Dental Radiographs (rads) and Standard of Care (SOC) Subcommittee

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The subcommittee is tasked with looking into making intra-oral dental radiographs a requirement in the practice of veterinary dentistry.

DEFINITIONS

Standard of Care (SOC): The term "standard of care" is a legal term rather than a medical term and is typically defined as the level and type of care that a reasonably competent and skilled health care professional, with a similar background and in the same community, would have provided under similar circumstances. The standard of care is determined by expert testimony during trial as to what a reasonable, prudent doctor would do in the same or similar circumstances. Standard of care is a moving target and is determined by common practices in the area.

Dental radiographs (rads or X-rays): intra-oral digital dental radiographs taken while animal patient is anesthetized. Does not typically refer to skull radiographs.

Pre-op labwork: No standard exists.....it depends on practice philosophy. A common practice is CBC and minichem (GLU, CRE, ALP, ALT, BUN, TP) for pets less than 8 years and a full chem if older than 8 years. Varies with species, breed, age, history.

CE: Continuing education. The California VMB requires 36 hrs/2yrs for DVMs, 1 hour of which must cover the judicious use of antibiotics. 18 hrs/2yrs are required for RVTs.

AVDC: American Veterinary Dental College

Gingivostomatitis: typically, a multifactorial condition in cats where the host's immune system responds inadequately to chronic oral antigenic stimulation of various origins. Dental-related conditions, including periodontal disease and dental resorption are chronic inflammatory processes which may play a role. However, no specific bacterium is associated with this condition.

CUPS: chronic ulcerative paradental stomatitis, typically of dogs. Stomatitis is a chronic, debilitating bacterial infection and inflammation of the oral tissues that usually begins in the periodontium (the gums and soft tissue surrounding the teeth) or the oropharyngeal area. It may occur concurrently with gingivitis or glossitis (inflammation of the tongue).

COHAT: Comprehensive Oral Health Assessment & Treatment. Often referred to as teeth cleaning, dental prophylaxis, dental, dentistry.

AVMA PLIT: American Veterinary Medical Association Professional Liability Insurance Trust. Provides liability insurance & license defense (against VMB actions) for veterinarians.

AAHA: American Animal Hospital Association. Responsible for 2013 Dental Guidelines

Informed consent: is providing -

- 1. The diagnosis or nature of the patient's ailment.
- 2. The general nature of the proposed treatment and the reason for the treatment.
- 3. The risks or dangers involved in the proposed treatment.
- 4. The probability or prospects of success.
- 5. Alternative treatments along with the risks associated with those alternatives.
- 6. The prognosis or risk if no treatment or procedure is performed.
- 7. In veterinary medicine, discussion of costs of the various alternative treatments.

when "informed consent" is offered, ALL of the options must meet the standard of care. A client cannot be offered a choice among options where one or more is substandard care.

Waiver: statement indicates that the client has been made aware of the treatment(s) or test(s) which he or she is waiving, as well as the consequences of not getting the recommended treatment(s) or test(s). At the end of this statement, the client absolves the veterinary practice from all liability associated with the lack of care given at the client's discretion.

Issues:

medical necessity not agreed upon by veterinary community

Estimated number of general practice veterinarians offering dental rads: unknown and varies by geography but nowhere anticipated to be over 30%

Can a practice be deemed SOC if the majority of DVMs don't do it?

If dental rads are required, should they be done in all cases? Whole mouth rads? Before and after extractions?

Pros:

AVDC position (SOC)

reveal pathology not otherwise recognized without dental rads

Professional liability coverage (PLIT Summer 2015) - see accompanying newsletter

Cons:

Cost to the practice owner of acquiring equipment \$10-15K Training staff & DVMs
Added time to procedure
Longer anesthesia time for pet
Added cost to pet owner
Fewer DVMs offering care?
Fewer pets presented for care?

Dental Radiographs (X-rays) in Veterinary Patients

Dental radiographs are one of the most important diagnostic tools available to a veterinary dentist. They allow the internal anatomy of the teeth, the roots and the bone that surrounds the roots to be examined.

Intra-oral radiographs are made using small radiographic films or digital sensors placed inside the patient's mouth, and provide superior quality for examination of individual teeth or sections of the jaws compared with standard-sized veterinary radiographs. Because veterinary patients will not cooperate when a radiograph or sensor is placed in the mouth, taking dental radiographs requires that the patient is anesthetized or sedated.

Your veterinarian or veterinary dental specialist will make a recommendation whether or not to take radiographs of all the teeth ("full-mouth radiographs"), based on the reason for presentation of the patient and the results of initial visual examination of the mouth. It is common for a patient referred for one specific problem to have additional oral problems – these may only become apparent if full-mouth radiographs are made. Full-mouth radiographs also establish a base-line for future comparison.

The radiation risk to the patient from taking dental radiographs is minimal. AVDC veterinary dental specialists make use of digital imaging systems when possible,

which significantly reduces the radiation exposure for the patient and veterinary staff present.

AVDC veterinary dental specialists are trained in interpreting dental radiographs and digital images, and are willing to review dental radiographs on request from general veterinary practitioners.

2013 AAHA Dental Care Guidelines for Dogs and Cats*

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ABSTRACT

Veterinary dentistry is constantly progressing. The purpose of this document is to provide guidelines for the practice of companion animal dentistry for the veterinary profession. Dental care is necessary to provide optimum health and optimize quality of life. Untreated diseases of the oral cavity are painful and can contribute to local and systemic diseases. This article includes guidelines for preventive oral health care, client communication, evaluation, dental cleaning, and treatment. In addition, materials and equipment necessary to perform a medically appropriate procedure are described. (J Am Anim Hosp Assoc 2013; 49:75–82. DOI 10.5326/JAAHA-MS-4013)

Introduction

Veterinary medical dental care is an essential component of a preventive healthcare plan. Quality dental care is necessary to provide optimum health and quality of life. If left untreated, diseases of the oral cavity are painful and can contribute to other local or systemic diseases. The purpose of this document is to provide guidelines for the practice of companion animal dentistry. A list of definitions to enhance the understanding of this article is provided in **Table 1**.

The dental health care team is obligated to practice within the scope of their respective education, training, and experience. It is imperative that the dental health care team remains current with regard to oral care, operative procedures, materials, equipment, and products. The team members must attain appropriate continuing education through courses such as those offered by the American Animal Hospital Association, the American Veterinary Medical Association, the annual Veterinary Dental Forum, industry and private facilities; by reading the Journal of Veterinary Dentistry; and by reading other appropriate journals and medical texts.^{3–7}

Facility Requirements

Dental procedures result in aerosolized bacteria and particulate matter. Using a dedicated space is recommended for non-sterile dental procedures. The dedicated dental space must be separate from the sterile surgical suite and needs to be placed in a low-traffic area. New practices and those planning on remodeling should incorporate a separate dental suite into the blueprint.

Appropriate ventilation and anesthetic scavenging systems must also be used. Low-heat, high-intensity lighting, and equipment for magnifying the target area are required to adequately and safely visualize the oral cavity and its structures. The operating table must allow for drainage and be constructed of impervious, cleanable material.

Materials, Instruments, and Equipment

As with dental techniques, it is important to keep the dental materials up-to-date and veterinarians must be aware of what

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*This document is intended as a guideline only. Evidence-based support for specific recommendations has been cited whenever possible and appropriate. Other recommendations are based on practical clinical experience and a consensus of expert opinion. Further research is needed to document some of these recommendations. Because each case is different, veterinarians must base their decisions and actions on the best available scientific evidence, in conjunction with their own expertise, knowledge, and experience. These guidelines are supported by generous educational grants from Hill's Pet Nutrition, Merial, Ltd., Virbac Animal Health, and PDx BioTech, and are endorsed by the American Veterinary Dental College.

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TABLE 1Definitions that Pertain to Dental Guidelines*

| Term | Definition |
|------------------------|---|
| Dental chart | A written and graphical representation of the mouth, with adequate space to indicate pathology and procedures (see Table 5 for included items) |
| Dental prophylaxis | A procedure performed on a healthy mouth that includes oral hygiene care, a complete oral examination, and techniques to prevent disease and to remove plaque and calculus from the teeth above and beneath the gum line before periodontitis has developed |
| Dentistry | The evaluation, diagnosis, prevention, and/or treatment of abnormalities in the oral cavity, maxillofacial area, and/or associated structures. Nonsurgical, surgical, or related procedures may be included |
| Endodontics | The treatment and therapy of diseases of the pulp canal system |
| Exodontia (extraction) | A surgical procedure performed to remove a tooth |
| Gingivitis | Inflammation of the gingiva without loss of the supporting structure(s) shown with X-ray |
| Oral surgery | The surgical invasion and manipulation of hard and soft tissue to improve/restore oral health and comfort |
| Orthodontics | The evaluation and treatment of malpositioned teeth for the purposes of improving occlusion and patient comfort and enhancing the quality of life |
| Periodontal disease | A disease process that begins with gingivitis and progresses to periodontitis when left untreated |
| Periodontitis | A destructive process involving the loss of supportive structures of the teeth, including the periodontium, gingiva, periodontal ligament, cementum, and/or alveolar bone |
| Periodontal surgery | The surgical treatment of periodontal disease. This is indicated for patients with pockets $>$ 5 mm, class II or III furcation exposure, or inaccessible areas |
| Periodontal therapy | Treatment of tooth-supporting structures where periodontal disease exists. This involves the nonsurgical removal of plaque, calculus, and debris in pockets; and the local application of antimicrobials |
| Periodontium | The supporting structures of the teeth, including the periodontal ligament, gingiva, cementum, and alveolar and supporting bone |
| Pocket | A pathologic space between supporting structures and the tooth, extending apically from the normal site of the gingival epithelial attachment |

^{*}Some of these definitions were derived from descriptions in Holmstrom et al. (2004).³

materials are considered appropriate for the treatment of dental conditions. Commonly used materials can be found by consulting a dental text and attending continuing education programs presented by a dental specialist.

Instruments and dental equipment require routine and frequent maintenance. Maintenance information can be found in some dental texts and through the manufacturer. Instruments must be sharp and properly stored, and instruments in poor condition need to be replaced. A written protocol needs to be established and followed for equipment and instrument care.

As with human dentistry, instruments that enter the oral cavity should be sterilized. Packets organized by dental procedure (e.g., examination, extraction, periodontal surgery) should be prepared and sterilized before use.

Recommended materials, instruments, and equipment for performing dental procedures are listed in **Tables 2** and **3**. Consult the reference list associated with these guidelines for recommendations and information on ordering equipment.^{3–7}

Operator Protection

Pathogens and debris such as calculus, tooth fragments, and prophy paste are aerosolized during dental procedures. Irrigating the oral cavity with a 0.12% chlorhexidine solution before dental scaling decreases bacterial aerosolization.⁸

The safety of the operator must be ensured during dental procedures by using radiographic, oral, respiratory, skin, eye, and ear protective devices (**Table 4**). Ergonomic considerations include proper seating, fatigue mats for standing, and proper positioning of both the patient and materials to minimize immediate and chronic operator injuries. Provide the operator with instruction on proper instrument handling techniques.

Patient Assessment

History and Physical Examination

The history must include prior home dental hygiene delivered by the client; diet; access to treats and chews; chewing habits; current and previous dental care and procedures; prior and current diseases, including any behavioral issues and allergies; and medications or supplements currently administered. Perform a physical examination of all body systems based on the species, age, health status, and temperament of the animal. If the patient is presented for a complaint not related to dentistry, give due consideration to the primary complaint, performing the diagnostic tests and treatments indicated. Establish priorities if multiple procedures are indicated.

Assessment by Life Stage

Focus on age-related dental conditions and common abnormalities in the dog and cat. From birth to 9 mo of age, evaluate the patient

TABLE 2

Materials Needed for the Practice of Veterinary Dentistry*

Necessary materials

- Antiseptic rinse
- Prophy paste/pumice
- · Prophy angle and cups
- · Hemostatic agents
- Sealant
- Needles and syringes
- · Intraoral digital system or radiographic film
- Measures to prevent hypothermia (e.g., conductive blanket, hot air blanket, circulating water blanket, towels, blankets)
- Gauze and sponges
- · Antimicrobial agent for local application
- Suture material (4-0 and smaller)
- · Bone augmentation material
- · Local anesthetic drugs

Necessary equipment

- Equipment to expose and process intraoral digital radiograph system or intraoral films
- Suction
- · A high- and low-speed delivery system for air and water
- · Fiber optic light source
- · Equipment for sterilizing instruments
- · Low- and high-speed hand pieces (minimum two of each)
- · Various sizes of round/diamond and cross cut fissure burrs
- Powered scaler with tips for gross and subgingival scaling (ultrasonic, subsonic, or piezoelectric)
- Head or eye loupes for magnification

for problems related to the deciduous teeth, missing or extra teeth, swellings, juvenile diseases (such as feline juvenile onset periodontitis), occlusion, and oral development. From 5 mo to 2 yr of age, evaluate the patient for problems related to developmental anomalies, permanent dentition, and the accumulation of plaque and calculus. Periodontal diseases may begin during that time period, especially in cats and small-breed dogs. The onset and severity of periodontal diseases varies widely depending on breed,

TABLE 3

Instruments to Include in the Dental Surgical Pack*

- Scalers
- Curettes
- Probes/explorer
- Sharpening materials
- Scalpel
- Extraction equipment (e.g., periosteal elevators, luxating elevators, periodontal elevators, extraction forceps, root tip picks, root tip forceps)
- Thumb forceps
- Hemostats
- Iris, LaGrange, Mayo, or Metzenbaum scissors
- Needle holders
- · Mouth mirror
- · Retraction aid (e.g., University of Minnesota retractor)

TABLE 4

Minimum Protective Devices to be used During Dental Procedures

- · Cap or hair bonnet
- Mask
- · Goggles, surgical spectacles, or face shield
- Smock
- Gloves
- Earplugs
- Dosimeter
- Protection from radiation (e.g., lead shield)

diet, and home dental care. In a small-breed dog without home dental care, periodontal diseases can start as early as 9 mo of age. In a large-breed dog, periodontal diseases may not start until later. Many small-breed dogs have periodontal diseases by 3 yr of age. 9-12 Beyond 2 yr of age, evaluate the progression of periodontal diseases, damage to tooth structures, occurrence of oral masses, and the existence and adequacy of preventive home dental care. As the animal ages, continue to evaluate the patient for progressive periodontal diseases, oral tumors, and other aspects of dental pathology.¹³

Oral/Dental Examination in the Conscious Patient

Record all findings in the medical record (Table 5). Evaluate the head and oral cavity both visually and by palpation. Changes in body weight, eating habits, or other behaviors can indicate dental disease. Specific abnormal signs to look for may include pain; halitosis; drooling; dysphagia; asymmetry; tooth resorption; discolored, fractured, mobile, missing, or extra teeth; inflammation and bleeding; loss of gingiva and bone; and changes in the range of motion or pain in the temporomandibular joint. In addition, the practitioner should assess the patient's occlusion to ensure it is normal, or at least atraumatic. Evaluate the patient's eyes, lymph nodes, nose, lips, teeth, mucous membranes, gingiva, vestibule (i.e., the area between the gum tissue and cheeks), palatal and lingual surfaces of the mouth, dorsal and ventral aspects of the tongue, tonsils, and salivary glands and ducts. Note all abnormalities such as oral tumors, ulcers, or wounds. A diagnostic test strip for the measurement of dissolved thiol levels can be used as an exam room indicator of gingival health and periodontal status.¹⁴

The oral examination performed on a conscious patient allows the practitioner to design a preliminary diagnostic plan. Take into consideration potential patient pain. Do not offend the patient by probing unnecessarily when such manipulations can be better achieved under anesthesia. Also, realize in many instances that the examiner will underestimate the conditions present because it is impossible to visualize all oral structures

^{*}Please note that disposable items are for single use only.

^{*}Instruments must be sterilized by accepted techniques prior to each use. Hand instruments must by properly sharpened and cared for.

TABLE 5

Items to Include in the Dental Chart and/or Medical Record

- Signalment
- · Physical examination, medical, and dental history findings
- Oral examination findings
- · Anesthesia and surgery monitoring log and surgical findings
- · Any dental, oral, or other disease(s) currently present in the animal
- · Abnormal probing depths (described for each affected tooth)
- Dentition chart with specific abnormalities noted, such as discoloration; worn areas; missing, malpositioned, or fractured teeth; supernumerary, tooth resorption; and soft-tissue masses
- Current and future treatment plan, addressing all abnormalities found. This
 includes information regarding initial decisions, decision-making
 algorithm, and changes based on subsequent findings
- · Recommendations for home dental care
- · Any recommendations declined by the client
- · Prognosis

when the patient is awake. It is only when the patient has been anesthetized that a complete and thorough oral evaluation can be accomplished successfully. The complete examination includes a tooth-by-tooth visual examination, probing, and radiographic examination. Only then can a precise treatment plan and fees for proposed services be tabulated and discussed with the pet owner(s).

Making Recommendations and Client Education

Discuss the findings of the initial examination and additional diagnostic and/or therapeutic plans with the client. Those plans will vary depending on the patient; the initial findings; the client's ability to proceed with the recommendations; as well as the client's ability to provide necessary, lifelong plaque prevention.

When either an anesthetic examination or procedure is not planned in a healthy patient, discuss preventive healthcare, oral health, and home oral hygiene. Options include brushing and the use of dentifrices, oral rinses, gels and sprays, water additives, and dental diets and chews. Discourage any dental chew or device that does not bend or break easily (e.g., bones, cow/horse hooves, antlers, hard nylon products). The Veterinary Oral Health Council lists products that meet its preset standard for the retardation of plaque and calculus accumulation. Is Illustrate to the owner how to perform oral hygiene, such as brushing, wiping teeth, application of teeth-coating materials, and the use of oral rinses and gels. Allow the client to practice so they will be able to perform the agreed-upon procedure(s) at home.

All home oral hygiene options, from diet to the gold standard of brushing, along with any of their potential limitations need to be discussed with the client. It is essential that the oral health medical plan is patient-individualized to attain the greatest level of client compliance. For example, "dental" diets and chews can be used until the client is comfortable either brushing or applying an antiplaque gel, rinse, or spray with a wipe. The gold standard is brushing the pet's teeth using a brush with soft bristles either once or twice daily. If the client is either unable or unwilling to persevere with brushing, use any of the other oral hygiene options that the patient will tolerate.

Explain the two-part process involved in a diagnostic dental cleaning and patient evaluation to the client. It is critical that he/she understand the hospital protocol to minimize miscommunication and frustration. The procedure involves both an awake component and an anesthetized component for a complete evaluation. It is not until the oral radiographs have been evaluated that a full treatment plan including costs of the anticipated procedure(s) can be successfully made with any degree of accuracy.

Evaluation of a patient for dental disease involves the awake procedure as the first step. This is where an initial assessment is made. Although many problems may be seen at this point of the evaluation, a thorough diagnosis and treatment plan cannot be determined until charting, tooth-by-tooth examination of the anesthetized patient, and dental radiographs have been taken and evaluated. Studies have demonstrated that much of the pathology in a patient's oral cavity cannot be appreciated until dental radiographs are taken and assessed; therefore, have protocols in place within the practice to give clients ample time to make an informed decision on how they want to proceed with the proposed treatment plan.¹⁶

Some hospitals may want to do the awake examination and the anesthetic component (charting, cleaning, and dental radiographs) as the first procedure. They can then stage the treatment plan as a second procedure. This will give the hospital staff adequate time to explain to the client the treatment plan, including giving educational information on the diagnosis, reviewing radiographic findings, and going over costs. Other hospitals may want to perform the treatment plan during the first anesthetic event so everything is done at that procedure. Whichever way the hospital chooses, there must be a client communication plan in place so the client is involved and feels comfortable going forward with the proposed treatment plan.

Perform the anesthetized portion of the dental evaluation of charting, cleaning, and radiographs when abnormalities are seen on the awake exam (such plaque or tartar at the free gingival surface of the maxillary canines or fourth premolars) or at least on an annual basis starting at 1 yr of age for cats and small- to medium-breed dogs and at 2 yr of age for large-breed dogs. Details on the recommended frequency of examinations are discussed under Progress or Follow-Up Evaluation (below).

Planning the Dental Cleaning and Patient Evaluation

Use well-monitored, inhalation anesthesia with cuffed intubation when performing dental cleanings. Such techniques increase safety, reduce stress, decrease the chances of adverse sequelae (e.g., inhalation pneumonia), and are essential for thorough and efficient evaluation and treatment of the patient. Attempting to perform procedures on an awake patient that is struggling, under sedation, or injectable anesthesia reduces the ability to make an accurate diagnosis, does not allow adequate treatment, and increases stress and risks to the patient.

Prior to Anesthesia

Preoperative evaluation includes a preanesthetic physical examination. It is crucial to follow the most up-to-date recommendations for preoperative laboratory testing based on the patient's life stage and any existing disease. Preoperative care includes IV catheterization to facilitate administration of IV fluid therapy, preemptive pain management, and antibiotics (when indicated). Review the most up-to-date guidelines on anesthesia, antimicrobial use, fluid therapy, feline life stage, canine life stage, preventive healthcare, pain management, and referral for specific recommendations. 17-25

Anesthesia

General anesthesia with intubation is necessary to properly assess and treat the companion animal dental patient. It is essential that aspiration of water and debris by the patient is prevented through endotracheal intubation. Cleaning a companion animal's teeth without general anesthesia is considered unacceptable and below the standard of care. Techniques such as necessary immobilization without discomfort, periodontal probing, intraoral radiology, and the removal of plaque and tartar above and below the gum line that ensure patient health and safety cannot be achieved without general anesthesia.²⁶

During anesthesia, one trained person is dedicated to continuously monitoring and recording vital parameters, such as body temperature, heart rate and rhythm, respiration, oxygen saturation via pulse oximetry, systemic blood pressure, and end-tidal ${\rm CO}_2$ levels q 5 min (or more frequently if sudden changes are noted). ^{27,28} IV fluid therapy is essential for circulatory maintenance. Customize the type and rate of fluids administered according to the patient's needs. ^{29,30}

Prevention of hypothermia with warming devices is essential because the patient may become wet, and dental procedures can be lengthy. 31,32 Additionally, suction and packing the caudal oral cavity with gauze can prevent aspiration and decrease hypothermia. If packing materials are used, steps must be taken to ensure there is no chance of the material being left behind following

extubation. Regardless of whether packing is used, the last step prior to extubation is an examination of the caudal oral cavity to make certain no foreign material is left behind. Proper positioning of the patient by placing them in lateral recumbency can also help prevent aspiration. Provide safe immobilization of the head.

If oral surgery is planned, the institution of an intraoral local anesthetic is warranted in conjunction with the general anesthesia. This decreases the amount of general anesthetic needed and reduces the amount of systemic pain medication required post-operatively. 1,27,33 Local anesthetic blocks can last up to 8 hr, and they decrease hypotension and hypoventilation caused with inhalant anesthetics by reducing the amount of gas needed to maintain a safe anesthetic plane. 3,6,34,35

Dental Procedures

The terms prophy, prophylaxis, and dental are often misused in veterinary medicine. A professional dental cleaning is performed on a patient with plaque and calculus adhered to some of the teeth, but otherwise has an essentially healthy mouth or mild gingivitis only. The intent of dental cleaning is to prevent periodontitis. Patients with existing disease undergo periodontal therapy in addition to professional dental cleaning. Dental procedures must be performed by a licensed veterinarian, a credentialed technician, or a trained veterinary assistant under the supervision of a veterinarian in accordance with state or provincial practice acts. Practice acts vary from jurisdiction to jurisdiction, and the veterinarian must be familiar with those laws. Surgical extractions are to be performed only by trained, licensed veterinarians. All extractions need to have postextraction, intraoral radiographs. All dental procedures need to be described properly (Table 1), and a consistent method should be used to record findings in the medical record (Table 5).

Positioning and safety of the patient is important. Manually stabilize the head and neck when forces are being applied in the mouth. Avoid using mouth gags because they can cause myalgia, neuralgia, and/or trauma to the temporomandibular joint. If a mouth gag is necessary, do not fully open the mouth or overextend the temporomandibular joint. Never use spring-loaded mouth gags. Do not overinflate the endotracheal tube. Always disconnect the endotracheal tube when repositioning the patient to prevent trauma to the trachea.

Essential Steps for Professional Dental Cleaning

The essential steps for a professional dental cleaning and periodontal therapy are described in the following list:

1. Perform an oral evaluation, as described above, for the conscious patient.

- 2. Radiograph the entire mouth, using either intraoral or digital radiographic systems. Radiographs are necessary for accurate evaluation and diagnosis. In one published report, intraoral radiographs revealed clinically important pathology in 27.8% of dogs and 41.7% of cats when no abnormal findings were noted on the initial examination. In patients with abnormal findings, radiography revealed additional pathology in 50% of dogs and 53.9% of cats. Standard views of the skull are inadequate when evaluating dental pathology. If full mouth films are not taken, the client must be informed that they were not done.
- 3. Scale the teeth supra- and, most importantly, subgingivally using either a hand scaler or appropriate powered device followed by a hand instrument (i.e., scaler, curette). Do not use a rotary scaler, which excessively roughens the tooth enamel.³⁶
- 4. Polish the teeth using a low-speed hand piece running at no more than 300 revolutions/min with prophy paste that is measured and loaded on a disposable prophy cup for each patient (to avoid cross-contamination).
- 5. Perform subgingival irrigation to remove debris and polishing paste and to inspect the crown and subgingival areas.
- 6. Apply antiplaque substances, such as sealants.
- 7. Provide instructions to the owner regarding home oral hygiene.

Additional Steps for Periodontal Therapy and Other Conditions

- 8. Evaluate the patient for abnormal periodontal pocket depths using a periodontal probe. The depth that is considered abnormal varies depending on the tooth and size of the dog or cat. 3,4,6,37 In medium-sized dogs, the probing depth should not be > 2 mm, and in the mid-sized cats, the depth should not be > 1 mm.
- 9. Perform periodontal therapy (Table 1) based on radiographic findings and probing.^{38–40}
- 10. Administer perioperative antibiotics when indicated, either parenterally or locally. 41,42
- 11. Perform periodontal surgery to remove deep debris, eliminate pockets, and/or extract teeth. When either pockets or gingival recession is > 50% of the root support, extraction or periodontal surgery is indicated and should be performed by trained veterinarians or referred to a specialist.
- 12. Biopsy all abnormal masses that are visualized grossly or noted on radiographs. Submit all samples for histopathology to be analyzed by a pathologist qualified in oral tissues analysis.⁴³

- 13. Take postoperative radiographs to evaluate the treatment applied. This is especially important in extraction cases.
- 14. Examine and rinse the oral cavity. Remove any packing or foreign debris.
- 15. Recommend referral to a specialist when the primary veterinary practitioner does not have the skills, knowledge, equipment, or facilities to perform a specific procedure or treatment.

Postoperative Management

Maintain an open airway via intubation until the animal is either swallowing or in sternal recumbency. Maintain body temperature and continue IV fluid support as needed. Continuously monitor and record vital signs until the patient is awake. Assess and record pain scores throughout the recovery period, continuing pain management while the pet is in the hospital and upon discharge.^{34,44}

Client Education and Follow-up Postoperative Communication

Client communication is fundamental to the maintenance of oral health. At the time of discharge, discuss all operative procedures and existing/potential complications (e.g., sedation, vocalization, bleeding, coughing, dehiscence, infection, neurologic signs, halitosis, vomiting, diarrhea, anorexia, signs of pain). Discuss immediate postoperative home oral hygiene, including medications and their side effects. Provide antibiotics and medication for inflammation and pain as indicated. Discuss any change in diet that might be necessary, such as a change to either soft or premoistened food or to a prescription dental diet. Also indicate the

duration of those changes. Provide individualized oral and written

instructions at the time of discharge. Establish an appointment for

a follow-up examination and further discussion.

Home Oral Hygiene

Home oral hygiene is vital for disease control. Telephone the client the day after the procedure to inquire about the pet's condition, to determine the client's ability to implement the medication and home oral hygiene plan, to answer questions, and address any concerns the client might have. The home oral hygiene plan includes the frequency, duration, and method of rinsing and brushing; applying sealants; and the use of dental diets and dental chews. The Veterinary Oral Health Council has a list of products that are reportedly effective in retarding the accumulation of dental plaque and/or calculus. Some of the details regarding the home oral hygiene plan might best be left for discussion with the client at the first postoperative follow-up evaluation.

Progress or Follow-up Evaluation

With each follow-up examination and telephone communication, repeat the home dental care instructions and recommendations to the client. Set the number and timing of regular follow-up visits based on the disease severity. Although few studies have been performed in dogs and cats, extrapolation from the human literature and guidelines about aging in dogs and cats leads to the following recommendations:¹⁴

- Dental health care needs to be part of the preventive healthcare examination discussion and should begin at the first appointment at which the patient is seen and continue routinely throughout subsequent exams.
- Examinations *q* 6 mo can help ensure optimal home oral hygiene. At a minimum, evaluate animals with a healthy mouth at least *q* 12 mo.
- Evaluate pets with gingivitis at least q 6 mo.
- Evaluate pets with periodontitis at least q 3–6 mo.
- Advanced periodontal disease requires examinations q 1 mo until the disease is controlled.

Evaluate disease status, such as periodontal disease, on the conscious patient with products that allow an assessment of periodontal health without placing the patient under anesthesia. ¹⁴ During subsequent examinations, evaluate client compliance, revise the treatment plan as needed, and redefine the prognosis.

Nutrition

Nutrition plays an important role in oral health; therefore, it is important for the healthcare team to have an understanding of the impact of nutrition on their patients. A properly balanced diet is essential for good general health, including health of oral tissues. For good oral health, it is the form of the diet, not the nutritional content, that is critical for good oral health. A diet that provides mechanical cleansing of the teeth is an excellent way of retarding the accumulation of dental plaque and calculus. Dental diets and chews can be very effective if the owner is unable to brush the teeth. Dental diets work either by "brushing" the crowns of the teeth as the animal chews or by coating an anticalculus agent on the surface of the teeth. Nutrition becomes even more critical in dental health when the client is unable to provide home oral hygiene by brushing.⁴⁷ During subsequent examinations, evaluate client compliance, revise the treatment plan as needed, and redefine the prognosis.

Conclusion

Pets can live more comfortable lives if oral health care is managed and maintained. All members of the veterinary team must strive to increase the quality of dental care delivered. Clients must be given options for the optimal care and treatment available for their pets. Dentistry is becoming more specialized, and referral to a veterinary dental specialist or a general practitioner with advanced training and proper equipment is recommended if the necessary expertise and/or equipment are unavailable at the primary veterinarian's office.

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AVMA | PLIT

Protecting you through it all

professional liability

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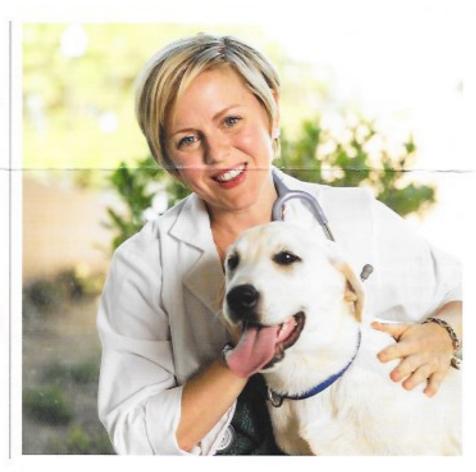
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Enhanced Services and Value for You

The PLIT unveiled two new features during the AVMA Annual Convention in Boston for the 2016 policy year to make

it easier for you to pay for your professional liability coverage and to protect you better. You will be able to choose to pay the premium monthly through an automated fund transfer, and you'll be able to select a higher-limit option of \$100,000 for veterinary license defense coverage.

"We want to ensure that AVMA members can always secure the professional liability coverage they need, so we added a new monthly payment option. Veterinarians will be able to pay their premium in twelve installments, with no extra fees," says Janet Donlin, DVM, AVMA PLIT CEO. "We've also closely monitored the veterinary license defense claim trends, and decided it would be prudent to add a higher-limit option to make sure our policyholders are completely protected. We are always looking ahead to provide value and to protect veterinarians through it all."



Monthly Payment Option for Your Professional Liability Premium (available January 1)

- Automated electronic fund transfer in twelve equal payments
- · No extra fees to take advantage of this option

Higher Veterinary License Defense Limit Option (available January 1)

- New limit option of \$100,000 for a \$112 annual premium
- Doubles coverage from plan 2 for only \$13 more per year
- License defense claims are increasing, and the legal fees to respond to a complaint can be costly

And make sure you check out the recent enhancements to avmaplit.com, which were made to leverage technology and to strengthen the professional liability user experience; 24/7 you can:

- · Review coverage options and make policy changes
- · Submit payments
- Report claims (upload medical records and photos)
- Link your practice manager to your account (to make payments and manage policy needs)

The AVMA PLIT is protecting veterinarians through it all.

In this issue of *Professional Liability*, we'll look at three closed claims with older, small-breed dogs that sustained jaw fractures during dental procedures.

Following the claims, you can read about dental trends from the perspective of a board certified veterinary dentist including how to reduce the likelihood of malpractice allegations related to iatrogenic jaw fractures.

Closed Claims

Lawsuits may take years and thousands of dollars to resolve. Please also note that each claim is evaluated on its individual merit and circumstances.

During Ninth Tooth Extraction, Dog's Mandible Fractures

Dr. A was presented an eleven-year-old toy-breed dog. An exam revealed periodontal disease and weight loss. Dr. A took bloodwork, prescribed antibiotics, and scheduled dental surgery for the next day.

During surgery, Dr. A extracted eight teeth. On the ninth tooth—a lower left molar—the dog's mandible fractured. Dr. A referred the dog to a dental specialist, who finished extracting the diseased teeth along with several retained roots and then applied a splint to stabilize the fracture. The dog recovered. The owner alleged that Dr. A was negligent and demanded reimbursement for the medical expenses incurred to repair the fracture.

Dr. A reported the claim to the PLIT office. During the claim review, it was discovered that Dr. A did not discuss the inherent risks of the surgery (like a jaw fracture) and did not recommend radiographs to check for pre-existing pathology. Both the insurance carrier and Dr. A agreed that the standard of care would be difficult to defend, and

Dr. A consented to settle the case. Dr. A's insurance carrier negotiated a settlement and paid the owner nearly \$4,400 for treatment and follow-up care with the dental specialist.

Two Dental Surgeries, Eight Retained Roots, One Jaw Fracture

Dr. B was presented with a ten-year-old toy-breed dog for a dental procedure. Dr. B extracted five teeth. No radiographs were taken pre- or post-surgery. Sixteen months later, Dr. B was presented with the dog for mouth pain and loose teeth. Dr. B performed dental surgery and extracted seven more teeth. Post-surgery, the dog's mandible felt unstable. Standard radiographs revealed a fracture. Dr. B called the owner and referred the dog to a dental specialist.

Dental radiographs from the specialist revealed a transverse fracture of the right mandible and eight retained roots from the diseased teeth that Dr. B had extracted during both dentals. The specialist repaired the fracture and removed the retained roots. The specialist treated the dog over the course of two months, and the dog recovered.

The owner hired an attorney and alleged that Dr. B was negligent during both dental procedures for failing to remove multiple roots, and that Dr. B was responsible for the fracture.

Dr. B reported the claim to the PLIT office and consented to settle the case. After a claim investigation, the insurance carrier agreed that the standard of care would be difficult to defend and negotiated a settlement with the owner. The insurance carrier paid the owner more than \$3,000 for the medical expenses incurred at the specialty clinic, and the case closed.

Dog's Mandible Fractures During Extraction

Dr. C was presented with a six-year-old small-breed dog with severe periodontal disease for a dental procedure. Several loose teeth were extracted without complication. During extraction of the first mandibular premolar, the dog's jaw fractured. Dr. C referred the dog to a specialty hospital for repair. Intraoral radiographs showed significant mandibular bone loss, which had predisposed the dog to the fracture.

Dr. C reported the claim to the PLIT office. During the claim review with the PLIT program's insurance carrier, Dr. C stated that the risks of anesthesia and surgery were discussed with the owner; however, Dr. C did not recommend pre-surgical intraoral radiographs because the practice lacked the equipment. The insurance carrier opined that the case would be difficult to defend because Dr. C did not discuss intraoral radiology and the potential risks of skipping radiographs, especially in a case of severe periodontal disease. Dr. C agreed with the liability assessment and consented to settle the case.

Dr. C's insurance carrier negotiated a settlement and paid the owner nearly \$10,000 for two surgeries at the specialty clinic to repair the fracture.

Policy Features Key to the Drs. A, B, and C Claims

The insurance company uses claim adjusters experienced in veterinary malpractice.

Trust Veterinarians review every malpractice allegation submitted to the PLIT. And, you can call the PLIT and discuss your claim with a Trust Veterinarian. No other program offers this support and peace of mind.

Increased Number of latrogenic Jaw Fractures Seen by

Board Certified Veterinary Dentist Dr. Sharon Hoffman

Adverse events happen, like the claims for Drs. A, B, and C. When they happen with increasing frequency, something has gone awry. Within one month, Sharon Hoffman, DVM, DAVDC, treated three patients from three different practices on referral for iatrogenic jaw fractures (these cases are separate from our newsletter closed claims). All were small breed dogs that had a mandible, or two, fractured during a molar extraction. All three dogs had the extractions performed without preoperative dental radiographs. Why? The practices lacked dental radiography capabilities.

In two cases, the mandible was fractured during extraction of the first molar. In another case, multiple extractions resulted in bilateral mandibular fractures. A common finding after taking intraoral radiographs of the intact mandible is that the roots of the first molar are within the ventral cortex. This is a precarious situation and requires advanced skills and technique to extract such a tooth without causing an iatrogenic mandibular fracture. Completing dental extraction wet lab training to improve skills will not help the practitioner if preoperative

radiographs are not taken. Anatomy and pathology must be identified prior to surgery.

According to Dr. Hoffman, there are two important issues to consider with these complications: 1) How can these complications be prevented and 2) What response to the complication is appropriate for the veterinarian and the patient?

Preventing the complication of latrogenic mandibular fractures during extractions begins with dental radiography. Without seeing the anatomy of the tooth roots and the mandibular bone, surgery should not be attempted. Advanced periodontal disease contributes to bone loss and increases risk of latrogenic trauma. Periodontal disease cannot be staged by looking at the amount of calculus on teeth, nor can it be staged reliably by the amount of gingival recession. A pet could have clean teeth and no gingival recession and have advanced periodontal disease (>50% radiographic bone loss).

Continued on avide a

Three steps recommended by Dr. Hoffman for dental radiography—a practice builder and complication preventer:

- Step 1 Purchase dental radiography equipment.
- Step 2 Learn how to use the equipment. This involves a short learning curve in a hands-on training session. Opportunities abound for this training (www.avdc.org).
- Step 3 Learn to interpret the radiographs. This step takes the longest, but there is help for everyone on this part of the learning curve. Online veterinary dental radiography evaluations are offered at Vetdentalrad.com. STAT readings are available.

Dr. Hoffman also notes that it is important to include a veterinary dental specialist as part of the primary care veterinary team in providing oral health care. And if a jaw fracture occurs during extractions, an appropriate response is to refer the pet owner to a Board Certified Veterinary Dentist. You can locate a specialist at www.avdc.org.

To reduce the likelihood of malpractice allegations related to iatrogenic jaw fractures, consider adding radiography capabilities at your practice and including a veterinary dental specialist on your oral health care team.

Reporting Dental Claims

If an adverse event such as a jaw fracture occurs during extractions, contact the PLIT immediately to report the potential claim (avmaplit.com/claim or 800-228-7548 option 2). Jaw fractures and retained tooth roots are some of the more common dental claims reported, and you can avoid both scenarios with dental radiography.

Your professional liability policy will respond when an adverse event occurs related to the treatment of animals. And, reporting a claim will not affect your eligibility or individual premium costs.

Calendar of Events

The AVMA PLIT is scheduled to attend more than twentyfive national and regional veterinary conventions in 2015. Did you know that you can call the PLIT office in advance to schedule an appointment during any of these events? The PLIT Trust Veterinarians and insurance professionals from HUB International (PLIT's broker) welcome your questions.

Need business insurance? You'll receive a \$20 Amazon. com gift card when you stop at the PLIT booth and submit an application for business insurance coverage. And, you'll receive a second \$20 gift card if you bring a copy of your current business owner's policy (property/general liability) for a coverage evaluation.

Veterinary Hospital Managers Association, Philadelphia Pennsylvania, September 9-12

Practice managers responsible for securing business and malpractice insurance can meet with Mike Lockwood.

AABP Annual Conference, New Orleans, Louisiana, September 17-19

Stop at booth 401 and visit with Dr. Nina Mouledous and William Sundwall. Bring your questions about malpractice and business insurance for large animal practitioners.

International Veterinary Emergency and Critical Care Symposium, Washington DC, September 18-22

Visit the PLIT booth and ask Dr. Linda Ellis and Renae Boeke about the coverages available for emergency clinics and practitioners.

Southwest Veterinary Symposium, Fort Worth, Texas, September 24-27

Stop at the PLIT booth to visit with Dr. Karen Wernette and Tim Kramer

New England Veterinary Conference, Portland, Maine, September 24-27

Dr. Linda Ellis will present "Practice Tips to Avoid Malpractice and Board Complaints" on September 26. Also stop at the PLIT booth and visit with Dr. Ellis and Melissa Villegas with your insurance questions.

Additional 2015 conventions will include CVC San Diego and AAEP.

*for active policies not placed through the PLIT program or HUB International

For a coverage comparison and quote, call 800-228-7548 or visit avmaplit.com/quote.

