strip across the table and between the maxillary and mandibular arcades, just caudal to the maxillary canine teeth, secured the tape to the other end of the table and adjusted the skull to prevent obliquing and to ensure the hard palate was parallel to the x-ray table.

The student placed tape around the mandible at the base of the tongue where the hard and soft palate meet, also taping the endotracheal tube to the mandible, and extended the mandible 30-45° caudally. The tape was then secured to the end of the table.

The student verified the endotracheal tube was not kinked or superimposed over the maxillary region before final positioning.

The student positioned the patient’s ears away from the lateral sides of the skull to prevent superimposition and added opacity to the finished radiograph.

The student positioned the x-ray tube such that the beam was angled 20-30° rostro-caudally and centered on the region of the maxilla where the hard and soft palates meet.

The student positioned the x-ray beam such that the beam would enter the occlusal maxillary surface and exit the dorsal maxillary surface.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

The student placed R or L lead marker next to the corresponding side of the skull.
The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the maxillary skull and the correctly chosen lead marker.

No part of the lead glove appeared on the radiograph.

No part of the endotracheal tube was superimposed over the maxillary region.

**Number Times Task Needs to be Successfully Performed:** 2

**Materials Submitted for Evaluation and Verification:**

1. Task Verification Form for 20° Open Mouth Maxilla Radiographic Technique skill, signed by the Clinical Mentorship supervisor.

2. One processed 20° open mouth maxilla image.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form Projection of the Rostrocaudal 20 Degree Projection of the Open Mouth Maxillary Skull Technique

Student Name: ____________________________________________________________

Supervisor Name: _________________________________________________________

Name: ___________________________ Date: ________________________________

Name: ___________________________ Date: ________________________________

☐ The student selected a size of cassette appropriate for the maxilla to be radiographed and appropriately collimated the primary beam to include only the landmarks for the open mouth maxilla as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in dorsal recumbency and placed padding beneath the C3-5 cervical neck region to ensure the skull was parallel to the x-ray table.

☐ If necessary, the student placed a small amount of padding under one or more areas of the skull to prevent obliquing.

☐ Using tape, the student attached one end of the tape strip to the opposite end of the table, running the strip across the table and between the maxillary and mandibular arcades, just caudal to the maxillary canine teeth, secured the tape to the other end of the table and adjusted the skull to prevent obliquing and to ensure the hard palate was parallel to the x-ray table.

☐ The student placed tape around the mandible at the base of the tongue where the hard and soft palate meet, also taping the endotracheal tube to the mandible, and extended the mandible 30-45° caudally. The tape was then secured to the end of the table.

☐ The student verified the endotracheal tube was not kinked or superimposed over the maxillary region before final positioning.

☐ The student positioned the patient’s ears away from the lateral sides of the skull to prevent superimposition and added opacity to the finished radiograph.

☐ The student positioned the x-ray tube such that the beam was angled 20-30° rostrocaudally and centered on the region of the maxilla where the hard and soft palates meet.

☐ The student positioned the x-ray beam such that the beam would enter the occlusal maxillary surface and exit the dorsal maxillary surface.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.
☐ The student placed R or L lead marker next to the corresponding side of the skull.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included only the landmarks for the maxillary skull and the correctly chosen lead marker.

☐ No part of the lead glove appeared on the radiograph.

☐ No part of the endotracheal tube was superimposed over the maxillary region.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: _________________________________
EXTRAORAL VENTRODORSAL LEFT TO RIGHT 30 DEGREE LATERAL OBLIQUE PROJECTION OF THE MAXILLARY DENTAL ARCADE

Goal: To produce a diagnostic extraoral ventrodorsal oblique radiographic projection of the maxillary dental arcade.

Description: The student will position the animal in lateral recumbency and produce an extraoral oblique radiograph of the maxillary dental arcade of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the dental arcade to be radiographed and appropriately collimated the primary beam to include only the landmarks for the maxillary arcade as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in lateral recumbency, adjusted padding beneath the cervical 3-5 vertebral region to prevent obliquing and placed a mouth speculum.

The student adjusted the positioning, using padding if necessary, to ensure the skull was angled 30° ventrodorsal from lateral.

The student positioned the rostral region of the skull to ensure the muzzle remained parallel to the x-ray table and on the same plane with the cranial portion of the skull and proximal cervical vertebrae.

The student positioned the patient’s ears dorsally to prevent superimposition and additional opacity.

Using padding and/or tape, as necessary, the student positioned the animal such that the center of the x-ray beam would enter the skull from a ventral angle striking the medial occlusal surface of the maxillary arcade and exiting the lateral-dorsal skull surface of the maxillary arcade.

The student placed the appropriate oblique marker within the collimated area of the primary beam.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the maxillary arcade and the appropriate oblique marker.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Lateral Extraoral Oblique Radiograph of the Maxillary Arcade skill, signed by the Clinical Mentorship supervisor.

2. One processed lateral extraoral oblique image of the maxillary arcade.

3. Written self-evaluation of radiograph including:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Extraoral Ventrodorsal Left to Right 30 Degree Lateral Oblique Projection of the Maxillary Dental Arcade Technique

Student Name: __________________________________________________

Supervisor Name: ____________________________________________ RVT,CVT,LVT
DVM, VMD

Name: __________________________________ Date: ________________

Name: __________________________________ Date: ________________

☐ The student selected a size of cassette appropriate for the dental arcade to be radiographed and appropriately collimated the primary beam to include only the landmarks for the maxillary arcade as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency, adjusted padding beneath the cervical 3-5 vertebral region to prevent obliquing and placed a mouth speculum.

☐ The student adjusted the positioning, using padding if necessary, to ensure the skull was angled 30° ventrodorsal from lateral.

☐ The student positioned the rostral region of the skull to ensure the muzzle remained parallel to the x-ray table and on the same plane with the cranial portion of the skull and proximal cervical vertebrae.

☐ The student positioned the patient’s ears dorsally to prevent superimposition and additional opacity.

☐ Using padding and/or tape, as necessary, the student positioned the animal such that the center of the x-ray beam would enter the skull from a ventral angle striking the medial occlusal surface of the maxillary arcade and exiting the lateral-dorsal skull surface of the maxillary arcade.

☐ The student placed the appropriate oblique marker within the collimated area of the primary beam.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to the Appendix II.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image included only the landmarks for the maxillary arcade and the appropriate oblique marker.
☐ No part of the lead glove appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
EXTRAORAL DORSVENTRAL LEFT TO RIGHT 30 DEGREE LATERAL OBLIQUE PROJECTION OF THE MANDIBULAR DENTAL ARCADE

Goal: To produce a diagnostic extraoral oblique radiographic projection of the mandibular dental arcade

Description: The student will position the animal in lateral recumbency and produce an extraoral oblique radiograph of the mandibular dental arcade of diagnostic quality.

Note: Digital imaging may be used to produce this image.

Criteria: The student selected a size of cassette appropriate for the dental arcade to be radiographed and appropriately collimated the primary beam to include only the landmarks for the mandibular arcade as defined in the textbook.

The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

The student positioned the animal in lateral recumbency, adjusted padding beneath the cervical 3-5 vertebral region to prevent obliquing and placed a mouth speculum.

The student adjusted the positioning, using padding if necessary, to ensure the skull was angled 30° dorsoventral from lateral.

The student positioned the rostral region of the skull to ensure the muzzle remained parallel to the x-ray table and in line with the cranial portion of the skull and proximal cervical vertebrae.

The student positioned the patient’s ears dorsally to prevent superimposition and additional opacity.

The student, using padding and tape if necessary, positioned the animal such that the center of the x-ray beam would enter the skull from a dorsal angle, first striking the medial occlusal surface of the mandibular arcade and exiting the ventral-lateral surface of the mandibular arcade.

The student placed the appropriate oblique marker within the collimated area of the primary beam.

The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

The student produced the radiograph such that the collimated image included only the landmarks for the mandibular arcade and the appropriate oblique marker.

No part of the lead glove appeared on the radiograph.
Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Lateral Extraoral Oblique Radiograph of the Mandibular Arcade skill, signed by the Clinical Mentorship supervisor.

2. One processed lateral extraoral oblique image of the mandibular arcade.

3. Written self-evaluation of radiograph oblique image of the mandibular arcade:
   a. mAs and kVp settings
   b. Positioning critique
   c. Landmark critique
   d. Collimation critique
   e. Exposure factor critique including any improvements that could be made
   f. Evaluate radiographic overall quality on a scale of 1 to 10 with 10 being the perfect radiograph
Task Verification Form for Extraoral Dorsoventral Left to Right 30 Degree Lateral Oblique Projection of the Mandibular Dental Arcade Technique

Student Name: ______________________________________________________

Supervisor Name: ___________________________________________ RVT,CVT,LVT DVM, VMD

Name: ___________________________ Date: _________________

Name: ___________________________ Date: _________________

☐ The student selected a size of cassette appropriate for the dental arcade to be radiographed and appropriately collimated the primary beam to include only the landmarks for the mandibular arcade as defined in the textbook.

☐ The student selected a detail (slow speed) cassette, or made adjustments outlined in Appendix III for rapid speed cassettes.

☐ The student positioned the animal in lateral recumbency, adjusted padding beneath the cervical 3-5 vertebral region to prevent obliquing and placed a mouth speculum.

☐ The student adjusted the positioning, using padding if necessary, to ensure the skull was angled 30° dorsoventral from lateral.

☐ The student positioned the rostral region of the skull to ensure the muzzle remained parallel to the x-ray table and in line with the cranial portion of the skull and proximal cervical vertebrae.

☐ The student positioned the patient’s ears dorsally to prevent superimposition and additional opacity.

☐ The student, using padding and tape if necessary, positioned the animal such that the center of the x-ray beam would enter the skull from a dorsal angle, first striking the medial occlusal surface of the mandibular arcade and exiting the ventral-lateral surface of the mandibular arcade.

☐ The student placed the appropriate oblique marker within the collimated area of the primary beam.

☐ The student placed the calipers at the highest point of the area to be radiographed and accurately interpreted the caliper measurement according to manufacturer’s instructions.

☐ If a grid was available, the student placed the cassette in the cassette tray directly beneath the x-ray table. If no grid was available the student placed the cassette directly on top of the x-ray table, just beneath the skull and adjusted the technique according to Appendix II.

☐ The student selected the exposure factors according to the previously developed technique chart for producing a diagnostic radiograph.

☐ The student produced the radiograph such that the collimated image include only the landmarks for the mandibular arcade and the appropriate oblique marker.
☐ No part of the lead glove appeared on the radiograph.

☐ The student submitted a written self-evaluation of the image.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: _____________________________
AVIAN RADIOGRAPHIC POSITIONING

Goal: To properly position a bird for lateral and ventrodorsal radiography.

Description: The student will properly position a bird in lateral and ventrodorsal recumbency for radiographs to be produced.

Note: A bird cadaver or anesthetized bird may be used for this task.

Criteria: The student selected an appropriate size cassette.

The student placed the bird on an appropriate radiolucent surface such as Plexiglass or cardboard from a film box.

The student used paper tape to secure the bird to the translucent surface.

Lateral Image

The student positioned the bird in right lateral recumbency.

The student secured the bird’s head by taping across the neck at the base of the skull.

The student abducted the wings dorsally, fully extending them above the dorsal spine, with the down (right) wing cranial to the up (left) wing.

The student taped the down wing, then the up wing appropriately.

The student extended the limbs ventral and caudal to the keel with the dependent (right) limb cranial to the contralateral (left) limb.

Ventrodorsal Image

The student positioned the bird in dorsal recumbency.

The student gently extended the head and neck cranially and taped across the mandibular articulation at the base of the skull.

The student fully extended each wing by abducting laterally and taping appropriately.

The student extended the limbs caudally and symmetrically and taped appropriately.

Number of Times Task Needs to be Successfully Performed: 2

Materials Submitted for Evaluation and Verification:

1. Task Verification Form for Avian Radiographic Positioning skill, signed by the Clinical Mentorship supervisor.

2. One video of the student properly positioning a bird for radiographs as described in the above criteria. The student must clearly narrate each step performed, using correct radiographic and anatomical terminology.

Note: Submission of radiograph is NOT required.
Task Verification Form for Avian Radiographic Positioning

Student Name: ____________________________________________________

Supervisor Name: _________________________________________________ RVT, CVT, LVT

Name: ________________________________ Date: ______________________

☐ The student selected an appropriate size cassette.

☐ The student placed the bird on an appropriate radiolucent surface such as Plexiglass or cardboard from a film box.

☐ The student used paper tape to secure the bird to the translucent surface.

Lateral Image

☐ The student positioned the bird in right lateral recumbency.

☐ The student secured the bird’s head by taping across the neck at the base of the skull.

☐ The student abducted the wings dorsally, fully extending them above the dorsal spine, with the down (right) wing cranial to the up (left) wing.

☐ The student taped the down wing, then the up wing appropriately.

☐ The student extended the limbs ventral and caudal to the keel with the dependent (right) limb cranial to the contralateral (left) limb.

Ventrodorsal Image

☐ The student positioned the bird in dorsal recumbency

☐ The student gently extended the head and neck cranially and taped across the mandibular articulation at the base of the skull.

☐ The student fully extended each wing by abducting laterally and taping appropriately.

☐ The student extended the limbs caudally and symmetrically and taped appropriately.

I certify that the student positioned the patient and selected the exposure factors.

Signature of the Clinical Mentorship Supervisor: ________________________________
DORSOVENTRAL INTRAORAL MAXILLARY AND MANDIBULAR SKULL PROJECTION PROJECT

The following information should be used in conjunction with the Han and Hurd textbook to answer the project questions and the scenario:

Achieving the best diagnostic quality intraoral maxillary and mandibular projections requires the use of non-screen packaged film. **Non-screen film provides excellent detail.** While it is possible to utilize a cassette to achieve intraoral projections, it is difficult to insert far enough into the mouth because of the cassette size and thickness.

The non-screen film must be placed into the mouth, corner edge first, opening the mouth as wide as possible. The corner edge of the film package must be folded back to the level of the film edge in order to allow the greatest area of the maxillary and mandibular arcades to be radiographed.

The non-screen film is placed inside the mouth between the maxillary and mandibular arcades, aligned at the level of the commissure of the lips. The mouth is closed gently over the film package to prevent tooth compression “crescent” artifacts on the finished radiographs.

The x-ray beam is collimated to include maxillary and mandibular landmarks, and is centered over the region of interest. The animal is positioned in dorsal recumbency for the ventrodorsal mandibular projection and ventral recumbency for the dorsoventral maxillary projection. Padding is placed under the skull and the cervical 3-5 vertebral region in order to prevent obliquing, and to ensure correct positioning for both projections.

If the x-ray machine tube head can be adjusted for table top or grid, the tube head should be adjusted to slightly above the table top setting in order to maintain the optimal 36-40 inch focal film distance.

Non-screen film requires a much higher mAs to produce the same density as a film/screen combination inside a cassette. To account for the absence of an intensifying screen, exposure factors should be set at approximately 300-400 mAs and 50-65 kVp. This will vary slightly depending on individual x-ray machine differences and the size of the animal.

Following exposure, the film is removed from the package inside the darkroom, labeled, and processed normally using either an automatic or manual processing system.

**The following information should be used as an additional resource for Part 2 of the project:**

Staff time is approximately 50% of the cost of a procedure. Assume the following information applies to your facility.

Veterinary Assistant salary - $7.50/hour
Veterinary Technician salary - $15.00/hour
Veterinarian salary - $30.00/hour

Billable time for staff is only 50% of their time. The other 50% is not billable to clients. This is based on the fact that you do not charge clients for jobs around the clinic that must occur for the facility to function (for example: equipment maintenance that is performed to make sure your results are correct). In order to pay for this time, the client is actually charged twice what the employee is paid in order to cover those costs.

Veterinary Assistant billed - $15.00/hour
Veterinary Technician salary - $30.00/hour
Veterinarian salary - $60.00/hour
1. How much time for the above employees would be necessary to perform the new procedure. Do not include anesthesia, physical exam or other items. These will be billed separately. Only include what would be necessary to complete a intraoral maxillary and mandibular skull projections.

2. Once you have determined this amount, it is 50% of the procedure cost. To cover supplies, overhead (mortgage, electricity, etc.) you need to double this cost. What is the cost to the client?

3. What is the cost to purchase this type of film? Will the procedure fee cover that cost? You will need to contact a vendor and gather this information.

Is there a market for this procedure among your clientele? While this procedure is useful for the evaluation of intraoral masses, it can also be used to capture dental radiographs. Assuming that pets over the age of 6 should have annual dental radiographs what would be the population of pets from your facility that could utilize this procedure?

1. Discover the facility total patient numbers.
2. Most computer systems allow you to search based on a certain criteria. Enter your criteria for the search. If your facility is not computerized, locate the records of all clients whose last names start with the letter “S”. Manually count the number of patients that meet your criteria. The percentage of the “S” clients that meet the criteria may be extrapolated to the entire facility population.
3. Once the population is determined, assume that 40% of your clients will utilize this procedure. How many cases would the facility likely perform these views on in 1 year?

The percentages below are used to approximate expenses as they are related to the total gross income of a facility. If can also be used to help you determine if the procedure charge is covering the expenses of the facility and if there is a profit involved.

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff cost</td>
<td>20%</td>
</tr>
<tr>
<td>DVM</td>
<td>25%</td>
</tr>
<tr>
<td>Supplies</td>
<td>20%</td>
</tr>
<tr>
<td>Overhead</td>
<td>25%</td>
</tr>
<tr>
<td>Profit</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

1. Using the information you have already completed, does the procedure cost which you have calculated cover the costs? Explain what the actual dollar figures are for each category using the figures from earlier calculations.

2. What is profit? Why is it important? How can it be used? Who benefits from profits?
Part 1 – Questions

The student will provide specific, detailed written answers to questions regarding the production of intraoral maxillary and mandibular projections.

1. Name and describe the type of film used to achieve intraoral maxillary and mandibular views. How does it differ from standard film? Why is it best to use non-screen film for these views?

2. How should non-screen film be handled? What happens to the finished radiograph if this type of film is handled improperly?

3. How do the exposure factors for this type of film differ from those used with standard film?

4. Should the animal be placed under general anesthesia for these two views? Why or why not?

Part 2 – Scenario

You practice has an x-ray machine and both detail and high speed cassettes. You just came from continuing education seminar and have learned the benefits of intraoral radiographic technique.

You believe it would be beneficial to the patients and the clients to offer intraoral maxilla and mandible radiographs.

You would like to develop a proposal and justifications which you will present to the veterinarian. Include the following information requested by your veterinarian:

1. What resources would be consumed? Include time, material, equipment and space.

2. What is the market? Include types of patients that would benefit from the addition of this procedure as well as how many patients annually might require this procedure.

3. What is the cost of the film and is it covered by the procedure fee?

The paper should be typed, and will be checked for grammar and spelling.
RADIOGRAPHIC CONTRAST STUDY PROJECT

The student will participate in a radiographic contrast study and provide a written report on the procedure. Examples of appropriate procedures for this task include the following:

- Esophogram
- Gastrogram
- Cystogram
- Excretory Urogram
- Myelogram
- Fistulogram
- Arthrogram
- Upper Gastrointestinal Series
- Barium Enema
- Urethrogram
- Vaginogram
- Sialogram
- Celiogram
- Angiocardiogram

The student will submit a written report that includes the following:

- Patient signalment
- Patient history
- Physical exam findings
- Contrast study performed and reason
- Discussion of patient preparation necessary for this procedure and the importance of this preparation
- Discussion of survey radiographs taken and the importance of these views
- Contrast media used for the procedure and any contraindications for this type
- Discussion of whether this was a positive, negative, or both contrasts study, and how the contrast appears on a radiograph
- Result of the contrast study and any post-procedure care provided to the patient
- Synopsis of procedure, the student’s role in the procedure, and any changes the student would suggest to improve the process

The paper should be typed, and will be checked for grammar and spelling.
APPENDIX I

LATERAL ABDOMINAL RADIOGRAPHIC TECHNIQUE

Goal: To produce a diagnostic lateral abdominal radiograph.

Description: The student will position the animal in right lateral recumbency such that a lateral abdominal radiograph of diagnostic quality can be produced.

Criteria: The student followed standard safety procedures as defined in the textbook.

The student positioned the animal in right lateral recumbency.

If multiple sizes of cassettes are available, the student selected a size of cassette appropriate for the size of the animal to be radiographed.

If multiple sizes are not available, the student appropriately collimated the primary beam to include only the landmarks for abdominal radiographs as defined in the textbook.

The student extended the rear limbs caudally so that the femur is not superimposed over the caudal abdominal cavity on the radiograph.

The student had the animal positioned so that the sternum and dorsal spinous processes are in a plane parallel to the table, and the wings of the ilium are superimposed (the animal is not rotated).

The student placed the calipers at the highest point of the area to be radiographed.

The student accurately interpreted the caliper measurement according to manufacturer’s instructions.

The student selected the exposure factors according to the veterinary facility standard operating procedure for producing a diagnostic radiograph.

The student produced the radiograph at peak expiration.

The student produced the radiograph such that the image included the three rib spaces cranial to the xiphoid as the cranial landmark, and greater trochanter as the caudal landmark. The image should include entire abdomen.

The student used the standard operating procedure exposure technique to visualize the soft tissue contrast.
APPENDIX I (continued)

LATERAL THORACIC RADIOGRAPHIC TECHNIQUE

Goal: To produce a diagnostic lateral radiograph of the thorax.

Description: The student will position the animal in right lateral recumbency such that a lateral radiograph of diagnostic quality can be produced.

Criteria: The student followed standard safety procedures as defined in the textbook.

The student positioned the animal in right lateral recumbency.

If multiple sizes of cassettes are available, the student selected a size of cassette appropriate for the size of the animal to be radiographed.

If multiple sizes are not available, the student appropriately collimated the primary beam to include only the landmarks for thoracic radiographs as defined in the textbook.

The student extended the front limbs cranially so that the elbow is not superimposed over the thoracic cavity on the radiograph.

The student had the head and neck in a natural position such that the neck was neither extended nor flexed.

The student had the animal positioned so that the sternum and dorsal spinous processes are in a plane parallel to the table (the animal is not rotated).

The student placed the calipers at the highest point of the area to be radiographed.

The student accurately interpreted the caliper measurement according to manufacturer’s instructions.

The student selected the exposure factors according to the veterinary facility standard operating procedure for producing a diagnostic radiograph.

The student produced the radiograph at peak inspiration.

The student produced the radiograph such that the image included the manubrium as the cranial landmark, and halfway between xiphoid and last rib as the caudal landmark. The image should include entire lung field from sternum to the thoracic spinal column.

The student used the correct exposure technique to visualize the bronchial vasculature.

No part of the lead glove or positioner appears on the radiograph.
APPENDIX II
SMALL ANIMAL DIAGNOSTIC IMAGING II

Modification of mAs Conversion Chart for X-Ray Machines without Grids

Table Top Abdomen = known value
Table Top Thorax = ½ of known value
Table Top Bone = known value + 1

Example:
Table Top Abdomen = 3.3 mAs
Table Top Thorax = 1.65 mAs
Table Top Bone = 4.3 mAs
**APPENDIX III**

**SMALL ANIMAL DIAGNOSTIC IMAGING II**

**Modification of mAs Conversion Chart for X-Ray Machines**

*Without Detail Cassettes (slow-speed)*

<table>
<thead>
<tr>
<th>Image Type</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Top Abdomen</td>
<td>known value</td>
</tr>
<tr>
<td>Grid Abdomen</td>
<td>3 X known value</td>
</tr>
<tr>
<td>Table Top Thorax</td>
<td>½ of known value</td>
</tr>
<tr>
<td>Grid Thorax</td>
<td>3 X TT Thorax</td>
</tr>
<tr>
<td>Table Top Bone</td>
<td>known value + 1</td>
</tr>
<tr>
<td>Grid Bone</td>
<td>3 X TT Bone</td>
</tr>
</tbody>
</table>

**Example:**

<table>
<thead>
<tr>
<th>Image Type</th>
<th>mAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table Top Abdomen</td>
<td>3.3 mAs</td>
</tr>
<tr>
<td>Grid Abdomen</td>
<td>9.9 mAs</td>
</tr>
<tr>
<td>Table Top Thorax</td>
<td>1.65 mAs</td>
</tr>
<tr>
<td>Grid Thorax</td>
<td>4.95 mAs</td>
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<tr>
<td>Table Top Bone</td>
<td>4.3 mAs</td>
</tr>
<tr>
<td>Grid Bone</td>
<td>12.9 mAs</td>
</tr>
</tbody>
</table>