



REQUEST FOR PROPOSAL (RFP)

DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION

RFP NUMBER	118072
RFP TITLE	Veterinary Services
RFP DEADLINE	<p>September 18, 2018 2:00 p.m. (CST)</p> <p>Late proposals, faxed proposals, electronic mail proposals or unsigned proposals will be rejected.</p>
SUBMIT PROPOSAL TO THIS ADDRESS	<p>CITY COUNTY BUILDING DANE COUNTY PURCHASING DIVISION 210 MARTIN LUTHER KING JR BLVD ROOM 425 MADISON, WI 53703-3345</p>
DIRECT ALL INQUIRES TO	NAME Carolyn A. Clow
	TITLE Purchasing Agent
	PHONE # 608-266-4966
	EMAIL Clow.carolyn@countyofdane.com
	WEB SITE www.danepurchasing.com
DATE BID ISSUED: August 1, 2018	

PROPOSAL SUBMISSION CHECKLIST

# of Proposals	Proposal Delivery
<input type="checkbox"/> (1) original <input type="checkbox"/> (3) copies <input type="checkbox"/> (1) electronic copy of your proposal and cost proposal in PDF format on a flash drive <input type="checkbox"/> Up-to-date Vendor Registration	<input type="checkbox"/> Sealed envelope/package containing proposals and labeled with: Vendor Name Bid Number Bid Deadline Date/Time

PROPOSALS MUST BE DATE/TIME STAMPED BY A DANE COUNTY DEPARTMENT OF ADMINISTRATION STAFF MEMBER

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1.0 GENERAL INFORMATION

1.1 **Introduction**

The purpose of this document is to provide interested parties with information to enable them to prepare and submit a proposal to provide veterinary services for the Henry Vilas Zoo according to the specifications set forth within this document.

The County intends to use the results of this process to award a contract or issue of purchase order for the product(s) and or services(s) stated.

The Dane County Purchasing Division is the sole point of contact for questions and issues that may arise during the RFP process.

1.2 **Clarification of the Specifications**

All inquiries concerning this RFP must be directed to the **person indicated on the cover page** of the RFP Document. (Electronic mail is the preferred method)

Any questions concerning this RFP must be submitted in writing by mail, fax or e-mail on or before the stated date on the **Calendar of Events** (Section 1.5).

Proposers are expected to raise any questions, exceptions, or additions they have concerning the RFP document at this point in the RFP process. If a proposer discovers any significant ambiguity, error, conflict, discrepancy, omission, or other deficiency in this RFP, the proposer should immediately notify the contact person of such error and request modification or clarification of the RFP document.

Proposers are prohibited from communicating directly with any employee of Dane County, except as described herein. No County employee or representative other than those individuals listed as County contacts in this RFP is authorized to provide any information or respond to any question or inquiry concerning this RFP.

1.3 **Reasonable Accommodations**

The County will provide reasonable accommodations, including the provision of informational material in an alternative format, for qualified individuals with disabilities upon request. If you need accommodations at a proposal opening/vendor conference, contact the Purchasing Division at (608) 266-4131 (voice) or 608/266-4941 (TTY).

1.4 **Addendums and/or Revisions**

In the event that it becomes necessary to provide additional clarifying data or information, or to revise any part of this RFP, revisions/amendments and/or supplements will be posted on the Purchasing Division [website](#).

It shall be the responsibility of the proposers to regularly monitor the Purchasing Division web site for any such postings. Proposers must acknowledge the receipt/review of any addendum(s) at the bottom of the Vendor Information Page.

Each proposal shall stipulate that it is predicated upon the terms and conditions of this RFP and any supplements or revisions thereof.

1.5 Calendar of Events

Listed below are specific and estimated dates and times of actions related to this RFP. The actions with specific dates must be completed as indicated unless otherwise changed by the County. In the event that the County finds it necessary to change any of the specific dates and times in the calendar of events listed below, it will do so by issuing an addendum to this RFP and posting such addendum on the Dane County [website](#). There may or may not be a formal notification issued for changes in the estimated dates and times.

DATE	EVENT
August 1, 2018	RFP Issued
August 31, 2018	Last day to submit written inquiries (2:00 p.m. CST)
September 5, 2018	Addendums or supplements to the RFP posted on the Purchasing Division website
September 18, 2018	Proposals due (2:00 p.m. CST)
October 2018	Interviews (if needed)
January 1, 2019	Contract start date

1.6 Contract Term and Funding

The contract shall be effective on the date indicated on the purchase order or the contract execution date and shall run until completion of the project.

1.7 Submittal Instructions

Proposals must be received in by the County Purchasing Division by the specified time stated on the cover page. All proposals must be time-stamped in by the Purchasing Division by the stated time. Proposals not so stamped will not be accepted. Proposals received in response to this solicitation will not be returned to the proposers.

Dane County is not liable for any cost incurred by proposers in replying to this RFP.

All proposals must be packaged, sealed and show the following information on the outside of the package:

- Proposer’s name and address
- Request for proposal title
- Request for proposal number
- Proposal due date

1.8 Multiple Proposals

Multiple proposals from a vendor will be permissible, however each proposal must conform fully to the requirements for proposal submission. Each such proposal must be separately submitted and labeled as Proposal #1, Proposal #2, etc.

1.9 Required Copies

Proposers must submit **an original and the required number of copies** of all materials required for acceptance as instructed on the cover page of the RFP.

All hard copies of the proposal must be on 8.5"x11" individually securely bound. **In addition, proposers must submit one complete electronic copy in Microsoft Word or PDF format saved on a Flash Drive.**

1.10 Proposal Organization and Format

Proposals should be organized to comply with the section numbers and names as shown in Section 4.0: Proposal Preparation Requirements.

1.11 Proprietary Information

All restrictions on the use of data contained within a proposal and all confidential information must be clearly stated on the Required Form – Attachment B “Designation of Confidential and Proprietary Information”. Proprietary information submitted in a proposal, or in response to the RFP, will be handled in accordance with the applicable Wisconsin State Statute(s).

To the extent permitted by law, it is the intention of Dane County to withhold the contents of the proposal from public view until such times as competitive or bargaining reasons no longer require non-disclosure, in the opinion of Dane County. At that time, all proposals will be available for review in accordance with the Wisconsin Open Records Law.

1.12 Cooperative Purchasing

Participating in cooperative purchasing gives vendors opportunities for additional sales without additional bidding. Municipalities use the service to expedite purchases. A “municipality” is defined as any county, city, village, town, school district, board of school directors, sewer district, drainage district, vocational, technical and adult education district, or any other public body having authority to award public contracts (s. 16.70(8), Wis. Stats.). Federally recognized Indian tribes and bands in this state may participate in cooperative purchasing with the state or any municipality under ss. 66.0301(1) and (20), Wis. Stats.

On the Vendor Information page, you will have the opportunity to participate in allowing other municipalities to piggyback this bid. Participation is not mandatory. A vendor’s decision on participating in this service has no effect on awarding the bid.

Dane County is not a party to these purchases or any dispute arising from these purchases and is not liable for delivery or payment of any of these purchases.

1.13 Vendor Registration Program:

All proposers are strongly encouraged to be a registered vendor with Dane County. Registering allows vendors an opportunity to receive notifications for solicitations issued by the County and provides the County with up-to-date company contact information.

Provide your Dane County Vendor # in the Vendor Information section of the proposal submission packet.

For Non-Registered Vendors:

Complete vendor registration by visiting www.danepurchasing.com. On the top menu bar, click Vendor Registration and then click Create Vendor Account. You will receive an email confirmation once your account is created and again when your vendor registration is complete. Retain your user name/email address and password for ease of

re-registration in future years. Within 2-4 days of completing the registration, a vendor number will be assigned and emailed to you.

For Registered Vendors:

Check to make sure your vendor information including commodity codes is up-to-date by signing into your account at www.danepurchasing.com. On the top menu bar, click Vendor Registration and then click Vendor Log In.

1.14 Local Purchasing Ordinance

Under County ordinances, a Local Vendor is defined as a supplier or provider of equipment, materials, supplies or services that has an established place of business within the County of Dane. An established place of business means a physical office, plant or other facility. A post office box address does not qualify a vendor as a Local Vendor.

County ordinance provides that a local vendor automatically receive five points toward the evaluation score.

Vendors located within the counties adjacent to Dane County (Columbia, Dodge, Green, Iowa, Jefferson, Rock, Sauk) automatically receive two points toward the evaluation score.

1.15 Dane County Sustainability Principles

On October 18, 2012, the Dane County Board of Supervisors adopted Resolution 103, 2012-2013 establishing the following sustainability principles for the county:

- Reduce and eventually eliminate Dane County government's contribution to fossil fuel dependence and to wasteful use of scarce metals and minerals;
- Reduce and eventually eliminate Dane County government's contribution to dependence upon persistent chemicals and wasteful use of synthetic substances;
- Reduce and eventually eliminate Dane County government's contribution to encroachment upon nature and harm to life-sustaining ecosystems (e.g., land, water, wildlife, forest, soil, ecosystems);
- Reduce and eventually eliminate Dane County government's contribution to conditions that undermine people's ability to meet their basic human needs.

1.16 Fair Labor Practice Certification

Dane County Ord. 25.09 (1) is as follows:

(28) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The purchasing manager shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder's responsibility to perform the contract.

If you indicated that you have been found by the NLRB or WERC to have such a violation, you must include a copy of any relevant information regarding such violation with your proposal, bid or application.

SECTION 1 – GENERAL INFORMATION

Additional information can be found using the following links: www.nlr.gov and <http://werc.wi.gov>.

SECTION 2 – PROPOSAL SELECTION AND AWARD PROCESS

2.0 PROPOSAL SELECTION AND AWARD PROCESS

2.1 Preliminary Evaluation

The proposals will first be reviewed to determine if requirements in Section 1 and Section 4 are met. Failure to meet mandatory requirements will result in the proposal being rejected. In the event that all vendors do not meet one or more of the mandatory requirements, the County reserves the right to continue the evaluation of the proposals and to select the proposal which most closely meets the requirements specified in this RFP.

2.2 Proposal Scoring

Accepted proposals will be reviewed by an evaluation team and scored against the stated criteria. This scoring will determine the ranking of vendors based upon their written proposals. If the team determines that it is in the best interest of the County to require oral presentations, the highest-ranking vendors will be invited to make such presentations. Those vendors that participate in the interview process will then be scored, and the final ranking will be made based upon those scores.

2.3 Oral Presentations/Interview

Top ranked selected proposers may be required to make oral interview presentations and/or site visits to supplement their proposals, if requested by the County. The County will make every reasonable attempt to schedule each presentation at a time and location that is agreeable to the proposer. Failure of a proposer to conduct a presentation to the County on the date scheduled may result in rejection of the vendor's proposal.

2.4 Evaluation Criteria

The proposals will be scored using the following criteria:

Proposal Requirements	Percent
Organization capabilities (Section 4.4)	20%
Staff qualifications (Section 4.5)	30%
Routine services (Section 4.7)	20%
Medical/Surgical services, lab testing, medications/ Confidentiality (Section 4.8-4.1a)	10%
Cost	Percent
Cost (Section 4)	20%
Total	100%

SECTION 2 – PROPOSAL SELECTION AND AWARD PROCESS

2.5 **Right to Reject Proposals and Negotiate Contract Terms**

The County reserves the right to reject any and all proposals and to negotiate the terms of the contract, including the award amount, with the selected proposer prior to entering into a contract. If contract negotiations cannot be concluded successfully with the highest scoring proposer, the County may negotiate a contract with the next highest scoring proposer.

2.6 **Award and Final Offers**

The award will be granted in one of two ways. The award may be granted to the highest scoring responsive and responsible proposer. Alternatively, the highest scoring proposer or proposers may be requested to submit final and best offers. If final and best offers are requested, they will be evaluated against the stated criteria, scored and ranked. The award will then be granted to the highest scoring proposer.

2.7 **Notification of Intent to Award**

As a courtesy, the County may send a notification of award memo to responding vendors at the time of the award.

SECTION 3 – PROJECT OVERVIEW AND SCOPE OF SERVICES

3.0 PROJECT OVERVIEW AND SCOPE OF SERVICES

3.1 Definitions and Links

The following definitions and links are used throughout the RFP.

County: Dane County

County Agency: Department/Division utilizing the service or product.

Proposer/Vendor/Firm/Contractor: a company submitting a proposal in response to this RFP.

Dane County Purchasing website: www.danepurchasing.com

Fair Labor Practices websites: www.nlrb.gov and <http://werc.wi.gov>

3.2 Scope of Services/Specification Overview

The County of Dane, Wisconsin is requesting proposals from qualified, State of Wisconsin licensed veterinarians to provide veterinary services for the Henry Vilas Zoo, 702 S. Randall Avenue, Madison, Wisconsin. The zoo has approximately 650 animals of 150 different species. It is estimated that about 800 hours of services are required each year. Actual hours will vary. The preventative health program will be carried out in accordance with Appendix A: Henry Vilas Zoo Preventative Health Program.

Approximately 2400 individuals/institutions hold United States Department of Agriculture license to exhibit animals, only 227, including Henry Vilas Zoo, meet the American Zoo & Aquariums high standards of accreditation. Over 800,000 visitors enjoy Henry Vilas Zoo annually, the Zoo's animal collection around 150 individual species. Henry Vilas Zoo is a leader in the conservation of many endangered species such as orangutans, polar bears, and many other species. Henry Vilas Zoo is dedicated to providing excellent animal care in accordance with the standards of the United States Department of Agriculture, Animal Plant Health Inspection Service, United States Department of the Interior, United States Department of Commerce and the Association of Zoos and Aquariums. The Guidelines for Zoo and Aquarium Veterinary Medical Programs and Veterinary Hospitals are attached as Appendix B.

The state of the art Animal Health Center at the Zoo was built in 2013. It houses a treatment room, radiology room, pharmacy, fully functioning laboratory and quarantine facilities. The building also houses an education classroom and visitors can view treatments performed by veterinary staff through an observation window looking onto the treatment room and lab. The Zoo is equipped to work with many partners including veterinary specialists and students. Equipment includes a cutting edge portable digital radiograph unit, and all standard lab equipment for the laboratory equipment and treatment room. The veterinary technician is able to run many samples in house such as urine analysis. The Zoo currently has a part time veterinary technician and is looking at expanding the amount of time a technician is utilized in the Animal Health Center.

SECTION 3 – PROJECT OVERVIEW AND SCOPE OF SERVICES

The Henry Vilas Zoo will be responsible for:

1. Clinical Service
 - a. Henry Vilas Zoo will maintain a sufficient inventory of drugs, supplies and equipment on site to manage routine animal care. The primary veterinarian will recommend supplies and equipment and, once approved by Henry Vilas Zoo, will maintain inventory.
 - b. Henry Vilas Zoo staff will participate in case care under the supervision of the attending veterinarian, including daily medications, record keeping, and assisting with examinations when appropriate.
 - c. Henry Vilas Zoo will make the ultimate decision on how to proceed with animal care and management based on recommendations by the attending veterinarian and will be responsible for the cost of care.

2. Educational Programs

Henry Vilas Zoo will consider allowing access to animals and records for veterinary students with interest in zoo and exotic practice. All access will be supervised by the attending veterinarian and pre-approved by Henry Vilas Zoo. Access should be minimally disruptive for Henry Vilas Zoo animals and staff. Information and images are expected to remain confidential and not for public distribution unless explicitly approved by Henry Vilas Zoo.

3. General Responsibilities

The Director of the Zoo, or his or her designee, retains the final authority for all operations and final decisions regarding the management of the facility, and assumes all business risk for the operation of the facility including matters relating to animal health, and all matters relating to compliance with applicable law and regulations.

SECTION 4 – PROPOSAL PREPARATION REQUIREMENTS

4.0 PROPOSAL PREPARATION REQUIREMENTS

Proposals should be organized to comply with the section numbers and names as shown below. Each section heading should be separated by tabs or otherwise clearly marked. Accordingly, graphics, tables and charts are encouraged, but the page limitations shall include these as well. Hardcopies shall be bound in an 8½” x 11” format, but 11”x17” pages for graphics may be included. The RFP sections which should be submitted/responded to are:

4.1 Required Form – Attachment A – Vendor Information

4.2 Table of Contents

Provide a table of contents that, at a minimum, includes all of the sections as identified below. Listings of sub-sections and graphics/tables also may be included. Section dividers are encouraged.

4.3 Tab 1: Introduction

The American Association of Zoo Veterinarians (AAZV) mission statement is, “to optimize the health, welfare, and conservation of zoo animals and wildlife thorough educations, scientific study, collaboration and advocacy.” **Provide a one-page overview of how the firm intends to provide veterinary services to the Zoo in accordance with this mission statement.**

4.4 Tab 2: Organization Capabilities

The Association of Zoos & Aquariums (AZA) accreditation standard 2.2.1 states, “A full-time staff veterinarian is recommended. In cases where such is not necessary because of the number and/or nature of the animals residing there, a consulting/part-time veterinarian must be under written contract to make at least twice monthly inspections of the animals and to respond as soon as possible to any emergencies. Explanation: Because of their size or nature, exceptions may be made to the twice monthly inspection requirement for certain institutions (e.g., insects only, etc.)”

Describe the firm’s experience and capabilities in providing similar services to those required, preferably at an AZA accredited institution, within the last two years or has underwent an accreditation process. Be specific and identify projects, dates, and results.

4.5 Tab 3: Staff Qualifications

Provide resumes describing the educational and work experiences for each of the key staff who would be assigned to the project, including a designation of the primary and backup veterinarian, and their resumes.

The Henry Vilas Zoo shall identify a primary person or persons responsible for liaison during the course of the agreement. The primary veterinarian is subject to approval by the zoo. The proposer must provide a backup licensed and accredited veterinarian to provide services with the primary veterinarian is not available also subject to approval by the zoo.

State how each veterinarian meets the following requirements:

SECTION 4 – PROPOSAL PREPARATION REQUIREMENTS

- Wisconsin Veterinary License
- Qualified for DEA Drug License including use of Carfentnal
- Membership in the American Association of Zoo Veterinarians, & American Veterinary Medical Association
- Special species animal experience (ideally a minimum of 5 years experience with the following species at the zoo: Great Apes specifically orangutans, Old World and New World Primates, Prosimians, marine mammals, large carnivores, exotic hoofstock including but not limited to giraffe, rhinoceros, and other exotic species)

4.6 **Tab 4: References**

Provide a list of organizations, including points of contact (name, address, and telephone number), which can be used as references for work performed in the area of service required. Selected organizations may be contacted to determine the quality of work performed and personnel assigned to the project.

4.7 **Tab 5: Routine Services**

The primary (or backup) veterinarian will perform the services expected of a veterinarian for an AZA accredited zoo, including, but not limited to:

- Providing preventative medical services;
- Providing treatment of clinical cases;
- Making recommendations for health management and case care;
- Providing routine physical examinations;
- Making recommendations on safety of botanical and enrichment items
- Accompany selected animal transports;
- Maintaining veterinary drug and equipment inventory on site;, and
- Maintaining required medical records.

Describe the services provided to the zoo and the method of conducting the preventative maintenance protocol. Provide details on scheduling procedures and how contacts for emergencies will take place. Provide details on how current practices would be maintained or expanded to ensure compliance with the standards of AZA.

Services must be performed as described in the Guidelines for Zoo and Aquarium Veterinary Medical Programs and Veterinary Hospitals (attached as Exhibit B) and which conform to the requirements of the Animal Welfare Act.

This service must be updated as necessary to include any care required by Zoo, Association of Zoos & Aquariums USDA, USDI, US Department of Commerce, American Veterinary Medical Association, American Association of Zoo Veterinarians and provide any other veterinary care that may be mandated by local, state, or federal agencies.

The Director of the Zoo, or his or her designee, retains the final authority for all operations and final decisions regarding the management of the facility, and assumes all business risk for the operation of the facility including matters relating to animal health.

SECTION 4 – PROPOSAL PREPARATION REQUIREMENTS

4.8 **Tab 6: Medical/Surgical Services**

Describe how and where you will provide medical/surgical services and hospitalizations away from the Zoo as needed.

Henry Vilas Zoo will provide the necessary equipment to maintain a modern zoological veterinary facility including keeping a stock of necessary medication and equipment. It will be the ultimate decision of Henry Vilas Zoo what supplies will be needed based on recommendations of the attending veterinarian.

4.9 **Tab 7: Lab Testing**

The Animal Health Center at Henry Vilas Zoo is capable of doing some lab testing and is currently utilizing the zoo's veterinary technician to run those samples. Other tests are performed by an outside company. Henry Vilas Zoo will be the ultimate decision maker on which tests are performed in house, outsourced and the facility performing the testing and will pay for all lab testing.

4.10 **Tab 8: Medications**

Henry Vilas Zoo will maintain current, up to date medications required for the treatment of any animals at the zoo. Henry Vilas Zoo will be the ultimate decision maker for which medications are considered essential with consultation of the attending veterinarian. The Zoo will order and pay for all authorized medications.

4.11 **Tab 9: Confidentiality**

All parties agree to treat any information regarding clinical records or other documents as confidential and should not be shared with any other parties except under the guidelines of the open records law. No photos or documents may be taken, reproduced or shared via social media or any other outlets without the express permission of the Henry Vilas Zoo. **Describe how confidentiality will be maintained while working for the Zoo.**

4.12 **Required Form – Attachment B – Designation of Confidential & Proprietary Information**

5.0 COST PROPOSAL

5.1 **General Instructions on Submitting Cost Proposals**

Proposers must submit an original and the required number of copies of the cost proposal as instructed on the **cover page of the RFP** (Special Instructions).

Cost proposal should be submitted in a separate envelope labeled **Cost Proposal** with the written proposal. (Refer to Cost Proposal Form)

The proposal will be scored using a standard quantitative calculation where the most cost criteria points will be awarded to the proposal with the lowest cost.

5.2 **Format for Submitting Cost Proposals**

See Required Form – Attachment C – Cost Proposal

5.3 **Fixed Price Period**

All prices, costs, and conditions outlined in the proposal shall remain fixed for 180 days.

VENDOR INFORMATION	
VENDOR NAME:	

Vendor Information (address below will be used to confirm Local Vendor Preference)			
Address			
City		County	
State		Zip+4	
Vendor Rep. Name		Title	
Email		Telephone	
Dane County Vendor #		Date Last Paid	

Fair Labor Practice Certification (check only 1)	
<input type="checkbox"/>	Vendor has not been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the date this bid submission is signed.
<input type="checkbox"/>	Vendor has been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the date this bid submission is signed.

Local Vendor Purchasing Preference	
Are you claiming a local purchasing preference under DCO 25.08(7)?	<input type="checkbox"/> No <input type="checkbox"/> Yes (complete remainder of this section)
Preference as a Dane County Business:	<input type="checkbox"/> Dane
Preference as a business located in a county adjacent to Dane County:	<input type="checkbox"/> Columbia <input type="checkbox"/> Sauk <input type="checkbox"/> Iowa <input type="checkbox"/> Green <input type="checkbox"/> Dodge <input type="checkbox"/> Rock <input type="checkbox"/> Jefferson

Cooperative Purchasing	
<input type="checkbox"/>	I <u>agree</u> to furnish the commodities or services of this bid to other municipalities.
<input type="checkbox"/>	I <u>do not agree</u> to furnish the commodities or services of this bid to other municipalities.

Addendums – this vendor hereby acknowledges receipt/review of the following addendums, if any.				
Addendum #1 <input type="checkbox"/>	Addendum #2 <input type="checkbox"/>	Addendum #3 <input type="checkbox"/>	Addendum #4 <input type="checkbox"/>	None <input type="checkbox"/>

Signature Affidavit			
<p>In signing this bid, we certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a bid; that this bid has been independently arrived at without collusion with any other bidder, competitor or potential competitor; that this bid has not been knowingly disclosed prior to the opening of bids to any other bidder or competitor; that the above statement is accurate under penalty of perjury.</p> <p>The undersigned agrees to hold the County harmless for any damages arising out of the release of any material unless they are specifically identified on Attachment B. The undersigned, submitting this bid, hereby agrees with all the terms, conditions, and specifications required by the County in this Request for Bid, and declares that the attached bid and pricing are in conformity therewith.</p>			
Signature		Title	
Name (Printed)		Date	

DESIGNATION OF CONFIDENTIAL AND PROPRIETARY INFORMATION
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The attached material submitted in response to this Proposal includes proprietary and confidential information which qualifies as a trade secret, as provided in Sect 19.36(5), Wisconsin State Statutes, or is otherwise material that can be kept confidential under the Wisconsin Open Records law. As such, we ask that certain pages, as indicated below, of this proposal response be treated as confidential material and not be released without our written approval. Attach additional sheets if needed.

Section	Page #	Topic

Proposer is not designating any information as proprietary and confidential which qualifies as trade secret.

Prices always become public information when proposals are opened, and therefore cannot be designated as confidential.

Other information cannot be kept confidential unless it is a trade secret. Trade secret is defined in Sect. 134(80)(1)(c) Wis. State Statutes, as follows: "Trade secret" means information, including a formula, pattern, compilation, program, device, method technique or process to which all of the following apply:

1. The information derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by other persons who can obtain economic value from its disclosure or use.
2. The information is the subject of efforts to maintain its secrecy that are reasonable under the circumstances.

In the event the Designation of Confidentiality of this information is challenged, proposer hereby agrees to provide legal counsel or other necessary assistance to defend the Designation of Confidentiality.

Failure to include this form in the proposal response may mean that all information provided as part of the proposal response will be open to examination or copying. The County considers other markings of confidential in the proposal document to be insufficient. The undersigned agrees to hold the County harmless for any damages arising out of the release of any material unless they are specifically identified above.

COST PROPOSAL	
VENDOR NAME:	

Provide pricing for first year and percentage increase for each additional 1-year periods renewal options for each category below:

1. All inclusive hourly rate for scheduled professional veterinary services

1st Year \$ _____

2. All inclusive hourly rate for emergency call in professional veterinary services

1st Year \$ _____

3. Telephone Consultation rate

1st Year \$ _____

4. Daily rate for hospitalized animals

1st Year \$ _____

5. Lab service/ x-ray fees/ other fees

Type of service or fee	1 st Year Cost
	\$
	\$
	\$
	\$
	\$

Percentage increases for future years

2 nd Year	3 rd Year	4 th Year	5 th Year
% _____	% _____	% _____	% _____

STANDARD TERMS AND CONDITIONS

Request for Bids/Proposals/Contracts

Rev. 03/2018

1.0 **APPLICABILITY:** The terms and conditions set forth in this document apply to Requests for Proposals (RFP), Bids and all other transactions whereby the County of Dane acquires goods or services, or both.

1.1 **ENTIRE AGREEMENT:** These Standard Terms and Conditions shall apply to any contract, including any purchase order, awarded as a result of this request. Special requirements of a resulting contract may also apply. Said written contract with referenced parts and attachments shall constitute the entire agreement, and no other terms and conditions in any document, acceptance, or acknowledgment shall be effective or binding unless expressly agreed to in writing by the County. Unless otherwise stated in the agreement, these standard terms conditions supersede any other terms and/or conditions applicable to this agreement.

1.2 **DEFINITIONS:** As used herein, “vendor” includes a provider of goods or services, or both, who is responding to an RFP or a bid, and “bid” includes a response to either an RFP or a bid.

2.0 **SPECIFICATIONS:** The specifications herein are the minimum acceptable. When specific manufacturer and model numbers are used, they are to establish a design, type of construction, quality, functional capability or performance level, or any combination thereof, desired. When alternates are proposed, they must be identified by manufacturer, stock number, and such other information necessary to establish equivalency. Dane County shall be the sole judge of equivalency. Vendors are cautioned to avoid proposing alternates to the specifications that may result in rejection of their bid.

3.0 **DEVIATIONS AND EXCEPTIONS:** Deviations and exceptions from terms, conditions, or specifications shall be described fully in writing, signed, and attached to the bid. In the absence of such statement, the bid shall be accepted as in strict compliance with all terms, conditions, and specifications and vendor shall be held liable for injury resulting from any deviation.

4.0 **QUALITY:** Unless otherwise indicated in the request, all material shall be first quality. No pre-owned, obsolete, discontinued or defective materials may be used.

5.0 **QUANTITIES:** The quantities shown herein are based on estimated needs. The County reserves the right to increase or decrease quantities to meet actual needs.

6.0 **DELIVERY:** Deliveries shall be FOB destination freight prepaid and included unless otherwise specified. County will reject shipments sent C.O.D. or freight collect.

7.0 **PRICING:** Unit prices shown on the bid shall be the price per unit of sale as stated on the request or contract. For any given item, the quantity multiplied by the unit price shall establish the extended price, the unit price shall govern in the bid evaluation and contract administration.

7.1 Prices established in continuing agreements and term contracts may be lowered due to market conditions, but prices shall not be subject to increase for the term specified in the award. Vendor shall submit proposed increases to the Purchasing Division thirty (30) calendar days before the proposed effective date of the price increase. Proposed increases shall be limited to fully documented cost increases to the vendor that are demonstrated to be industry wide. Price increases may not be granted unless they are expressed in bid documents and contracts or agreements.

7.2 Submission of a bid constitutes bidder’s certification that no financial or personal relationship exists between the bidder and any county official or employee except as specially set forth in writing attached to and made a part of the bid. The successful bidder shall disclose any such relationship which develops during the term of the contract.

8.0 **ACCEPTANCE-REJECTION:** Dane County reserves the right to accept or reject any or all bids, to waive any technicality in any bid submitted and to accept any part of a bid as deemed to be in the best interests of the County. Submission of a proposal or a bid constitutes the making of an offer to contract and gives the County an option valid for 60 days after the date of submission to the County.

8.1 **Bids MUST** be dated and time stamped by the Dane County Purchasing Division Office on or before the date and time that the bid is due. Bids deposited or time stamped in another office will be rejected. Actual receipt in the office of the purchasing division is necessary; timely deposit in the mail system is not sufficient. **THERE WILL BE NO EXCEPTIONS TO THIS POLICY.**

9.0 **METHOD OF AWARD:** Award shall be made to the lowest responsible responsive bidder conforming to specifications, terms, and conditions, or to the most advantageous bid submitted to the County on a quality versus price basis.

10.0 **ORDERING/ACCEPTANCE:** Written notice of award to a vendor in the form of a purchase order or other document, mailed or delivered to the address shown on the bid will be considered sufficient notice of acceptance of bid. A formal contract containing all provisions of the contract signed by both parties shall be used when required by the Dane County Purchasing Division.

11.0 **PAYMENT TERMS AND INVOICING:** Unless otherwise agreed, Dane County will pay properly submitted vendor invoices within thirty (30) days of receipt of goods and services. Payment will not be made until goods or services are delivered, installed (if required), and accepted as specified. Invoices presented for payment must be submitted in accordance with instructions contained on the purchase order.

11.1 **NO WAIVER OF DEFAULT:** In no event shall the making of any payment or acceptance of any service or product required by this Agreement constitute or be construed

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as a waiver by County of any breach of the covenants of the Agreement or a waiver of any default of the successful vendor, and the making of any such payment or acceptance of any such service or product by County while any such default or breach shall exist shall in no way impair or prejudice the right of County with respect to recovery of damages or other remedy as a result of such breach or default.

12.0 TAXES: The County and its departments are exempt from payment of all federal tax and Wisconsin state and local taxes on its purchases except Wisconsin excise taxes as described below. The State of Wisconsin Department of Revenue has issued tax exempt number ES41279 to Dane County.

12.1 The County is required to pay the Wisconsin excise or occupation tax on its purchase of beer, liquor, wine, cigarettes, tobacco products, motor vehicle fuel and general aviation fuel. The County is exempt from Wisconsin sales or use tax on these purchases. The County may be subject to other states' taxes on its purchases in that state depending on the laws of that state. Vendors performing construction activities are required to pay state use tax on the cost of materials.

13.0 GUARANTEED DELIVERY: Failure of the vendor to adhere to delivery schedules as specified or to promptly replace rejected materials shall render the vendor liable for all costs in excess of the contract price when alternate procurement is necessary. Excess costs shall include administrative costs.

14.0 APPLICABLE LAW AND VENUE: This contract shall be governed under the laws of the State of Wisconsin, and venue for any legal action between the parties shall be in Dane County Circuit Court. The vendor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of this contract and which in any manner affect the work or its conduct.

15.0 ASSIGNMENT: No right or duty in whole or in part of the vendor under this contract may be assigned or delegated without the prior written consent of Dane County.

16.0 NONDISCRIMINATION/AFFIRMATIVE ACTION: During the term of this Agreement the vendor agrees, in accordance with sec. 111.321, Wis. Stats., and Chapter 19 of the Dane County Code of Ordinances, not to discriminate against any person, whether an applicant or recipient of services, an employee or applicant for employment, on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force or any other reserve component of the military forces of the United States, or political beliefs. The vendor shall provide a harassment-free work environment. These provisions shall include, but not be limited to, the following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, including apprenticeships, rates of pay or other forms of compensation.

16.1 Vendors who have twenty (20) or more employees and a contract of twenty thousand dollars (\$20,000) or more must submit a written affirmative action plan to the County's

Contract Compliance Officer within fifteen (15) working days of the effective date of the contract. The County may elect to accept a copy of the current affirmative action plan filed with and approved by a federal, state or local government unit.

16.2 The vendor agrees to post in conspicuous places, available for employees and applicants for employment, notices setting forth the provisions of this Agreement as they relate to affirmative action and nondiscrimination.

16.3 Failure to comply with these Terms and Conditions may result in the vendor being debarred, termination of the contract and/or withholding of payment.

16.4 The vendor agrees to furnish all information and reports required by Dane County's Contract Compliance Officer as the same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, D.C. Ords. and the provisions of this Agreement.

16.5 AMERICANS WITH DISABILITIES ACT: The vendor agrees to the requirements of the ADA, providing for physical and programmatic access to service delivery and treatment in all programs and activities.

17.0 PATENT, COPYRIGHT AND TRADEMARK INFRINGEMENT: The vendor guarantees goods sold to the County were manufactured or produced in accordance with applicable federal labor laws, and that the sale or use of the articles described herein do not infringe any patent, copyright or trademark. The vendor covenants that it will, at its own expense, defend every suit which shall be brought against the County (provided that such vendor is promptly notified of such suit, and all papers therein are delivered to it) for any alleged infringement of any patent, copyright or trademark by reason of the sale or use of such articles, and agrees that it will pay all costs, damages, and profits recoverable in any such suit.

18.0 SAFETY REQUIREMENTS: All materials, equipment, and supplies provided to the County must fully comply with all safety requirements as set forth by the Wisconsin Department of Commerce and all applicable OSHA Standards.

18.1 MATERIAL SAFETY DATA SHEET: If any item(s) on an order(s) resulting from this award(s) is a hazardous chemical, as defined under 29 CFR 1910.1200, provide one (1) copy of the Material Safety Data Sheet for each item with the shipped container(s) and one (1) copy with the invoice(s).

19.0 WARRANTY: Unless specifically expressed otherwise in writing, goods and equipment purchased as a result of this request shall be warranted against defects by the vendor for one (1) year from date of receipt. An equipment manufacturer's standard warranty shall apply as a minimum and must be honored by the vendor.

20.0 INDEMNIFICATION & INSURANCE.

20.1. Vendor shall indemnify, hold harmless and defend County, its boards, commissions, agencies, officers, employees and representatives against any and all liability, loss (including, but not limited to, property damage, bodily injury and loss of life), damages, costs or expenses which County, its officers, employees, agencies, boards,

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commissions and representatives may sustain, incur or be required to pay by reason of vendor furnishing the services or goods required to be provided under this Agreement, provided, however, that the provisions of this paragraph shall not apply to liabilities, losses, charges, costs, or expenses caused by or resulting from the acts or omissions of County, its agencies, boards, commissions, officers, employees or representatives. The obligations of vendor under this paragraph shall survive the expiration or termination of this Agreement.

20.2. In order to protect itself and County its officers, boards, commissions, agencies, agents, volunteers, employees and representatives under the indemnity provisions of the subparagraph above, vendor shall, at vendor's own expense, obtain and at all times during the term of this Agreement keep in full force and effect the insurance coverages, limits, and endorsements listed below. When obtaining required insurance under this Agreement and otherwise, vendor agrees to preserve County's subrogation rights in all such matters that may arise that are covered by vendor's insurance. Neither these requirements nor the County's review or acceptance of vendor's certificates of insurance is intended to limit or qualify the liabilities or obligations assumed by the vendor under this Agreement. The County expressly reserves the right to require higher or lower insurance limits where County deems necessary.

20.2.1. Commercial General Liability.

Vendor agrees to maintain Commercial General Liability insurance at a limit of not less than \$1,000,000 per occurrence. Coverage shall include, but not be limited to, Bodily Injury and Property Damage to Third Parties, Contractual Liability, Personal Injury and Advertising Injury Liability, Premises-Operations, Independent vendors and Subcontractors, and Fire Legal Liability. The policy shall not exclude Explosion, Collapse, and Underground Property Damage Liability Coverage. The policy shall list DANE COUNTY as an Additional Insured.

20.2.2. Commercial/Business Automobile Liability.

Vendor agrees to maintain Commercial/Business Automobile Liability insurance at a limit of not less than \$1,000,000 Each Occurrence. Vendor further agrees coverage shall include liability for Owned, Non-Owned & Hired automobiles. In the event vendor does not own automobiles, vendor agrees to maintain coverage for Hired & Non-Owned Auto Liability, which may be satisfied by way of endorsement to the Commercial General Liability policy or separate Business Auto Liability policy.

20.2.3. Environmental Impairment (Pollution) Liability

Vendor agrees to maintain Environmental Impairment (Pollution) Liability insurance at a limit of not less than \$1,000,000 per occurrence for bodily injury, property damage, and environmental cleanup costs caused by pollution conditions, both sudden and non-sudden. This requirement can be satisfied by either a separate environmental liability policy or through a modification to the Commercial General Liability policy. Evidence of either must be provided.

20.2.4. Workers' Compensation.

Vendor agrees to maintain Workers Compensation insurance at Wisconsin statutory limits.

20.2.5. Umbrella or Excess Liability.

Vendor may satisfy the minimum liability limits required above for Commercial General Liability and Business Auto Liability under an Umbrella or Excess Liability policy. There is no minimum Per Occurrence limit of liability under the Umbrella or Excess Liability; however, the Annual Aggregate limit shall not be less than the highest "Each Occurrence" limit for the Commercial General Liability and Business Auto Liability. Vendor agrees to list DANE COUNTY as an "Additional Insured" on its Umbrella or Excess Liability policy.

20.3. Upon execution of this Agreement, vendor shall furnish County with a Certificate of Insurance listing County as an additional insured and, upon request, certified copies of the required insurance policies. If vendor's insurance is underwritten on a claims-made basis, the retroactive date shall be prior to or coincide with the date of this Agreement, the Certificate of Insurance shall state that professional malpractice or errors and omissions coverage, if the services being provided are professional services coverage is claims-made and indicate the retroactive date, vendor shall maintain coverage for the duration of this Agreement and for six (6) years following the completion of this Agreement. Vendor shall furnish County, annually on the policy renewal date, a Certificate of Insurance as evidence of coverage. It is further agreed that vendor shall furnish the County with a 30-day notice of aggregate erosion, in advance of the Retroactive Date, cancellation, or renewal. It is also agreed that on claims-made policies, either vendor or County may invoke the tail option on behalf of the other party and that the extended reporting period premium shall be paid by vendor. In the event any action, suit or other proceeding is brought against County upon any matter herein indemnified against, County shall give reasonable notice thereof to vendor and shall cooperate with vendor's attorneys in the defense of the action, suit or other proceeding. Vendor shall furnish evidence of adequate Worker's Compensation Insurance. In case of any sublet of work under this Agreement, vendor shall furnish evidence that each and every subcontractor has in force and effect insurance policies providing coverage identical to that required of vendor. In case of any sublet of work under this Agreement, vendor shall furnish evidence that each and every subcontractor has in force and effect insurance policies providing coverage identical to that required of vendor.

20.4. The parties do hereby expressly agree that County, acting at its sole option and through its Risk Manager, may waive any and all requirements contained in this Agreement, such waiver to be in writing only. Such waiver may include or be limited to a reduction in the amount of coverage required above. The extent of waiver shall be determined solely by County's Risk Manager taking into account the nature of the work and other factors relevant to County's exposure, if any, under this Agreement.

21.0 CANCELLATION: County reserves the right to terminate any Agreement due to non-appropriation of funds or failure of performance by the vendor. This paragraph shall not relieve County of its responsibility to pay for services or goods provided or furnished to County prior to the effective date of termination.

22.0 PUBLIC RECORDS ACCESS: It is the intention of the County to maintain an open and public process in the solicitation, submission, review, and approval of procurement activities. Bid openings are public unless otherwise specified. Records are not available for public inspection prior to issuance of the notice of intent to award or the award of the

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contract. Bid results may be obtained by visiting the Dane County Purchasing Office Monday – Friday, between 8:00 a.m. and 4:00 p.m. Prior appointment is advisable.

22.1 PROPRIETARY INFORMATION: If the vendor asserts any of its books and records of its business practices and other matters collectively constitute a trade secret as that term is defined in s. 134.90(1)(c), Wis. Stats., County will not release such records to the public without first notifying the vendor of the request for the records and affording the vendor an opportunity to challenge in a court of competent jurisdiction the requester's right to access such records. The entire burden of maintaining and defending the trade secret designation shall be upon the vendor. The vendor acknowledges and agrees that if the vendor shall fail, in a timely manner, to initiate legal action to defend the trade secret designation or be unsuccessful in its defense of that designation, County shall be obligated to and will release the records.

22.2 Any material submitted by the vendor in response to this request that the vendor considers confidential and proprietary information and which vendor believes qualifies as a trade secret, as provided in section 19.36(5), Wis. Stats., must be identified on a designation of Confidential and Proprietary Information form. Pricing will not be held confidential after award of contract.

22.3 Data contained in a bid, all documentation provided therein, and innovations developed as a result of the contracted commodities or services cannot be copyrighted or patented. All data, documentation, and innovations shall be the property of the County.

23.0 RECYCLED MATERIALS: Dane County is required to purchase products incorporating recycled materials whenever technically and economically feasible. Vendors are encouraged to bid products with recycled content which meet specifications.

24.0 PROMOTIONAL ADVERTISING: Reference to or use of Dane County, any of its departments or sub-units, or any county official or employee for commercial promotion is prohibited.

25.0 ANTITRUST ASSIGNMENT: The vendor and the County of Dane recognize that in actual economic practice, overcharges resulting from antitrust violation are in fact usually borne by the Purchaser. Therefore, the successful vendor hereby assigns to the County of Dane any and all claims for such overcharges as to goods, materials or services purchased in connection with this contract.

26.0 RECORDKEEPING AND RECORD RETENTION-COST REIMBURSEMENT CONTRACTS: Where payment to the vendor is based on the vendor's costs, vendor shall establish and maintain adequate records of all expenditures incurred under the contract. All records must be kept in accordance with generally accepted accounting procedures. The County contracting agency shall have the right to audit, review, examine, copy, and transcribe any pertinent records or documents relating to any contract resulting from this bid/proposal held by the vendor. The vendor will retain all documents applicable to the contract for a period of not less than three (3) years after final payment is made.

27.03 COMPLIANCE WITH FAIR LABOR STANDARDS. During the term of this Agreement, vendor shall report to the Controller, within ten (10) days, any allegations to, or findings by the National Labor Relations Board (NLRB) or Wisconsin Employment Relations commission (WERC) that vendor has violated a statute or regulation regarding labor standards or relations within the seven years prior to entering this Agreement. If an investigation by the Controller results in a final determination that the matter adversely affects vendor's responsibilities under this Agreement, and which recommends termination, suspension or cancellation of this agreement, the County may take such action.

27.04 VENDOR may appeal any adverse finding by the Controller as set forth in sec. 25.08(20)(c) through (e).

27.05 VENDOR shall post the following statement in a prominent place visible to employees: "As a condition of receiving and maintaining a contract with Dane County, this employer shall comply with federal, state and all other applicable laws prohibiting retaliation for union organizing"



Henry Vilas Zoo

Preventative Health Program

Rev. January 2018

PREVENTATIVE MEDICINE PROGRAM

The preventive medicine programs at the Henry Vilas Zoo have been implemented to minimize the risk of disease to the animals in the collection. These programs include quarantine, parasite detection and control, immunization, tuberculin testing, dental prophylaxis, and review of diets and husbandry techniques. All animals will undergo an annual veterinary exam that will consist of, at minimum, a review of medical history and visual evaluation along with discussion with the Animal Care team concerning husbandry practices, diet, enrichment programs, and training priorities. Complete physical exams will be performed on collection animals as opportunities present. The facilities at the Henry Vilas Zoo Animal Health Center will be used to perform complete exams, including radiographs, cardiac evaluation, and bloodwork on all animals in the collection that can be reasonably transported to the facility.

VETERINARY COVERAGE

The consulting veterinarian for the Henry Vilas Zoo is responsible for the development and implementation of the preventative medicine program for the animals in the Henry Vilas Zoo collection. Regularly scheduled visits will be made on a weekly basis and a veterinarian will be available at any time in case of emergency. In the unusual circumstance the consulting veterinarian is not available; which will be made known to zoo staff in advance, back-up veterinarians are available through Stoughton Veterinary Service and the University of Wisconsin School of Veterinary Medicine Special Species Section. These veterinarians are familiar with the procedures and facilities at the Zoo and will provide follow up care until the consulting veterinarian is available. Additionally, zoo staff members are experienced with general medical protocols and with decision-making needs in this area.

The General Curator will oversee a running active case list to be discussed prior to the arrival of the veterinarian. The General Curator (or appointee), Zoo Veterinary Technician, and the Zoo Keeper assigned to the area will accompany the Veterinarian on regularly scheduled rounds. These individuals will note which animals require examination and are responsible for carrying out instructions as well as follow up and record keeping in their particular area of responsibility. The Veterinary Technician will function as the Veterinary Program Coordinator and will assist with examination schedules and routine treatment under the direction of the consulting veterinarian.

VETERINARY CARE

The Zoo Keepers are responsible for the daily observation of all animals at the zoo. The Keepers are trained in recognizing abnormal behavior and clinical symptoms of illness and have knowledge of the diet, husbandry, and restraint procedures of the animals under their care. Diseased, injured, or stressed animals are reported promptly to a supervisor who evaluates the situation for appropriate action. The Animal Supervisor, after consultation with the Zoo Keeper, will contact the Veterinarian if necessary. Medical care

will be performed as needed as soon as possible. A post mortem examination will be performed on animals that die in the collection. The remains will be disposed of in an acceptable manner. The Wisconsin Veterinary Diagnostic Laboratory, the University of Wisconsin - School of Veterinary Medicine Diagnostic Laboratory, or the Staff Veterinarian will perform the necropsy.

QUARANTINE

Quarantine is required to separate newly acquired animals from those already in the facility until the health of the new animals can be evaluated. The purpose of such isolation is to prevent the introduction of parasitic, fungal, viral, bacterial, or zoonotic diseases to the collection. In addition, during this period new animals can be acclimatized to diets and housing. Baseline medical data can also be gathered during the quarantine period.

Every animal entering the Henry Vilas Zoo collection from outside sources will undergo a quarantine period under the supervision of a veterinarian of at least 30 days. Quarantined animals should be housed in a separate facility, isolated from other animals. When true isolation is not possible, then the new animals will be housed in such a manner as to prohibit physical contact and to avoid aerosol and drainage contamination of other animals. The addition of any new birds, reptiles, amphibians or fish into a quarantine area will require that a new 30-day quarantine period will begin on the day the new animal is introduced into the quarantine area.

The location of quarantine is generally the Isolation Area of the Animal Health Center where the animal is physically isolated from the rest of the collection. The location should physically isolate the new animal(s) from closely related species in the existing collection. For animal requiring specialized holding facilities only available at the exhibit (e.g. rhino, large primates), desired exam and test results should be obtained prior to arrival at the Henry Vilas Zoo. The animal should be kept from direct contact with others on exhibit, if possible, until the veterinary staff can observe the animal and has tested 2 fecal samples for parasites.

The Veterinarian and the appropriate Zoo staff (General Curator or Keeper staff) will visually and/or physically check new-arrival animals as soon as possible after they are received.

Zoo staff caring for quarantined animals will practice measures to prevent introduction or spread of infectious agents or parasites. Equipment used in other animal areas is not permitted in the quarantine area. Boots, gloves and cleaning tools will be used exclusively in the quarantine area. Hands will be washed with germicidal soap before and after doing any work in the quarantine area. All tools, equipment and cages will be thoroughly disinfected and clearly marked for quarantine use only. A germicidal footbath will be maintained in the entrance to the quarantine area. All waste products including fecal material and leftover food will be bagged at the quarantine area and taken directly to the disposal site. Feed pans and other objects will be washed and disinfected in the

quarantine area. Quarantine staff will carefully monitor food intake and behavior patterns during quarantine and keep detailed written records.

NEW ARRIVAL QUARANTINE PROCEDURE

Quarantine

1. Confirm origin and history of shipment to get information on possible exposure during shipment.
2. Review diet, life history, reproductive history and physiology, and typical medical problems of the individual species.
3. Equipment used to feed and clean animals in quarantine should be used only for those animals.
4. A diet similar to that fed at the providing institution will be provided, if available, to avoid the stress of sudden changes in diet. Once the animals have acclimated, the diet can be gradually changed over to the permanent diet.
5. Food intake will be monitored daily and the General Curator and Veterinarian will be notified if the animal is not eating properly.
6. During the quarantine period, each animal will undergo a physical or visual examination to verify health status as a follow up to the pre-shipment exam. Any medical problems identified during the examination will be treated.
7. Vaccinations will be updated as appropriate for each species. If an animal arrives without a vaccination history, it will be treated as an immunologically naive animal, and will receive an appropriate series of vaccinations.
8. Fecal samples will be collected from individuals, or representative samples will be collected when animals are housed in groups. The fecal samples will be examined for the presence of gastrointestinal parasites and the Veterinarian will prescribe appropriate treatment. Culture of feces for salmonella/shigella/Campylobacter will be performed on all primates. Release from quarantine will be dependent on obtaining two negative fecal results, either initially or after parasiticide treatment.
9. All animals will be evaluated for ectoparasites and treated accordingly.
10. If not performed prior to shipment, blood will be collected for hematological monitoring during the quarantine period, when possible. At the minimum, a CBC and serum profile will be performed.
11. All unmarked animals will be permanently identified during the quarantine period.
12. Detailed medical records will be maintained and readily available for all animals during the quarantine period.
13. Animals that die during quarantine will undergo complete post-mortem examination.

Animals will be released from quarantine upon completion of the required quarantine period and required diagnostic tests and on approval of the staff Veterinarian. When the quarantine has been completed, it will be recorded in the medical record and the General

Curator will be notified. The equipment and enclosure(s) used for quarantine will be thoroughly cleaned and disinfected before being used for other animals.

PARASITE CONTROL

Fecal examinations are performed by Henry Vilas Zoo Veterinary Staff, Marshfield Veterinary Laboratory, or by the Madison College Vet Tech Program. Fecal examinations will be conducted a minimum annually on all individuals or groups in the collection, and more frequently on those groups recognized to be susceptible so as to facilitate the detection and treatment of parasites before clinical signs appear. Parasite infections will be treated with appropriate medications when identified. Some animals in the collection require a routine program of scheduled anthelmintic treatments to control persistent parasitic infections.

TUBERCULIN TESTING

Upon arrival at the facility, or prior to shipping, all susceptible animals will be tuberculin tested where the test will produce a valid and interpretable response. Testing will be performed according to currently acceptable procedures. Susceptible species (e.g., primates, bovines, etc.) and any animal exposed to an animal diagnosed as having tuberculosis will be tested more frequently. Primates will be tested prior to arrival and when examined under anesthetic if testing has not been performed in the past 2 years.

ZOONOSIS

There will be a preventive health program for employees working with zoo animals in order to minimize the risk of zoonotic disease. This program will include intradermal tuberculin testing annually and recommends vaccination for Tetanus and Hepatitis as elected by the individual.

The Zoo Veterinarian should have a thorough knowledge of zoonotic disease potential and should immediately inform zoo personnel if any zoonotic disease is diagnosed in any animal within the zoo. The zoo staff will participate in an annual zoonotic disease update and training.

NECROPSY

A postmortem examination will be performed as soon as possible on animals that die in the collection. The Wisconsin Veterinary Diagnostic Laboratory, the University of Wisconsin - School of Veterinary Medicine Diagnostic Laboratory, or the Staff Veterinarian will perform the necropsy. A postmortem exam may not be performed if the cause of death is known or if animal is humanely euthanized due to a known condition. If

the cause of death is not apparent during on-site necropsy, tissue samples will be sent to diagnostic laboratory services, typically the Wisconsin Veterinary Diagnostic Laboratory affiliated with the University of Wisconsin.

EUTHANASIA

Humane euthanasia of animals is sometimes required when an animal is found to have a condition for which treatment is not possible and to alleviate pain or suffering in conditions that are preventing a reasonable quality of life. Decisions for humane euthanasia will be made by the Zoo Veterinarian and the senior Animal Care Manager with input from attending staff. The Zoo Veterinarian or personnel who are knowledgeable and trained in performing the procedure in a compassionate and professional manner will perform euthanasia according to the current guidelines under the direction of the Zoo Veterinarian. The current guidelines used are: AVMA Guidelines for Euthanasia of Animals: 2013 Edition and the AAZV Guidelines for Euthanasia of Non-Domesticated Animals. The animals may be tranquilized or sedated as necessary prior to the administration of the euthanasia solution. For further information see the Euthanasia Policy (VC-32)

IMMUNIZATIONS

Immunizations will be performed on all susceptible species. Frequency of vaccination has recently been debated as a result of vaccine-induced neoplasia and evidence that duration of immunity to vaccination may be longer than current manufacturer recommendations. The frequency of vaccination will be dictated by the disease status of domestic and wild animals in the area surrounding the zoo, by assessment of the level of risk of the animal to contract disease, and by the risk-benefit of vaccine administration to the individual animal. The type of product used will be recorded in the medical records.

PRE-SHIPMENT PROCEDURES: Incoming animals

1. Request animal medical history from shipping institution.
2. Obtain facility history or species history of medical concerns that may be applicable to the acquisition of the animal into the Henry Vilas Zoo collection.
3. General pre-shipment testing requests will include physical examination (including oral evaluation), serum chemistry and CBC profile, fecal examination (direct and flotation) and treatment if indicated, evaluate and treat for external parasites, updated vaccinations, and permanent identification.
4. Additional testing appropriate to individual species as listed under specific taxonomy below.
5. Inquire as to any state or federal permits as well as regulatory requirements including species specific testing.

Preventative Animal Medicine Protocol

ANNUAL EXAMINATIONS: Entire collection per preventative health schedule

1. Review individual and group medical history.
2. Comprehensive visual or physical examination to include body condition, skin and feather/hair coat, general ophthalmic exam, general oral exam, and ambulatory evaluation.
3. Evaluation of cardiovascular, urogenital, and gastrointestinal systems if possible.
4. Fecal examination: direct and flotation.
5. If indicated, laboratory evaluation including serum chemistry profile, CBC, urinalysis, and tuberculosis testing.
6. Update vaccinations.
7. Review and evaluate diet.
8. Discuss and evaluate enrichment program.
9. Discuss husbandry practices and training plans with staff.
10. Additional testing appropriate to individual species as listed under specific taxonomy below.

ARTHROPODS: Insects; Arachnids; Chilopoda; Diplopoda

Additional pre-shipment requests: none

Additional Annual Exam requirements: none

Vaccinations: none recommended

OSTEOICHTHYES: (bony fish)

Additional pre-shipment requests: none

Additional Annual Exam requirements: none

Vaccinations: none recommended

REPTILES AND AMPHIBIANS

Additional pre-shipment requests:

1. Culture for salmonella.
2. Obtain institution history for toxoplasmosis and test if needed.

Additional Annual Exam requirements: none
Vaccinations: none recommended

AVES

Additional pre-shipment requests:

- A. Blood parasite smear
- B. Chlamydia serology if susceptible group.
- C. Institution history of aspergillosis and psittacosis in susceptible taxa with possible preventative treatment prior to shipping.
- D. Avian TB exposure and testing history. Possible radiograph confirmation.
- E. Itraconazole treatment if indicated.

Additional annual exam requirements: none

Vaccinations:

- A. For animals held outdoors during mosquito season: West Nile Virus vaccine.

MAMMALIA

ARTIODACTYLA: Suidae

Additional pre-shipment requests:

- A. Follow current Wisconsin Department of Agriculture requirements for movement of swine. https://datcp.wi.gov/Pages/Programs_Services/SwineMovement.aspx

Additional annual exam requirements: none

Vaccinations:

- A. Erysipelas vaccine if exposure risk.
- B. Killed Rabies vaccine.

ARTIODACTYLA: Camilidae

Additional pre-shipment requests:

- A. Negative tuberculosis test within 60 days of shipment.
- B. Negative brucellosis test within 30 days of shipment.
- C. Johne's history of herd of origin
- D. Johne's disease testing. Prefer tests to be performed at University of Wisconsin Johne's Testing Center.

Additional annual exam requirements: None

Vaccinations:

- A. Clostridial Vaccine.
- B. Killed Rabies Vaccine.

ARTIODACTYLA: Cervidae

Additional pre-shipment requests:

- A. Tuberculosis – negative TB test required within 60 days before entry. Please call (608) 224-4872 beforehand to determine which TB test to use. Requirement waived if you are moving the animal directly to an institution that is accredited by the American Association of Zoological Parks and Aquariums.
- B. Brucellosis – negative brucellosis test required within 30 days before entry. Requirement waived if you are moving the animal directly to an institution that is accredited by the American Association of Zoological Parks and Aquariums.
- C. Johne's history of herd of origin
- D. Johne's disease testing. Prefer tests to be performed at University of Wisconsin Johne's Testing Center.

Additional annual exam requirements: None

Vaccinations:

- A. Clostridial Vaccine.

ARTIODACTYLA: Giraffidae

Additional pre-shipment requests:

- A. Johne's history of herd of origin
- B. Johne's disease testing. Prefer tests to be performed at University of Wisconsin Johne's Testing Center.

Additional annual exam requirements: None

Vaccinations: None recommended.

ARTIODACTYLA: Bovidae, Capridae

Additional pre-shipment requests:

- A. Tuberculosis – negative TB test required within 60 days before entry. Please call (608) 224-4872 beforehand to determine which TB test to use. Requirement waived if you are moving the animal directly to an institution that is accredited by the American Association of Zoological Parks and Aquariums.

- B. Brucellosis – negative brucellosis test required within 30 days before entry. Requirement waived if you are moving the animal directly to an institution that is accredited by the American Association of Zoological Parks and Aquariums.
- C. Johne’s history of herd of origin
- D. Johne’s disease testing. Prefer tests to be performed at University of Wisconsin Johne’s Testing Center.
- E. Check herd status of Contagious Ecthyma.
- F. No exposure of sheep and goats to animals with scrapie.

Additional annual exam requirements: None

Vaccinations:

- 1. Clostridial Vaccine if indicated.
- 2. Killed Rabies Vaccine if indicated.

PERISSODACTYLA: Equidae

Additional pre-shipment requests:

- A. All Equids six (6) months or older require a negative AGID test or other USDA-approved test for Equine Infectious Anemia (Coggins) within twelve (12) months of shipment.
- B. Herd should be vaccinated within six (6) months of any new animals being introduced into the herd.

Additional annual exam requirements:

- A. Hoof trim if necessary.

Vaccinations:

- 1. EWT Flu Vaccine annually.
- 2. Killed Rabies (Imrab3, Merial) 2ml dose annually.
- 3. West Nile Virus annually.

PERRISODACTYLA: Rhinocerotidae

Additional pre-shipment requests:

- A. Johne’s history of herd of origin
- B. Johne’s disease testing. Prefer tests to be performed at University of Wisconsin Johne’s Testing Center.

Additional annual exam requirements: None

Vaccinations:

- 1. EWT and West Nile Virus vaccine annually.

PRIMATES: Lemurs, Marmosets, Tamarins, New World Monkeys, Old World Monkeys, Lesser Apes

Additional pre-shipment requests:

- A. Pre-shipment TB test if indicated.
- B. Pre-shipment fecal culture for *Salmonella*, *Shigella*, *Campylobacter*, and *Yersinia*.
- C. Serology status for *H. tamarinus*, Measles, Squirrel Monkey CMV or appropriate serology for the species in question.

Additional annual exam requirements: None

Vaccinations:

1. Tetanus Toxoid. If possible give at 3, 6, and 9 months of age. Boosters may be given at 5-year intervals.

PRIMATES: Great Apes

Additional pre-shipment requests:

- A. Pre-shipment TB test.
- B. Physical examination including cardiac evaluation and thoracic x-rays if possible.
- C. Pre-shipment fecal culture for *Salmonella*, *Shigella*, *Campylobacter*, and *Yersinia*.
- D. Pre-shipment Hepatitis B serology.
- E. Pre-shipment *Strongyloides stercoralis* serology (CDC Center for Infectious Disease, Division of Parasitic Diseases, Biology and Diagnostics Branch, 770-488-4431).
- F. Additional serology. Parainfluenza 1, 2, 3, Influenza A, B, Respiratory Syncytial Virus (RSV), measles, Herpes simplex – 1,2 (HSV-1, HSV-2), SA8, EBV, Human V-Z, Chimpanzee CMV (see panels from Simian Diagnostic Lab at Esoterix Infectious Disease Center formerly Virus Reference Labs).

Additional annual exam requirements: None

Vaccinations:

- A. Tetanus Toxoid. If possible give at 3, 6, and 9 months of age. Boosters may be given at 5-year intervals.
- B. Measles Virus Vaccine at 15 months and 10 years. This vaccine should not be given to pregnant females and females should not become pregnant within 3 months of receiving this vaccine. Do not TB test at same time.

CARNIVORA: Ursidae

Additional pre-shipment requests:

- A. Heartworm test.

Additional annual exam requirements: None

Vaccinations:

- 1. Killed Rabies vaccination.

CARNIVORA: Pinnipedia

Additional pre-shipment requests: None

Additional annual exam requirements: None

Vaccinations: None recommended

CARNIVORA: Felidae

Additional pre-shipment requests:

- A. FIV, FeLV, FIP, canine distemper status of individual and collection.
- B. FeLV and FIV test.

Additional annual exam requirements: None

Vaccinations:

- 1. Killed Feline Viral Rhinotracheitis Calicivirus Panleukopenia vaccine.
Kittens will be vaccinated at 8, 12, and 16 weeks of age. Adult cats will be vaccinated at one year of age. Revaccinate every three years.
- 2. Killed Rabies Vaccine every three years

CARNIVORA: Mustelidae

Additional pre-shipment requests:

- A. Heartworm test.
- B. Rectal culture for *Salmonella*.

Additional annual exam requirements: None

Vaccinations:

- 1. Killed Canine Distemper Vaccine (Ferrivax, Merial) annually.
- 2. Killed Rabies Vaccine annually.

INSECTIVORA:

Additional pre-shipment requests:

- A. Fecal/rectal culture for *Salmonella*.

Additional annual exam requirements: None

Vaccinations: No vaccinations recommended.

LAGOMORPHA:

Additional pre-shipment requests: None

Additional annual exam requirements: None

Vaccinations: None recommended

EDENTATA:

Additional pre-shipment requests: None

Additional annual exam requirements: None

Vaccinations: None recommended

RODENTIA:

Additional pre-shipment requests: None

Additional annual exam requirements: None

Vaccinations: None recommended

CHIROPTERA:

Additional pre-shipment requests:

- 1. Follow current USDA, USFWS, and CDC regulations on testing and movement of bat species.

Additional Annual Exam requirements: none

Vaccinations: None recommended.

**GUIDELINES FOR
ZOO AND AQUARIUM VETERINARY MEDICAL PROGRAMS
AND
VETERINARY HOSPITALS**

6th edition prepared by:

American Association of Zoo Veterinarians

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I. INTRODUCTION

“The mission of the American Association of Zoo Veterinarians (AAZV) is to optimize the health, welfare, and conservation of zoo animals and wildlife through education, scientific study, collaboration, and advocacy”. The purpose of these Guidelines is to improve the health and welfare of the animals in zoos and aquariums through advances in the standards of veterinary care.

Zoological parks and aquariums have humane and legal obligations to provide proper husbandry, veterinary medical treatment, and preventive medical and nutritional programs for their animals. Zoos and aquariums in the United States are required to employ an attending veterinarian who will provide adequate veterinary care for the animal collection and to assure that certain minimal standards of veterinary care are in place according to the Animal Welfare Act of 1966 and the subsequent amendments that are enforced by the United States Department of Agriculture (USDA). Maintaining standards of veterinary care requires professional oversight of laboratory, clinical, and nutritional services including the supervision of the veterinary medical programs by a licensed veterinarian who has special training or experience in non-domestic animal medicine.

Animal health is not solely the responsibility of the veterinary staff. Animal health is ensured by those who provide husbandry, prepare diets, monitor behavior and maintain environmental quality. By the same token, veterinary care cannot simply be limited to providing medications and treating emergencies. Veterinarians are stakeholders in all aspects of animal health and welfare and must be integrated into the overall management of zoo and aquarium animals including behavior, husbandry, nutrition, reproduction, exhibit design, and conservation programs.

In the United States, the Animal Welfare Act states that “Each zoo and aquarium shall assure that the attending veterinarian has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use” (See Animal Welfare Act, Title 9, Part 2.40).

http://www.aphis.usda.gov/animal_welfare/publications_and_reports.shtml

As such, the veterinarian, with consultation of the other animal management staff, is responsible for the design, implementation, and surveillance of the veterinary care program for the zoo or aquarium.

The additional staff required to support the veterinary medical care programs depends on the type and size of the institution, the nature of the physical facilities, the number of animals, and the extent and difficulty involved in maintaining each species. Professional and supporting personnel are necessary to implement portions of the veterinary medical program concerned with veterinary medical care. Zoos and aquariums must provide full administrative, technical and husbandry support for the veterinary medical programs. In all cases, one full-time staff member at the institution must be responsible for the medical care program.

The following document is the sixth edition developed by the American Association of Zoo Veterinarians to be used as a guideline for zoos and aquariums in developing and evaluating the medical programs in their institutions. The Veterinary Medical Program encompasses the routine medical and surgical care of the collection and the preventive medicine program. In order for the veterinary staff to support these programs of veterinary care, a hospital facility appropriate to the collection's needs is required. It is hoped that this document will be an aid in the accreditation of zoos and aquariums by the Association of Zoos and Aquariums.

II. VETERINARY CARE

The veterinary medical program must emphasize disease prevention and animal well-being to include nutritional, behavioral, and reproductive health. In order to promote population sustainability, trends in the overall health of the animals must be monitored over time. All animals in the collection must be observed daily either by the person in charge of animal management, or by someone working under the direct supervision of this person. All keepers must be trained to recognize abnormal behavior and clinical signs of illness and must be knowledgeable concerning the diets, husbandry, and restraint procedures for the animals under their care. Diseased, injured, or stressed animals must be reported promptly so that they can be assessed for their need for veterinary medical care. Collection animals that die should receive a complete necropsy and the carcass should be disposed of properly (see Necropsy Section II.B.5).

All procedures and treatments performed on animals must employ current professionally accepted methods of diagnosis and treatment. There should be a standard operating policy of providing appropriate medical care for all sick and injured animals.

Veterinary coverage must be available 7 days/week, 24 hours/day for any zoo or aquarium regardless if a full-time or part-time veterinarian supplies the coverage. Appropriate contractual and schedule arrangements must be made at all zoos and aquariums to permit this availability.

A. Staff/Personnel

1. Veterinary Coverage

The veterinarian is responsible for the medical and surgical care of the animals and must be fully acquainted with the entire animal collection care staff and animal facilities. The veterinarian must arrange for the availability of other suitably experienced veterinarians to be on call when they themselves are unavailable. In the case of institutions using the services of a part-time veterinarian, the veterinarian must make regularly scheduled visits to the facility in order to become familiar with the clinical cases and to closely supervise their veterinary care.

The zoo or aquarium must have back-up emergency veterinarians, selected by the veterinarian. The regular and back-up veterinarian must be familiar with the application of currently accepted measures of therapy, methods of anesthesia and restraint, and prophylaxis appropriate for each species or have access to sources of this information.

If a contract service is provided by a group veterinary practice, there should be one veterinarian who is responsible for the medical program at the zoo or aquarium and the other veterinarians in the group practice should be considered as back-up veterinarians.

2. Veterinary Program Coordinator

Any zoo or aquarium in which a part-time veterinarian provides veterinary coverage must have one staff person who serves as the veterinary program coordinator, and supervises the veterinary care program under the direction of the veterinarian.

The veterinary program coordinator makes note of which animals require examination by the veterinarian, and should accompany the veterinarian during rounds and treatments. The program coordinator is also responsible for overseeing prescribed treatments, maintenance of hospital equipment, and supervising drug inventories.

It is essential that the veterinary program coordinator be trained to deal with emergencies until the veterinarian arrives, be able to direct the restraint of the animals, be responsible for administration of post-surgical care, and be skilled in maintaining appropriate medical records. It is important that the veterinary program coordinator should communicate frequently and directly with the part-time veterinarian to ensure that there is a timely transfer of accurate information about medical issues. Ideally, this individual should be a licensed veterinary technician or an animal health technician. The coordinator should implement the preventive medicine programs established by the veterinarian. These programs are described in section B "Veterinary Programs".

3. Support Personnel

A veterinary care program requires support staff to establish and maintain the programs and facilities as previously described. It is important that tasks assigned to veterinary support staff or other zoo or aquarium personnel are within the requirements of the appropriate local, state or federal veterinary practice guidelines.

A facility with a large diverse animal collection requires support personnel in three areas:

1. Husbandry (animal keepers) - to perform routine care for hospitalized animals.
2. Technical (preferably a Registered, Certified or Licensed veterinary technician, following pertinent State regulations) - to assist in veterinary care, equipment maintenance, and laboratory functions.
3. Clerical – including but not limited to oversight of medical records.

A small facility would have correspondingly fewer personnel to perform these tasks, but assignments of these tasks to specific personnel are important.

4. Infection Control and Personnel Safety

All hospital staff must take special precautions to prevent cross-contamination between animal areas as they move about the zoo or aquarium. Keepers working in the hospital should not work in the exhibit areas to avoid cross-contamination. If there must be shared duties as in smaller facilities, appropriate measures must be taken to prevent lateral transmission of disease between the hospital and exhibit areas. Personnel safety

standards should conform to all local, state, and federal regulations concerning occupational health and safety in the workplace. Workers must be aware of the potential hazards associated with handling dangerous animals (bites, envenomation, scratches, etc.). In addition, they must be familiar with the chemicals (anesthetic agents, medications, disinfectants, etc.), microbiological (including allergens) and physical hazards (radiation, etc.) found in the workplace. Safety and personal protective equipment must be properly maintained and routinely calibrated. Safety Data Sheets (SDS) must be available for staff use on-site for all drugs and chemicals used in the facility. Specific protocols should be developed as needed for different zoonotic diseases that may be present based on a risk assessment of the facility.

B. Veterinary Program

1. General Considerations

Veterinary medical and surgical care must be provided for all animals in zoos and aquariums. This care must meet or exceed contemporary practice standards of zoo and aquarium veterinary care. Animal collection size or budgetary constraints may influence the location where such care is provided but may not prevent the provision of these minimum care standards. Veterinarians and support personnel must be knowledgeable about the humane aspects of animal treatment.

Medical procedures, including those conducted without the use of anesthetics, analgesics, or tranquilizers, must be supervised by a person qualified to assess the risks involved, and must be done only in consultation with the veterinarian, and in accordance with local, state and federal laws.

Medications must be used in accordance with local, state, regional, provincial, and federal regulations and must be administered in accordance with the relevant veterinary practice act. Procedures for the use of animal drugs should include at minimum the following: those persons authorized to administer animal drugs, situations in which they are to be utilized, location of animal drugs and those persons with access to them, and emergency procedures in the event of accidental human exposure. All controlled substances must be stored in a securely locked container of substantial construction appropriate for the types of drugs in the inventory. Schedule II drugs such as ultra-potent narcotics must be stored in a safe or steel cabinet equivalent to a U.S. Government Class V security container. Outdated drugs must be marked as such and stored separately from all other drugs. Drugs used in zoos and aquariums on fishes must be administered in compliance with the Food and Drug Administration (<http://www.fda.gov/cvm/minortoc.htm>) so as to prevent contamination of human water supplies and to be in accordance with the Association of Zoos and Aquariums(AZA) policy (<http://www.aza.org/uploadedFiles/Accreditation>.)

2. Anesthesia

In a zoological setting, anesthesia is often necessary for both invasive (e.g., surgical) and noninvasive (e.g., blood collection, collaring, metabolic) procedures. Anesthesia for noninvasive procedures is commonly utilized for the safety of the staff and the animals.

Physical restraint without sedation or anxiolytics should be limited to short, nonpainful procedures or longer procedures in species that are exceptionally tolerant to manual restraint. Physical or mechanical restraint can be stressful to nondomesticated species and conscious sedation can reduce stress in the animal and decrease risk of injury to the animal and humans. In the case of invasive procedures, restraint without consideration for analgesia may be grossly inappropriate and anesthesia or local analgesia should be used.

Characteristics of general anesthesia include (1) complete unconsciousness, (2) analgesia, (3) muscle relaxation, and the (4) absence of reflex responses. Anesthesia should not be mistaken for simple immobilization and recovery, without regard for the importance of monitoring and maintaining a stable patient during the procedure. All anesthetic plans must take into account human and animal safety. Human injuries during zoo immobilizations have occurred from animal attacks, drug exposure and environmental hazards.

Monitoring

Anesthetic monitoring should follow guidelines generated by the American College of Veterinary Anesthesia and Analgesia (ACVAA; http://www.acvaa.org/docs/Small_Animal_Monitoring_2009.doc). Physiologic parameters are monitored to help the anesthetist achieve and maintain a surgical plane of anesthesia, anticipate and detect when changes in delivery of anesthetic drugs are required, and promptly identify preoperative, intraoperative, and postoperative complications. The most basic anesthetic monitoring consists of measuring heart rate, respiratory rate and body temperature (homeotherms) and should be performed and recorded for each anesthetized patient. While expensive instruments are available for specialized situations, these parameters are easily measured with the eyes and ears of the anesthetist, a stethoscope, and a rectal thermometer. Monitoring of oxygenation, ventilation (carbon dioxide excretion), and blood pressure require additional monitors. This monitoring is considered ideal, and should be used when feasible. Pulse oximeters, capnographs, electrocardiograms (ECG), and oscillometric blood pressure monitors are the commonly used "standard anesthetic monitors" in veterinary anesthesia, but require some accommodation for non-domestic species. It is important to remember that even though these devices are widely used in wildlife medicine, few have been objectively evaluated in nondomestic species.

At a minimum, the anesthetist should have equipment available for endotracheal intubation and vascular access in species for which those techniques are possible. The decision to intubate or place an intravenous catheter should be based on the well-being of the patient and the safety of the human personnel. In addition, appropriate drugs for emergency response in the species commonly anesthetized in the collection should be maintained in appropriate quantities.

Analgesia

Analgesia should be provided for any penetration of the skin by a tool larger than a hypodermic needle, including biopsy instruments. When general anesthesia is not used, preemptive analgesia is of paramount importance. Many drugs, such as propofol and isoflurane, which affect or facilitate immobilization and anesthesia, do not provide

analgesia and should be used in conjunction with an appropriate analgesic agent. Guidelines for the recognition and treatment of pain in animal patients are provided by the ACVAA (ACVAA 2006).

3. Surgery

All zoos and aquariums must have access to surgical facilities that are clean, free from excessive noise and unnecessary pedestrian traffic, have adequate lighting, ventilation, and temperature controls, and that can be easily cleaned and disinfected. They must have access to inhalant anesthesia equipment with a gas scavenging system and oxygen, sterilized surgical packs, surgical preparation solutions, intravenous fluids, fluid administration equipment, pulse oximetry, heart monitoring equipment (e.g. electrocardiogram, stethoscope), and emergency drugs. The equipment must be maintained in good working order and be on a program of routine preventive maintenance.

All zoos and aquariums must have an on-site area available for minor surgical procedures. Separate aseptic surgical facilities must be available with preference for on-site locations to limit transport time and animal stress (see Section III.A. On-Site Veterinary Hospital). If an off-site aseptic surgical facility is used, then the availability of an on-site area that can be adapted for occasional or emergency aseptic surgical use is recommended. Aseptic surgical facilities should include separate areas for animal preparation, surgeon's scrub, instrument preparation, and postoperative recovery. These support areas should all be free from excessive noise and pedestrian traffic. It is recognized that surgery must sometimes be performed outside the standard surgical suite, especially in the case of large animals.

Surgery can only be performed by a veterinarian. In an emergency, a veterinary technician appropriately trained by the veterinarian in states or provinces where such action is permitted by veterinary practice acts can perform surgical first aid.

Equipment, facilities, and personnel must be available to maintain an appropriate environment for postoperative care. Post-surgical care should include observation of the animal until it has recovered from anesthesia. Surgical incisions should be observed per veterinary instructions, or as frequently as possible while minimizing stress to the animals, for signs of dehiscence or infection. Analgesics should be administered whenever appropriate.

4. Clinical Pathology

Diagnostic laboratory services must be available to assist with the examination of biological samples and the diagnosis of disease. Diagnostic capabilities should include access to cytology, microbiology, parasitology, hematology, blood chemistry, urinalysis, serology, and other appropriate laboratory procedures. At a minimum, one microscope should be available in-house to perform fecal examinations and diagnostic cytology of blood, tissue, and body fluids when immediate examination is necessary. Equipment should be properly maintained and calibrated. The zoo or aquarium must have the capability to obtain pertinent emergency test results in a timely manner. A veterinary pathologist should be available as a consultant to assist in rapid diagnosis and

interpretation of disease processes. Ideally, there should be a veterinary pathologist on staff.

5. Necropsy

The zoo or aquarium must have a refrigerator for holding dead animals that is physically separate from live animal holding, treatment, medication storage, and surgery areas and from food supply storage or preparation areas. Ideally, there should be an isolated area on the grounds for performing animal necropsies, or the carcass should be transported to a facility for a postmortem examination as soon as possible and no longer than 24 hours after death. It is important that a postmortem examination be performed on all animals that die and are in suitable condition, and also on wild or feral animals found dead on the zoo or aquarium grounds, as deemed necessary by the veterinarian and in accordance with local and state regulations. Histologic examination of tissues from such animals should be performed to evaluate mortality factors if the cause of death is not evident on gross necropsy examination. It is advisable to have histological examinations performed on all dead animals to determine if there were underlying causes not evident grossly.

Many Species Survival Plans (SSPs) have extensive necropsy protocols developed for the SSP species, so the appropriate SSP Veterinary Advisor should be consulted in advance for this information. Many of these protocols are posted on the AAZV web site (www.aazv.org). Based on the size of the animal collection and pathology caseload the support of a full-time veterinary pathologist may be warranted at larger institutions.

A reasonable effort should be made to distribute postmortem specimens to institutions for further research or for museum exhibition. The SSP may also recommend distribution of specific specimens to researchers for further studies and these requests should be filled whenever possible. Special requests of researchers should be considered when possible and if these projects have been approved by the facility. However, higher priority should be given to determining the cause of death rather than to fulfilling SSP or research requests.

If applicable, the remaining specimen should be placed in a museum collection or in the institution's education collection. Disposition of dead animals and their parts must meet all legal restrictions. It is the responsibility of the veterinarian to oversee the distribution of postmortem specimens in order to prevent the distribution of infectious materials. Dead specimens not used should be incinerated or disposed of as deemed suitable by the veterinarian in accordance with local, state and federal regulations.

Zoos and aquariums or their consulting pathologists should maintain collections of fixed tissues, paraffin-embedded blocks, frozen tissues and/or slides from the postmortem examinations for future studies.

6. Medical Records

Complete medical records must be maintained on all animals in the collection that have received veterinary attention. The records must indicate all treatments (types of medication, dosage, duration), surgical procedures, anesthetic procedures (type of

agent, dosage, effect), results of all laboratory tests (parasitologic, hematologic, bacteriologic, etc.), and immunization records with all relevant dates. The same information, when appropriate, should be recorded for groups of animals that are not individually accessioned and are subjected to group treatments or diagnostic evaluations. Copies of these medical records must accompany animals when they are transferred to another institution or be sent in advance of shipment.

Medical records must be maintained under the direction of the veterinarian. Ideally the medical records should be computerized for easy retrieval. Software programs developed for use in zoos and aquariums should be utilized if at all possible. Veterinary staff should have access to an appropriate number of computers, capable of handling the medical record software. Medical records should be kept separate from the inventory records and be easily accessible. Duplicate record sets should be stored electronically or in hard copy at another site, or in fire proof storage on site.

Morbidity and mortality trends should be monitored in order to evaluate animal health and to develop or modify preventive health or husbandry procedures.

All animals should have some form of permanent identification if practical. Various methods of identification, such as transponders, ear tags, wing tags, neck chains, toe clipping, leg bands, tattoo, brands, ear notching, horn branding and photography are available. Permanent individual identification provides critical data used to facilitate trace back of exposure to regulatory disease and other pathogens. (i.e., TB, CWD, Johne's disease, etc.) and it is required for all hoofstock maintained in AZA accredited zoos for tuberculosis surveillance. Many SSPs require that individual animals in the plan receive transponders or that they be tattooed with their studbook or other permanent identification number. The appropriate SSP coordinator should be consulted regarding the placement location for transponders or tattoos.

7. Preventive Medicine

Preventive medicine programs must be established at every zoo and aquarium. Preventive medicine is particularly important because it is often difficult to recognize and treat illness in non-domestic animals. These programs should include quarantine as required, periodic, risk-based health assessments (visual and/or under anesthesia), parasite surveillance procedures and control, immunization, infectious diseases screening (e.g. serology, tuberculosis testing), dental prophylaxis, and periodic reviews of diets, husbandry techniques, and vermin control.

Parasite Control

A program of parasite control shall be developed by the veterinarian. Fecal examinations should be conducted routinely on every individual or group of animals to detect and direct treatment of parasite infections before clinical signs appear. The veterinarian should determine frequency and type of fecal exams based on facilities and animals' history and/or susceptibilities. More frequent exams may be required on those groups recognized to be infected with parasites or considered to be more susceptible to parasite associated disease. Fecal examination should be repeated as necessary following treatment to evaluate efficacy. Care should be taken in the movement of

animals or cage furniture from one exhibit to another in order to prevent exposure or spread of parasites.

Immunization

The veterinarian will determine what vaccinations are appropriate for each species in the collection. Vaccinations administered should be based on the disease status of domestic and wild animals in the area surrounding the facility TAG and SSP recommendations, <http://www.aazv.org/>. The type, serial and/or lot number, and source of product should be recorded in the individual animal's medical records.

Disease Surveillance

Specific screening protocols for diseases will depend on the nature and prevalence of disease either in the vicinity of the facility, SSP recommendations, and government regulations. Veterinary advisors for the SSPs and the Taxon Advisory Groups (TAGs) can be contacted for information on the diseases of concern for the specific species. <http://www.aazv.org/>

Risk analysis

Disease risk analysis as applied to the transfer of animals between institutions consists of a number of individual steps. These include pathogen hazard identification, risk assessment and risk management along with risk communication which occurs throughout the process.

Pathogen hazard identification is performed by the receiving institution for diseases that they wish to keep out of their collection. Knowledge of the receiving institution's pathogen status is critical to this step as there is no need to identify a pathogen that is already present in the receiving collection. If no pathogen hazards are identified, then no risk assessment or risk management is needed and animal transfers can occur without the need for further risk mitigation.

If pathogen hazards are identified, then each hazard undergoes risk assessment to determine the consequences of introducing it into the receiving collection.

Following pathogen hazard identification and risk assessment, risk management using risk mitigation is performed to lower the risk of pathogen introduction into the receiving collection. Risk mitigation can involve preshipment procedures and diagnostics, preshipment isolation, post-arrival isolation (quarantine), and post-arrival procedures and diagnostics (e.g. quarantine exam and testing). Ideally risk mitigation should focus on the preshipment part of the animal transfer. Discovery of transmissible pathogens of concern prior to transfer avoids post-arrival failure requiring return, euthanasia, or other disposition. A complete physical or visual examination with appropriate diagnostic tests should be performed at the zoo or aquarium of origin to assure that only animals of known health are shipped.

Where hazard identification, risk assessment, and sufficient risk mitigation is performed prior to transfer, the animal can be transferred directly into the collection without the need for quarantine isolation and further testing. This can improve animal welfare during

the transfer process. Where risk mitigation cannot be performed prior to transfer, traditional quarantine practices should be used. It should be appreciated that the traditional quarantine and isolation period has acted as a time for newly arrived animals into a collection to acclimate to their new environments, diets, and routines.

The risk analysis process is more robust with knowledge of disease occurrence in the sending and receiving populations. Comprehensive pathology data is superior to individual testing in determining disease prevalence (Wallace et al) therefore the reliability of risk analysis depends on the quality of data developed through clinical veterinary care, preventive medicine programs, and diagnostic pathology programs.

8. Quarantine

Upon arrival all animals should be weighed and inspected for injuries or disease. During quarantine the following procedures should be performed: examination, vaccination as appropriate, clinical and laboratory tests, treatment for external and internal parasites as needed, evaluation of psychological well-being, verification of permanent identification.

Every animal that dies during quarantine should receive a complete postmortem examination including histopathology.

It may be necessary to have additional facilities to provide for the isolation of animals in the collection that are known to be or suspected of carrying disease, and the same precautions used for quarantine animals should be applied in handling these animals.

Quarantine facilities for newly imported nonhuman primates must meet specialized requirements of the Centers for Disease Control and Prevention, <http://www.cdc.gov/>.

The quarantine or isolation of elephants should follow the *Recommendations for the diagnosis, treatment, and management of tuberculosis (Mycobacteria tuberculosis) in elephants in human care 2015*;

<http://c.ymcdn.com/sites/www.aazv.org/resource/resmgr/Files/RecommendationsTBinElephants.pdf> or

https://elephantconservation.org/downloads/pdf/ElephantCareTaskForceResponseUSDA_3-13.pdf and the *Voluntary Guidelines for Control of Tuberculosis in Elephants 2008*

https://www.aphis.usda.gov/animal_welfare/downloads/elephant/elephant_tb.pdf

Marine mammal quarantine must adhere to Marine Mammal Protection Act and must be administered by the veterinarian, <http://www.nmfs.noaa.gov/pr/laws/mmpa/>.

Fish and Aquatic Invertebrates

Traditional “terrestrial animal” quarantine protocols are not necessarily directly applicable to fish and aquatic invertebrates, and a slightly different paradigm must be used. Despite these differences, however, the overarching goal of quarantine, preventing the introduction of disease into an animal collection, still applies. In addition, quarantine often serves an important role in the acclimation of fish and aquatic invertebrates to the captive environment. Many zoos and aquariums may not have

veterinary staff with significant experience in piscine/aquatic invertebrate infectious disease; therefore a heavy reliance on non-veterinarian diagnosticians may be indicated. Despite this, a risk analysis and quarantine protocol should be developed with input from the facility's veterinarian. Fish and aquatic invertebrates may be quarantined either as individuals or in groups such as schools or colonies. While heavy emphasis is traditionally placed on parasitological evaluations of these animals, quarantine protocols should also address other etiopathogenic causes of disease, such as viruses, bacteria, and fungus. Unlike many of the terrestrial vertebrates encountered in quarantine settings, there are significant limitations to the scope and availability of laboratory diagnostics available for use in many fish and aquatic invertebrate species. For that reason, taxon specific risk analysis should be made in order to tailor quarantine protocols to the animals under consideration. Thorough post mortem examinations should be performed opportunistically as a component of a fish/invertebrate quarantine protocol. Development of disease databases should also be maintained as aids in the risk assessment process.

Special considerations for animals that cannot be isolated

Because some animals have unique care and environmental requirements, it may not be feasible to duplicate the appropriate enclosures in a separate location for quarantine. Large or specialized animals such as elephants or marine mammals, requiring facilities that are not practical to duplicate in a quarantine facility, must have a health history and status thoroughly characterized at the sending institution for disease transmission risk assessment since they may have to be kept in close proximity to collection animals. Efforts should be made to prevent direct physical contact, contact by aerosolization or drainage, or potential fomite transmission. Keepers working in that area should tend to the quarantined animal last, when no further contact with collection animals is necessary. A set of cleaning and feeding utensils is to be dedicated to the quarantined animal and not used on other collection animals.

Methods to prevent disease transfer during quarantine

If a risk analysis indicates the need for isolation of the incoming animal(s), the length of that isolation and any disease testing to be done should be based on the specific diseases of concern. The degree of separation should be such that potential communicable disease agents may not be transmitted to other susceptible animals. In most cases this requires facilities remote from the main exhibit areas. Access should be restricted to prevent transport of infectious agents by zoo or aquarium personnel. All personnel working in quarantine facilities must observe established protocols such as personal hygiene and disinfection of footwear, clothing, and equipment. A bactericidal/virucidal footbath should be placed near the entrance to the quarantine area to prevent spread of potential pathogens by footwear. This footbath must be changed regularly as many products are inactivated by organic debris. Alternatively, disinfectant sprays or footwear dedicated to use only in quarantine may be utilized. Animal care in the quarantine facility is to be performed by personnel assigned exclusively to that area, rather than one who will be working in other areas as well. Feeding utensils and containers, cleaning utensils, and any cage furnishings are to remain in the quarantine facility (not used elsewhere). Boots, gloves, masks, personal protective equipment

(PPE) or other protective clothing used while working with the quarantined animal should be dedicated to this area and not used elsewhere. Waste removed from this facility should be disposed of in such a way as to prevent exposure to other areas of the zoo or aquarium (i.e., picked up last and delivered directly to the site of disposal). Although this is the most desirable quarantine design, it may not always be possible due to constraints of cost, facilities, and personnel.

Any animal that is severely stressed by quarantine procedures (e.g. social isolation, confinement etc. may require a risk assessed, harm/benefit analysis for earlier release or modification of the facilities, if approved by the veterinarian in consultation with animal care staff. Local, state, or federal regulations may also dictate quarantine length and procedures.

Prevention of disease introduction into a zoological collection

Quarantine procedures have been used to prevent the introduction of transmissible disease into an animal collection and have been one of the most important features of a preventive medicine program. Retrospective studies have suggested that a risk-based approach to the transfer of animals between zoological collections can also provide protection from disease transfer while benefiting animal welfare. These studies also noted that “Quarantine isolation with testing remains an essential defense against introducing transmissible diseases of concern when there is a lack of health knowledge about the animals being received” (Wallace et al) This risk-based approach to animal transfers should be developed and monitored by the veterinary staff in consultation with facility personnel.

9. Zoonosis

The facility’s veterinarian must be knowledgeable about zoonotic diseases that may affect the collection animals, personnel, and guests to the institution. If a zoonotic disease is diagnosed within the facility the veterinarian, in consultation with the institution’s Human Resources Department, Safety Officer, (or equivalent) should inform and educate personnel about disease transmission and prevention. In the case of a reportable disease, the veterinarian is obligated to inform all appropriate governmental health authorities.

A preventive health program for all employees working with animals should be developed in consultation with an occupational health physician or infectious disease physician, to minimize the possibility of disease transmission between people and animals. A physician with expertise in infectious diseases should be consulted whenever an employee contracts an unusual illness or is exposed to an animal diagnosed with a zoonotic disease.

The veterinarian should consult with pertinent management staff in all areas where the public is allowed physical contact with collection animals to assess the risk for the transfer of zoonotic diseases and plan preventive measures. For further information, see MMWR, Compendium of Measures to Prevent Disease Associated with Animals in Public Settings, 2013 (<http://avmajournals.avma.org/toc/javma/243/9>)

C. Management Issues

Zoo and aquarium management decisions including but not limited to animal shipments, nutrition, husbandry, pest control and euthanasia must involve the veterinarian, who will work closely with the appropriate curator and/or nutritionist, depending on the issue.

APHIS 9cfr chapter 1 part 2-regulations in AWA, subpart D, 2.40(A)

http://www.aphis.usda.gov/animal_welfare/publications_and_reports.shtml

1. Animal Shipments

The veterinarian is responsible for preparing and signing the Certificate of Veterinary Inspection (Health Certificate). Pre-shipment visual or physical examination must be performed by the signing veterinarian to ensure that animals may be safely transported and are free of clinical symptoms of infectious diseases. Any tests required by regulations of the receiving state or country must be performed. The consignor and consignee share the responsibility for health care prior to, during, and after shipment of animals. Complete medical records should be made available to the receiving institution prior to shipment.

2. Nutrition

When possible the use of species specific, commercially prepared animal diets should be utilized as the basis for any nutrition program. To ensure nutritional efficacy, regularly scheduled review of dietary husbandry practices including routine sampling and testing via commercial laboratory of hay and fish should be conducted by qualified individuals in consultation with a veterinarian and/or nutritionist. The data generated from these analyses should be recorded and maintained for future evaluation as part of a preventative animal health care program. This information in combination with blood metabolite testing, e.g., vitamin and mineral status, in many cases enables the establishment of correlations between diet and frequency of disease, mortality rate, and reproductive success. In addition, a comprehensive dietary analysis may provide for early detection of nutritional imbalances and make available baseline data from which more appropriate dietary formulations can be developed. Diets for individual animals should be modified to match physiological status e.g., newborn vs. adult vs. pregnant vs. lactating and when feasible, should be based upon data obtained from peer reviewed publication or dietary guidelines established in Animal Care Manuals. Dietary analysis should also account for consumption. It is important to assess specific nutritional protocols based upon actual intake rather than solely on the total diet offered, especially when incorporating domestically cultivated produce items. Fruits and vegetables grown for human consumption are often high in soluble carbohydrates and low in dietary fiber and over consumption of these items can result in nutritional disorders such as obesity and diabetes. Current and historic diets on all animals should be recorded and maintained in a database. Comprehensive food safety procedures should also be integrated into all dietary protocols and when possible should be based upon Hazard Analysis and Critical Control Points (HACCP) food safety standards. Having food-handling animal staff attend a professional food safety training class may also be beneficial.

A zoo or aquarium nutritionist should be available as a consultant to assist in rapid diagnosis and interpretation of nutritional disorders. Ideally, there should be a nutritionist on staff.

3. Sanitation and Disinfection

Sanitation and disinfection protocols should be developed in consultation with the veterinarian. Sanitation includes removal of soiled materials (bedding, feed, enrichment items, and waste material) followed by thorough cleaning to remove excessive dirt and debris. Once the organic material is removed, the area should then be disinfected to reduce or eliminate microbes. Disinfectants should be chosen based on target organisms and safety of use in the animal or food area being disinfected. The frequency and amount of cleaning and disinfection will vary depending upon the animal's needs and physiological condition. Cleaning utensils should be assigned to specific areas and should not be transferred between areas. All feed and water containers should be routinely cleaned and disinfected. Water storage containers or automatic watering devices should also be disinfected.

Monitoring of water quality for aquatic animals should be developed in consultation with veterinary staff and meet federal marine mammal guidelines, where applicable.

4. Pest Control

Each institution must have a formal integrated pest management program, developed in consultation with the veterinarian. Pest control should be implemented in all areas of the zoo or aquarium. The program should prevent, control, or eliminate pests with documentation of monitoring and control techniques. Pesticides must be used in accordance with government regulations. Whenever possible, less toxic or non-toxic agents should be given preference.

5. Euthanasia

The zoo or aquarium must have a policy on euthanasia that addresses the decision making process as well as the methods for humane euthanasia. Animals must be euthanized in accordance with the most current guidelines. See: AAZV Guidelines for Euthanasia of Non-domestic Animals

http://www.aphis.usda.gov/animal_welfare/publications_and_reports.shtml and

American Veterinary Medical Association (AVMA) Panel on Euthanasia"

http://www.avma.org/issues/animal_welfare/euthanasia.pdf

Euthanasia must be performed by personnel who are knowledgeable and skilled in performing the procedure. Euthanasia techniques should not interfere with postmortem examinations, when possible.

III. Veterinary Facilities

A. On-Site

All zoos and aquariums should have an on-site veterinary facility. An on-site facility allows for isolation of animals receiving medical care and facilitates observation and treatment of sick and injured animals. The size of the facility and its components will depend upon the size and type of animal collection. The facility should be designed with

input from the veterinary staff, with the assistance of individuals knowledgeable about animal hospital facility design. It must meet all local and state building regulations. Traffic within animal areas should be kept to a minimum.

The facility should have designated areas for examination and treatment, sterile surgery (see Section II.B.1.b.), necropsy (see Section II.B.1.d.), animal holding (see Section II.B.2.a.), laboratory, biological sample storage, radiology, pharmaceutical storage including, when necessary, a safe for controlled drugs that meets the standards set by the Drug Enforcement Administration (DEA), animal food preparation and/or storage areas, equipment storage areas, and a staff locker-room with showers and restroom facilities. Capture and restraint equipment, anesthetic equipment, autoclave and basic surgical equipment should be stored in the hospital. Radiology equipment should be of appropriate size and power for the animal collection, and its installation must meet local and state regulations.

Animal holding areas must be physically separated from personnel areas. Animal holding areas should have nonporous walls and floor surfaces that allow for frequent cleaning with water and disinfectants. These surfaces should be nonabsorbent, resistant to impact and resistant to the adverse effects of hot water, steam, and cleaning agents and biological materials such as urine and feces. These surface materials should also have good acoustical properties to keep the noise level to a minimum.

Floors should slope toward drains to facilitate rapid drainage and drying. Floor to wall junctions should be free of cracks, smooth, and impermeable. Drains should be of sufficient capacity in animal holding areas. Drains, which can provide avenues for the spreading of infectious agents, should not connect between contaminated and non-contaminated areas. It is optimal to have anti-backflow devices and automatic disinfection systems in the drains used throughout the hospital.

Office space, animal areas including holding and treatment, and contaminated spaces must have separate air handling capabilities. Contaminated areas include quarantine and necropsy areas, and laboratory diagnostic fume hoods. Contaminated areas should have a filtration of >95% biological effective level on outflow. Animal holding areas should have frequent air changes approximating 10-15 air change/hours or enough to minimize animal odors and control heat loads, and is considered an acceptable general standard for laboratory animal facilities (*Guide for the Care and Use of Laboratory Animals*, Institute of Laboratory Animal Resources 2011). Ideally air should not be re-circulated in the hospital, especially from animal areas. The temperature should be capable of independent adjustment in each animal room. A backup electrical generator should be available for hospital use.

Ceilings should be smooth, moisture resistant and easily cleaned. Suspended ceilings are not recommended in animal areas as they can harbor pests and are avenues for animal escape. Exposed ductwork and light fixtures are difficult to clean and can be hazardous during an animal escape and should be avoided. Animal rooms should have doors with viewing windows and dart ports as appropriate. Doors should be large enough so that cages, crates, and equipment can be easily moved into and out of

animal areas. External doors should fit tightly into their frames and should have door sweeps to prevent rodents and insects from entering into the animal rooms. Cages should be constructed to make it possible to load, unload, and shift animals with minimal physical and/or chemical restraint.

Outside pens should be solidly constructed. If slatted wood walls are used, it should not be possible for hooves, legs, wings or horns to be caught in the slats. The wood should be non-toxic and surfaces should be easily cleaned and disinfected. Floor surfaces should offer good traction and have good drainage. If soil surfaces are used, there should be easy access into the pens to remove and replace the soil if it becomes contaminated.

Holding cages with wire mesh fronts must be sturdy enough to contain a wide variety of animals appropriate for the collection. The surfaces should be smooth, easily cleaned, and easily disinfected. The opening in the wire mesh should be small enough to prevent animals from reaching out and grabbing staff and/or other nearby animals. Hospital cage furniture should be cleaned thoroughly and disinfected between uses.

Facilities should be designed with access to all animal areas limited to designated care givers.

Storage areas for equipment, supplies, food, cages, bedding, and refuse should be of adequate size. Bedding and food should be stored separately from cleaning supplies and toxic or hazardous chemicals. Refuse storage should be separately located from all other storage areas. There should be an isolated cooler available for the temporary storage of carcasses prior to their necropsy and eventual disposition.

B. Off-Site

Based on the type of collection and their veterinary needs, some zoos or aquariums may not require an on-site veterinary facility. In these cases, the zoo or aquarium should maintain a contract with a nearby veterinary facility and must take animals off grounds for major medical procedures. The off-site veterinary facility should be located close to the zoo or aquarium and have facilities that meet contemporary practice standards. The zoo or aquarium must have enclosures on-site to house animals for quarantine, for animals with contagious diseases and for animals that need treatment and post-operative care. If it is at all possible, the animal should not be housed at the offsite veterinary facility because of the risk of exposure to domestic animals. Should a zoo or aquarium animal come in contact with domestic animals at the off-site facility, then the risk of exposure to disease must be assessed and the animal may need to be quarantined upon return to the zoo or aquarium.

If the zoo or aquarium uses an off-site veterinary facility for surgical procedures there must be an on-site area for minor treatment and emergency procedures.

There must be pharmaceutical storage on the zoo or aquarium grounds that comply with local, state and federal regulations.

IV. SUMMARY

These guidelines for veterinary medical care and veterinary hospitals are written to conform to the requirements of the Animal Welfare Act, which states that programs of disease prevention and parasite control, euthanasia, and adequate veterinary care shall be established and maintained under the supervision of a veterinarian. Ideally the zoo and aquarium should be providing the best possible veterinary medical care for the animals in their collections. Many of these animals are rare and endangered and the institutions should endeavor both to provide for the long term health and well-being of these animals and to advance the field of non-domestic animal medicine. It is hoped that this publication will aid in this process.

V. LITERATURE CITED

Chinnadurai SK, Strahl-Heldreth D, Fiorello CV, Harms CA. Best practice guidelines for field-based surgery and anesthesia of free-ranging wildlife. I. Anesthesia and analgesia. *J Wildl Dis.* 2016; 52(2): S14–S27.

ACVAA (American College of Veterinary Anesthesia and Analgesia). 2009. Recommendations for monitoring anesthetized veterinary patients, http://www.acvaa.org/docs/Small_Animal_Monitoring_2009.doc .

Bednarski, R, Grimm, K, Harvey, R, Lukasik, V M, Penn, W S, Sargent, B, Spelts, K. AAHA Anesthesia Guidelines for Dogs and Cats. *J Am Anim Hosp Assoc.* 2011; 47:377–385.

Wallace C, Marinkovich M, Morris M, Rideout B, Pye G. Lessons from a retrospective analysis of a 5-year period of quarantine at the San Diego Zoo: a risk-based approach to quarantine isolation and testing may benefit animal welfare. *J Zoo Wildl Med.* 2016; 47(1): 291-296.

Marinkovich M, Wallace C, Morris M, Rideout B, Pye G. Lessons from a retrospective analysis of a 5-Year period of preshipment testing at the San Diego Zoo: a risk-based approach to preshipment testing may benefit animal welfare. *J Zoo Wildl Med.* 2016; 47(1): 297-300.