



2013 AAHA Dental Care Guidelines for Dogs and Cats



IMPLEMENTATION TOOLKIT





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Veterinary practice guidelines, such as the recently revised and updated *2013 AAHA Dental Care Guidelines for Dogs and Cats*, help ensure pets get the best possible care. From medical director to veterinary assistant, guidelines keep your hospital staff on the cutting edge of veterinary medicine.

As an essential component of a preventive health care plan, quality dental care is necessary to provide optimum health and quality of life. Untreated diseases of the oral cavity are painful and can contribute to local and systemic diseases. The *2013 AAHA Dental Care Guidelines for Dogs and Cats* is the most complete and medically sound compilation of updates, insights, advice and recommendations ever developed for helping you to ensure that all pets receive regular, appropriate dental care.

AAHA guidelines review the latest information to help staff address central issues and perform essential tasks to improve the health of the pet. In addition, guidelines define the role of each staff member, so everyone on the health care team can work together to offer the highest quality medical care.

Guidelines are just that—a guide established by experts in a particular area of veterinary medicine. Guidelines do not outweigh the veterinarian's clinical judgment; instead, they help veterinarians develop and carry out treatment plans that meet each patient's needs and circumstances.

Aligning your practice's protocols with guideline recommendations is a key step to ensuring your practice continues to deliver high-quality care.

To support your dedicated efforts, AAHA is pleased to offer this toolkit. Here, you'll find facts, figures, highlights, tips, client handouts and other tools you can use every day to implement the recommendations of the *2013 AAHA Dental Care Guidelines for Dogs and Cats*.

Thank you for helping to advance our shared mission to deliver the best in companion animal medical care. Together, we can make a difference!



Michael T. Cavanaugh, DVM

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AAHA Executive Director and CEO

At-a-Glance Summary



- Veterinary medical dental care is an essential component of a preventive health care plan.
- It is imperative that the dental health care team remains current in regard to oral care, operative procedures, materials, equipment and products. Team members must obtain appropriate dental continuing education.
- Dental procedures must be performed by a licensed veterinarian, a credentialed veterinary technician or a trained veterinary assistant under the supervision of a veterinarian in accordance with state or provincial practice acts.
- General anesthesia with intubation is necessary to properly assess and treat the companion animal dental patient. Cleaning without general anesthesia is considered unacceptable and below the standard of care.
- If left untreated, diseases of the oral cavity are painful and can contribute to other local or systemic diseases.
- Dental procedures result in aerosolized bacteria and particulate matter. A dedicated dental space is recommended for nonsterile dental procedures. This dedicated space should be in a low-traffic area *away* from the sterile surgical suite.
- The safety of staff members performing dental procedures must be ensured by using oral, respiratory, skin, eye and ear protective devices to protect against pathogens and debris that are aerosolized during the procedure, along with appropriate measures of protection against radiation.
- Irrigating the oral cavity with a 0.12% chlorhexidine solution before dental scaling decreases bacterial aerosolization.
- Instruments and dental equipment require routine and frequent maintenance. Instruments must be sharp and properly stored. A written protocol needs to be established for equipment and instrument care.
- An oral exam performed on a conscious patient allows the practitioner to design a preliminary diagnostic plan. It is only when the patient has been anesthetized that a complete and thorough evaluation can be accomplished, including tooth-by-tooth visual exam, probing and radiographic exam. Protocols should be in place to give clients ample time to make an informed decision about the proposed treatment plan.
- The findings of each tooth-by-tooth examination and the surrounding tissues need to be recorded.
- Full-mouth dental radiology is needed to evaluate each tooth, along with the jaw. After a specific procedure has been performed, such as extractions, postoperative X-rays are necessary to ensure success.
- Prevention of hypothermia with warming devices is essential because the patient may become wet and dental procedures can be lengthy.
- 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.
- Home oral hygiene is vital for disease control. Counsel clients on all available options, including brushing, rinsing, applying sealants, and the use of diets and dental chews. Keep in mind that what works for one client and his or her dog may not work for another client and his or her cat.

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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.

Introduction

Veterinary medical dental care is an essential component of a preventive health care 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.^{1,2} 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 (Page 4).

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 nonsterile 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 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 (Pages 7, 9). 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

From the Animal Dental Clinic, San Carlos, CA (S.H.); All Pets Dental Clinic, Weston, FL (J.B.); Veterinary Dental Center, River Heights Veterinary Hospital, Oswego, IL (S.J.); Pet Crossing Animal Hospital & Dental Clinic, Bloomington, MN (K.K.); California Veterinary Dental Specialties, San Diego, CA (B.N.); and Tampa Bay Veterinary Dentistry, Largo, FL (J.P.).

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From Holmstrom, S.E., Bellows, J., Juriga, S., et al. 2013 AAHA Dental Guidelines for Dogs and Cats. *J Am Anim Hosp Assoc* 2013; 49: 75-82.

*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, PDx BioTech, and Virbac Animal Health and are endorsed by the American Veterinary Dental College.

The safety of the operator must be ensured during dental procedures by using radiographic, oral, respiratory, skin, eye, and ear protective devices (Table 4, Page 10). 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 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

TABLE 1

Definitions 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



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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, 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, Page 10). 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 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.¹⁵ 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 CO₂ 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

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 burs
- Powered scaler with tips for gross and subgingival scaling (ultrasonic, subsonic, or piezoelectric)
- Head or eye loupes for magnification

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

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 postoperatively.^{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, Page 4), and a consistent method should be used to record findings in the medical record (Table 5, Page 10).

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.¹⁶ In patients with abnormal findings, radiography revealed additional pathology in 50% of dogs and 53.9% of cats.¹⁶ 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.^{41,42} 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.⁴⁵ The Veterinary Oral Health Council has a list of products that are reportedly effective in retarding the accumulation of dental plaque and/or calculus.⁴⁶ 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



Photo courtesy: Mesa Veterinary Hospital. © AAHA

TABLE 3

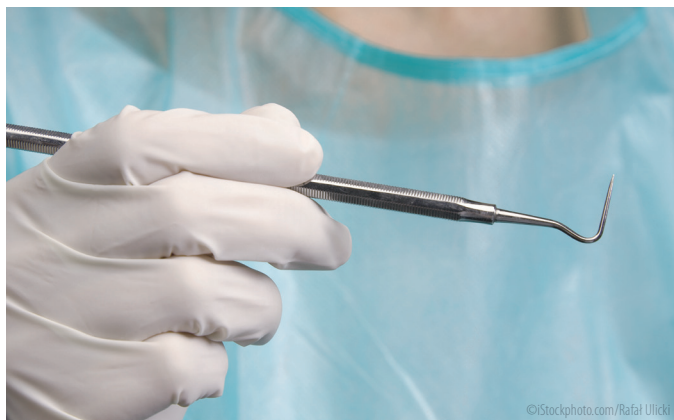
Instruments To Include in the Dental Surgical Pack*

- 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)

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

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)

**TABLE 5****Items To Include in the Dental Chart and/or Medical Records**

- 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

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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Dental Case Studies Typically Seen in General Practice

General dentistry in small animal practice is hard work, followed by more hard work. It requires a committed group of people inside the dental portion of the practice and an entire hospital that believes in the philosophy of excellent oral health and its contribution to longer, healthier and pain-free lives.

Communication is critical to operate a dental profit center. When things go right, effective communication has occurred. When the day is substandard, dysfunctional communication is most likely the reason. Communication must exist among the dental operator, the rest of the hospital, the clients and even the patients.

This series of case studies gives your team some ideas about what they are doing well and how they can do better. Have them review the cases and write their answers as to how they would handle each one. Discuss the answers with all staff by email, during rounds or at a staff meeting.

If the staff answers to these cases are similar, then dentistry is probably going well at your hospital; if there are discrepancies, you need to do some consensus-building, and create a strategic plan and protocols before you proceed further. In essence, a hospital cannot simply say dentistry is going to be a profit center without investing in CE time and training, along with the proper equipment.

Finally, none of the previous will work by itself; communication is the glue that will allow your hospital to include dentistry as a profit center at your location.

To understand where your hospital or clinic falls in the scheme of communication, have everyone answer the following case studies independently. These are routine cases seen in an average day at a

general hospital that follows the *2013 AAHA Dental Care Guidelines for Dogs and Cats*. Hopefully, they will illustrate the conundrums and complications of routine, non-specialty day-to-day dentistry.

Case 1

The first patient of the day had a beautiful mouth at her awake oral examination. Riley is a golden retriever who gets her teeth charted, cleaned and X-rayed every year on her birthday. Her teeth are brushed daily and have been starting at 12 weeks of age. She is so easy to work with, she can almost place her own IV catheter.

1. What are your expectations for this procedure?
2. How much time will it take?
3. What type of treatment plan will be given to the client?

After Riley is sleeping under a general anesthesia and her mouth is charted, a large slab fracture is found on the lingual surface of her mandibular molar. This could not be seen at an awake exam because the entire coronal surface from the buccal side appeared normal. She did not show any resistance to her awake examination, so you did not notice the open pulp exposure and painful tooth.

4. Now what do you do?
5. How do you explain the fractured tooth to the client?
6. What is the impact of exposed pulp tissue on local and systemic health?
7. What treatment options are available to fix the tooth? How would you discuss the pros and cons of each option offered?
8. What can your hospital do to fix the pathology?
9. How do you handle any timing changes that must be made to accommodate fixing the tooth on the same day?

Case 2

A cat that has had its teeth cleaned while awake (awake, non-anesthetic dental scrapings) every 3 to 6 months for the past 3 years is in to have her teeth cleaned under anesthesia. The owner is frightened about general anesthesia because she has been told that Sandy's breed is sensitive to it. The client is coming to you



Photos: © iStockphoto.com



because her cat has been drooling, and she cannot get the cat in to her regular veterinarian. She found you on the Internet because you are a cat-friendly practice.

Sandy will not allow you to touch her face and prefers that you keep away from the rest of her body also. She is fully equipped with front claws and does not hesitate to use them during the awake, physical examination. You suspect she is suffering from white coat syndrome because after you tried low-stress restraint with a towel, you ended up scratched and bleeding. Meanwhile, your patient is hiding in a cabinet, growling and hissing.

1. How much time do you allow for this appointment?
2. What do you charge for it?
3. Explain your dental, anesthesia (include monitoring systems and fluids), and nursing-care protocols in a way that comforts the apprehensive client.
4. The client has decided to go ahead with anesthesia and would like to do it that day because Sandy is already at your hospital.
5. How would you accommodate that?
6. If you couldn't accommodate it, how would you explain it so the client understood it was in Sandy's best interest to come back?

On the day of the procedure, the client has elected to stay so she can review X-rays with you while Sandy is sleeping. On asleep and X-ray examination, her mouth is found to contain 24 tooth resorptions in various stages of progression.

7. How do you explain this disease to the client?
8. How do you discuss the pain of the disease without making the client feel ashamed that she was having her cat's very painful teeth scraped while being held down in a cat straitjacket?
9. What do you say if she asks you about the standard of care that her pet had been receiving?
10. Do you call her veterinarian and talk to him about the procedure? What do you say?
11. What is your pain-management strategy for this patient?
12. How do you explain the necessity of an overnight stay (or more) in a patient that needs anti-pain medications to have a comfortable recovery?

You successfully removed all the tooth resorptions, and the client has switched over to you to be the primary care veterinarian.

13. She asks you to call and get her old records. Do you tell her past primary care veterinarian what happened?
14. What accommodations will you make in the future to make certain Sandy is less stressed coming to her appointments so you can examine her without placing her in a body bag or a net?

Case 3

You are doing an awake examination on a rather pleasant orange cat named Melvin and you notice a chipped upper canine tooth. By the way, Melvin had broken his leg several years ago when he was a kitten and you saw him for that too. At the time, you were amazed how nice he was and that he didn't seem in pain. Today he is happy to have his chin scratched and is purring throughout the appointment.

1. What do you tell the owner?
2. How do you tell if there is bacterial leakage into the pulp chamber?
3. If there is leakage, what are the options available at your clinic? If there is no leakage, what does the owner need to do?
4. How soon do you need to get him in for X-rays?
5. How will you plan for treatment time for his examination under anesthesia?
6. If he needs to have a root canal or the tooth extracted, will you be able to do it the same day as the examination under anesthesia?

Case 4

A very sweet Cavalier King Charles Spaniel named Brother Peter is in to have two eyelid tumors removed. As he is checked in, his owner asks if he can also have his teeth cleaned.

1. What do you say?
2. How do you accommodate it?

You chart, X-ray and clean his teeth. Upon X-ray review, you find two unerupted lower premolars and two incisor teeth fractured below the gum line. Additionally, he has a tooth that is more yellowed and has a large pulp chamber compared to his other teeth. Peter's family was thinking he was getting his teeth cleaned just because he was already under anesthesia.

3. How do you explain the X-ray findings to them?
4. What do you do if they don't want to extract the teeth?
5. What if you were unable to reach the clients and you went ahead and extracted the teeth and now they are angry? Go through the steps you would take.
6. How could your hospital prevent such an occurrence from happening again?

These case studies will help illustrate the importance of collaboration and communication both within your hospital and with your clients. Dogs usually have 42 adult teeth and cats have 30. To give their teeth the attention they deserve, you must evaluate your patient's mouth under general anesthesia, taking the time to probe, chart and X-ray each tooth in order to make an appropriate medical plan. ■

How would you solve these cases? Tell us how your team worked through these cases and what improvements resulted. Send your comments to aahapreventivecare@aahanet.org, and AAHA will publish them for the profession.





Practice manager

- Meet with doctors and technicians to discuss how the guidelines and the toolkit will be used.
- Save the completed protocol and schedule periodic reviews/updates of it.
- Maintain an adequate supply of materials required to implement the guidelines in appropriate places, such as exam rooms, the dental suite and the reception desk.
- Plan team meetings for training and motivation.
- Track scheduling and follow up on reminders and appointments.

Doctors

- Discuss the guidelines and toolkit at a doctor's meeting.
- Write your practice's protocol.
- Decide responsibilities for completing specific tasks and assign to doctors and technicians.

Technicians

- With doctors, determine which tasks and procedures will be performed by technicians and which by doctors.
- With the client, review the pet's history.
- With the client, review the procedure that will be performed and the services that will be provided.
- Show the client relevant training tools.
- After procedures, follow up with the client to check the pet's status.



Discuss ways to educate and motivate clients to participate as your partner in their pet's care and to accept your recommendations.

All practice team members

- In a team meeting, discuss the *2013 AAHA Dental Care Guidelines for Dogs and Cats*.
- Discuss how you will use the tools.
- Clarify each team member's role.
- Discuss ways to educate and motivate clients to participate as your partner in their pet's care and to accept your recommendations.
- Follow the guidelines with your own pets.

Client service representatives

- Answer client questions, or let clients know who will be able to do so.
- Give clients relevant printed information at check out.
- Review procedures that were performed, explaining the value of regular dental care.
- Schedule follow-up appointments or the next dental-cleaning appointment at checkout.
- Emphasize that regular dental care promotes the pet's quality of life and longevity.
- Send reminders at appropriate times using the client's preferred method (text, email, telephone or mail).

The Recommendation Gap: Two True Stories

A researcher observed a veterinarian examining a dog and then recommending a dental cleaning with assessment, including full-mouth X-rays and an accurate treatment plan.

The veterinarian spent the next 5 to 6 minutes explaining the process to the pet owner, emphasizing the safety of the anesthetic and the like.

After the pet owner left the practice, the researcher asked the veterinarian how she thought the interaction went and whether she thought the pet owner “got it” and would schedule the procedure.

Based on the lack of questions from the pet owner, the veterinarian was confident that the pet owner would comply.

A check with the client relations specialist indicated that the pet owner declined the opportunity to schedule the procedure. Clearly the doctor had failed to communicate the need for and the benefit of performing the service.

In contrast, another practice doubled its rate of dental compliance. This team reported that they had changed from saying, “I recommend a dental cleaning” to “We need to get these teeth cleaned and appropriately evaluated with full-mouth X-rays.”

The team emphasized that the “need” statement was followed by a clear explanation of the reasons why cleaning and asleep assessment was needed, the benefits of cleaning the teeth and the risks that would be avoided by following through on the recommendation.

Simply stated, the practice team must be certain that pet owners understand not just the recommendation itself but the value and benefit it delivers.

What versus why

Features are the *what* of compliance. Benefits are the *why*. To enlist client support, focus on the why.

Features are services rendered and their effects; for example, a dental cleaning results in clean teeth.

Benefits are the good that accrues from the effects. Benefits of dental cleanings include accurate assessment of oral health, healthier gums, better breath, less tooth pain, and the avoided risk of heart or other systemic diseases.

Source: *Six Steps to Higher Quality Patient Care* (AAHA Press, 2009).

Tip!

To enlist client adherence, spend less time explaining how a medical process is performed and more time on its benefits.

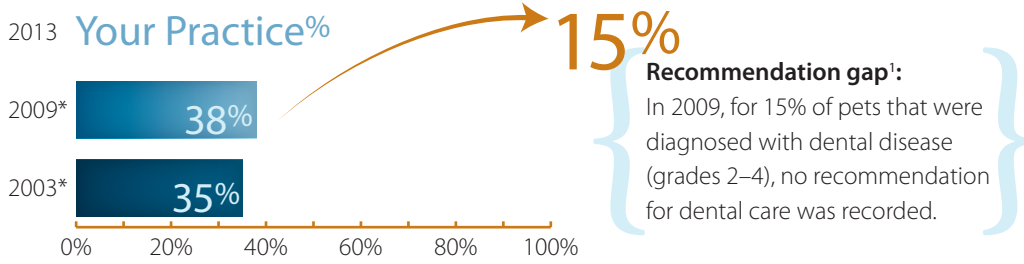
One team doubled dental compliance by saying, “We need to get these teeth cleaned” —and then explaining why.



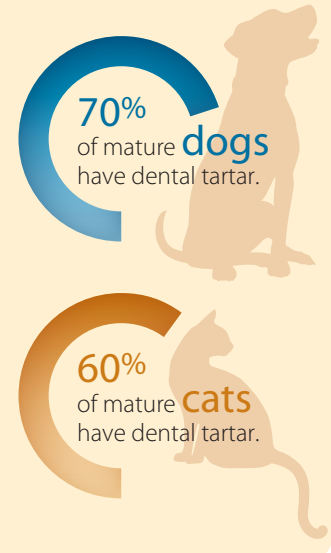
Do the Math Is there an opportunity to improve dental care in your practice?

Compliance 10 years later: Where do you stand?¹

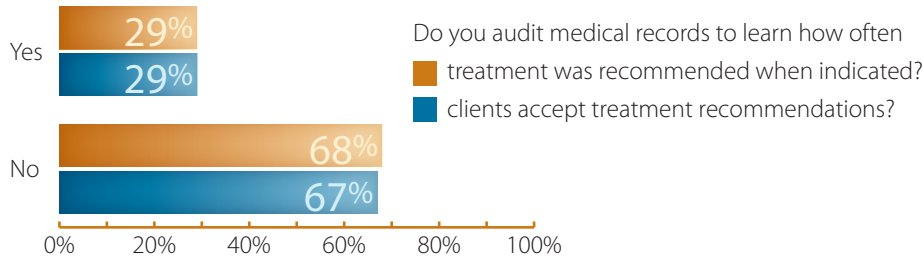
Clients complying with recommendation for dental work



Dental tartar and periodontal disease are common diagnoses²

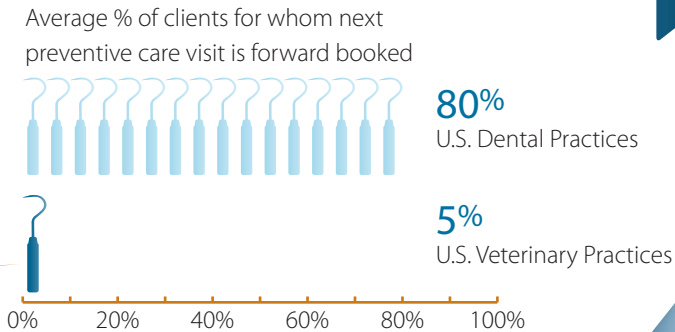


What gets measured gets done... and vice-versa³



Forward booking increases dental visits and improves pet health.

Forward book (verb):
to schedule the next preventive-care (or follow-up) visit during a client's current visit.



If veterinary practices were collectively able to increase forward booking to just

10%

\$350 million

+



\$450 million

...that would translate into about \$350 million in additional preventive care revenue for the profession as a whole.

When forward booking is combined with an effective reminder strategy, this number becomes \$450 million!

*Average of all practices, nationwide survey.

Sources:

1. *Compliance: Taking Quality Care to the Next Level* (AAHA Press, 2009). <http://bit.ly/Z6l4Hh>
2. "Most Common Diagnoses 2011 Dog" and "Most Common Diagnoses 2011 Cat," State of Pet Health 2012 Report (Banfield Pet Hospital, 2011, 2012). <http://bit.ly/XDYwbW>
3. *Financial and Productivity Pulsepoints, Seventh Edition* (AAHA Press, 2013). <http://bit.ly/Y5w6pn>

Forward-booking tip:

Match future appointments to the current one.
Say: "Mrs. Jones, today is the third Wednesday of the month. I can schedule you for the third Wednesday of September at the same time as today."

Pets Need Anesthesia for Routine Dental Care

Pets, like people, need routine professional dental care in order to maintain a healthy and pain-free mouth and to prevent secondary systemic diseases. Our pets are unable to comprehend a professional dental cleaning. If people are frightened by the sounds and the smells in a dental operator, imagine the feelings of a beloved pet.

All pets, old or young, need to be anesthetized for their teeth to be cleaned, charted and X-rayed properly and safely.

It is unreasonable to ask a cat or dog to have their teeth charted by probing and examining each tooth individually, cleaning above and below the gumline, and placing X-ray film or a digital cassette in their mouth and asking them to hold their mouth open and hold still.

Then there is the water and the suction and the polishing. Doing this to a dog or cat with a healthy mouth would be difficult. Imagine how difficult it would be if there were painful broken teeth, abscesses or tooth resorptions.

All pets, old or young, need to be anesthetized for their teeth to be cleaned, charted, and X-rayed properly and safely. Because a professional dental cleaning requires plaque and tartar to be removed both above and below the gumline, your pet's dental health care team will need to have your pet's mouth open and unmoving to be able to perform the procedure safely and thoroughly.

For safety and comfort, your pet will need to be under general anesthesia, where both an inhalant gas and oxygen are being administered through a breathing tube. A hospital or clinic that observes the *2013 AAHA Dental Care Guidelines for Dogs and Cats* will continuously monitor your pet while he or she is under anesthesia. A trained veterinary technician or assistant will monitor your pet from the time the anesthesia begins until your pet is fully awake and conscious of his or her surroundings.

An awake oral exam will be performed on your pet by your veterinarian to design a preliminary diagnostic plan. It is not until your pet is anesthetized that a complete and thorough evaluation can be accomplished, including tooth-by-tooth visual exam, probing and radiographic exam to determine a more specific treatment plan.

It is important that you have communicated with the veterinary team what your wishes are when further problems are uncovered after the X-rays have been taken. For example, some hospitals have the clients stay during the procedure so they can show them any problems found on X-ray while the teeth are being cleaned. Other hospitals will want to be able to contact you by phone to discuss any issues. You may want to research the problems your pet has, which means that you will use the first

procedure as a diagnostic tool and bring your pet back a second time for the treatment portion of the procedure.

Dental cleanings that are done without an anesthetic may make your pet's teeth look clean, but will not produce a healthier mouth. Without anesthesia, it is impossible to clean the inside

surfaces of the teeth or under the gums where periodontal disease develops. Without the use of the correct instruments and procedures, such as polishing tooth surfaces, an environment will be created where plaque and tartar will develop more rapidly.

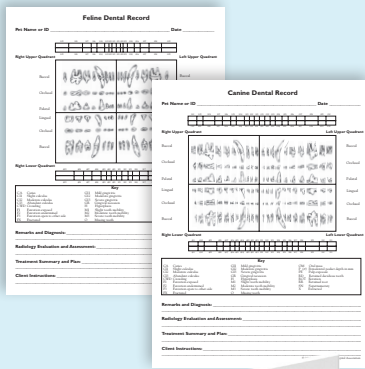
"Removal of dental tartar on the visible surfaces of the teeth has little effect on a pet's health, and provides a false sense of accomplishment," says the American Veterinary Dental College (AVDC) in a position statement opposing anesthesia-free cleanings.

Is anesthesia safe?

Although there is always some risk when using an anesthetic, it is much safer than in the past; the risks are controlled thanks to new, safer anesthetic drugs, careful dosing and administration, and constant monitoring of pets during and after anesthesia.

For your pet's safety, your veterinarian will run pre-anesthetic blood tests and will tailor the anesthesia plan based on those results and other factors such as your pet's age, weight and overall health.

To help your pet benefit from best practices as determined by a team of experts, seek a veterinarian who adheres to the recommendations in the *2013 AAHA Dental Care Guidelines for Dogs and Cats*.



Canine and Feline Dental Records

Print or electronic, it's 1-2-3 easy: 1. Quickly note findings of dental exams while you perform them. 2. Note your treatment plan and client instructions in the space provided. 3. Copy the form for clients, then scan or transfer your marks to electronic records (or simply file the form in the paper chart). Large illustrations of teeth provide ample room for marks. Combining the chart with treatment plan and instructions on a single form builds the case for recommended care. Canine: <http://bit.ly/VR6S3O>, feline: <http://bit.ly/Z81NFK>.

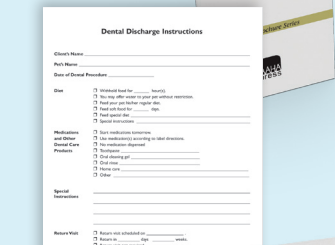


Healthy Mouth, Healthy Pet: Why Dental Care Matters

A picture is worth 1,000 words, and hundreds of pictures are priceless. To persuade clients to accept your recommendations, use this handy photo album to show why their pet needs recommended dental care and what can happen if they neglect it. Print and electronic versions are easy to use in the exam room. Includes alphabetical photo index of dental abnormalities, stages of dental disease, treatment of periodontal disease, home care, and client handouts. Available July 2013.

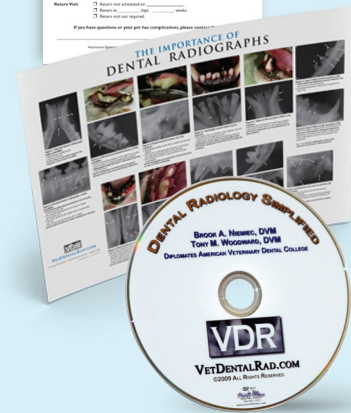
Your Pet's Dental Care

Give your clients a handout they'll refer to again and again. Clients welcome the reassurance they find in this brochure, with a professional appearance to reinforce clear, meaningful messages about diagnosis, treatment and prevention. Includes space to write your recommendations, plus pointers to AAHA sites where clients can find additional reliable information. <http://bit.ly/VR8wCu>



Dental Discharge Instructions Form

This scannable form includes space for customized special instructions, diet and medication instructions, and return visit information. Two-part, carbonless form: Give one to the client, file or scan a copy for the medical record. <http://bit.ly/X5ticA>



The Importance of Dental Radiographs Poster

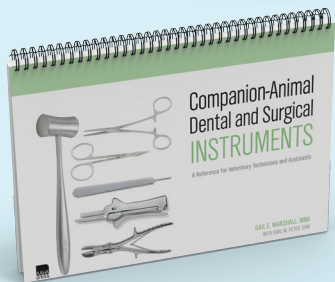
The layout of this exam-room poster makes it easy to point to an illustration and tell clients "this is why we need to take dental radiographs of your pet." High-quality photos are laminated for durability, and standard size for framing. <http://bit.ly/WH22EM>

Dental Radiology Simplified

Diplomates of the American Veterinary Dental College guide you and your team through proper positioning techniques, film development, safety and digital dental radiology techniques. <http://bit.ly/Xwj3B0>

Companion-Animal Dental and Surgical Instruments: A Reference for Veterinary Technicians and Assistants

This pocket reference guide will help your team quickly identify, stock and maintain the tools you use every day. <http://bit.ly/VSER6A>



AAHA Standards of Accreditation

The AAHA Standards include standards that address dentistry. For information on how accreditation can help your practice provide the best care possible to your patients, visit aaahanet.org/accreditation or call 800-252-2242.



The Standard of
Veterinary Excellence

About AAHA—The American Animal Hospital Association is an international organization of nearly 6,000 veterinary care teams comprising more than 48,000 veterinary professionals committed to excellence in companion animal care. Established in 1933, AAHA is recognized for its leadership in the profession, its high standards for pet health care, and most important, its accreditation of companion animal practices. For more information about AAHA, visit aahanet.org.



This implementation toolkit was developed by the American Animal Hospital Association (AAHA) to provide information for practitioners regarding dental care for dogs and cats. The information contained in this toolkit should not be construed as dictating an exclusive protocol, course of treatment or procedure, nor is it intended to be an AAHA standard of care. This implementation toolkit is supported by generous educational grants from Hill's Pet Nutrition, Merial, PDX BioTech, and Virbac Animal Health.

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