CHAPTER
1

Clinical Practice

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Avian medicine has seen dramatic growth and development over the past several years. Veterinarians who wish to incorporate avian medicine into their practices now have numerous resources available to help them get started. The Association of Avian Veterinarians (AAV) is currently the most recognized avian veterinary professional organization in the United States, Europe and Australia. AAV national conferences provide veterinarians opportunities to share information and advice, along with programs that reveal the latest innovations in avian medicine. Other organizations in the USA include the American Federation of Aviculture, Mid-Atlantic States Association of Avian Veterinarians and statewide professional associations. The European Association of Avian Veterinarians meets every other year on the odd years. The Australian Committee of the AAV (AAVAC) meets yearly (see Table 1.1).

Education

There are numerous journals and educational materials that provide information about avian medicine. The AAV's Journal of Avian Medicine and Surgery is an international journal that provides information on the medicine and surgery of captive and wild birds and publishes scientific articles, book reviews and information regarding upcoming AAV meetings in its accompanying Newsletter. There are other resources listed in Tables 1.2 and 1.3.

Information sharing with veterinary colleagues is also available on the Internet. Forums such as Veterinary Information Network, Avian Medicine On-Line and Exotic DVM Readers' Forum (see Table 1.2) allow veterinarians from all over the world to communicate directly concerning their cases and experiences.

Fig 1.1a | A veterinary clinic's heart is its staff, who ideally are devoted, dependable, friendly, compatible and committed to patient care, service and hospital quality from floors and plants to attire. From record keeping to honesty and controlling costs, a veterinarian's dream can come true if everyone works at these goals and the work is made enjoyable.

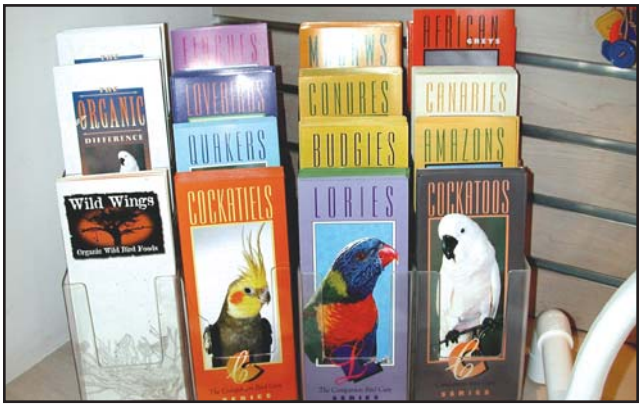


Fig 1.1c | Educating the public is the goal of a good staff. Brochures[1], newsletters from the clinic or product distributors, web sites, clinic-sponsored classes and guest lectures all contribute to client education.

Fig 1.1b | Educating one's self and staff is much easier with access to current textbooks, references, newsletters, brochures and CDs[1].

For those veterinarians who are interested in specializing in avian medicine, The American Board of Veterinary Practitioners (ABVP) has approved residency programs leading to board certification. Alternately, experienced practitioners may apply for ABVP-Avian certification without completing a residency. In either case, the current procedure for becoming a Diplomate of ABVP-Avian Practice includes writing case studies, passing rigorous written and practical examinations, as well as satisfying other required criteria. A similar but more academically oriented credentialing system has been established in Europe and is called the European College of Avian Medicine and Surgery (ECAMS).

KNOWLEDGE AND EXPERIENCE

The first challenge is to acquire the knowledge and experience necessary to practice avian medicine in a manner on par with other branches of veterinary medicine. One needs to study the available reference materials, including the journals and proceedings from the professional organizations listed in Table 1.1. Attending meetings of these organizations will provide opportunity for hands-on experience via wet lab attendance to improve one's practical skill, and direct interaction with others in avian veterinary medicine. Ideally, a novice avian practitioner would work directly with an experienced avian veterinarian. When this is not possible, a referral/phone consultation relationship with an experienced avian veterinarian will allow one to comfortably refer complicated cases, and to properly handle those cases that are within one's current skill level, while one's diagnostic and therapeutic abilities increase. Wild bird rehabilitation organizations are often in need of veterinary services. In exchange for these services, practitioners will gain valuable experience in handling and will build confidence in their surgical abilities without fearing the loss of a beloved pet bird. Ownership of birds of various species will make the practitioner comfortable with behavioral differences among species.

The goal of this text is to assist the veterinarian in becoming a competent avian practitioner. Knowledge of one's limitations regarding both equipment and experience is part of this qualification.

The American Animal Hospital Association (AAHA) 2003 study on standards and patient care states that failure to educate clients is the leading reason pets do not receive optimal care (this study is available on the AAHA web site, see Table 1.1)[1] A knowledgeable staff and appropriate educational support material is the underpinning of client compliance (Figs 1.1a-c).

MARKETING SERVICES

Once the decision has been made to incorporate avian medicine into the practice, attracting prospective clients is a priority. This can be accomplished through advertisements in various modalities, including the telephone directory, various Internet group listings, newspapers,

pet stores and in the "veterinary services" section of bird magazines. A guide to help locate additional advertising venues is available.[4]

The following questions can be used to define specific emphases within avian medicine. Some items may present areas for future expansion of your knowledge and the scope of your practice's client services.

What makes your practice distinctive?
Does your practice possess specialized equipment and procedures (eg, endoscopy, laser unit, microsurgery)?
Does your veterinary or technical staff have specific training in the areas of avian medicine, surgery, nursing or behavior?
Are classes or consultations offered to clients for behavior disorders?
Does your practice carry recommended diets, bird-safe and appropriate toys, perches or caging?
Are house calls offered?
Is emergency service for avian patients provided?

Colleagues who do not treat birds can be a good source of referrals. Pet store owners and bird breeders may refer their customers if a good relationship is developed with your practice.

Bird marts, bird shows and bird fairs are very popular in the USA. Educating the public of the inherent dangers of these bird fairs should be a goal of avian veterinarians, responsible bird breeders and bird clubs. Currently, such events involve bird traders, neophyte hobbyists (the latter group often having the best of intentions) and a number of uneducated individuals, who often purchase birds on impulse. Birds at these fairs sometimes are poorly bred, incorrectly fed and/or improperly raised. Husbandry practices prior to the fair are unknown, and the co-mingling of species from various breeders that occurs at the fairs can be a major source of disease exposure and transmission. If a bird is purchased from a bird show or bird fair, it should be quarantined from other birds in its new household, although this seldom is accomplished. Sadly, the volume-oriented, discount-minded pet store often is a similar source of potentially diseased and compromised birds. Fortunately, awareness of these problems is increasing in both the USA and the EU. In the interim, encouraging clients to at least consider the methods of breeding, raising, feeding, testing and hygiene that are practiced by the seller prior to purchase will decrease the risk of acquiring a sick or debilitated bird. See Chapter 3, Concepts in Behavior for comments on proper husbandry and raising techniques. For guidelines on helping owners to choose a pet bird, see Chapter 2, The Companion Bird.

Despite all these problems, avian and exotic animal expositions are an acknowledged source of potential clients.

Jan Hooimeijer

Fig 1.2 | Bird expositions are a common source of sick birds in the pet industry.

Renting a booth and showcasing your clinic will allow you to meet hundreds of bird enthusiasts. Although this is a high-visibility opportunity that may bring new clients, there are disadvantages. The most obvious problem is that the very presence of an avian veterinarian at these shows implicitly condones their existence. (Fig 1.2). Therefore, conflicts of interest may arise between sellers, buyers and veterinarians at such an event.

Dr. Jan Hooimeijer of The Netherlands has developed a unique offering for bird owners who desire to share their passion for their birds. He implements a strict client education program and regimented standards that must be met by the clients. These include recommendation of an organic formulated diet, disease testing and behavior classes. Log on to www.harrisonsbirdfoods.com for further information. Dr. Hooimeijer's clients are then invited to attend a "Bird Walk," a yearly celebration held in a local park, and the public and media are invited to attend. Some 400 clients and their family members attended in 2002, and the event was covered by national television (Figs 1.3a,b).

Another modality for attracting clients is to offer free educational classes after hours in the clinic, a local pet store, local university or other continuing education facility. (Fig 1.4) The classes can cover topics such as choosing a bird, bird behavior, nutrition and first aid. Flyers for the classes can be placed in pet stores, university bulletin boards, supermart bulletin boards, and advertisements can be placed in local newspapers. The classes can be also be promoted with flyers in the hospital, on the clinic's web site and in the clinic newsletter. This will attract current clients as well as prospective ones who are interested in becoming more knowledgeable about bird care.

Client referral is an excellent method to increase clientele, reflecting the satisfaction of an existing client and generating positive advance impressions in a new client. The extent of this "word of mouth" client referral will be

Jan Hooimeijer

Jan Hooimeijer

Fig 1.3a,b | Dr. Jan Hooimeijer has an annual "Bird Walk" to proudly show off his clients and their family members. More than mere pets, Jan molds his patients into a cohesive unit. Bicycle rides and family outings like this strengthen the clinic-client bond. Clinic support of bird clubs or bird-oriented groups concerned with parrot welfare provides opportunities for the clinic to impact the bird world in a very important way.

based to a great extent on client satisfaction. Client satisfaction starts with a clean, comfortable, bird safe, well-planned clinic with a friendly, knowledgeable staff and minimal waiting time. When technicians and doctors have ample time to spend discussing educational material and answering questions, this reflects concern and genuine interest in the patient, which pleases clients and impresses upon them that the staff and doctors are competent. Clients also are impressed with professional achievement awards, certifications achieved by the hospital (eg, AAHA) or staff with advanced training. They appreciate knowing about areas of special interest and the number of years that the staff and doctors have been involved in bird treatment.

Let clients know about your continuing education efforts, any papers you publish or news items written about your clinic. These items can be put on web sites, in newsletters or in waiting room binders for the client to see.

Fig 1.4 | Classes at public meeting places and sanctioned by clubs, schools and other public groups serve as the bedrock of educated clients. This gathering at Pine Jog Environmental Center in 1970 led to a university course on aviculture at Florida Atlantic University. From this small group came leaders of aviculture, founding secretary of Avian and Caged Bird Society of Ft. Lauderdale, FL (Ellen Tannerhill); a president of the American Federation of Aviculture (Tom Ireland); head curator of birds at Sea World, Orlando (Sherry Branch); Harvard Botanical collection director (George Staples); organizational president, AAV and HBD (Greg Harrison); president of ZEN, editor, Exotic DVM (Linda Harrison); owner, Palm Beach County, FL, oldest bird pet shop, Fins, Furs and Feathers (Charlie Holland); four other pet shop owners and a dozen avid aviculturists. One lady later became the wife of the head of veterinary services at Busch Gardens, Tampa, FL — she and her husband still breed birds some 20 years later.

Mimi Walling/We Shoot Birds

Fig 1.5 | A client waiting room with a pleasant presentation of safe toys, educational materials and veterinarian-only dispensed bird foods makes a strong statement about the value of these items. Selling only items endorsed by the staff reduces confusion and improves client compliance.

Having photos of recommended pet birds at various locations throughout the clinic lets clients know of your special interests. A photo album containing photos either solicited from your clients, or taken at your hospital of the clients and their birds, is a very popular item in the waiting room.

FOOD, TOYS AND OTHER BIRD PRODUCT SALES

Clinic service and income can both be increased through the sales of recommended bird food, toys, books, perches, carriers and various other products. Toy selection should be based on bird-safe toys (Figs 1.5, 1.6a,b)

Fig 1.6a | Unsafe toys include clips like the one caught on this African grey's beak. For more on safe toys, see Chapter 6, Maximizing Information from the Physical Examination.

Fig 1.6b | Unsafe toys can trap a bird by the foot or leg. With its owners in the next room, this Amazon was totally silent as it chewed its leg free from being caught in a toy's rings.

Fig 1.7 | Just because a toy is made for a bird does not ensure it is safe. The Amazon in fig 1.6b mangled its foot with this set of rings (top). Similar metal circles are used on this key ring toy (bottom), which could easily trap a toe or foot.

Fig 1.8 | Staff at The Bird Hospital removes unsafe metal (galvanized clanging metal bells and clips) and replaces them with stainless steel chain and chain "quick" links. Avoid man-made fibers like nylon in toys, and instead use natural cotton, leather, sisal or hemp.

Fig 1.9 | This boarding facility offers an observation window from the reception area. Plants, up-to-date periodicals, and a clean, fresh presentation attract clients.

such as woven palm leaves, leather, wood and unbreakable plastic. Since many chains, mirrors and toy clips (Fig 1.7) are made of unsafe metals, clips should be switched to stainless steel C-clips (Fig 1.8). These can be bulk ordered and the cost can be incorporated into the price of the toy.

AFTER-HOURS EMERGENCY SERVICES

Service availability is another factor in client satisfaction. Weekend and late-night office hours are a convenience for clients who work during weekdays. An answering service allows clients to talk to a real person after hours when needed. Clinic brochures can be offered to give information on office hours, special services and directions to the clinic.

Offering a 24-hour emergency service is an advantage that clients value and appreciate. One author (GJH) employs a reasonable policy that requires clients to have physical examinations performed on their birds at least once yearly to be eligible for after-hours emergency services. The receptionist informs callers, shoppers, food and toy buyers that a physical exam and current testing are required for eligibility for emergency service and boarding services (Fig 1.9). This maintains client commitment to routine care for their birds and reassurance that they have access to emergency services when needed.

Qualified veterinarians may give special training in avian emergency medicine to local emergency clinic personnel. Such training should emphasize stabilization of sick birds and include basic nursing care such as the administration of injections, selection of medications frequently administered in avian emergencies, gavage-feeding techniques and general supportive care. Avian veterinarians in several major cities provide training programs including procedure manuals for emergency clinicians in their area. This often allows the avian veterinarian to consult on emergencies via telephone, decreasing the demands of providing 24-hour emergency care.

Fig 1.10a | House call kit.

Fig 1.10b | Needles, blood collection tubes, styptic and materials for record keeping.

Fig 1.10c | Suture, simple surgical instruments, heparin, slides for smears and injectable antibiotics.

Fig 1.10d | Rotary drill, stethoscope, culturettes, syringes and medications round out the kit. Fresh, clean towels and species-specific equipment like nets are included as called for by the house call.

COLLEAGUE RELATIONSHIPS

Developing and maintaining a positive professional relationship with colleagues benefits everyone. Local veterinarians can be excellent sources of referral cases. Lectures given at local veterinary associations will increase referrals from these colleagues.

HOUSE CALLS

House calls are a convenience that clients appreciate. This is especially important for clients with numerous birds or birds that are too large (swans, geese) to transport. A house call kit (Figs 1.10a-d) can be easily made using a tool kit from a hardware store. Significant data regarding husbandry and potential disease can be obtained with a visit to the home or aviary. (Figs 1.11a-e) A video of the facility can be a useful alternative if a house call is not possible. See Chapter 6, Maximizing Information from the Physical Examination for an ideal psittacine aviculture setup. For an example of a mobile practice see Figs 1.12a-g. Be certain to check with your state regulatory authority regarding any additional requirements or permits that may be necessary when house calls are added to your current practice.

Practice Equipment

The operating microscope is one of the most useful tools in avian practice (Fig 1.13). A variety of types are available, and some have automated pedal switches that allow hands-free adjustment of focus, magnification power and zoom-in view. Some operating microscopes have photographic capabilities so that pictures can be taken of the image seen through the microscope. The operating microscope greatly enhances visualization during surgery. It is useful for physical examinations of smaller birds such as canaries and finches.

Head loupes (Fig 1.14) are helpful for enhancing visualization, and are less expensive and more portable than operating microscopes. A magnifying loupe allowing a minimum of 4 to 8x magnification is needed for many avian surgeries. Various of types are available, with and

Fig 1.11a | House calls reveal a world one would not suspect unless seen: several tens of thousands of dollars of champion-bred show canaries packed into 70 cages, stacked in one large room of a physician's home. An outbreak of polyomavirus allowed a rare visit into this private aviculture world. Infectious disease will rapidly spread in this type of inadequate housing.

Fig 1.11b | The husbandry of an aviculture facility is best observed firsthand. Note the hardware cloth door. This type of wire is zinc coated and potentially toxic. The feeding of seeds and allowing debris to accumulate are not ideal practices.

Fig 1.11c | Turtle eggs incubated in the same room with parrots. Salmonella and other problems are invited by such measures.

Fig 1.11d | Housing mixed ages and species together can potentiate disease outbreaks that a house call can identify and prevent.

Fig 1.11e | Rodents leave a black streak from body oil on the wall over this perch in the cockatoo facility of a prominent US zoo. The heavy stain indicated a lack of effective pest control measures.

without light sources. Head loupes make the field of view appear closer, rather than actually magnifying what is seen. Endoscopy equipment is another essential in avian practice (Figs 1.15a-h). Currently (and since the inception of avian endoscopy) the most commonly used endoscope is a rigid 2.7-mm with operating sheath (see Chapter 24, Diagnostic Value of Endoscopy and Biopsy). Several types of biopsy forceps are available to use with the operating sheath. Most endoscopes can be equipped with cameras and video monitors, and photographs can be taken from the image seen through the endoscope. These images can be recorded to a disc or printed as a hard copy, which allows documentation of the endoscopic procedure. There also is a 1.2-mm semi-flexible endoscope[a] that is especially useful for endoscopy of the trachea of small birds such as cockatiels and canaries. A flexible endoscope[b] is available and comes equipped with grasping forceps useful for gastrointestinal endoscopy and foreign-body removal.

Microsurgical equipment also should be a part of avian practice. This is discussed in Chapter 35, Surgical Resolution of Soft Tissue Disorders.

AVIAN ANESTHESIA EQUIPMENT

In avian medicine a semi-open, non-rebreathing system is recommended. Supplemental heat capability is critical for success in extended avian surgeries. For further information, see Chapter 33, Updates in Anesthesia and Monitoring. A mobile field units for endoscopy (Figs 1.16a-f) and anesthesia (Figs 1.16g) can be made.

ULTRASOUND

Ultrasound can be a useful diagnostic modality, although its use in birds is limited by patient size, conformation and by the presence of air sacs.[5] Ultrasound is particularly useful in differentiating abdominal swellings.[7] Further information on avian ultrasonography can be found in Chapter 25, Advances in Diagnostic.

Thomas M. Edling

Fig 1.12a | A mobile house call practice allows the veterinarian an opportunity to bring state-of-the-art technology to various clinics, malls, zoos, aviculturists and private owners.

Thomas M. Edling

Fig 1.12b | Miniature laptop computers and compact equipment powered by generators, batteries or plugging into an outside source allow all laboratory procedures to be performed.

Thomas M. Edling

Fig 1.12c | Intensive care cages with heat, humidity, oxygen and nebulizer capabilities in the mobile clinic.

Thomas M. Edling

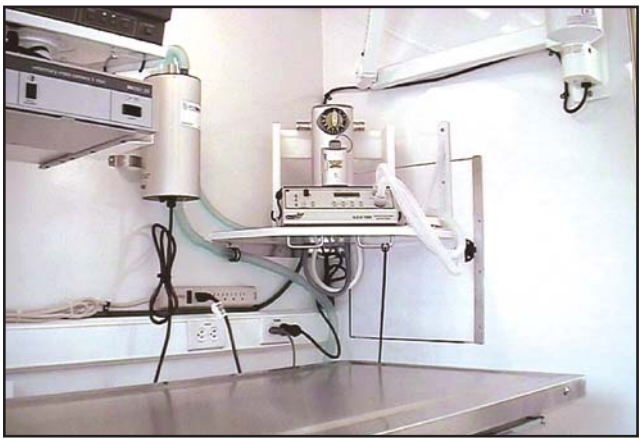
Fig 1.12d | Treatment area in the mobile clinic.

Thomas M. Edling

Fig 1.12e | Mobile clinic surgery.

Thomas M. Edling

Fig 1.12f | Storz endoscopy video monitoring equipment.



Thomas M. Edling

Fig 1.12g | Isoflurane, sevoflurane, oxygen, monitors, scavengers and surgical support equipment in the mobile clinic.

Fig 1.13 | A complete surgical suite in The Bird Hospital, allowing video from rigid or flexible endoscopes and operating microscopes.

Espen Odberg

Fig 1.14 | The General Scientific Corporation's° ergonomically designed optical magnification system allows comfortable operating distance, lighting and magnification for microsurgery and delicate examinations.

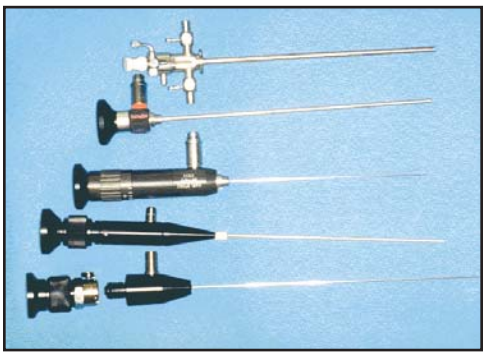


Fig 1.15a | A set of four rigid endoscopes in sizes to accommodate procedures on various size birds and a multiport sheath (top).

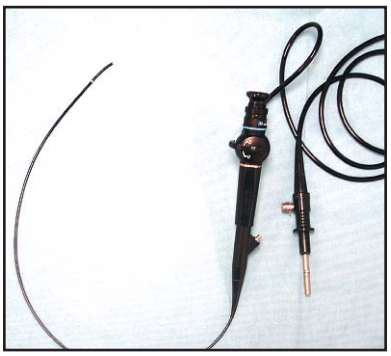


Fig 1.15b | Flexible endoscope, allowing flushing, suction and biopsy of sites difficult to reach with a rigid scope.

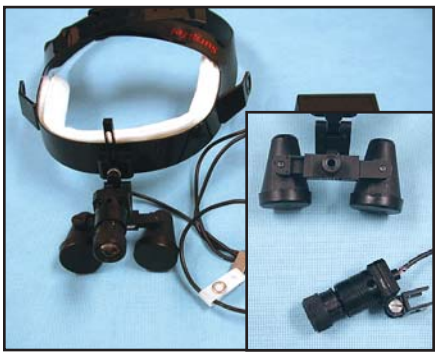


Fig 1.16a | Steps to custom power an endoscope for portability. The embedded magnification focus lens is removed from over the light of a Surgitel magnification scope.

Fig 1.16b | Close-up of removed lens (left) and the custom-made adapter (right) to allow this unit to power an endoscope.

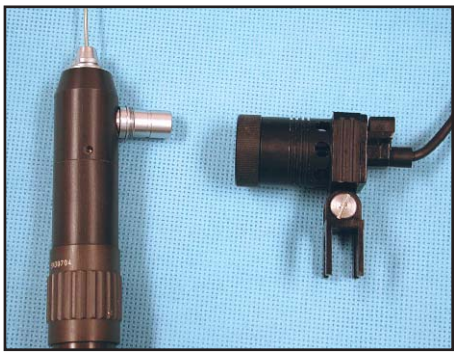


Fig 1.16c | The modified light is ready to be attached to the endoscope.

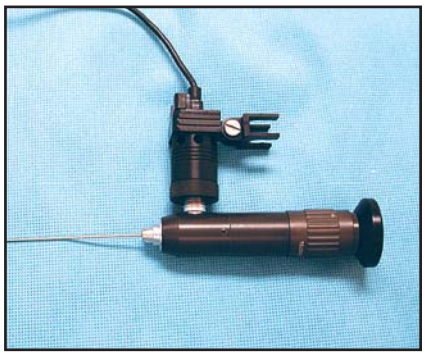


Fig 1.16d | Light source snapped onto the endoscope.

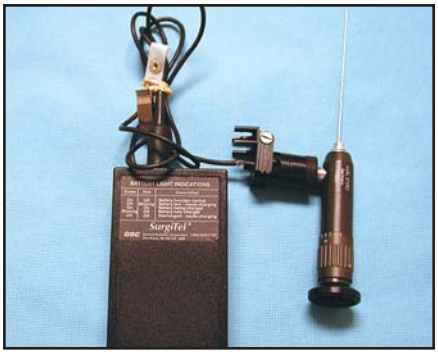


Fig 1.16e | The final scope with battery pack for full mobile endoscopy. The author (GJH) uses it for tracheoscopy without anesthesia on canaries. This is a portable, lightweight field unit and it also produces more than enough light.

Fig 1.16f | Alternatively, an electrical plug can run the unit instead of battery power. The total unit price is several thousand dollars less than a traditional light source and flexible fiberoptic cable.

Fig 1.16g | A field anesthetic setup. A plastic drink bottle is filled with cotton wool and two straws or tubes are glued in place, one in the opening of the bottle neck and the other in a hole made near the neck. The neck tube is attached to a second bottle fashioned as a facemask induction chamber. The bird is placed in the induction mask and a towel seals around the neck. The anesthetist puffs (blows) on the second tube in the bottle with the cotton that has had 10 cc of isoflurane, halothane or ether added to the cotton. The anesthetic gas enters the induction mask. No more "blowing" is done until the level of anesthesia is so light that more gas is needed. **Human exposure to volatile anesthetic gases must be considered when using an open system such as this without suction or exhaust**. This semi-closed system avoids the waste of a mask with cotton and anesthesia in the mask itself. In a plain mask system it is difficult to control the anesthetic depth. With the anesthetic generator chamber one has more control, which in this case required covering the chamber with a stocking cap to keep the chamber temperature lower, as the sun produced heat that was causing too much anesthetic in the air-gas mixture, and birds were going down too fast and too deep.

Fig 1.17a | Metal toxicosis is seen commonly in avian practice. A "bag rad" technique is used as a preliminary scout film to make scout films fast, affordable and safe.

Fig 1.17b | The bird is placed in a bag sealed with tape and the bag is placed on the cassette; the exposure is made.

Fig 1.17c | Bird in bag on the cassette being exposed.

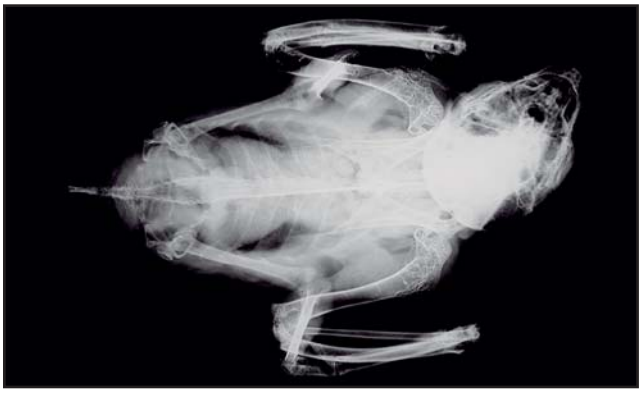


Fig 1.18a | Heart-liver-coelomic area view of a cockatiel, with no metal densities.

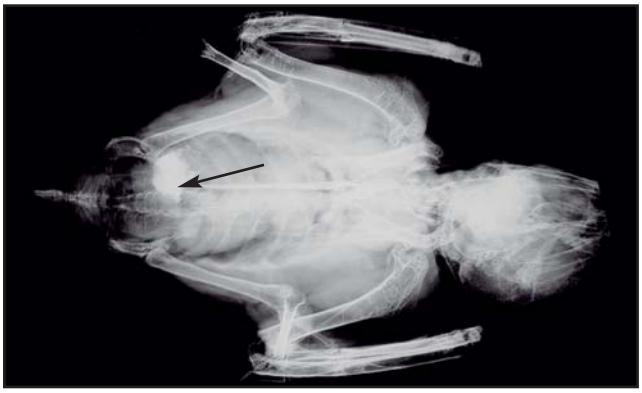


Fig 1.18b | "Metal" density (arrow) in ventriculus area in left caudal lateral aspect, liver swollen, increased shadowing of lungs and heart area.

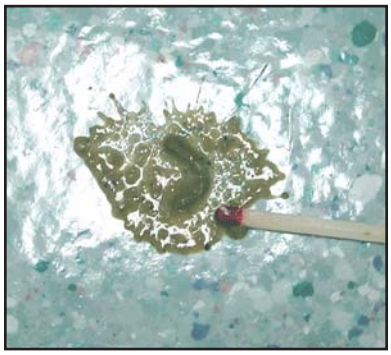
RADIOLOGY

Radiology in avian medicine is discussed in Chapter 25, Advances in Diagnostic Imaging. In cases where radiology is used to identify metal-dense particles, anesthesia is not needed, since proper positioning is not required. Most birds can be safely placed in paper bags (Figs 1.17a-c) and placed directly on the cassette for radiography. This allows a scout film to be safely made and metal densities to be visualized (Figs 1.18a,b).

GRAM'S STAINING

Laboratory sampling is discussed elsewhere; however, Gram's staining will be mentioned here and in Chapter 4, Nutritional Considerations. In past decades, Gram's stains of feces and choanal swabs were used as a major method of testing newly imported birds. The paucity of knowledge at that time regarding the methods of safe venipuncture and subsequent interpretation of results made Gram's stains and cultures the only available diag-

Fig 1.19 | A simple Gram's staining rack that confines the stains to the sink area.



Figs 1.20a,b | Placing a wooden-stemmed match head into a bird's cloaca stimulates the production of a fresh sample. Feces are usually produced moments after placing the match in the cloaca.

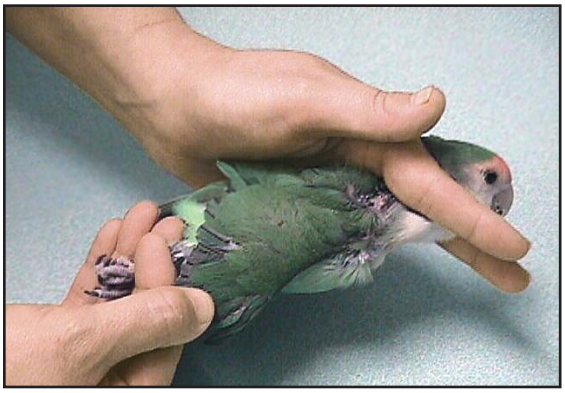


Fig 1.21a | Small birds can be restrained as shown to make jugular venipuncture easier. It stretches the neck out in an ideal fashion for small to medium-sized birds. One pulls the right wing caudally to be held with the leg on the same side as the wing. At the same time the head is held. A second person draws the blood sample.

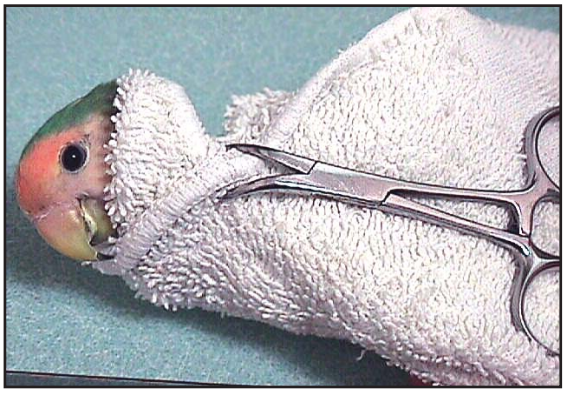


Fig 1.21b | Lovebird being restrained using clamps to hold a towel around the neck like a whiplash collar, immobilizing the bird.

Fig 1.21c | Pelican bill restraint.

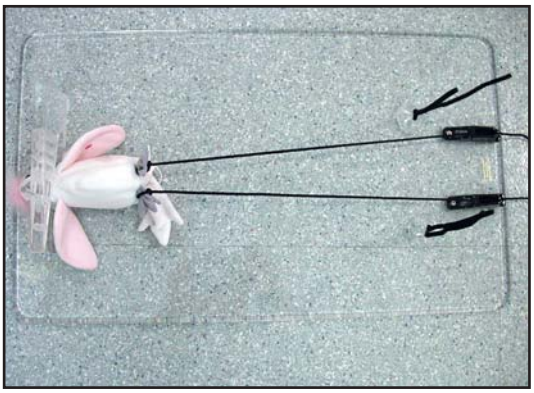


Fig 1.21d | A restraint device for positioning a bird for radiography or surgery.

nostic tools. In retrospect, this use of Gram's staining was less than optimal, and the results of the Gram's stain often were misinterpreted or over-interpreted.

Currently, in these authors' practices, Gram's staining of fecal material is done routinely and prophylactically. These authors have found that a bird's intestinal bacterial balance is an excellent reflection of its general nutritional state and thus more of a determinate of wellness than of illness.

The procedure can be very messy, and various racks (Fig 1.19) make this more manageable. Gram's stain solutions can be purchased in large-quantity containers, making the cost per test minimal. Ideally, the client is instructed to bring fresh, voided feces as part of the patient evaluation (see Chapter 4, Nutritional Considerations). If the client lives a long distance from

Fig 1.22 | **a.** Single-handed restraint to start a wing clip **b-d.** The foot and wing are restrained simultaneously. Wing trim in a light-bodied bird.

Fig 1.23a | Capture of an Amazon in a towel.

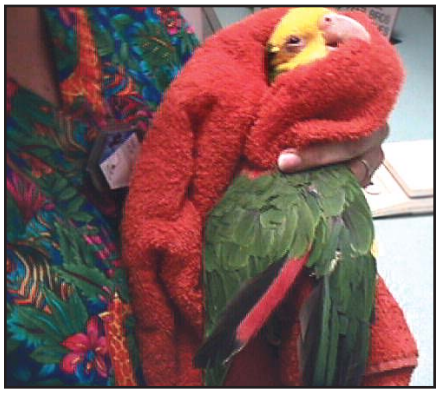


Fig 1.23b | Positioning the wing for trimming in a heavy-bodied bird.

Fig 1.23c | In an Amazon trim, secondaries only (distal to elbow) are clipped on one wing.

the clinic, there is a recommended method for getting a fresh sample (Figs 1.20a,b).

RESTRAINT

The restraint of birds such as raptors and other birds of prey is discussed in the special species chapters. The towel restraint is discussed in Chapter 6, Maximizing Information from the Physical Examination. For grooming, the towel makes single-person restraint and procedural accomplishment possible. Old towels can be purchased inexpensively at thrift or secondhand stores. Washcloths work well for smaller birds such as budgerigars or parrotlets, hand towels are ideal for cockatiels and lovebirds, and larger birds such as Amazons and macaws need to be wrapped in full-sized bath towels.

Small birds can be held for jugular bleeding as shown (Fig 1.21a). Towel clamps can be used to secure the towel once the bird is wrapped (Fig 1.21b). Waterfowl, wading birds and water birds in general need the beak controlled (Fig 1.21c) while raptors need foot restraint that will prevent taloning or "footing" of either the handler or of the bird itself. A plastic restraining board[c] (Fig 1.21d) is ideal for restraining birds for radiography and certain other procedures under anesthesia.

AVIAN GROOMING

Grooming birds consists of wing trimming, nail cutting, beak trimming and bathing. Wing trimming for large birds involves taking off a variable number of the primaries (see Chapter 6, Maximizing Information from the

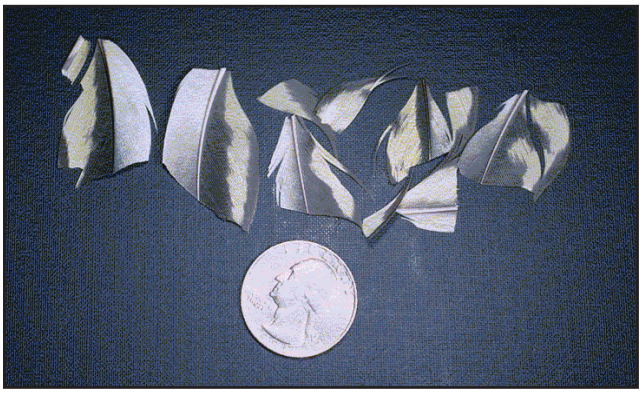


Fig 1.24 | Number of feathers removed from a cockatiel to stop flight. The bird was flying after an incorrect wing trim.

Fig 1.25a | Sternal ulcer from falling due to over-clipped wings.

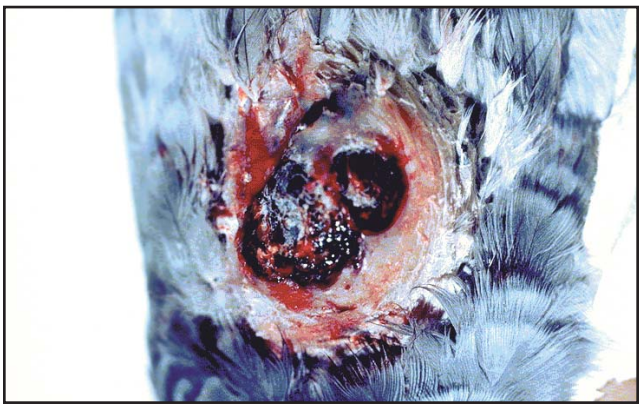


Fig 1.25b | After removing scab.

Fig 1.25c | An African grey, a heavy-bodied bird, that was falling and creating a sternal ulcer as seen in Fig 1.25a. The bird is having trimmed feathers pulled under anesthesia to speed feather regrowth. Use a firm grip with a needle holder, pull gently and steadily to avoid ripping the follicle and surrounding membranes.

Fig 1.25d | This photo shows the number of feathers pulled from the bird in Fig 1.25c. This is a form of forced (non-drug) molt. New feathers will grow in over the following few weeks. The bird must be kept on the floor or in a perch-less cage during regrowth to avoid falling.

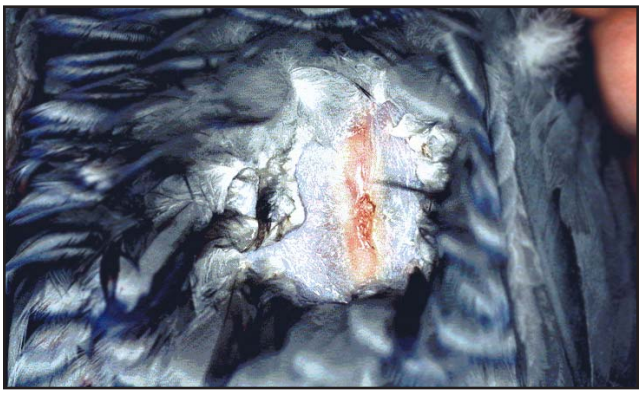


Fig 1.25e | Several weeks after the wing feathers have regrown, the bird regained stability and then flight. At this time, the wing should be properly trimmed. If additional sternal trauma can be avoided for several weeks, the ulcer will heal by second intention. Proper diet speeds up feather regrowth and healing.

Physical Examination and Figs 1.22a-d and 1.23a-c). The primaries are cut as closely to their insertion as possible. Currently, the most popular method of wing trimming is to remove a variable (4-7) number of distal primary feathers from both wings. In the authors' practice, large-bodied birds have primary feathers cut from their right wing only, from the elbow to the tip of the wing. Small birds can usually be groomed by clipping both the primaries and some of the secondaries. Since there are many modifications to wing trims, it is NOT safe for birds to be carried free outdoors after ANY wing-trimming procedure. Fig 1.24 shows the limited mass of feathers needed to achieve flight in a cockatiel that was inadequately trimmed.

Fig 1.26a | Beak and nail trimming. The stone on this electric hand-held rotary tool® has been "loaded" with plastic or paint by grinding such a surface in such a manner as to "load" the stone, creating a smooth surface. This smooth surface generates heat for cautery if a beak or nail starts to bleed during trimming.

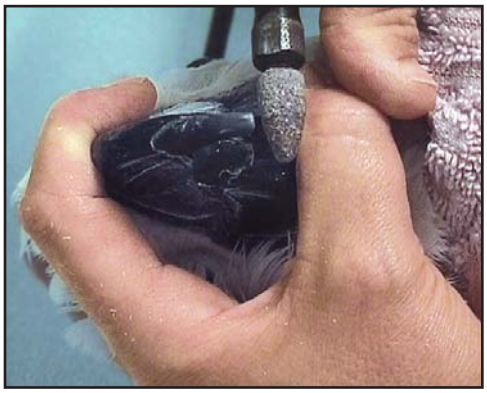


Fig 1.26b | Positioning the upper beak (maxilla) inside the lower beak (mandible) to accomplish a controlled trim and avoid tongue damage. Note the bracing of fingers one against another to allow fine controlled motions.

Fig 1.27 | Nail trim in a small bird, single-person hold. Brace fingers against one another for maximum control.

Fig 1.28a | Grinding a baby macaw's nails and accustoming it to the rotary tool. Older birds unaccustomed to this procedure should always be restrained to avoid biting or grabbing the drill or causing injury to the bird.

Fig 1.28b | Using the towel restraint (see Fig 1.23), the foot and toes can be controlled. Note the leveraging of the fingers one against another to provide accurate control.

Fig 1.28c | Changing angles and finger positioning to allow complete honing of each nail.

Conversely, excessive feather removal in heavy-bodied birds can result in sternal ulcers from falling onto hard surfaces (Fig 1.25a-e). African greys (*Psittacus erithacus*) and some macaws, cockatoos and Amazons develop necrotic ulcers of the skin over the distal wing that heal when the cut feather stubs are pulled under anesthesia. Personality changes from the sudden instability created by a wing trim can occur, especially in sensitive species such as African greys. It takes weeks for new feathers to emerge. In the authors' experiences, sternal ulcers usually heal successfully by avoiding further trauma (keeping the bird from falling repeatedly) and allowing feather regrowth. No medical or surgical (sternal keel reduction) treatment is usually needed if recurrence of the trauma can be prevented.

Beak trimming is not necessary in birds unless the beak is overgrown due to underlying health problems or malocclusion. Some clients will request the beak be dulled to mitigate mutilation or the pain to themselves or others from being bitten.

Cement (concrete) perches are useful for providing a rough surface on which the bird can clean its beak. Even birds that will not stand on a cement perch will often utilize one for cleaning food debris and excess keratin off the beak. These perches can be hung vertically in the cage to provide the bird with better beak access. Some of the available commercial cement perches are too rough and can cause plantar surface irritation, especially if the cement perch is located where the bird elects to perch for prolonged periods of time. Other brands are too smooth and are therefore not effective in providing an abrasive surface for the nails or beak (T. Lightfoot, personal communication, 2003). A hand-held rotary

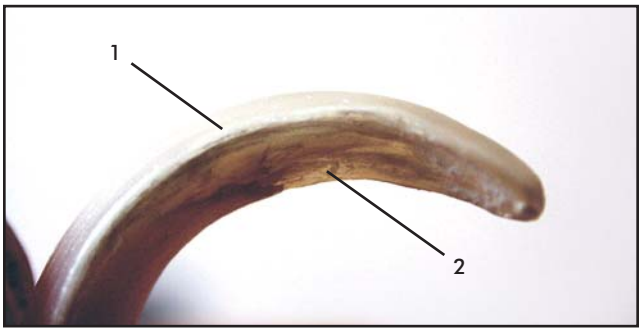


Fig 1.29 | Close-up view of a nail. Simply cutting the parrot's nail tip does not address the two sharp edges of the nail that are normally present (1,2). Controlled honing with a grinding or filing device leaves a smooth-surfaced nail and provides weeks, longer satisfaction for the client. Explaining this to the client and keeping towels and rotary tools sterile justifies the additional charges needed for a veterinary facility to provide grooming.

Fig 1.30a | Bathing of birds is a part of grooming. Thorough rinsing, towel drying and, in some birds, blow-drying may be used.

Fig 1.30b | Some "advisors" suggest blow-drying can be a cause of dry skin and that birds do not like blow-dryers. "Papagei," a pampered Moluccan cockatoo, thoroughly enjoys his bimonthly bath and blow-dry. He moves on his own to get each spot dry. He does not have a dry skin problem.

Fig 1.30c| The use of a feather cleansing solution provides a good vehicle for topical medications (ie, heparin, F10).

tool[e] is ideal for trimming beaks and nails because it files the tissue back in a smooth, controlled manner. Furthermore, the heat generated by friction from the filing tip facilitates cauterization if bleeding occurs. A conical-shaped rasping tip (Fig 1.26a) works best for avian grooming. Caution must be used when honing the sides of the rhinotheca, as the final protective/germinal layer is very thin and can easily be ground through or burned, creating a long-standing deficit. To facilitate shortening of mandibular rhamphothecal length, the maxillary rhamphotheca can be inserted inside the mandibular rhamphotheca (Fig 1.26b). This positioning not only makes the mandibular rhamphotheca more accessible, but also helps prevent the patient's tongue from making contact with the rotary bit.

Restraint for nail trimming is demonstrated (Figs 1.27, 1.28a-c). As the rotary tool is held, fingers should be positioned to allow maximum dexterity. Birds have sharp ridges on the sides of their nails, and this is why they remain sharp when only the tip of the nail is removed (Fig 1.29). The rotary tool is ideal for smoothing ridges so nails do not feel sharp. Again, as with wing trims, clients should be forewarned that the bird will be less able to maintain its balance after a nail trim and will be more likely to fall from its cage or the owner's shoulder when the nails are dull.

Giving birds a bath with soap and water is not a routine part of the grooming process as with cats and dogs. However, some birds really enjoy the process, as do the owners. The type of soap that is used for fine washable garments has been noted as safe and effective for bird-baths for the past three decades. It is recommended that one drop of soap per 250 cc water be used for routine bathing. Up to 3 cc soap in 250 cc water may be used to clean more heavily soiled feathers. The bird should be subsequently rinsed in warm water, towel dried, then blow-dried with an electric dryer (assuming the bird accepts this procedure) (Figs 1.30a-c), taking care not to burn the skin.

Fig 1.31a | An aluminum leg band.

Fig 1.31b | If the band is too large it can be easily slipped up over the ankle and removed intact.

Fig 1.31c | Bring digit 1 of the banded leg up along the metatarsus and slip the band down over that digit.

Fig 1.31d | Continue to slip the band off.

Fig 1.31e | The band is off. Reversing the process allows the band to be put back on for travel needs.

Fig 1.32a | Metal cutting pliers can cut only aluminum bands. They will only slightly dent the stainless steel band shown here.

Fig 1.32b | To custom-make a very small bird band remover an Olsen-Hager needle holder on the left can have the needle holder plates ground off as shown in Fig 1.32c.

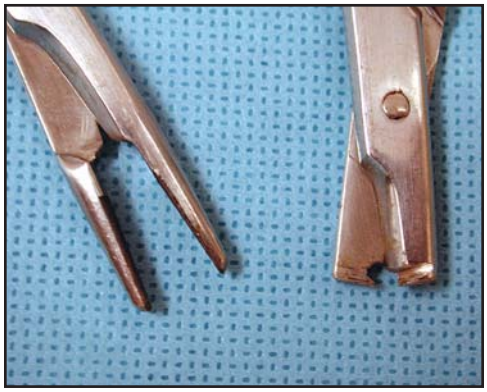


Fig 1.32c | The flat grind wheel on a hand-held rotary tool[e] can be used to remove the needle holder's tips and make the cuts shown in Fig 1.32d. This makes an excellent band remover for the fine plastic bands and some aluminum bands used for birds like canaries.

Fig 1.32d | Close-up of the cuts made to create a band remover from a needle holder.

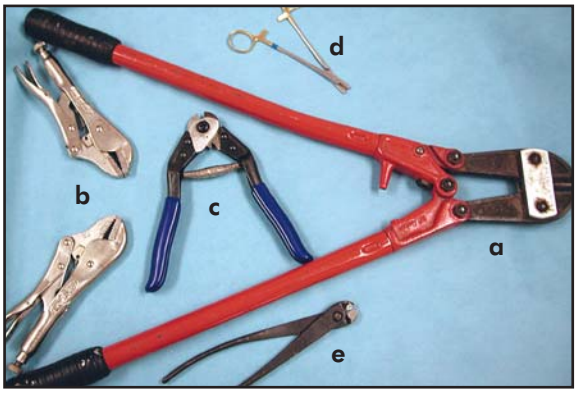


Fig 1.32e | A collection of tools used to remove various leg bands: Bolt cutter (a), vise or locking pliers (b), metal snips (c), modified needle holder (d), Kras cutter[f] (e).

Fig 1.32f | Side cutters and needle-nose pliers are examples of tools used to cut bands and hold metal for bending or cutting.

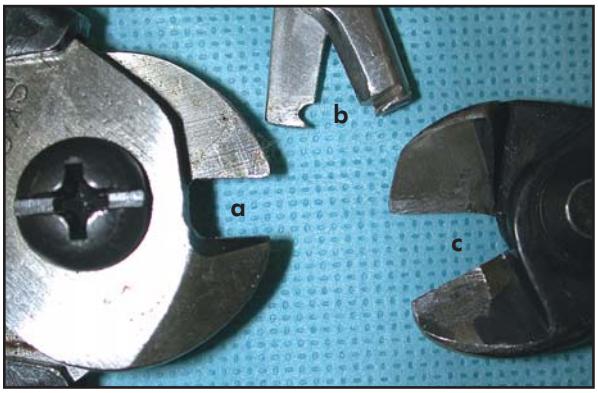


Fig 1.32g | Close-up of band-cutter heads. Metal snip (a), modified needle holder (b), Kras cutter[f] (c).

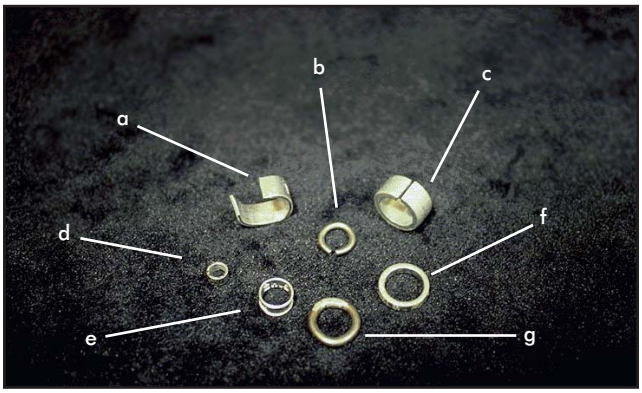
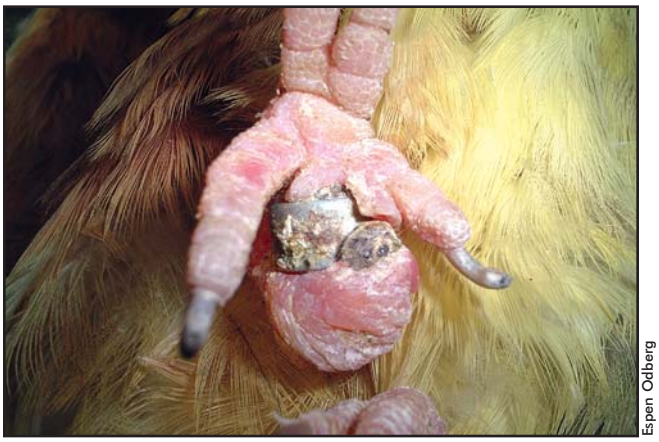


Fig 1.33 | Three split bands (a,b,c): (b) A stainless steel band that requires a bolt cutter or a two-vise-grip twist to be removed. (d,e,f) Aluminum bands: (d) and (e) can best be cut with modified needle holders; (f) requires one of the two tools shown in Fig 1.32e. (g) A solid stainless steel ring that requires bolt cutters once or twice and then vise grips.

Espen Odberg

Fig 1.34a | A leg constricted by a band due to accumulation of exfoliated skin under the band.



Espen Odberg

Fig 1.34b | Malnutrition creates a proliferation of the scales that can accumulate under a band. Over time, a depression in the leg's structure is formed by the proliferating skin mounding between the band and the leg. Pressure from this accumulation under the band causes constriction of the leg vessels. The foot can be lost due to necrosis. The custom-made needle holder band remover usually works best on this problem if the band is aluminum.

Espen Odberg

Fig 1.34c | A metal snip also can be used to cut aluminum bands constricting the leg.

Espen Odberg

Fig 1.34d | Pressure necrosis caused by tissue proliferation makes a deep groove that severely compromises circulation.

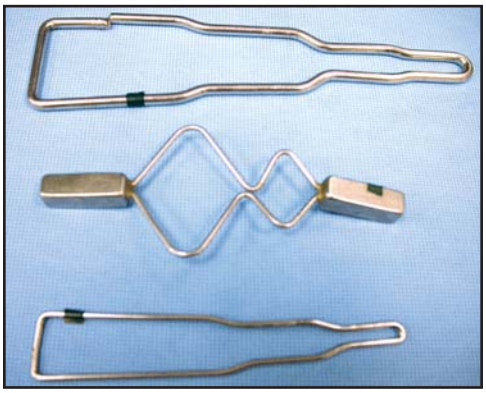


Fig 1.35 | A variety of mouth specula.

Fig 1.36 | A mouth speculum cut to reduce beak cracking.

Fig 1.37 | Sections of plastic pipe used to make a speculum with a hole through which a gavage device can be passed.

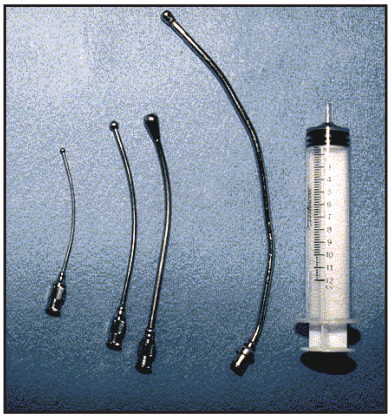


Fig 1.38 | Various metal gavage tubes.

Fig 1.39 | Silicone feeding tubes[h].

BAND-REMOVAL INSTRUMENTS

Oversized bands can be slipped off the foot. The band is slipped proximally over the tibiotarsal-tarsometatarsal joint (hock) as high as possible (Fig 1.31a-e). Digit 1 is retracted along the joint as shown and the nail is placed under the band. If needed, a lubricant can be applied. With light pressure the band slips off. It can be replaced later if need be. Band cutters[f] work well for removing most small, closed bands. (Figs 1.32a-g) Bands that are too small (Fig 1.33) or build up layers of keratin under them from nutritional disorders can cause constriction (Figs 1.34a-d). The larger steel bands are too strong to be cut with most band cutters and must be twisted off using vise grips or split with heavy metal (bolt) cutters (large red-handled device in Fig 1.32e).

OTHER EQUIPMENT

Specula

Stainless steel specula have the advantages of being indestructible and easy to sterilize (Fig 1.35). However, if the bird bites down aggressively on the speculum, damage to the mandibular beak can occur. Cutting one side of the speculum so that it is slightly moveable can minimize this potential problem (Fig 1.36). Specula are also made from tubular plastic material (Fig 1.37). Plastic specula are commercially available and are found useful by some practitioners to obtain pharyngeal swabs for PCR tests or culture. Two pieces of gauze also can be used to hold the beak open. For most procedures, a speculum is not necessary.

Feeding Tubes

Because they are indestructible and easily disinfected, stainless steel feeding tubes[g] (Fig 1.38) work best for most pet birds. Disposable silicone tubes[h] (Fig 1.39) work well for tube feeding neonates, waterfowl or other birds that cannot bite the tube. Red rubber catheters[g] are ideal for long-necked birds such as seabirds. See Chapter 14, Evaluating and Treating the Gastrointestinal System for photos of damage avoidance and proper tube placement.

Microchipping Equipment

Microchips are small electronic devices that can be injected into the body. The left pectoral muscle is the accepted placement of microchips in psittacines. These devices contain a code that, when scanned with a reader, will provide identification of the bird. One disadvantage of

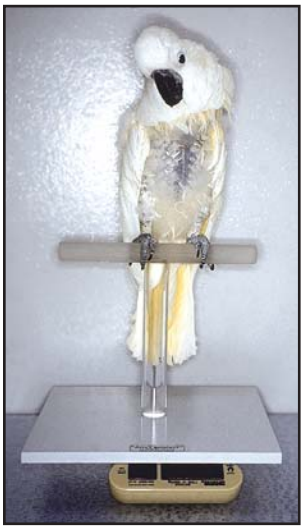


Fig 1.40 | A Moluccan cockatoo on the perch on a scale.

Fig 1.41 | Disposable paper bags make easy restraint devices to weigh small birds and require no cleaning.

Fig 1.42 | A plastic tube perch in a cage.

microchips is that there is no industry standard, and one model of microchip reader cannot identify all microchips.[6] The USA's FDA and USDA have approved a combination AVID code and Fecava code 125-kHz chip reader.[i,i1] In Canada, Western Europe and Australia, the chips operate at 134.2 kHz. This ISO chip can be read with a global scanner, but not by the USA 125-kHz scanner, which only reads the corresponding chip.

Gram Scale

Pet birds need to be weighed in grams. Modern digital scales allow placing the bird on a perch (Figs 1.40). The tare function on these scales will allow automatic deduction of the weight of a box, bag or towel from the digital readout. These digital scales can be fitted with an AC adapter to avoid constant battery replacement. Most pet birds will sit on a perch to be weighed. For those that do not, various bags (Fig 1.41) work and they are replaceable without cleaning.

Examination and Clinic Cage Perches

Acrylic perches[j] (Fig 1.40) are ideal clinical perches for the exam room because they are relatively inexpensive and can be easily disinfected. Plastic tube perches are inexpensive, easy to clean and the material with which to construct these can be purchased at any local hardware store in multiple diameters. This plastic piping can be cut to any length to be custom fit to cages (Fig 1.42). Wrapping these plastic (PVC) perches in removable self-adhering bandage material (ie, VetWrap) offers the bird better traction while perching, and hygiene can be maintained by changing the wrap between patients.

PATIENT PRESENTATION

Birds should be presented to the clinic in travel cages (Figs 1.43, 1.44; see Fig 1.51b), not on the owner's shoulders (Fig 1.45). This is to prevent injury to bird or owner. Restraint for assisting doctors, grooming or administration of treatments is most effectively achieved as previously discussed using a towel.

Avian Practice Staff Members

All clinic staff should sign clinic confidentiality agreements; professional staff should include this agreement as part of their employment contract. Contracts should have buy-outs and exit strategies well outlined and should be renewed to keep them effective. Without these procedures chaos is invited.

The delineation of duties within the course of an avian appointment will vary between practices. The relative experience of staff, technicians and doctors, as well as the ratio of these and the current level of activity, makes cross training and flexibility advantageous, as in any veterinary practice. In order to give concrete examples of how the various steps involved in a patient visit can proceed, the authors have assigned specific responsibilities to each staff member in the following examples.

RECEPTIONIST

The demands of avian medicine are different from the demands of small animal practice; therefore, staff members should be appropriately trained. The receptionist is the client's first contact with your hospital and a major representative of the clinic. The receptionist should make clients feel welcome and comfortable and should be educated enough to answer questions concerning general

Fig 1.43 | Bird in a carrier made of hardware cloth, which is a potential source of zinc or lead. Lead will will cause a wet test strip [i1] to turn red.

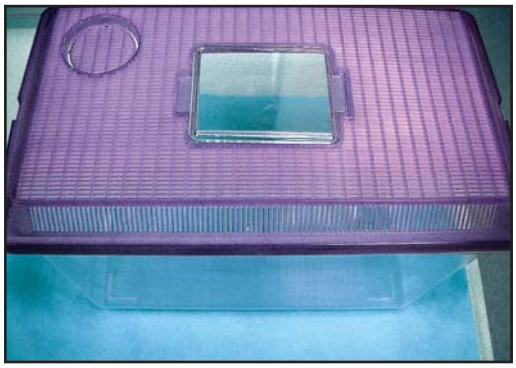


Fig 1.44 | A plastic storage box used to transport birds and other small pets.

Fig 1.45 | A hyacinth macaw on its owner's shoulders. An improper presentation mode for a clinical visit.

bird care. A competent receptionist should be able to successfully complete paperwork and expedite clients as they move in and out of the waiting room. Other responsibilities for the receptionist may include debt collection, retail ordering of food and toys, organizing reminder cards, initiating client callbacks and other communication to be sent out to clients. A skilled receptionist can turn the telephone shopper into an appointment.

VETERINARY ASSISTANTS

Finding certified technicians with avian experience often is very difficult. Therefore, one is often forced to train assistants to support the veterinarian in certain duties. While seldom competent in all areas taught to veterinary technicians, enthusiastic assistants can provide a great deal of support. Assistants often can be taught many of the technical duties: client questioning, performing fecal Gram's stains, administering drugs, and assisting in radiology and surgery. Assistants can perform procedures but seldom understand all the ramifications or anatomical, physiological, pathological and pharmacological reasons for their actions. Depending on the size of the hospital and the presence and extent of avian boarding, the veterinary assistant and kennel assistant may have overlapping duties (see the following section on Kennel Assistants).

Technicians, on the other hand, know why they are doing what they are doing. They often can support the veterinarian by offering suggestions based on practical understanding, demonstrating the huge difference between assistants and technicians.

VETERINARY TECHNICIANS

Veterinary technicians are certified as to their special training. They often need further experience and guidance to adapt to birds. Training opportunities are available at special seminars or conferences, such as the Association of Avian Veterinarians' annual conference and the International Conference on Exotics (ICE). There also are programs available through technical colleges throughout the USA. A complete list of veterinary technology programs in the USA is available in the American Veterinary Medical Association Directory and Resource Manual (Table 1.1). Although there currently are no technical programs that specialize in avian medicine, most programs do cover exotic animal care. Following are descriptions of responsibilities that technicians can be trained to perform.

Client Communication

There is a recognized lack of accurate information available to pet bird owners. This can be overcome by training technicians to give short talks during appointments on dietary requirements, husbandry and home care. See Chapter 6, Maximizing Information from the Physical Examination for a form that covers these topics. Technicians also can become involved with writing and distributing educational handouts and presenting classes.

Initial Examination

After reception, the technicians or assistants project the clinic's second image to the client. They take the bird into the exam room, review the case history and records, and verify that the paperwork is correct including name, phone number, bird's name, age, sex, species and color. They should present the clinic philosophy of wellness and education, offer take-home educational material and start the medical record. (See Chapter 6, Maximizing Information from the Physical Examination for a form that can be completed by the support staff.) Procedures are more readily understood and accepted by the client if visual educational material is presented. Diet, preventive practices, and the physical exam are discussed and performed. An information video on the value of proper

Fig 1.46 | A steam cleaner[k] makes dried matter easier to remove.

diet can be shown. A sample of fresh feces is Gram's stained in the laboratory. The veterinarian can then come in to evaluate the records, complete the physical examination, record the clinical signs, and form and record a list of differential diagnoses. These are then discussed and the diagnostic tests necessary are explained to the owner. The technician records these and prints out an estimate, including the diagnostic and treatment protocols. This is explained to the client by the technician, then approved by the client. The owner can then sign treatment permission and price quotation forms.

Under veterinary supervision, technicians draw blood, perform laboratory tests and collect, prepare and properly submit laboratory samples. Technicians also review cases daily with the veterinarian.

Technicians should monitor boarding and hospitalized birds on a daily basis noting and recording appetite, fecal production, weight and behavior. If any abnormalities are noted, these should be discussed with the doctor. In addition, technicians should become competent at performing routine treatments, preparing medications to be dispensed, administering injections, gavage-feeding, administrating oral and topical medications, and performing radiography, cytology and blood collection. Technicians are usually familiar with medical terminology so they can take notes for doctors during exams, surgery and necropsies. Taking radiographs, ordering medical and surgical supplies, contacting owners for follow-ups on laboratory reports and preparing instructions for patients being released are tasks a technician often masters. A competent technical staff with such skills is irreplaceable. Technicians also assist in surgery, including preparing the operating room for surgery, monitoring anesthesia and patient recovery, and cleaning and sterilizing instruments after surgery. A new small steam generator[k] is available for equipment cleaning and is efficient, effective and very affordable. The steam sterilizes as it loosens debris and reduces the need for chemicals (Fig 1.46).

Hospital inventory

Technicians should develop a rapport with several medical supply company representatives, increasing the chances of finding the best prices on drugs and hospital supplies. In addition, a pharmacy inventory should be kept so that stock can be kept up to date and reordered when needed. Shelves should be checked on a regular basis to remove expired food and drugs.

KENNEL OR HOSPITAL ASSISTANTS

Kennel or hospital assistants are responsible for weighing birds daily, and for clinic sanitation including cleaning cages and rooms. Assistants should be comfortable around birds because cleaning often necessitates handling birds without getting bitten, injuring the bird or permitting the birds to escape. Assistants should be astute enough to observe any abnormalities in feces, appetite or weight changes, so that technicians and doctors can be notified. These employees must be able to recognize proper placement of perches, food and water bowls within the cage to make certain the bird is accessing these. For example, a nervous bird may sit on a high perch in an unfamiliar animal hospital environment and not venture down to the level where the food and water are placed. Assistants also may be responsible for making sure that food and toy supplies are stocked on shelves and ensuring that any such items offered to hospital and boarding birds are safe and appropriate. Individual items such as cups, toys and carriers should be marked with the owner's name so that they are returned when the patient leaves the hospital.

AVIAN BEHAVIORIST

Biting, screaming and feather picking are frequently encountered problems with pet birds. Owners often do not know how to react correctly without reinforcing the problem. It is ideal to have an in-house bird behaviorist to work with clients to overcome these types of problems. Behaviorists also can train birds (and their owners) to overcome such bad habits as refusal to perch and insisting on staying on the owner's shoulders. Training for behavioral work can be obtained by attending conferences and seminars and by consulting with behavioral experts. For further information see Chapter 3, Concepts in Behavior.

Fig 1.47 | Padlock cage.

Fig 1.48 | White butcher paper.

Fig 1.49 | Central vacuum.

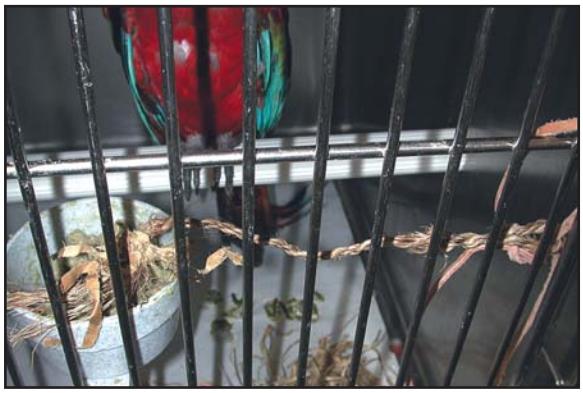


Fig 1.50 | Shredder toys.

Hospital Facilities

BOARDING

Fig 1.9 shows boarding birds that can be seen from the reception area. The presence of a "clinic bird" in a mixed small animal practice often serves to announce the practice's interest in birds.

Boarding birds should be housed in an area located away from noise and excitement. This is easier to do in an exclusively avian practice versus a small animal practice, where birds must have a special area away from dogs, cats or other exotic animals. Stainless steel or fiberglass cages, such as those used for dogs and cats, work well for housing birds because they are indestructible and easy to clean. Some stainless steel cages can be padlocked (Fig 1.47), which is useful to safeguard "escape artists" and help ensure the security of very expensive birds. Plastic pipe for perches can be cut to any size to fit in cages. White butcher paper (Fig 1.48) is non-staining and can be used for the cage lining. The white paper allows quick visualization of fecal and urate color and consistency, and this helps monitor the bird's health. For smaller birds, cages can have the bottoms removed and be placed directly on the butcher paper, thus facilitating cleanup.

Central vacuum systems (Fig 1.49) make cleaning easier. Central vacuum access in the surgical preparation area is also an advantage, allowing feathers to be immediately vacuumed as they are plucked.

Preliminary Testing for Boarding Birds

The policies that are implemented for testing prior to boarding should be tailored to the individual bird and its particular risk factors. For example, juvenile birds, birds that are exposed to other birds at bird shows and those that accompany their owners to pet stores, should be tested more frequently. It is good policy to require every boarding bird to have a physical examination and a minimum laboratory base-line, including a Gram's stain, within 6 months of boarding. It may be prudent to require a psittacosis PCR test at the same interval. This not only reduces the potential that sick birds will be housed with healthy birds, but also provides client loyalty for the clinic. Birds that have not been tested or have test results pending must stay in an isolation room until the test results have been received. An extra daily fee is justified for housing in isolation.

TOYS FOR BIRDS

Many clients will purchase toys for their boarding and recovering birds. This is good for the bird and also generates income for the clinic. Alternatively, the clinic can provide inexpensive toys such as native nontoxic woods or palm leaf pieces (Fig 1.50).

Fig 1.51a | A cockatiel in plexiglas container.

Fig 1.51b | Acrylics are lighter and more scratch resistant than plexiglas.

Fig 1.51c | Hospital intensive care unit[P] with toys.

Fig 1.52 | A plastic tub, its top replaced with wire and with a heating pad underneath, makes a practical homecare unit.

Fig 1.53 | A shower stall is made into a cage by placing a flexible panel used to block doors for toddlers. This makes a practical, easily cleaned unit for water birds that need frequent cleaning with large volumes of water.

HOSPITALIZATION

The hospitalization room should be a quiet environment, separated from the boarding and isolation areas. Birds requiring supplemental heat should be housed in incubator-type enclosures. Many of these are equipped with a heat and humidity source. Most sick birds should be kept at a temperature of 26.7 to 29.4° C (80-85° F) and humidity of 70% (Fig 1.51a-c). A plastic container can be used as a brooder by cutting a section out of the top and replacing it with wire (Fig 1.52). It is convenient to have hospital supplies, such as frequently used medications, syringes, needles and electrolyte solutions, located in the hospitalization room. Supplemental oxygen should be located in the hospitalization room for use with patients requiring oxygen therapy. Commercial brooder-incubators[P] are available that allow control of humidity and temperature. The authors have found it easier to keep sick and recovering birds warm if air conditioning vents are not installed in hospital rooms; this also reduces air from these rooms circulating into well-bird areas. A simple electric space heater can be used to increase the temperature of bird rooms needing warmer temperatures. Heating pads under cages for heat and other forms of dry heat can cause dehydration. Humidity should be added as needed.

ISOLATION

An isolation area is necessary for housing untested birds or birds with unknown illnesses away from other birds in the clinic. Ideally, the isolation room should have a ventilation system that is separate from the main clinic ventilation system. Staff should be instructed to strictly adhere to precautionary measures associated with isolated birds. These include treating isolated birds last and having scrubs, gowns, gloves, shoe coverings and cold sterilization dishes that are to be used only for isolated birds. Staff also should be instructed on proper room disinfection procedures.

The authors' clinic uses a chemical autoclave that employs a form of alcohol rather than water for vapor. This machine is kept in the isolation room and birds are moved to a bathroom when autoclaving; thus, the fumes help keep this room sterile. Other than the bathrooms, this is the only room with an exhaust fan in the clinic. The clinic's isolation area contains a shower to house large waterfowl such as pelicans and swans (Fig 1.53). This area can be hosed down as needed to help contain odor and mess.

Fig 1.54 | Necropsies should be performed as often as possible in avian medicine to add to both the individual veterinarian's and the avian veterinary community's collective knowledge. A wide selection of tissues must be collected for histopathologic confirmation.

Fig 1.55 | A locked safe is used to store controlled drug and may be bolted to the floor.

In larger hospitals and those that also offer hospitalization and/or boarding for dog and cat patients, physical distance can serve as additional separation between multiple sick birds that need to be isolated. Fortunately, few contagious diseases of birds are commonly contagious to pet dogs and cats. Attention must then be paid to appropriate temperature, humidity, and lack of stressful stimuli when traditional companion pets are present with clinically ill avian patients.

CLIENT RELATIONS

Once a clientele has been established in the practice, it is important to make sure they return on a regular basis for continued care of their birds. Appointment reminders for semi-annual exams and laboratory testing, including Gram's stains and other recommended tests, should be sent out every 6 months. Client information folders[l] (see Fig 1.1b) can be given to clients so they have a record of body weights, health history and identifying characteristics of their bird. These are updated at each visit. Designing a client library that includes an avian veterinary medical text is also a good idea (see Fig 1.1b), although avian textbooks contain medical terminology that clients might have difficulty understanding.

Education and communication are important aspects of maintaining good client relations. Handouts with current information on pet bird health and disease are useful in clarifying information that was covered during the office visit. Topics that might be addressed include metal toxicosis in birds, importance of nutrition, safe diet conversion and zoonotic diseases of concern. Behavioral issues become more prevalent with increased length of ownership and are becoming more pervasive in our current pet bird population. Based on the bird's species, age, temperament and relationship with its owners, each visit may be accompanied by the discussion of a specific behavioral concern. In addition, there are educational newsletters[m] available for client distribution. Development of a clinic newsletter can be a positive addition to client education, retention and recruitment. This can cover new innovations in bird health as well as inform clients about new developments within the practice. Newsletters can be placed on the clinic web site. Educational brochures can be ordered[m] to place in the reception area. These contain information regarding various pet bird species, first aid, signs of illness, specific diseases, nutrition and hand-feeding[n]. Bird species identification books tend to be popular with clients. Having both normal and abnormal feathers available will demonstrate to clients the difference (see Figs 6.57k,l) between healthy and unhealthy conditions of their bird's feathering.

Educational material is available through companies that manufacture pet bird products such as food, cages and toys. Furthermore, most of the companies have web sites, and clients can communicate directly with company representatives via e-mail. With the advent of computer technology, web sites have become powerful tools for providing information to people all over the world. Setting up a clinic web site enables thousands of people to see pictures of clinic facilities and staff and to communicate questions directly via e-mail. A hospital web site with recommended links can also direct clients and potential clients to reliable sources of information on the Internet, providing a counterpoint to misleading and inaccurate information that can be encountered elsewhere on the web. As a convenience, appointments can be made via e-mail as well. E-mails can be sent to clients for follow-up office visits, and appointment reminders

also can be sent via e-mail. A clinic web site can provide an opportunity for clients to download the clinic newsletter, calendar of events or other educational information about pet bird health.

Another aspect of client satisfaction is conveying the message that the staff and veterinarians take a personal interest in the client. This can be accomplished by sending thank you notes for referrals and to thank new clients for their business. Clients also are very appreciative of expressions of sympathy such as cards, flowers or donations in their bird's honor when they have lost a beloved pet.

Record Keeping

COMPUTER SOFTWARE

Increased computer technology has brought many advances to veterinary medicine. One of the most important has been the increased efficiency and accuracy of record keeping through computer software developed for veterinary practices. Although there is no computer program currently available specifically for avian practice, it is possible to adapt small animal programs for use in avian practice. Estimates for future hospital services can be written and stored in the computer program. When an estimate is needed, the information can be easily accessed and modified, and presented quickly and accurately. Photographs and radiographs can be loaded into the patient's record. This is an advantage when records must be transferred or a patient is being referred, because the information can be electronically transmitted to another clinic, saving time and eliminating lost records. Computer programs are able to keep track of each client's visit and generate timely reminder cards. Computer programs store billing history and highlight bills that are overdue, making billing more consistent. Computer software also prints and records drug labels, which precludes mistakes due to illegible handwriting on labels, and allows directions for previous therapeutics prescribed to be retrieved. In addition, software allows auditing, individual access and monitoring for security measures.

DIGITAL CAMERAS

Another advance in record keeping is the development of digital cameras. Digital images allow information to be shared quickly among veterinarians via the Internet. With digital cameras, it is possible to capture images of the patient and any related conditions or procedures. Radiographs can be digitally recorded and the file sent to another practitioner without concern for the physical possession of the radiographs and associated legal implications.

Additionally, the use of digital cameras for documenting necropsy findings can be invaluable. The complete necropsy shown in Fig 1.54 involves opening the skull and demonstrates the value of the camera while illustrating a critical portion of the necropsy that is often omitted by many practitioners.

For the highest quality pictures, digital cameras should have a built-in macro capability (to enable good close-ups) and should be capable of image densities of two megapixels or greater.[3]

There are special adapters that allow cameras to be mounted on microscopes to capture microscopic images, while the addition of macro lenses and built-in macro functions of some digital cameras will create exceptional images when placed directly onto one of the eyepieces of a microscope.

PAPERWORK

Although increasing numbers of veterinary hospitals have become virtually paperless, there are still several situations that are best addressed by signature authority. Authorization forms document the client's understanding of and consent to having a particular service or services performed and the terms of that service. Authorization forms are commonly used in avian practice, as are forms that limit liability.

SECURE ITEMS

Keeping cash, controlled drugs and vital records in a fireproof safe is important for security. Fireproof containers have a lining that generates moisture upon heating, making combustion less likely (Fig 1.55). These containers are guaranteed for only 5 years, as this function deteriorates over time.

CONTROLLED DRUGS

Controlled drugs, radiology monitoring, medical waste and OSHA training are areas covered by federal and state laws in the USA. Such subjects need to be reviewed with your national, state and local authorities.

General Information Avian Practitioners Should Have Available

TRAVEL FORMS

On many occasions, people wish to take their pet birds

with them while traveling. In some situations, it is necessary to have travel forms that permit the bird to accompany the owner.

Travel by car within the USA requires Interstate Health Certificates.

When traveling by airplane within the USA: Form SA-B (Official Certificate of Veterinary Inspection for Interstate Movement of Dogs, Cats, and Other Non-livestock Species) must be filled out by an accredited veterinarian. APHIS form 7001 (US Interstate and International Certificate of Health Examination for Small Animals) also may be used for this purpose.

Travel by airplane outside the United States: An accredited veterinarian must fill out APHIS form 7001. The bird owner must then mail or hand-carry this completed form to the designated USDA-APHIS office, along with a processing fee. The form will then be approved by a USDA veterinarian and sent back to the owner to accompany the bird during travel. Because of the time needed to process this form, owners should be advised that planning ahead is imperative in order to receive the completed paperwork in time for travel. Additionally, the country to which the bird is being exported may have its own forms that must be completed prior to exportation, and may have differing requirements regarding testing, vaccination and identification. The owner should check with that country's embassy in the USA prior to making travel plans.

Travel with poultry or hatching eggs for export: There is a special form for poultry, VS form 17-6. Unless the birds are hatching eggs and newly hatched poultry, the veterinarian must go to the premise to inspect the birds in order to validate the travel form.

Contacts for Further Information

Division of Animal Husbandry (850-488-8280)
The United States Department of Agriculture (305-526-2926)
www.Aphis.USDA.gov/travel/pets.html
www.Aphis.USDA.gov/us/sregs - US State and Territory Animal Import Regulations

PSITTACOSIS INFORMATION

The Committee of the National Association of State Public Health Veterinarians has compiled a compendium of psittacosis control. The compendium discusses psittacosis infection among humans and birds, transmission, clinical signs and symptoms, case definitions, diagnosis, treatment, and recommendations and requirements. Copies of the compendium can be accessed at the Center for Disease Control web site (www.cdc.gov/ncidod) and at the web site for the American Veterinary Medical Association (www.avma.org).

IMPORT-EXPORT OF PET BIRDS

Most parrots are classified as endangered species, which require a special Conference on Endangered Species (CITES) permit to be imported or exported to or from the USA. See Table 1.1 and the discussion on Regulations in Chapter 2, The Companion Bird.

Products Mentioned in the Text

a. Karl Storz Veterinary Endoscopy-America, Inc, Goleta, CA, US, 805-968-7776, www.karlstorz.com
b. Endoscopy Support Services, Brewster, NY, US, 800-fix-endo, www.endoscopy.com
c. Miami Vise, Veterinary Specialty Products, 800-362-8138, vetspecpro@aol.com, www.vet-products.com
d. Poly Perches, 888-765-5971, www.pollyspetproducts.com
e. Dremel, Racine, WI, US, 800-437-3635, www.dremel.com
f. Kras Avian Leg Band Cutter, Veterinary Specialty Products, P.O. Box 812005, Boca Raton, FL, US, 33481, 800-362-8138, vetspecpro@aol.com, www.vet-products.com
g. Feeding Tube and Urethral Catheter, Sovereign, Sherwood Medical, St. Louis, MO, US
h. Silicone feeding tubes or human female catheters, Veterinary Specialty Products, 800-362-8138, vetspecpro@aol.com, www.vet-products.com. Also catheters and tubes A/S, DK-3540 Lynge Denmark or AUV Veterinary Surgeons Cooperative, The Netherlands (31)4855-3355-55
i. AVID, 3179 Hamner Ave, Norco, CA, US 92860, 800-336-2843, www.avidid.com
i1. Home Again. Schering Animal Health, www.homeagainid.com/vets/index.cfm
j. Acrylic perches. Lyon Electric Company, Chula Vista, CA, US, 619-216-3400
j1. Leadcheck Kit/Hybrivet Systems, Inc., Farmingham, MA
k. Steamfast - a small steam generator available from appliance stores
l. Zoological Education Network, PO Box 541749, Lake Worth, FL, US, 33454-1749, 800-946-4782, www.exoticdvm.com, info@exoticdvm.com
m. Avian Examiner, Harrison's Bird Foods, HBD International, Inc. Brentwood, TN, USA, 615-221-9919, www.harrisonsbirdfoods.com
n. Juvenile Hand Feeding Formula, Harrison's Bird Foods, HBD International, Inc. Brentwood, TN, USA, 615-221-9919, www.harrisonsbirdfoods.com
o. General Scientific Corp., 800-959-0153, www.surgitel.com
p. Lyon Electric Co. Inc., 1690 Brandywine Ave., Chula Vista, CA 91911-6021 US, www.lyonelectric.com

Table 1.1 | Avian Veterinary Medical Organizations and Web Sites

Organization	Website
American Animal Hospital Association (AAHA)	www.aahanet.org
American Board of Veterinary Practitioners (ABVP)	www.abvp.com
American Veterinary Medical Association (AVMA)	www.avma.org
Association of Avian Veterinarians (AAV)	www.aav.org
Association of Avian Veterinarians Australian Committee (AAVAC)	www.vet.murdoch.edu.au/birds/aav/join/htm
European College of Avian Medicine and Surgery (ECAMS)	www.ECAMS-online.org
Mid-Atlantic States Association of Avian Veterinarians	www.masaav.org/contact.htm
USDA-APHIS US State and Territory Animal Import Regulations	www.aphis.usda.gov/vs/sreqs/
APHIS - US Fish and Wildlife Service	www.permits.fws.gov (click on Import/Export)

Table 1.2 | Journals and Sources of Information on Avian Medicine

Information	Contact
American Journal of Veterinary Research	www.AVMA.org
Avian Diseases - Journal of the American Association of Avian Pathologists	www.aaap.info/audis
Avian Examiner	www.avianmedicine.net
Avian Pathology (UK)	www.tandf.co.uk/journals/tf/03079457.html
Veterinary Record - In Practice	www.vetrecord.co.uk
Compendium of Small Animal Practice	www.VetLearn.com
Exotic DVM Magazine and Exotic DVM Readers' Forum	www.exoticdvm.com
Journal of Avian Medicine and Surgery	www.aav.org
Proceedings American Association of Zoo Veterinarians and Journal of Zoo and Wildlife Medicine	www.aazv.org/aazv_001.htm
Proceedings Association of Avian Veterinarians (AAV)	www.aav.org
Proceedings Association of Avian Veterinarians Australian Committee	www.vet.murdoch.edu.au/birds/aav
Proceedings European College of Avian Medicine and Surgery	www.ecams-online.org
Proceedings of the European Committee of the Association of Avian Veterinarians	www.eaav.org
Seminars in Avian and Exotic Pet Medicine	www.us.elsevierhealth.com/product.jsp?isbn+1055937X

Table 1.3 | Avian and Veterinary-oriented Web Sites

Subject	Comments	Contact
Avian Medicine On-line	Password needed to enter	www.avianmedicine.net
Birdmed Discussion List	Password needed to enter For veterinarians, students, technicians, free archives	www.vet.murdoch.edu.au /birds/birdmed.htm
Exotic DVM	For veterinarians and veterinary students only	www.exoticdvm.com
Veterinary Information Network	Password needed to enter By subscription, access to archives	www.vin.com
Exotic Animal Network	Free	www.exoticanimal.net/
Avian and avian medicine-related links	Part of Birdmed – see above	www.vet.murdoch.edu.au /birds/aav/avi-links.htm

References and Suggested Reading

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2. Johnson-Delaney CA (ed): Avian Emergency Care: A Manual for Emergency Clinics. Seattle, Assoc of NW Avian Vet, 1991.
3. Kramer M: Practical digital imaging for the exotic animal practitioner. Exotic DVM 4(4):33-35, 2002.
4. Herschell GL: Big Profits from Small Budget Advertising. Publishing information about this book may be found at www.amazon.com.
5. McMillan MC: Imaging techniques. *In* Ritchie BW, Harrison GJ, Harrison LR (eds): Avian Medicine: Principles and Application. Brentwood, TN, HBD Int'l, Inc, 1994, p 260.
6. Perry RA: The avian patient. *In* Ritchie BW, Harrison GJ, Harrison LR (eds): Avian Medicine: Principles and Application. Brentwood, TN, HBD Int'l, Inc, 1994, pp 42-43.
7. Zantop DW: Differentiating abdominal swelling in birds with ultrasonography. Exotic DVM 2(3):11-12, 2000.