

THERAPY IN
N MEDICINE AND SURGERY

SPEER, DVM, DABVP (Avian Practice), DECZM (Avian)

erent, and convenient information on avian medicine
ed by solid references and experts in the field.

utting-edge information from top experts in avian medicine. This
f-the-art reference takes the popular *Current Therapy* approach in
ng succinct and clear information pertinent to the medical care of
s. Most chapters include an up-to-date delivery of the current state
ge on their subject matter and provide practical approaches
t processes applicable to diagnosis; a detailed discussion of
ncluded where appropriate. Topics include the latest advances
edicine; behavioral medicine; and anesthesia, analgesia, and
ders will find authoritative guidance in all the important aspects
eatment, ranging from nutritional recommendations to control
s disease, methods of increasing or decreasing reproductive
l disorders of any body system. Sections dedicated to welfare,
practice management, and risk management explore important, but
ly discussed, aspects of avian practice. Chapters on pattern recognition
a view of what companion bird conditions are more likely to be seen
ifferent parts of the world.

ING FEATURES:

rapy format provides up-to-date information about patient
nt for specific disorders, including innovations in therapy
s and cons of proposed treatments.

f a wide variety of bird species includes psittacines, pigeons,
tes, waterfowl, gallinaceous birds, and less common species.

wned contributors offer authoritative, accurate, and sometimes
al opinions in many areas of the field of avian medicine and

00 full-color images depict avian disease, show management
nd thought processes, and aid in formulating guidelines to care.

bles make it easy to look up key facts and treatment guidelines.

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BRIAN L. SPEER

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**AVIAN
MEDICINE
AND SURGERY**

FIRST EDITION

Editor-in-Chief

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*To my immediate and extended family,
every one of you.
At the end of the day,
it is all of you that are the real deal.*

*And to the birds themselves,
who continue to inspire us to soar to new heights.*

the complexities of the immune system, bringing forward a current review and discussion of relevant immune mechanisms, diseases, syndromes, and diagnostic and therapeutic considerations. Reproduction, the subject of Chapter 12, is approached in a different manner, with the focus on ways to increase or decrease reproductive success. Current topics, including artificial insemination, external and internal vasectomy, and GnRH agonists, are offered in a critical, in-depth, and applicable manner that should function as an excellent means for forming the framework for decision making in clinical settings. Chapter 13 includes a broad window to the breadth of clinical pathology for avian species, ranging from its foundational principles to the diagnostic testing of age in birds. Hematology and serum biochemistry are explored in a different light, seeking to identify their strengths and potential limitations and the means with which diagnosticians can best use these important tools. Advanced imaging modalities, discussed in Chapter 14, clarify the indications, equipment, materials, and methods for these to be considered and applied in clinical settings. Backyard poultry and owls are the two individual species groups that are included in Chapters 15 and 16, bringing new and practical information in a readily available manner for those who see these species in practice. Critical care and toxicology are reviewed, updated, and presented in an informative, practical, and useful manner in Chapters 17 and 18.

In the second section, anesthesia, analgesia, and surgery are addressed. Anesthesia is discussed first, bringing readers a current literature review and practical applications and recommendations. Then pain management is brought forward in a comprehensive and current, as well as practical, manner, with tables to facilitate quick reference. Surgery is then approached by first reviewing the principles of microsurgery, which is an essential aspect of most procedures in small bird species. Surgical procedures of the coelom and orthopedics are presented in the second portion of the surgery section. Anatomic detail and procedural detail are brought together to facilitate improved surgical success.

The third section presents topics that are less commonly included in an avian medical text: welfare, conservation, and practice management. Welfare is an immensely important component of every facet of avian healthcare, and the subject is thoughtfully and factually written for readers in a manner that provides points that can be put into action for change. Welfare-associated legislation can directly and indirectly

influence what veterinarians do for birds, and this relevant information is presented to both inform and empower veterinarians, now and in the future. Important, timely, and individual welfare topics are further discussed with an ethical perspective, including deflighting or flight-limiting procedures and the human-avian bond. Conservation topics are foundationally introduced in a broad manner and then are brought to life through the tales of four different endangered species' conservation efforts and the veterinary involvements with each. Finally, without effective practice management, the ability to deliver avian medicine is inhibited, leading to unfulfilled dreams, curtailed practice growth, and limitations to the quality of healthcare that is ultimately received. The subject material is presented in practical wording in a manner that practitioners can use and apply to the art of what they do every day.

The final section of this text is an innovative effort to look at patterns of disease and problems that are seen in common pet bird species. Although evidence-based medical thought is essential in medical care, so is pattern recognition. A familiarity with the species that are more commonly held as pets in various parts of the world and what should be commonly expected has value for all. The discussion, as well as the tables in this section, offers a different window with which veterinarians can view disease patterns and some means with which a larger change in these patterns may be able to be effected, one practitioner at a time.

The three appendices are designed to provide a current drug formulary, normal clinical pathologic data, and normal biological data. The drug formulary regroups medications as compactly and usefully as possible. Not intended to replace the *Exotic Animal Formulary*, these compacted versions are included as an initial and immediate single-source reference for veterinarians.

All of us, contributors, editors, and collaborators, who have worked to bring this edition forward thank you for your interest, as well as for your dedication to remain current in the multiple facets of avian healthcare. It is true that as a whole, what we can do for birds as a profession is a powerful, ever-changing, and exciting thing. Thanks for being a part of the journey! As my father always told me, "Seems that the more you know, the more you know you need to know more." With that said, we'll be seeing you again soon.

Brian L. Speer

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Brian L. Speer

Contents

FOREWORD, xii
James M. Harris

SECTION 1 ADVANCES IN AVIAN MEDICINE

1 Avian Medicine: An Overview, 1

A Historical View of Avian
Medicine, 1
Christal Pollock

Specialization in Avian Medicine
and Surgery, 10
Eric Klaphake

Critical Thinking and Practical Application
of Evidence-Based Medicine in Avian
Practice, 16
James F.X. Wellehan Jr.

2 Infectious Disease, 22

The Pathogenesis of Infectious
Diseases, 22
James F.X. Wellehan Jr.

Avian Bornavirus and Proventricular
Dilation Disease, 28
Michael Lierz

Psittacid Herpesviruses and Associated
Diseases, 47
David Phalen

Psittacine Beak and Feather Disease, 51
Shane Raidal

An Overview of Avian Influenza
in Domestic and Nondomestic Avian
Species, 59
Darrel K. Styles

Aspergillosis, 63
An Martel

Coccidial Diseases of Birds, 73
James F.X. Wellehan Jr.

Macrorhabdosis, 78
David Phalen

Chlamydiosis (Psittacosis), 82
Lorenzo Crosta, Alessandro Melillo, and Petra Schnitzer

Mycobacteriosis, 94
Angela Lennox

Usutu Virus, 98
Johannes Thomas Lumeij

3 Neoplastic Diseases in Avian Species, 107

Ashley Zehnder, Jennifer Graham, Drury R. Reavill,
and Alicia McLaughlin

4 Advancements in Nutrition and Nutritional Therapy, 142

Foundations in Avian Nutrition, 142
Elizabeth Koutsos

Advancements in Nutrition of Loridae, 150
Stacey Gelis

Navigating the Nutraceutical Industry:
A Guide to Help Veterinarians Make
Informed Clinical Decisions, 164
Michael Scott Echols

5 Behavior, 177

Yvonne R.A. van Zeeland, Susan G. Friedman,
and Laurie Bergman

6 Cardiology, 252

Brenna Colleen Fitzgerald and Hugues Beaufrère

7 Clinical Significance of the Avian Cloaca: Interrelationships with the Kidneys and the Hindgut, 329

W. Michael Taylor

8 Pleura, Pericardium, and Peritoneum: The Coelomic Cavities of Birds and their Relationship to the Lung–Air Sac System, 345

W. Michael Taylor

9 Clinical Avian Neurology and Neuroanatomy, 363

Susan E. Orosz and Natalie Antinoff

10 Clinical Endocrinology of the Protein Hormones, 378

Anatomy and Physiology of the Endocrine
System—Protein Hormones, 378
Susan E. Orosz

Diseases of the Endocrine System—
Protein Hormones, 385
Ricardo de Matos and Deborah Monks

11 Immunology, 400

Helene Pendl and Ian Tizard

12 Reproduction, 433

Advancements in Methods for Improving
Reproductive Success, 433
Michael Lierz

Advancements in Methods for Decreasing
Reproductive Success, 446
Olivia A. Petritz, Michael Lierz, and Jaime Samour

13 Advances in Clinical Pathology and Diagnostic Medicine, 461

Foundations in Clinical Pathology, 461
Elizabeth Marie Rush and Morena Wernick

Variability and Limitations in Clinical
Avian Hematology, 467
Hugues Beaufrère and Mélanie Ammersbach

Clinical Biochemistry, 486
Claire Vergneau-Grosset, Hugues Beaufrère,
and Mélanie Ammersbach

Cytology, 501
Nicole Stacy and Helene Pendl

Molecular Diagnostic Testing, 522
James F.X. Wellehan Jr.

Diagnostic Testing of Age of Birds
and Its Applications, 527
Kristin Warren, Anna Le Souef, Crissa Cooley,
and Hillar Klandorf

14 Advances in Diagnostic Imaging, 531

Yvonne R.A. van Zeeland, Nico J. Schoemaker,
and Edward W. Hsu

15 Management and Medicine of Backyard Poultry, 550

Patricia Wakenell

16 Medicine of Strigiformes, 566

Hugues Beaufrère and Delphine Laniésse

17 Critical Care, 582

Marla Lichtenberger and Angela Lennox

18 Advancements in Diagnosis and Management of Toxicologic Problems, 589

Tina Wismer

SECTION 2 ADVANCES IN ANESTHESIA, ANALGESIA, AND SURGERY

19 Anesthesia, 601

Darryl Heard

20 Recognition, Assessment, and Management of Pain in Birds, 616

Michelle G. Hawkins, Joanne Paul-Murphy,
and David Sanchez-Migallon Guzman

21 Surgery, 631

Principles of Microsurgery, 631
Jacob A. Rubin and Jeffrey J. Runge

Approaches to the Coelom and Selected
Procedures, 638

Michael Mison, Steve Mehler, Michael Scott Echols,
Nathaniel K.Y. Lam, Brian L. Speer, and R. Avery Bennett

Selected Coelomic Surgical
Procedures, 645

Michael Mison, Steve Mehler, Michael Scott Echols,
Nathaniel K.Y. Lam, Brian L. Speer, and R. Avery Bennett

Orthopedics, 657

Julia B. Ponder and Patrick Redig

SECTION 3 ADVANCES IN WELFARE, CONSERVATION, AND PRACTICE MANAGEMENT

22 Advancements in Management of the Welfare of Avian Species, 669

Foundations in Avian Welfare, 669
Joanne Paul-Murphy

Animal Welfare Legislation
and Its Influence on Avian Welfare, 677
V. Wensley Koch and Jeleen A. Briscoe

As Free as a Bird on the Wing: Some
Welfare and Ethical Considerations on
Flight Restraint Methods in Birds, 683
Claudia M. Vinke, Yvonne R.A. van Zeeland,
Nico J. Schoemaker, and Franck L.B. Meijboom

The Human–Avian Bond, 709
Nienke Endenburg

Euthanasia, 714
Cheryl B. Greenacre

23 Conservation of Avian Species, 719

Conservation Medicine, 719
Glenn H. Olsen

The Conservation Project of the Rarest Parrot: The Spix's Macaw (*Cyanopsitta spixii*), 722
Lorenzo Crosta

Veterinary Involvement in the Takahe Recovery Program, 727
Brett D. Gartrell and Philip M. Marsh

Veterinary Contributions to the Recovery of the California Condor, 734
Cynthia E. Stringfield

The Whooping Crane Recovery Project, 742
Glenn H. Olsen

24 Practice Management and Risk Management, 749

Practice Management, 749
Thomas E. Catanzaro and Brian L. Speer

Managing Risk in Avian Practice, 763
Charlotte Lacroix

Forensic Necropsy, 769
Robert E. Schmidt

SECTION 4
PATTERN RECOGNITION

25 Common Conditions of Commonly Held Companion Birds in Multiple Parts of the World, 777

Brian L. Speer, Geoffrey P. Olsen, Robert Doneley, Deborah Monks, Frank Verstappen, Enrique Yarto-Jaramillo, Dorianne Elliott, Maggie Weston, Jorge Rivero, and Anne McDonald

The Perspective on Avian Medicine in South America, 778
Jorge Rivero and Maggie Weston

Additional Perspectives from Mexico and Central America, 780
Enrique Yarto-Jaramillo

APPENDICES

Appendix 1 Table of Common Drugs and Approximate Doses, 795

James W. Carpenter, Michelle G. Hawkins, and Heather Barron

Appendix 2 Normal Clinical Pathologic Data, 825

Alan M. Fudge and Brian L. Speer

Appendix 3 Normal Biological Data, 857

Christal Pollock and James W. Carpenter

SECTION 1 ADVANCES IN AVIAN MEDICINE

CHAPTER 1

Avian Medicine: An Overview

Christal Pollock • Eric Klaphake • James F.X. Wellehan Jr.

A HISTORICAL VIEW OF AVIAN MEDICINE

Christal Pollock

Although modern veterinary medicine has evolved over centuries, avian medicine is a relatively new field. Avian veterinarians today may manage commercial poultry flocks, treat companion birds, care for wildlife, and manage zoo specimens or even falconry birds; however, the path leading to such a wide range of opportunities has not been straightforward or easy.

[T]he orderly contemplation of its own history is a proper and profitable pursuit for any profession—which takes pride in its ancestry and entertains some hope for posterity.¹

ANCIENT BIRD CARE

Ancient Chinese writings dating back to 4000 BC record the use of herbs for curative purposes in humans and animals.² These early writings focus on horses but also include information on the care of other animals important to agriculture, such as ducks, geese, and chickens. The first mention of surgery in the bird comes from the Eastern Zhou dynasty (770 BC–221 BC) when castration of food animals, including cocks, was widely employed.³

Egyptian hieroglyphics from around 3500 BC show the presence of numerous types of domesticated animals.² The first written record of veterinary medicine from Egypt is provided by the Kahun Veterinary Papyrus (1800 BC), which discusses the diagnosis and treatment of diseases of domestic animals and fish (Figure 1-1).⁴

The first records of information on animal care and disease in Europe come from the Greco-Roman period. Information from this period primarily focuses on the horse and other hoofstock. Although there were many contributors to this knowledge base, Aristotle (384–322 BC) is considered by many to be the father of comparative anatomy and pathology.

Aristotle's *Historia Animalium* (Story of Animals) provides information on almost 500 animal species, including birds.³

FALCONRY

The origin of falconry is unclear, and it may be impossible to ever know exactly where and when the practice arose.⁵ Nevertheless, one fact is certain: The origins of falconry go back much further than the origins of writing because the earliest records describe a highly complex and intricate form of hunting that must have taken many hundreds, if not thousands, of years to develop.^{5,6} The sport of falconry was already well established in both Asia and the Middle East by 2000 BC, and gradually migrated westward to Greece, Italy, and the rest of Europe.⁵

In Western Europe, the sport of hawking or falconry attained most widespread popularity during the Middle Ages, and a number of treatises on falconry were published during this time. The most famous, *De Arte Venandi cum Avibus* (On the Art of Hunting with Birds), was written by Emperor Frederick II (1194–1250 AD). Lying between the Middle Ages and the Renaissance, this work is considered a hallmark of medieval science due to its systematic and scientific approach.^{7–10} Albert the Great's section on falconry from *De Animalibus* in the thirteenth century includes an extensive list of treatments for diseases in falcons. These treatments included herbal concoctions (typically infused into the falcon's meat), special diets, theriacs (an ointment or other medicinal compound used as an antidote to snake venom or other poisons), plasters, bleeding, and cauterization.⁸

Other medieval treatises on falconry diseases describe agrestyne (itch), agrum (rheum), anguellis (worms), booches (mouth ulcers), fallera (liver dx), filanders (worms), frounce (mouth sores), gletth (phlegm), poose (cough), and general debility or "unlustynesse."¹¹ Most of the medications are based on herbs or spices and a few minerals, including saffron, shepherd's purse, canell (cinnamon), gelofre (gillyflower), kersis (watercress), maryall (black nightshade), neppe (catmint),

A

- AAAP. *see* American Association of Avian Pathologists (AAAP)
- AAS. *see* Abdominal air sac (AAS)
- AAV. *see* Association of Avian Veterinarians (AAV)
- AAZV. *see* American Association of Zoo Veterinarians (AAZV)
- ABA. *see* Applied behavior analysis (ABA)
- ABCs of behavior, 202–204, 203b
- Abdominal air sac (AAS), 346
- Abdominal neoplasia, 351–352, 354f
- Abducens nerve, 370f, 371
- Ablation, feather follicle, in deflighting techniques, 695–696t, 699f
- Abnormal repetitive behavior (ARB), 230
- ABV. *see* Avian bornavirus (ABV)
- ABVP. *see* American Board of Veterinary Practitioners (ABVP)
- ABVS. *see* American Board of Veterinary Specialties (ABVS)
- Accessory nerve, 371
- Account
- management *versus* tax, 759
 - savings, in financial management, 758
- N*-acetyl- β -d-glucosaminidase (NAG), 492
- Acetylcholine, effects on behavior, 221t
- Acid hydrolysis, 529
- Acid-fast stain, 503–505, 504f
- Acridotheres tristis* (Myna species)
- enzymatic laboratory reference ranges for, 840–847t
 - hematologic laboratory reference ranges for, 826–837t
 - metabolic laboratory reference ranges for, 848–855t
- ACT. *see* Average client transaction (ACT)
- ACTH. *see* Adrenocorticotrophic hormone (ACTH)
- ACTP. *see* Association for the Conservation of Threatened Parrots (ACTP)
- Acute inflammatory demyelinating polyneuropathy (AIDP), 418–419
- Acyclovir, for Pacheco disease, 49
- ACZM. *see* American College of Zoological Medicine (ACZM)
- Adaptation (function), 178
- Adrenocorticotrophic hormone (ACTH), 386, 408
- Adult, in management, of backyard poultry, 553–554, 553f, 554f
- Adulteration, *versus* contamination, 168–169
- Adventitia scissor, 633
- Aequornithia, 20
- Afferent renal branch, of venous system, 264f
- Aflatoxin, 563
- immunosuppressive effects of, 422
- Afroaves, 20
- Afterload, 262
- Agapornis* sp. (Lovebirds), 4
- enzymatic laboratory reference ranges for, 840–847t
 - erythrocytic parameters for, 838t
 - hematologic laboratory reference ranges for, 826–837t
 - metabolic laboratory reference ranges for, 848–855t
- Agar gel immunodiffusion (AGID), 89
- Agar gel immunodiffusion tests (AGIT), 60
- Age, immunosuppressive effect and, 411–412
- Aggression
- and biting, 239–242, 239f
 - classification of, 240
 - diagnostic workup for, 203t, 240–241
 - learned, international patterns of, 788–792t
 - therapeutic considerations for, 241–242
- AGID. *see* Agar gel immunodiffusion (AGID)
- AGIT. *see* Agar gel immunodiffusion tests (AGIT)
- AIDP. *see* Acute inflammatory demyelinating polyneuropathy (AIDP)
- Air sac, cannulation of, 610
- Airsacculitis, 66, 66f
- AIVs. *see* Avian influenza viruses (AIVs)
- Al Wabra Wildlife Preservation (AWWP), 724–725
- Alba* (Cockatoo, umbrella)
- enzymatic laboratory reference ranges for, 840–847t
 - hematologic laboratory reference ranges for, 826–837t
 - metabolic laboratory reference ranges for, 848–855t
- Aldrovandi on Chickens*, 4
- Alektorophobia, 550
- Alendronate, pain management and, 136
- Alexandrine parakeet. *see* *Psittacula eupatria* (Parakeet, Alexandrine)
- Alfaxalone, 608
- Alkylating agents, 119–124
- Allometric scaling, 611
- Allylamines, 70
- Alm retractors, 639–640
- Alpha-2 adrenergic agonists, 606
- ALVEFAS. *see* Latin Association of Wildlife Veterinarians (ALVEFAS)
- Amazona aestiva* (Amazon, blue-fronted)
- enzymatic laboratory reference ranges for, 840–847t
 - hematologic laboratory reference ranges for, 826–837t
 - metabolic laboratory reference ranges for, 848–855t
- Amazona* sp.
- enzymatic laboratory reference ranges for, 840–847t
 - erythrocytic parameters for, 838t
- Amazona* sp. (Continued)
- hematologic laboratory reference ranges for, 826–837t
 - metabolic laboratory reference ranges for, 848–855t
 - problems in, 786t
- Amazonica* (Amazon, orange wing)
- enzymatic laboratory reference ranges for, 840–847t
 - hematologic laboratory reference ranges for, 826–837t
 - metabolic laboratory reference ranges for, 848–855t
- American Animal Hospital Association (AAHA) guidelines, 767
- American Association of Avian Pathologists (AAAP), 5, 5f
- American Association of Avian Practitioners. *see* Association of Avian Veterinarians (AAV)
- American Association of Zoo Veterinarians (AAZV), 7
- American Board of Veterinary Practitioners (ABVP), 11–12, 780
- application form, 12b
 - credentialing of, 15
 - credentials packet of, 12, 12b
 - diplomates, re-credentialing of, 16
 - examination preparation for, 15–16
 - website, 11
- American Board of Veterinary Specialties (ABVS), 11
- American College of Animal Welfare, on animal welfare, 669
- American College of Laboratory Animal Medicine (ACLAM), on animal welfare, 678
- American College of Zoological Medicine (ACZM), 12–13, 780
- application form for, 13b
 - examinations in, 13, 13b, 14b
 - preparation for, 15–16
 - website, 12–13
- American Ornithologists Union (AOU), 734
- American Society for Veterinary Clinical Pathology (ASVCP), 477, 479
- American Veterinary Medical Association (AVMA)
- on avian welfare, 677
 - on euthanasia, 714
 - principles of, 767
 - U.S. pet ownership data, 751t
 - website, 10
- Amino acids, avian nutrition and, 143–144
- Amitriptyline, for pruritus, 222
- Ammonia, 492
- Amniotes, 20, 20f
- Amoxicillin, commonly used medication in South America, 779

- Amphotericin B, 69
for avian aspergillosis, 69t
for *M. ornithogaster*, 81
- Amputation, in deflighting techniques, 688
- Amygdaloid complex, 364f
- Amyloidosis, 419, 419f
- "An Imprisoned Bird's Daily Prayer," 5-6
- Analgesia, perianesthetic, 606, 607t
- Analytical error, 464
- Anas platyrhynchos domestica* (Duck, domestic)
enzymatic laboratory reference ranges for, 840-847t
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Anatinae, biologic and physiologic values of, 868-871t
- Ancillary income, 759
- Anemia, autoimmune hemolytic, 415
- Anesthesia, in avian, 588, 601-615
administration of, 605
anatomy and physiology of
lung and air sacs, 602, 602f
renal portal system, 602
upper airway, 601-602, 602f
induction of, 607-608
inhalant, 607-608, 607t, 609f
parenteral, 607-608
inhalation, 608-610
local, 603-605
monitoring of, 610-613
premedication, 605-606
preparation of, 602-603
emergency drugs and vascular access, 603, 604b, 604f
fasting, 603
minimizing anesthetic time, 603
regional, 603-605
supportive care in, 613
- Anesthetic depth, 611
- Anesthetics
inhaled, for euthanasia, 715
local, 624-625
- Anesthetist, dedicated, importance of, 603
- Anhimidae, biologic and physiologic values of, 868-871t
- Anhingidae, biologic and physiologic values of, 872-875t
- Animal and Plant Health Inspection Service (APHIS), on animal welfare, 679
- Animal welfare, 669, 711. *see also* Avian welfare
Five Freedoms in, 670, 670b
issues in, 681-682, 683
as a science, 671
goal of, 671
training in, 671
veterinarians in, 711, 711f
- Animal Welfare Act (AWA), 677
United Kingdom's, 670, 670b
United States, 678-679
- Ankylosis, in deflighting techniques, 695-696t
- Anodorhynchus hyacinthinus* (Macaw, hyacinth), 210f
enzymatic laboratory reference ranges for, 840-847t
- Anodorhynchus hyacinthinus* (Continued)
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Anorexia, 391f
nutritional support and, 137
- Anseriformes, 20
- Anserinae, biologic and physiologic values of, 868-871t
- Antecedents, 202-204
arrangement, 210-211
environmental adaptation as, 212-219
- Anthropomorphization, human-avian bond and, 710-711
- Antibacterial agents, 795-799t
- Antibody diversity, 406
- Antibody-mediated immunity, 404-405
- Anticoagulants, 594-595
reported oral LD₅₀ for, 595t
toxicosis of, 594
- Anticonvulsants, 224-225
- Antidepressants, for depression, 222
- Antifungal agents, 800-802t
for treatment of avian aspergillosis, 69t
- Antihistaminergic drugs, 224
- Antimetabolites, 129-130
- Antimicrobial molecules, 404
- Antiparasitic drugs, 805-807t
- Antipsychotics, for psychosis, 222
- Antitumor antibiotics, 124-129
- Antiviral agents, 803-804t
- Anxiety, separation, 243
- Anxiety-related disorders, 237-239
- Anxiolytic drugs, for anxiety, 221, 238
- ANZCVS. *see* Australian and New Zealand College of Veterinary Scientists (ANZCVS)
- Aorta, 379f
ascending, 258-260, 261f, 262f
of avian heart, 257f
descending, 258-260, 261f, 262t, 263f
- Aortic valve, of avian heart, 257f
- AOU. *see* American Ornithologists Union (AOU)
- APHIS. *see* Animal and Plant Health Inspection Service (APHIS)
- Apicomplexa, 73
- Apodidae, biologic and physiologic values of, 872-875t
- Apodiformes, biologic and physiologic values of, 872-875t
- Application form
for American Board of Veterinary Practitioners, 12b
for American College of Zoological Medicine, 13b
- Applied behavior analysis (ABA), 196-197, 202-204
behavior in, 204
- APV. *see* Avian polyomavirus (APV)
- Aquila chrysaetos* (golden eagle)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t

- Aquila chrysaetos* (Continued)
metabolic laboratory reference ranges for, 848-855t
- Ara* and *Anodorhynchus* (Macaw group),
hematologic laboratory reference ranges for, 826-837t
- Ara ararauna* (Macaw, blue and gold)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Ara macao* (Macaw, scarlet)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Ara militaris* (Macaw, military)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Aratinga acuticaudata* (Conure, blue-crowned)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Aratinga and Pyrrhura* sp.
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
- Aratinga jandaya* (Conure, jenday)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Aratinga nenday* (Conure, nanday)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Aratinga solstitialis* (Conure, sun)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- ARB. *see* Abnormal repetitive behavior (ARB)
- Arcopallium, 364f
- Argon, euthanasia and, 716
- Aristotle, 1
- Arrhythmias, treatment of, 319
- Artery, elastic, 261
- Arthritis, international patterns of, 788-792t

- Artificial insemination, 437-443, 554-555
on Spix's macaw, 726-727, 727f
- Ascaridia* sp., ovum of, 519f
- Ascending aorta, of domestic fowl, 255f
- Ascites, 355-356
due to hepatic cirrhosis, 358f
secondary to cardiomyopathy, 356-357
secondary to pulmonary hypertension, 356-357
- Aspergilloma
air sac, 66f
in cranial thoracic air sac, endoscopic view of, 68f
of syrinx, 68f
- Aspergillosis, 63-70
clinical signs and lesions of, 66-67
acute form, 66
chronic form, 66
diagnosis of, 67-69
antibody and antigen detection, 67
cytology, 68
endoscopy, 68, 68f
fungal culture, 69
hematology and serum chemistry, 67
histopathology, 68, 69f
polymerase chain reaction (PCR), 68
radiology, 67-68
disease predisposition of, 64-65
etiology of, 63-64, 64f
host immune response to, 65-66
infection, international patterns of, 788-792t
localized, 66, 66f
pathogenesis of, 65-66
in poultry, 563
prevention for, 70
treatment of, 69-70, 69t
allylamines, 70
azoles, 70
polyenes, 69-70
- Aspergillus fumigatus*, 63
culture, 64f
granuloma, 65f
virulence factors, 66
- Aspergillus-related toxins, immunosuppressive effects of, 422
- Aspergillus* spp., 274-275
- Assessment
of catchment area, in key management metrics, 758
fertility, 459-460
- Association for the Conservation of Threatened Parrots (ACTP), 724-725
7, 7f, 8b, 678, 779-780
- Association of Zoos and Aquariums Animal Care Manuals, 673-674
- ASVCP. *see* American Society for Veterinary Clinical Pathology (ASVCP)
- Atenolol, for cardiovascular disease in birds, 312t
- Atherosclerosis, 265-271, 266f, 268f, 288, 377
Amazon parrot with severe, 288
avian nutrition and, 146
clinical signs of, 288
columbiformes, 270-271
etiology and development of, 266

- Atherosclerosis (Continued)
galliformes, 270
impact of diet in, 269
isoxsuprine for, 311-313
lesion characterization of, 266-267, 266f
lesion location of, 267, 267f, 268f
myocardial infarction associated with, 270
in other avian orders, 269-271
pathophysiology of, 266
prevalence and risk factors, 267-269, 269f, 270t
prognosis of, 320
in raptors, 270
risk factors of, 271
treatment of, 311
- Atipamezole, 606
- Atoxoplasma, 74-75
- Atoxoplasmosis, 359, 359f
- Attracturium besylate, 610
- Atropine, for cardiovascular disease in birds, 312t
- Attachment, human-avian bond and, 710
- Attending veterinarian, animal welfare and, 678-679
- Atypical antipsychotics, 222
- Auricapillus* (Conure, gold-caped)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Auricle, 365f
- Auropalliata* (Amazon, yellow nape)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Australaves, 20
- Australian and New Zealand College of Veterinary Scientists (ANZCVS), 14
- Autoimmune diseases, 413
- Autoimmune hemolytic anemia, 415
- Autoimmune skin disease, 415, 415f
- Autoimmune thyroiditis, 415
- Automated hematology analyzers, 468
- Automutilation, 226-234, 227f, 228f
diagnostic workup for, 203t, 226f, 230-231, 231f
etiologic considerations, 228-230
factors involved in onset and maintenance of, 206t
prognosis and monitoring of, 233-234, 234b
species, age, and gender predilections in, 227-228, 227f
therapeutic considerations of, 217f, 231-233, 232f, 233f
- Autonomic innervation, on cloaca, 329
- Autumnalis* (Amazon, red-lored)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- AV node, in cardiac conduction system and coronary arteries, 259f
- AV (mitral) valve, left, 254, 259f
- Avascular necrosis, pinioning and, 699f
- Average client transaction (ACT), 755
- Avian
chemistry panels of, 487t
clinical neuroanatomy of, 363-369, 364f
clinical neurology of, 363-377
hematology, monitoring and preparation of reagents in, 464
medicine, reference intervals and their applications, 478-482
neurologic examination of, 369-374, 374b
cranial nerve examination, 369-371
mentation for, 369
- Avian acute inflammatory demyelinating polyneuropathy (AvIDP), 418-419
- Avian behavioral history form, 198-200b
- Avian bornavirus (ABV), 28-33, 417
as cause of PDD, 30-31
clinical disease of, 37-38
diagnosis of, 33-39
disease patterns of, 37-38
flock clearance from, 41
flock management for, 40f, 41-43, 42f
isolation of, 34
occurrence of, 31
potential pathogenesis of, 32-33
tests for detection of, 35-36t
therapy for, 39-41
transmission of, 31-32
vaccination for, 43
- Avian bornavirus (ABV) antigen, 34
- Avian bornavirus-specific antibodies, detection of, 34-37
- Avian cancer patients, support of, 133-137
client support in, 137-138
nutritional support for, 136-137
pain management in, 136
quality of life assessment tool for, 135t
- Avian cardiomyocytes, 254
- Avian chlamydiosis, 86
- Avian clinical pathology
examples for analytical errors in, 464
general concepts and limitations, 478-480, 480f
- Avian encephalomyelitis, 561
- Avian heart, 252, 255f, 256f, 257f
computed tomography and magnetic resonance imaging for, 308-309, 309f
- Avian influenza, 561
- Avian influenza viruses (AIVs), 421
in birds, 61-62
current HPAI dynamics, 62
diagnosis of, 60-61
ecology of, 59-60
pathobiology of, 59-60
reportable, 61
type A, biology of, 59
vaccination for, 62
virology of, 59-60
zoonotic potential of, 61
pet bird species, 61-62
- Avian medicine, 1-21
critical thinking, of evidence-based, 16-21
growth of, 3-4

- Avian medicine (*Continued*)
 historical view of, 1
 modern, 7–8
 perspective on
 in Central America, 780–781
 in Mexico, 780–781
 in South America, 778–780
 practical application, of evidence-based, 16–21
 scientific inquiry of, 3–4
 specialization in, 10–16
 cost of, 10–11
- Avian nutrition
 foundations in, 142–148
 fundamentals in, 142–145
 issues in, 145–146
 nutraceutical industry in, 164–173
 selecting appropriate diet, 146–148, 147t
- Avian paired stomach system, indications for surgery of, 645–646
- Avian patients
 ectoparasites in, 514
 fecal samples of, 516–518
 direct wet mounts, 517–518, 519f
 sample collection, 516–517
 flagellates, 516
 flotation, 518–520
 general parasitologic evaluation of, 514–522
 hemoparasites in, 520–522, 520f
 lesions and abnormalities found in, 510–512t
 parasites
 upper gastrointestinal tract, 515–516
 upper respiratory tract, 515–516
 types of eggs in, 518f, 519f, 520f
- Avian pneumovirus, 26
- Avian polyneuropathy, 418–419, 418f
- Avian polyomavirus (APV), 421
- Avian practice
 categories of, 750b
 managing risk in, 763–769
- Avian species
 groups, classification of, 857t
 resting respiratory rates of, by weight, 877t
 values reported for ophthalmic diagnostic tests in, 876t
- Avian species conservation, 721
 California condor, recovery of, 734–741
 from 1960s to 1970s, 734
 in 1980s, 734–735, 735f
 in 1990s, 735–738, 736f, 737f
 in 2000s, 738–740, 739f
 from 2010 to July 2014, 740–741
 in late 1940s to 1950s, 734
 West Nile vaccination in, 738, 738f
 conservation medicine in, 719–721
 reintroduction biology in, 720
 Spix's macaw in, conservation project of, 722–727, 722f, 723f, 724t, 725f
 artificial insemination in, 726–727, 727f
 efforts for, 723–725
 medical problems in, 726–727
 prophylaxis in, 725–726
 quarantine in, 726, 726f
 recovery program in, 725
 veterinarian's role in, 725
- Avian species conservation (*Continued*)
 Takahē
 decline and conservation of, 728–730, 728f
 disease ecology research on, 732, 733f
 distribution of, 728f
 health issues in, 731–732, 732f
 medical and surgical care of, 730–731, 731t
 pathology in, 730
 recovery program of, 727–732
 reintroduction program of, 720
 veterinary support for, 730
- Whooping crane, recovery project of, 742–748, 744f
 captive, general health issues in, 747–748, 747f
 disease issues in, 744–748
 reintroductions in, from 1994 to present, 745–746, 745f, 746f
- Avian tuberculosis, 563
- Avian vacuolar myelinopathy, 596–597
- Avian welfare, 669–670
 advancement in management of, 669–718
 assessment of, 671–676
 behavioral state, bird's, 674–675
 general principles in, 672–673
 issues in, 676
 key features in, 673, 673b
 in laboratory, 672
 mental state, bird's, 675–676
 physical state, bird's, 674
 resources in, 673–674
 definition of, 669
 deflighting and, 683
 consequences of, 700–705, 700t
 purpose and incidence of, 683–685, 684f, 685f
 ethical considerations in, 687–688
 Five Freedoms in, 670, 670b
 flight restraint methods in, ethical considerations on, 683–705
 foundations in, 669–676
 good, description of, 670
 legislation, 677–682
 in United States, 679–681
- AvIDP. *see* Avian acute inflammatory demyelinating polyneuropathy (AvIDP)
- Avipoxvirus, 571
- AVMA. *see* American Veterinary Medical Association (AVMA)
- Avocado, 597
 ingestion of, 597
 poisoning, diagnosis of, 597
- AWA. *see* Animal Welfare Act (AWA)
- AWWP. *see* Al Wabra Wildlife Preservation (AWWP)
- Axillary artery, of major arteries, 261f
- Axiom, key pathology history and, 109
- Athyriinae, biologic and physiologic values of, 868–871t
- Azoles, 70
- B**
- Backyard poultry, management and medicine of, 550–565
 biosecurity, 557
 chicken-related terminology, 550

- Backyard poultry, management and medicine of (*Continued*)
 disease prevention and control, 557–564
 management of, 550–555
 management-related illness of, 555–557
 medications/drugs, 564–565, 564t, 565t
 National Poultry Improvement Plan for, 555
- Bacteria, 23
- Bacterial enteritis, international patterns of, 788–792t
- Bacterial infections, 561–563
 avian tuberculosis, 563
 colibacillosis, 562
 mycoplasmosis, 562, 562f
Pasteurella multocida, 562–563
 salmonellosis, 561–562, 561f
- Bacterial peritonitis, 358–359
- Bacterial virus, 571–572, 572f
- BAFF. *see* B-cell activating factor (BAFF)
- BAI. *see* Bureau of Animal Industry (BAI)
- Bald and Golden Eagle Protection Act, on disposal of carcasses, 717
- BALT. *see* Bronchial-associated lymphoid tissue (BALT)
- Bands of fibrosis, sample and, 108
- Banksia pollen, 153–154
- Barbiturates, 224–225, 596
- Bare eye cockatoo. *see* *Sanguinea* (Cockatoo, bare eye)
- Barn owl, 566
- Basal metabolism rate (BMR), 142–143, 143t
- Basic microsuturing techniques, 635–636
 focusing the microscope, 636
 knot tying, 636, 637f
 needle driving, 636
 needle handling, 636
 posture, 635, 635f, 636f
versus macroscopic surgery, 635
- Basilic vein, 461
- Baz-Nama-Yi Nasiri: A Persian Treatise on Falconry*, 2
- B-cell activating factor (BAFF), 426
- Beak and feather disease virus (BFDV). *see* Psittacine beak and feather disease (PBFD)
- Bed bugs, in poultry, 558
- Behavior, 177–251
 in ABA, 204
 ABCs of, 202–204, 203b
 abnormal repetitive, 230
 change
 suggested hierarchy of, 210b
 tools and techniques for, 205–209, 206b
 classes, 244–245
 comfort, 182–184, 184f, 185f
 cueing of, 211–212
 definition of, 177–178, 178b
 explanation of, 178
 feather damaging, international patterns of, 788–792t
 functional assessment of, 209
 maladaptive, FDB and, 230
 managing consequences of, 211
 neurotransmitters effects on, 221t
 problems
 diagnosis of, 197–205
 physiological correlates of, diagnostic tests in, 203t

- Behavior (*Continued*)
 prevention of, veterinarians role in, 244–245, 245f
 reproduction-related, 234–237
 specific, 225–244
 treatment of, 205–225
 product of previous learning experiences, 196–197
 psittacine behavioral development, 188–196
 respondent, 208–209
 self-injurious, 226–234, 226f, 227f, 228f
 shaping of, 211–212
 targeting of, 211–212
 Tinbergen's four questions for, 178, 179b
 true nature of parrots, 179–188, 203f
 voluntary, 196–197
- Behavior modification therapy, 209–212, 210b
 for territorial aggression, 241–242
- Behavioral state, bird's, in animal welfare assessment, 674–675
- Beltsville poultry semen extender (BPSE), 443
- Benazepril, for cardiovascular disease in birds, 312t
- Benchmark, 757
- Benzimidazoles, immunosuppressive effects of, 422
- Benzodiazepines (BZPs), 221, 222, 605–606
- Beta-blockers, 317–318
- Bilateral wing clipping, 688–689, 690f, 691f
- Bile acids, and functional tests, 491
- Bile duct carcinomas, 48
- Bilirubin, 491
- Bills, payment of, in financial management, 758
- Binocular magnifying loupes, 634, 634f
- Biochemical parameters
 clinical significance of, 489–496
 conclusions, 496
 organ evaluation, 489–496
 electrolytes, 493–494
 kidney evaluation, 492–493
 lipoprotein panel, 496
 liver evaluation, 489–492
 pancreas evaluation, 493
 physiologic variations in, 496
 molt, 496
 postprandial period, 496
 reproductive status, 496
- Biochemistry, 115, 486–487
- Biologic and physiologic values
 of doves, 871t
 of galliformes, 866t
 of passerine birds, 862–863t
 of pigeons, 871t
 of psittacine birds, 858–861t
 of raptors, 864–865t
 of waterfowl, 868–871t
- Biologic variability, 468–471
 general concepts, 468–469
 variability associated
 chronic stable illnesses, 471
 environmental and temporal factors, 470–471
 iatrogenic effects, 471
 physiologic processes, 469
 subclinical condition, 471
 taxonomy and ecologic niches, 469–470

- Biologist, 4
- Biology, reintroduction, 720
- BioOne, 17–18
- Biopsy
 on cloaca, 339
 of proventriculus and ventriculus, 646
 site, 528
 closing, 528f
 skin sample, 527, 528f
- Bipolar cautery, 633
- Bipolar electrosurgical forceps, 640
- Bipolar forceps, 639–640, 639f
- “Birdman of Alcatraz,” 6, 6f
- Birds
 age of, diagnostic testing of, 527
 sample collection, methodology of, 527–528, 528f
 science behind pentosidine analysis, 527
 behavioral state, welfare and, 674–675
 blood cells of, 461
 breeding, systemic health evaluation of, 433–434
 case definitions in, 86
 characterizations of acute inflammatory reactions in, 507
 coccidial diseases of, 73–77
 biology of, 73
 diagnosis of, 76–77
 treatment of, 77
 coelomic cavities of, 345–362
 conditions in, pattern recognition of, 777–794
 crude oil effects on, 421
 cryptosporidiidae of, 73–74, 74t
 deflighting of. *see* Deflighting
 diet of, 411
 diseases and pathophysiology in, 355–360
 eimeriidae of, 74–75, 75t
 energetic costs of activity by, 143t
 extrapolation and alternatives to reference intervals in, 481–482
 flight and, 685–687
 behavioral implications, 686–687, 686f
 physical and medical implications, 685–686, 686f
 wings on, functions of, 685, 686, 686f, 687f
 individual testing, 463
 lung-air sac system of, 345–355
 mental state, welfare and, 675–676
 migration of, 411
 passerine, biologic and physiologic values of, 862–863t
 phenotype of, 408
 physical state, welfare and, 674
 psittacine
 biologic and physiologic values of, 858–861t
 hepatic histologic lesions, 492t
 renal histologic lesions, 493t
 quarantine for, 463
 recognition, assessment, and management of pain in, 616–630
 reintroduction biology in, 720
 tracking of, 720–721, 720f
 sarcocystidae of, 75–76, 76t
 selecting appropriate diets for, 146–148, 147t

- Birds (*Continued*)
 as sentient beings, 671
 species of, by region, 782t
 stress on, during handling and restraint, 704–705
 survival of, 411
 tests for detection of avian bornavirus infection in, 35–36t
- Bisphosphonates (pamidronate), for bone malignancy, 136
- Black sex-linked males, 552
- Black She-oak (*Casuarina littoralis*), 153–154
- Black spot disease, 521–522
- Black-capped lory (*Lorius lory*), 153, 154f
- Blake Mouton Managerial Grid, in veterinary practice management, 752f
- Blood cells, of bird, 461
- Blood gas analysis, in perianesthetic period, 612
- Blood group systems, 408
- Blood loss, managing, 640
- Blood pressure
 in anesthetic monitoring, 612
 in birds, 291–292
 in owl, 568
- Blood smears techniques, 473–474
 estimation from, 475b
 squash preparation, 474f
- Blood staining, 473–474
- Blood transfusion, 587
- Blue and gold macaw. *see* *Ara ararauna* (Macaw, blue and gold)
- Blue-crowned conure. *see* *Aratinga acuticaudata* (Conure, blue-crowned)
- Blue-fronted Amazon. *see* *Amazona aestiva* (Amazon, blue-fronted)
- Blue-headed pionus. *see* *Pionus menstruus* (Pionus, blue-headed)
- BMR. *see* Basal metabolism rate (BMR)
- Body cavities, embryologic development of, 346
- Body position, effect of, 610
- Body postures, for communication, 185–187, 187f
- Body surface area (BSA), 119
- Body wrap, 659, 660f
- Bombycillidae, biologic and physiologic values of, 862–863t
- Bond, human-avian, 709–713
- Bone tumor, peripheral sampling of, 108
- Bornavirus infection, international patterns of, 788–792t
- Bornavirus-related neuropathy, 417–418
- Botanical, nutraceutical, 169–171
- Brachial artery, of major arteries, 261f
- Brachial plexus, 373
 blockade of, 603–605
- Brachiocephalic trunk, 379f
 of major arteries, 261f
- Brachylaimid trematodes, 341
- Bradycardia, decompensatory phase of, 586
- Brailing, in deflighting techniques, 688, 692t
- Brain, 372
- Brainstem, 363–364
- Brazilian Institute of Environment and Renewable Natural Resources, on Spix's macaw, 723–724

- Bread-loafed, fixation of samples and, 108
Breathing systems, in birds, 610
Breed, in management, of backyard poultry, 554-555
Breeding fitness, evaluation of, 433-444
Breeding setups, evaluation of, 433
Broiler, 550
Bronchial-associated lymphoid tissue (BALT), 400
Broody, 553-554
Brotogeris pyrrhoptera (grey-cheeked parakeet)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
BSA. *see* Body surface area (BSA)
Bubo virginianus (Owl, great-horned)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
Budgerigar. *see* *Melopsittacus undulatus* (Budgerigar)
Budget
planning of, program-based, 759
practice team for, 762-763
Buffy coat preparations, 521-522, 522f
Building the Successful Veterinary Practice: Programs and Procedures (Volume 2), 759
Bulk cathartics, 590
Bumblefoot, 556, 556f
Bundle of His, in cardiac conduction system and coronary arteries, 259f
Bupivacaine, 624-625, 625t
Buprenorphine hydrochloride, 617-619t, 621
Bureau of Animal Industry (BAI), on poultry problems, 5
Bursa, cloacal, 329, 334-335, 334f, 335f
Bursa of Fabricius, 334, 401-402, 401f, 402f
premature atrophy of, 419
Buserelin, for reproductive activity, 448-451
Buteo jamaicensis (Hawk, red-tailed)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
Butorphanol, 617-619t, 620
benzodiazepine and, 605
in brachial plexus blockade, 603-605
for owls, 569
Butyrylcholinesterase, 495
BZPs. *see* Benzodiazepines (BZPs)
C
Cacatua galerita triton (Cockatoo, triton)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
Cacatua moluccensis (Cockatoo, Moluccan)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
Cacatuidae (Cockatoo group)
enzymatic laboratory reference ranges for, 840-847t
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
Caged-layer fatigue, 556
Cages, design, furnishing and placement of, 213, 213f, 214f
Calcineurin inhibitors, for immunosuppression, 426
Calcium, 493-494
avian nutrition and, 144
Calcium channel blockers, 318
Calcium metabolism, 383-384
California condor, recovery of, 734-741
from 1960s to 1970s, 734
in 1980s, 734-735, 735f
in 1990s, 735-738, 736f, 737f
in 2000s, 738-740, 739f
from 2010 to July 2014, 740-741
in late 1940s to 1950s, 734
West Nile vaccination in, 738, 738f
California Condor Recovery Team (CCRT), 734
Callistemon, 152-153
CALT. *see* Conjunctiva-associated lymphoid tissue (CALT)
Campylobacter jejuni, 23
Canary. *see* *Serinus canaria forma domestica* (Canary)
Cancer cachexia (CC), 136
Cancer diagnostics, 113-133
cancer therapeutics in, 118, 118f
chemotherapy, 119-130
commonly used chemotherapeutic agents, 119-130, 125-129t
dosing in, 119
monitoring, 119, 120-124t
clinical pathology of, 115-118
molecular targeted therapies, 132, 132f
other/adjunctive therapies, 131-132
patient monitoring and side effects in, 133
radiation/strontium, 130-131
recommendations for clinicians, 132-133
staging of, 113-115, 113f, 114f
surgical resection in, 118-119
Cancer therapeutics, 118, 118f
Cancer-related pain, 627
Cannibalism, 550, 555
Cannulation, of air sac, in avian, 610
Capnography, 611, 611f
Capon, 550
Caponization, 649-650
Caprimulgiformae, 20
"Capture and restraint" approach, 177
Carbamazepine, 224-225
Carbon dioxide parameter, 494

- Carbon monoxide (CO), 594
euthanasia and, 716
toxicosis of, 594
Carpoblatin, for canine tumors, 129
Carcasses, disposal of, 717
Carcinoma, cloacal, in Amazon parrot, 481f
Cardiac, 356-357
Cardiac apex, 252, 253f
Cardiac arrest, 583
Cardiac arrhythmias, 282-283t, 282-284
Cardiac conduction system, 255-256, 259f
Cardiac output, 262
Cardiac silhouette, and great vessels, 292-295, 296f
Cardiac tamponade, 286
pericardial effusion and, 320
Cardiac veins, 256-258
Cardinalidae, biologic and physiologic values of, 862-863t
Cardiology, 252-328
anatomy and physiology, 252-265, 253t
clinical pathology of, 289-290
biochemistries in, 289-290
hematology in, 290
diagnostic methods of, 287-311
ancillary diagnostic, 309-311
angiography, 307-308
blood pressure, 291-292, 294t
clinical pathology, 289-290
electrocardiography, 290-291, 291f, 292f, 292t, 293t, 294t
endoscopy, 309, 310f
history, clinical signs, and physical examination findings, 287-289, 288t, 293t
radiography, 292-297, 295f
ultrasonography, 297-307
therapeutic intervention in, 311-320
vascular anatomy, 256-262
Cardiomyopathy, ascites secondary to, 356-357
Cardiopulmonary resuscitation, 583-585
flow chart for, 583t
suggested drug dosages for, 584t
Cardiotoxins, in birds, 277t
Cardiovascular control systems, 262-265, 265f
Cardiovascular disease
in birds, treatment of, 285t, 312t
international patterns of, 788-792t
in owl, 575
Care
ancient bird, 1
pet bird, 5-7
Caregiver, in animal welfare assessment, 672
L-Carnitine, for obesity, in birds, 145
β-Carotene, avian nutrition and, 144
Carotenoids, avian nutrition and, 145
Carpodacus mexicanus, 471
Carprofen, 622-623t, 623
Carteolol, for cardiovascular disease in birds, 312t
Carvedilol, for cardiovascular disease in birds, 312t
Caryospora, 74
CASA. *see* Computer-assisted semen analysis (CASA)
Cash flow, control of, 759-760
Castration, 649
endoscopic, of male birds, 456-457, 456f, 457f
Casuarina plant, 157f
CaTAS. *see* Caudal thoracic air sac (CaTAS)
Catchment area assessment, in key management metrics, 758
Catgut suture, 640-641
Cathelicidins, 404
Caudal mesenteric artery, of major arteries, 261f
Caudal mesenteric vein, of venous system, 264f
Caudal parathyroid gland, 379f
Caudal renal artery, of major arteries, 261f
Caudal renal vein, of venous system, 264f
Caudal thoracic air sac (CaTAS), 346, 352f
Caudal vena cava
of domestic fowl, 255f
of venous system, 264f
Caudovernal ventriculotomy, 647-648, 647f
CAV. *see* Chicken anemia virus (CAV)
CBC. *see* Complete blood count (CBC)
CC. *see* Cancer cachexia (CC)
CCRT. *see* California Condor Recovery Team (CCRT)
CDC. *see* Centers for Disease Control and Prevention (CDC)
Cell-mediated immunity, 404
Cells, sacral neural crest, 329
Cellular backpack transmitter, for tracking avian species, 721, 721f
Cellular immune response, 522-523
Centers for Disease Control and Prevention (CDC), 778
on California condor, 738
Central America, avian medicine in, perspective on, 780-781
Central nervous system, 363-366
anatomy of, 363
brain development of, 363
Central vestibular system disease, 372
Cerebellar folia, 365f
Cerebellar lesion, 372
Cerebellum, 364, 364f, 365f
folia of, 364f
Cerebral hemisphere, 365f
Cerebral lesion, 372
Cerebrum, 364f
Cervical dislocation, in euthanasia of birds, 716
Cervical restraint collar, 653
CFT. *see* Complement fixation test (CFT)
cGMPs. *see* Current good manufacturing practices (cGMPs)
Chalcopsitta species, 156, 156f
Chemical restraint/anesthetic/analgesic agents, 808-810t
Chemotherapy, 119-130
commonly used chemotherapeutic agents, 119-130, 125-129t
dosing in, 119
intralesional, 130
monitoring, 119, 120-124t
reported use of, 125-129t
side effect monitoring criteria for, 120-124t
Cherry-headed conure. *see* *Erythrogenys* (Conure, cherry-headed)

- Chicken anemia virus (CAV), 420
Chicken-related terminology, 550
Chico Mendes Institute for the Conservation of Biodiversity (ICMBio), 724
Chi-square analysis, 118-119
Chlamydia psittaci, 82
isolation of, 87
in eukaryotic cell cultures, 87-88
replication cycle, 83-84, 83f, 84f
Chlamydiosis (Psittacosis), 4, 82-90, 376
avian, 86
case definitions in, 86
veterinarians, informal survey of, 90, 92t
clinical features of, 85-86
definition of, 82
diagnosis of, 86-89
C. psittaci, isolation of, 87
chlamydiae, isolation of, in eukaryotic cell cultures, 87-88
clinical, 87, 87f
embryonated eggs, isolation on, 88
enzyme-linked immunosorbent assay, 88
histochemical stains, 88
immunohistochemical staining, 88
polymerase chain reaction, 88-89
serology tests, 89
etiology of, 82
historical data of, 82
in humans, 86
international patterns of, 788-792t
therapy for, 89-90
Chlamydia psittaci infection, 376
Chlorhexidine, 638-639
Chloroptera (Macaw, green-winged)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
Chlorpromazine, as tranquilizers, 224
Choice experiments, 244
Chondroitin sulfate, 625
Chooks, 550
Chronic sinusitis, in citron crested cockatoo, 66f
Chronic ulcerative dermatitis, 228f
Chronic wounds, deflating and, 700-702, 702f
Ciconiiformes
avian species groups, 857t
biologic and physiologic values of, 872-875t
Cimetidine, for PDD, 29
Ciprofloxacin, for mycobacteriosis, 97t
Circovirus, 51, 420
Cisplatin, for canine tumors, 129
CITES. *see* Convention on International Trade in Endangered Species (CITES)
Clades
avian, relationship of, 20f
vertebrate, relationship of, 20f
Clarithromycin
for avian chlamydiosis, 90
for mycobacteriosis, 97t
Classical conditioning, 208-209
Classical learning, 208-209
Classification function, 462
Clavicular air sac, 252
CLIA. *see* Clinical Laboratory Improvements Amendments (CLIA)
Client, return visits, Skinner's paradigms applied to, 751t
Client information, confidentiality of, 767-768
Client-centered practice style, *versus* doctor-centered practice style, 750-752
Clindamycin, 667
Clinical avian hematology
future directions, 482-483
back to basics, 482
flow cytometry, 483
image cytometry, 482-483
variability and limitations in, 467-469
biologic variability, 468-471
core of the problem, 467-468
future directions, 482-483
laboratory variability, 472-478
reference intervals and application, 478-482
Clinical biochemistry, 486
analyzer, 487-488
biochemical parameters, clinical significance of, 489-496
panel, 488-489
sample quality, 488
Clinical chemistry analysis, in perianesthetic period, 612
Clinical decision-making process, 480-481
Clinical Laboratory Improvements Amendments (CLIA), 487
Clinical pathology
advances in, 461-530
analytical errors, 464
laboratory equipment, 464
method validation, 464
monitoring and preparation of reagents, 464
personnel requirements, 464
quality control, 464
conclusion, 465
foundations in, 461-464
individual bird testing, considerations for, 463
laboratory errors, 463-464
laboratory testing and selection of options, 463
postanalytical errors, 464-465
interpretation, 464
recording, 464
turnaround time, 465
reference ranges and statistical analysis
methods, 462-463
precision and accuracy, 463
prevalence and incidence, 462-463
sensitivity and specificity, 462
Cloaca, avian
anatomy of, 329-332, 330f, 339
coprodeum, 330-331
proctodeum, 334-335
rectum, 330, 330f
urodeum, 331-332
bursa of, 329, 334-335, 334f, 335f
clinical significance of, 329-344
cytology on, 339, 339f
diseases of, 339-343
endoscopy on, 337-338, 337f, 338f

- Cloaca, avian (*Continued*)
 innervation of, 336
 microbiology on, 338–339
 pathophysiology of, 339–343
 physical examination in, 336
 physiology of, 329–332
 promontory of, 331–332
 protuberance of, 331–332
 radiography for, 336–337, 336f, 337f
 surgical approaches for, 339
 trauma to, 342f
 transverse suture for, 343f
 vascular supply of, 336
 vent, 335, 336f
- Cloaca surgery, 653–655
 cloacopexy, 654, 654f
 cloacotomy, 653–654
 ventoplasty, 654–655, 654f, 655f
- Cloacal carcinoma, in Amazon parrot, 48f
 Cloacal prolapse, 556–557
 Cloacal promontory, 458
 Cloacitis, 341
 Cloacoliths, 341–342
 Cloacopexy, 342, 654, 654f
 Cloacocopy, saline infusion, 337
Cloacotaenia megalops, 341
 Cloacotomy, 653–654
 Clofazamine, for mycobacteriosis, 97t
 Clomipramine, for compulsive disorders, 222
Clostridium botulinum, 4
 Clotrimazole, for avian aspergillosis, 69t
 CO. *see* Carbon monoxide (CO)
- Coaptation, 659–661
 body wrap, 659, 660f
 curved edge splint, 661, 662f
 figure-of-8 bandage, 659–661, 661f
 modified Robert Jones bandage, 661
 tape splint, 661, 662f
- Coccidia
 biology of, 73
 in poultry, 559
- Coccidial diseases
 of birds, 73–77
 coccidia, biology of, 73
 cryptosporidiidae, of birds, 73–74, 74t
 diagnosis of, 76–77
 eimeriidae, of birds, 74–75, 75t
 sarcocystidae, of birds, 75–76, 76t
 treatment of, 77
- Coccidial oocysts, 518–520, 520f
 Coccidiosis, in Takahe, 731–732
 Cockatiel. *see* *Nymphicus hollandicus* (Cockatiel)
- Cockerels, 550
 Cocks, 550
- Code of Federal Regulations, FDA
 nutraceutical guidelines and, 171–172
- Codex Alimentarius Commission, on
 nutraceuticals, 168
- Coefficient of variation (CV), 473
 graph of, 473f
 for white blood cells, 473t
- Coeliac artery, of major arteries, 261f
- Coeliotomy, 641–645
 left lateral, 643–645, 644f
 right lateral, 645
 transverse, 641–643, 642f
 ventral, 641, 642f, 643f
- Coelom
 coeliotomy, 641–645
 comparative anatomy of, 638
 instrumentation, 639–640
 managing blood loss, 640
 patient preparation, 638–639, 639f
 skin incision using Harrison bipolar
 forceps, 640
 suture materials, 640–641
 terminology, brief comment on, 641
 surgical approaches to, and selected
 procedures, 638–645
- Coelomic cavities, 345, 346f, 347f
 of birds, 345–362
 by definition, 347b
- Coelomic surgical procedures, 645–655
 surgery of the proventriculus and
 ventriculus, 645–655
- Coelomotomy, 350–351
- Cold compress, 626
- Colibacillosis, 562
- Collagen matrix, 130
- Colony-stimulating factors (CSFs), for
 leukopenia, 426
- Color and spectral Doppler, 299–300, 303f,
 304–306f, 304t
- Columbid herpesvirus 1, 24
- Columbiformes, 270–271
- Columbimorphae, 20
- Comatose, 369
- Comfort behaviors, parrots and, 182–184,
 184f, 185f
- Commercial broiler, 551–552
- Common carotid artery, 379f
 of major arteries, 261f
- Common mesenteric vein, of venous system,
 264f
- Communication, euthanasia and, 717
- Complaints, client, avoidance of, 766–767
- Complement fixation test (CFT), 89
- Complete blood count (CBC), 115, 467–468
- “Complete response,” 133
- Computed axial tomography, 531
- Computed tomographic angiography (CTA),
 534f, 538
- Computed tomography (CT), 115, 116f,
 531–539, 532f
 advantage of, 531
 applications for, 535–538, 536f, 537f, 538f,
 539f, 541f
 current limitations in, 538–539, 547t
 of grey parrot, 545f
 for lower respiratory tract, 535–536
 procedure in, 532–533, 533f, 534f
 technique in, 531–532, 533f
- Computer-assisted semen analysis (CASA),
 436–437
- “Conditional reinforcers,” 207
- Conditioned aggression, 240
- Conditioned stimulus (CS), 209
- Congestive heart failure, 271, 288, 289f,
 313–320
 angiotensin-converting enzyme inhibitors
 for, 314
 clinical signs of, 288
 compensatory mechanism in, 284–285, 284f
 diuretics for, 314

- Congestive heart failure (*Continued*)
 hepatomegaly in, 288
 medical management of, 313–314
 negative inotropes, 317–318
 positive inotropes, 314–317
 prognosis of, 320
 right-sided, 287
 supportive care and husbandry
 considerations, 319–320
 survival time after diagnosis and treatment
 for, 315–316t
 treatment of related conditions, 318–319
- Conjunctiva-associated lymphoid tissue
 (CALT), 402
- Conjunctivitis, international patterns of,
 788–792t
- Consciousness
 content of, 369
 level of, 369
- Consequences, 204
- Conservation medicine, in avian species,
 719–721
 disease risk analysis in, 719
 quantitative disease risk analysis in, 719–720
- Conservation-withdrawal response, 616
- Conservative rule, 119
- Consumer demand studies, 244
- ConsumerLab.com
 on nutraceuticals, 173
 on omega-3 fatty acid products, 169
- Contamination, *versus* adulteration, 168–169
- Contiguity, 206–207
- Contingency, 206–207
- Continuous reinforcement (CRF) schedule,
 207
- Contrafreeloading, 675
- Contrast media, 532–533, 533f, 534f
 in computed tomographic angiography,
 532–533
 iodinated, 532–533
 noniodinated, 532–533
- Controlling cash flow, 759–760
- Convention on International Trade in
 Endangered Species (CITES), 723
- Conventional radiographs, 536–538, 540f
- Conventional radiography, 115
- Cooperative Whooping Crane Project,
 743–744
- “Co-parenting” technique, 196
- Copper sulfate, for intestinal disorders, 4–5
- Coprodeolith, 341–342, 342f
- Coprodeum, 330–331, 331f
 air insufflation on, 338f
- Coprourodeal fold, 331, 331f
- Cor pulmonale, secondary to pulmonary
 mycosis, 278, 280f
- Coraciiformes
 avian species groups, 857t
 biologic and physiologic values of,
 872–875t
- Coronary arteries, and cardiac veins, 256–258
- Coronary groove, of domestic fowl, 255f
- Corporate Leadership in Action*, 755–756
- Corticospinal tract, 367
- Corticosteroids
 for immunosuppression, 426–427
 for neoplastic diseases, 131
- Corvidae, biologic and physiologic values
 of, 862–863t
- Costoseptal muscle, 347–348, 348f
- Counter-conditioning
 for anxiety, 238–239
 for fear, 238
 for fear-related aggression, 241
 systematic desensitization and, 212
 for treatment of distress calls, 243–244
- Counter-immunoelectrophoresis, 67
- Courtesy, common, in veterinary health care
 business, 753–754
- CPA. *see* Cyclopiazonic acid (CPA)
- Cracidae, biologic and physiologic values
 of, 866t
- Cranial mesenteric artery, of major arteries,
 261f
- Cranial mesenteric vein, of venous system,
 264f
- Cranial nerve, examination of, 369–371,
 371f
 clinical notes on, 371–372
- Cranial parathyroid gland, 379f
- Cranial renal artery, of major arteries, 261f
- Cranial renal veins, of venous system, 264f
- Cranial thoracic air sac (CrTAS), 346
- Cranial tibial artery, of major arteries, 261f
- Cranial vena cava, 379f
- Creatinine, 492
- Cremophor EL, 129
- Crest, 550
- Critical care, 582–588
 diagnostic work up for, 587
 initial assessment of, 582–583
 introduction of, 582–583
 treatment of the critical patient, 587–588
 fluid support, 587
 nutritional support, 587–588
- Critical differences, 482
- Crop volume, 590t
- CrTAS. *see* Cranial thoracic air sac (CrTAS)
- Crude oil, immunosuppressive effects
 of, 421
- Cryopreservation, 443–444
- Cryotherapy, 131, 131f
- Cryptosporidial oocysts, 515–516
- Cryptosporidium*, 73–74
- Cryptosporidium baileyi*, 341
- CS. *see* Conditioned stimulus (CS)
- CT. *see* Computed tomography (CT)
- CT scanning, in clinical practice,
 recommendations, indications, and
 limitations for, 547t
- CTA. *see* Computed tomographic angiography
 (CTA)
- Current good manufacturing practices
 (cGMPs), 167
 on nutraceuticals, 171
- Cursorimorphae, 20
- Curved edge splint, 661, 662f
- Cutaneous basophil hypersensitivity, 416
- Cutaneous lesions, 66–67
- Cutaneous sensation, 374
- Cutaneous ulnar wing vein, 461
- CV. *see* Coefficient of variation (CV)
- Cyanocobalamin (Vitamin B₁₂), on
 nutraceutical studies in humans, 166

- Cyanoliseus patagonus* (Conure, Patagonian)
 enzymatic laboratory reference ranges for,
 840–847t
 hematologic laboratory reference ranges
 for, 826–837t
 metabolic laboratory reference ranges for,
 848–855t
- Cyclo-oxygenase-2 (COX-2) inhibitors, for
 PDD, 29
- Cyclooxygenase (COX), 621–622
- Cyclopiazonic acid (CPA), 422
- Cygnus* sp. (Swan)
 enzymatic laboratory reference ranges for,
 840–847t
 hematologic laboratory reference ranges for,
 826–837t
 metabolic laboratory reference ranges for,
 848–855t
- Cysts, 509, 509f
 feather, deflighting and, 700–702, 702f, 703f
 Cytokines, as immunotherapeutics, 425–426
- Cytologic evaluation, 505–509
 cysts, 509, 509f
 evaluation protocol for, 506f
 hemorrhage, 509, 510f
 inflammation, 507–508, 507f, 508f
 malignancy *versus* reactivity, 508, 508f, 509f
 mixed cell population, 508–509
 systematic approach to, 505f
 tissue cells, 508
- Cytologic specimens, evaluation protocol for,
 506f
- Cytology, 501
 evaluation, 505–509, 505f, 506f
 nonexfoliative tissue, 503f
 opaque fluids-wedge smear technique,
 503f
 translucent fluids-line smear
 concentration technique, 503f
 general parasitologic evaluation of avian
 patients, 514–522
 as in-house diagnostic tool, 510–514
 organ systems in avian clinical practice, 510,
 510–512t
 sample collection, 501–505
 fine-needle aspirates (FNA), 502
 imprints, scrapings, and swabs, 502, 502f
 staining, 503–505
 washes and fluids, 502–503
 slide preparation, 501–505
 specimens, types of, 502t
 staining, 501–505
 used with parasitologic specimens, 514–522
- Cytotoxic hypersensitivity, 415

D

- DCM. *see* Dilated cardiomyopathy (DCM)
- De Animalibus*, 1
- De Arte Venandi cum Avibus*, 1
- Decapitation, in euthanasia of birds, 716
- Decision tree, for avian patients, 118f
- Decontamination, 589–590
- Deep pain sensation, 374
- Deep ramus, in cardiac conduction system and
 coronary arteries, 259f
- Defensins, 404
- Definitive radiation therapy, 130
- Deflighting, of birds
 avian welfare and, 683
 consequences of, 687
 direct, 700–705
 decision-making process in, 672, 706f
 ethical considerations on, 687–688
 incidence of, 683–685, 684f, 685f
 medical and behavioral complications in,
 700–703, 701f, 703f
 chronic wound, 700–702, 702f
 feather follicle cyst and ingrown,
 700–702, 702f, 703f
 hemorrhage, 700, 700f
 osteomyelitis, 700–702, 701f
 pain, 703–704
 stress, 704–705, 704f, 705f
 trauma, 700, 701f
 purpose of, 683–685, 684f, 685f
 techniques for, 688–694
 brailing, 688, 692t
 confinements under nets, 688
 feather follicle ablation, 695–696t, 699f
 limited amputation, 688
 patagiotomy, 688, 695–696t
 permanent, 691–694, 695–696t
 pinioning, 691, 693f, 694f, 695–696t,
 697–698f, 699f, 701f
 temporary, 688–691
 tenectomy, 688, 695–696t
 tenotomy, 688, 695–696t
 vane trimming, 688, 692t
 wing/feather clipping, 688, 689f, 690f,
 691f, 692t
- Dehydration, fluid therapy for, 586
- Delayed hypersensitivity (DH), 416–419
- Dementia, 369
- Dendrocygninae, biologic and physiologic
 values of, 868–871t
- Density effects, for color mutations, 410–411
- Deoxyribonucleic acid (DNA) viruses, 24
- Dermatitis, wing-web, 228f
- Desflurane, inhalant anesthetic and, 608–609
- Deslorelin acetate, as contraceptive, 451,
 452f
- O-desmethyl metabolite (M1), 621
- Desmin, 111b
- Detomidine, 606
- Dexmedetomidine, 606
- DH. *see* Delayed hypersensitivity (DH)
- Diabetes insipidus, 386
 diagnosis of, 386
- Diabetes mellitus
 in birds, 392
 diagnosis of, 393
 glipizide for, 396
 summary cases of, 395t
 treatment protocols for, 394
- Diagnostic imaging
 advances in, 531–549
 conclusion in, 547, 547t
 techniques, 114
- Diagnostic medicine, advances in, 461–530
- Diastolic performance (lusitropy), 262
- Diazepam, 222, 605
- Diclofenac (DF), 596, 624
 half-life of, 596t
- Dietary reference intake (DRI), 165

- Dietary Supplement Health and Education Act (DSHEA), 167
on nutraceutical, 167, 171
- Differential reinforcement, 208
teaching replacement behaviors, 211
- Differential reinforcement of alternative behavior (DRA), 211
- Differential reinforcement of incompatible behavior (DRI), 211
- Differential reinforcement of other behavior (DRO), 211
- Digest on the Diseases of Birds*, 6
- Digoxin, for cardiovascular disease in birds, 312t, 315–316t, 315–316
- 3-dihydroxycarboquinone, 483
- Dilated cardiomyopathy (DCM), 273–274
- Diltiazem, for cardiovascular disease in birds, 312t
- Dimethylacetamide (DMA), in cryopreservation, 443–444
- Dimethylsulfoxide (DMSO), in cryopreservation, 443–444
- Diode laser, in ovariectomy, 454–455, 455f
- Diopsittaca nobilis cumanensis* (Macaw, noble)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Diopsittaca nobilis nobilis* (Macaw, Hahn's)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
- Diopter system, 634, 634f
- Diphenhydramine, 224
- Direct arterial blood pressure measurement, 612
- Direct extrapolation, 481–482
- Discriminative stimuli, 202–204
- Disease, neoplastic, in avian species, 107–141
- Disease control, strategies of, 425
- Disease prevention and control, 557–564
bacterial infections, 561–563
fungal diseases, 563–564
general aspects, 557–558
nutritional diseases, 564
parasitism, 558–559
viral diseases, 559–561
- Disease resistance, breeding for, 425
- Diseases and Enemies of Poultry*, 4
- Diseases in Captive Wild Mammals and Birds*, 7
- Diseases of Cage and Aviary Birds*, 7
- Diseases of Canaries*, 6
- Diseases of Poultry*, 5
- Disseminated aspergillosis, 66
- Disseminated lymphoid tissue (MALT), 402
- Dissociative anesthetics, 607–608
benzodiazepines and, 605
- Dobutamine, for cardiovascular disease in birds, 312t
- Docosahexaenoic acid (DHA), 625. *see also* Fish oils
- Doctor-centered practice style, *versus* client-centered practice style, 750–752
- Domestic chicken
histomoniasis in, 518f
ovum of, 518f, 519f
scotch tape imprint with feather lice, 514, 515f
- Domestic duck. *see* *Anas platyrhynchos domestica* (Duck, domestic)
- Dopamine
for cardiovascular disease in birds, 312t
effects on behavior, 221t
- Dopamine antagonists, 224
- Doppler backpack satellite transmitter, for tracking avian species, 721, 721f
- Doppler flow probe, 611
- Dorsal ascending bundle, 367
- Dorsal cardiac vein, of domestic fowl, 255f
- Dorsal column, 366–367
- Dorsal intercostal arteries, of major arteries, 261f
- Dorsal mesentery, 350–351
- Dorsolateral fasciculus, 367
- Double entry technique, in endoscopy, 454
- Double yellow-headed amazon. *see* *Oratrix* (Amazon, double yellow-headed)
- Dove. *see* *Streptopelia risoria* and *Geopelia cuneata* (Dove)
- Downregulation, reuptake inhibitors and, 220
- Doxepin, for pruritus, 222
- Doxycycline
for avian chlamydiosis, 89
commonly used medication in South America, 779
- DRA. *see* Differential reinforcement of alternative behavior (DRA)
- DRI. *see* Dietary reference intake (DRI); Differential reinforcement of incompatible behavior (DRI)
- DRO. *see* Differential reinforcement of other behavior (DRO)
- Dromaius novaehollandiae* (Emu)
enzymatic laboratory reference ranges for, 840–847t
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Dry powder, *versus* nectar diets, 161–162
- DSHEA. *see* Dietary Supplement Health and Education Act; Dietary Supplement Health and Education Act (DSHEA)
- Duck enteritis virus, 421
- Ductus deferens, 331–332, 458, 460f
- Duodenal feeding tube placement, 653
- Dusky courel. *see* *Weddellii* (Conure, dusky)
- Dusky lory (*Pseudeos fuscata*), 159, 161f
- Dye-binding methods, 488
- Dynamic destabilization, 666
- Dysphoria, benzodiazepines and, 605
- Dystocia, 557, 557f
- Dystrophic feather, 54f
- E**
- Eagle, direct fecal smear from, 513f
- EBA. *see* Elementary body agglutination (EBA)
- EBs. *see* Elementary bodies (EBs)

- ECAMS. *see* European College of Avian Medicine and Surgery (ECAMS)
- ECG. *see* Electrocardiography (ECG)
- Echocardiographic measurement, points of, 308f
- Ecliptic parrot. *see* *Ecliptic roratus* (Ecliptic parrot)
- Ecliptic roratus* (Ecliptic parrot)
enzymatic laboratory reference ranges for, 840–847t
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Ectoparasites, 514
- Ectoparasitism, international patterns of, 788–792t
- ECZM. *see* European College of Zoological Medicine (ECZM)
- EDTA. *see* Ethylenediaminetetraacetic acid (EDTA)
- Efferent renal branch, of venous system, 264f
- Egg binding, 557, 557f
international patterns of, 788–792t
- Egg euthanasia, 716–717
- EIA. *see* Enzyme immunoassay (EIA)
- Eicosapentaenoic acid (EPA), 625. *see also* Fish oils
- Eimeria, 74
- Einhoven's triangle, 290f
- Elastic arteries, 261
- Electrocardiography (ECG), 611–612
- Electrolytes, 493–494
- Electron microscope, 112
- Electronic table of contents (ETOCs), 18
- Electrostimulation device, for semen collection, 434–435, 435f, 436f
- Elementary bodies (EBs), 83
- Elementary body agglutination (EBA), 89
- Elf owl, 566
- ELISA. *see* Enzyme-linked immunosorbent assay (ELISA)
- ELISA Platelia *Aspergillus* kit, 67
- Elizabethan collar, 653
- for parrots, 232f
- Embryonated eggs, isolation on, 88
- Embryonic coelom, 345
- Emergencies, agents used in, 820t
- Emu. *see* *Dromaius novaehollandiae* (Emu)
- Enalapril, for cardiovascular disease in birds, 312t
- Endangered Species Act, on disposal of carcasses, 717
- Endocardiosis, 279–280
- Endocrine diseases, in owl, 575–576
- Endocrine system
anatomy of, 378
diseases of, 385
physiology of, 378
- Endogenous opioids, 224
- Endoscopic castration, of male birds, 456–457, 456f, 457f
- Endoscopic ovariectomy, 454–455, 455f, 456f
- Endoscopic salpingohysterectomy, 455–456, 456f

- Endoscopy, 354–355, 357f
for cloaca, 337–338, 337f, 338f
- Endotoxins, 413
- End-tidal carbon dioxide concentration (ETCO₂), 611
- Energy, nutrition and, 142–143, 143t
- Energy deficiency, malnutrition and, 422–423
- Enilconazole, for avian aspergillosis, 69t
- Enrichment
other environmental, toys and, 214–217, 215f, 217f
social, 186f, 217–219, 217f, 218f
type of, 201t
- Enrofloxacin, commonly used medication in South America, 779
- Enteric nervous system, cloaca and, 329
- Enteritis, bacterial, international patterns of, 788–792t
- Enterobacter cloacae*, 280–281
- Environmental adaptations, as antecedent arrangements, 212–219
- Enzyme immunoassay (EIA), 67
- Enzyme-linked immunosorbent assay (ELISA), 54–55, 67, 88
- Enzymes, 490–491, 490t
- Eolophus roseicapilla* (Cockatoo, rose-breasted)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Eos bornea*, 152–153, 152f
- Eosin techniques, 475b
- Eosin-B stains, in semen evaluation, 436–437, 437f
- Eosinophils, function of, 403
- EPA. *see* Eicosapentaenoic acid (EPA)
- Epinephrine, 624
effects on behavior, 221t
- Epithalamus, 365
- Epsom salts, 4–5
- Ergotism, 563
- Erysipelas, in Takahe, 732
- Erythrocytic parameters, 838t
- Erythrogenys* (Conure, cherry-headed)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- “Escape training,” 205–206
- ESCRA. *see* Exotic Species Cancer Research Alliance (ESCRA)
- Esophageal stethoscope, 612, 612f
- Esophagostomy, 137
- Esophagus, 379f
- Essential fatty acids, avian nutrition and, 144
- “Establishing operations,” 202–204
- Estrilidae, biologic and physiologic values of, 862–863t
- ETCO₂. *see* End-tidal carbon dioxide concentration (ETCO₂)
- Ethambutol, for mycobacteriosis, 97t
- Ethylenediaminetetraacetic acid (EDTA), 464, 472

- ETOCs. *see* Electronic table of contents (ETOCs)
- Eucalyptus buprestium*, 153
- Eucalyptus calophylla*, lorikeets and, 154
- Eucalyptus crebra*, 151f
- Eupsittula canicularis* (Conure, half-moon)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Eurasian eagle owl, 566
- European College of Avian Medicine and Surgery (ECAMS), 8, 13–14
- European College of Zoological Medicine (ECZM), 13–14, 780
- Eustrongylides* sp., 359
- Euthanasia, 714–717
acceptable methods of, 714, 715t
with conditions, 715–716
disposal of carcasses in, 717
egg, 716–717
exsanguination and, 716
human perspective in, 717, 717f
human-avian bond and, 712
unacceptable methods for, 715t, 716
- Evaluation sheet, for semen analysis, 438f
- Evidence-based medicine, in avian practice, 16–21
assessing evidence in, 18–21
clinical studies in, 18–19
descriptive studies in, 19
experimental studies in, 18–19
identifying evidence in, 17–18
obtaining evidence in, 18
proactive searching in, 17
prospective studies in, 18–19
reactive searching in, 17–18
retrospective studies in, 18
- Evolution, 22
- Exotic Species Cancer Research Alliance (ESCRA), 137
- Experience, 196–197
- Exsanguination, euthanasia and, 716
- EXT. *see* Extinction (EXT)
- Extensor carpi radialis, tenectomy of, 695–696t
- External iliac artery, of major arteries, 261f
- External iliac vein, of venous system, 264f
- External skeletal fixator, 663
- External skeletal fixator-intramedullary (ESF-IM) pin tie-in, 663–664, 664f
- External vasectomy, 458–460
- Extinction (EXT), 207, 208
excessive vocalization and, 243
- “Extinction burst,” 208
- Eye, of owl, 566–567
- F**
- Facial nerve, 371
- Facilities manager, in animal welfare assessment, 672
- “Fair pairs rule,” 208
- Falconiformes
avian species groups, 857t
biologic and physiologic values of, 864–865t

- Falconry, 1–3
- FANZCVS. *see* Fellow, Australian and New Zealand College of Veterinary Scientists (FANZCVS)
- Farinosa* (Amazon, mealy)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Farm Animal Welfare Council, on animal welfare, Five Freedoms in, 670, 670b
- Farrier, 3
- Fasciculus proprius, 367
- Fatty acids, 169
- Fatty liver, in hens, 556, 556f
- FDG. *see* Fluorodeoxyglucose (FDG)
- Fear(s), 237–239
generalized, international patterns of, 788–792t
learned, international patterns of, 788–792t
response, conditioning, 237–238
- Fear-related aggression, 240
- Feather
disease of, Psittacine beak and, international patterns of, 788–792t
dystrophic, 54f
- Feather-damaging behaviors (FDBs), 675
avian nutrition and, 145, 146f
international patterns of, 788–792t
- Feather follicle, deflighting techniques on ablation of, 695–696t, 699f
excision of, 697–698f
- Feather grooming, 616
- Feather picking. *see* Feather-damaging behavior (FDB)
- Feather plucking. *see* Feather-damaging behavior (FDB)
- Feather scoring system, 234b
- Feather-damaging behavior (FDB), 225–234, 226f
diagnostic workup for, 203t, 226f, 230–231, 231f
etiologic considerations of, 228–230
factors involved in onset and maintenance of, 206t
prognosis and monitoring, 233–234, 234b
species, age, and gender predilections, 227–228, 227f, 228f
therapeutic considerations, 217f, 231–233, 232f, 233f
- Feather-destructive behavior. *see* Feather-damaging behavior (FDB)
- Feeding, in management, of backyard poultry, 552–553, 553f
- Fellow, Australian and New Zealand College of Veterinary Scientists (FANZCVS), 780
- Female reproductive tract
disorders of, international patterns of, 788–792t
surgery of, 650–651
- Femoral artery, of major arteries, 261f
- Fenbendazole, 471
- Fentanyl, 617–619t, 620
- Fertilization, uterovaginal junction and, 332
- FGC. *see* Fish and Game Commission (FGC)

- Fidaxomicin, for *Clostridium difficile*, 23
 Fight-or-flight response, 616
 Figure-of-8 bandage, 659–661, 661f
 Filarid worms, 359–360, 360f
 Filarioid nematodes, 274–275
 Finance, management of, 758–763
 rules of, 758
 Fine-needle aspirates (FNA), 502, 502t
Finschi (Amazon, lilac crown)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Fipronil, commonly used medication in South America, 779
 Fish and Game Commission (FGC), 734–735
 Fish oils, 169
 Five freedoms, 133
 in avian welfare, 670, 670b
 mental state, birds, assessment of, 675–676
 Fixation, methods of, 659t
 Fixed interval (FI), intermittent reinforcement schedules and, 207, 207b
 Fixed ratio (FR), intermittent reinforcement schedules and, 207, 207b
 Flagellates, 516
 Flavivirus, 99
 Flooding, 212. *see also* Response blocking for fear, 238
 Flotation, 518–520, 518f
 Fluconazole, for *M. ornithogaster*, 81
 Fluid administration, in birds under anesthesia, 613
 Fluid therapy, 583, 587
 for dehydration, 586
 Fluids, constant rate infusion of, 586
 Flumazenil, 605
 Flunixin meglumine, 622–623t, 624
 Fluorodeoxyglucose (FDG), 546
 Fluoroquinolones (enrofloxacin), for avian chlamydiosis, 90
 Fluoroscopy with barium contrast, 353–354, 356f
 Fluoxetine, in treatment of toe chewing, 223–224
 FNA. *see* Fine-needle aspirates (FNA)
 Focal hypertrophy, of endocardium, 274–275
 Folic acid, on nutraceutical studies in humans, 166
 Fontana-Masson's stain, 109, 111b
 Food and Drug Administration (FDA), on nutraceutical, 164
 Food and Nutrition Board of the Institute of Medicine, 165
 Foraging
 enrichment, 215, 217f
 for FDB, 231–232
 and feeding, of parrots, 181–182, 181f, 182f, 183f
 Forensic necropsy, 769–775, 769f, 770f
 methodology of, 770–775
 organization of, 770–775
 Formalin-fixed, paraffin-embedded (FFPE) tissue, 112
Forpus sp. (Parrotlet species)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Four-Model System, 752
 "Fowl plague," 59
 Fracture
 assessment of, 658
 management options of, 658–665
 nonsurgical, 659–661
 surgical, 663–665
 patient
 assessment of, 658
 convalescent care of, 665–666
 evaluation of, 657–658
 signs of, 658
 Fregatidae, biologic and physiologic values of, 872–875t
 "French molt," 51
 Frenkelia, 75–76
 Fringillidae, biologic and physiologic values of, 862–863t
 Frizzle feathers, 550
 Fructosamine, 393–394, 493
 Fumigaclavine A (FuA), 67
 Functional assessment
 ABCs and, 204
 of behavior, 209
 fear response and, 238
 Fungal diseases, 563–564, 572
 aflatoxin, 563
 aspergillosis, 563
 ergotism, 563
 mycotoxins, 563
 trichothecenes, 564
 Fungal respiratory disease, international patterns of, 788–792t
 Fungi, 23
 Furazolidone-induced DCM, 275–276
 Furosemide, for cardiovascular disease in birds, 312t, 314

G

- Gabapentin, 625
 Gadolinium, 540
 Gait, 372
 Galilean system, 634
 Gallbladder, 350, 351f
 Galliformes, 20, 270
 biologic and physiologic values of, 866t
 GALT. *see* Gut-associated lymphoid tissue (GALT)
 Gametocyte
 of *Haemoprotozoa* sp., 521f
 of *Leucocytozoon toddi*, 521f
 of *Plasmodium* sp., 521f
 Gamma amino butyric acid (GABA), effects on behavior, 221t
 Gapeworm, study of, 3–4
 Gastric neoplasms, 646

- Gastroenteritis, nonspecific, international patterns of, 788–792t
 Gastrointestinal diseases, in owl, 575
 Gastrointestinal system, of owls, 568
 Gastrointestinal tract, parasites of, 515–516
 Gastropancreaticoduodenal vein, of venous system, 264f
 GBS. *see* Guillain-Barré syndrome (GBS)
 GC. *see* Guanine-cytosine (GC)
 Gene conversion, 406
 General anesthesia, 458–459, 459f
 General psittacine body map, for tumor mapping, 114f
 Generalized fear, international patterns of, 788–792t
 Generalized phobia, in parrot, 237
 Genetic bottlenecks, 410–411
 Genome-wide association studies (GWASs), 112
 Gentian violet, for *M. ornithogaster*, 81
 GFAP. *see* Glial fibrillary acidic protein (GFAP)
 GGT. *see* γ -glutamyl transferase (GGT)
 Gizzard, 645. *see also* Ventriculus
 GLDH. *see* Glutamate dehydrogenase (GLDH)
 Glial fibrillary acidic protein (GFAP), 109–112, 111b
 Gliotoxin, 422
 Glipizide, for diabetes mellitus, 396
 β -Globulins, 494–495
 Glomerulonephritis, 415–416, 416f
 Glossopharyngeal nerve, 371
Glossopsitta concinna, 150
 Glucosamine, 625
 on nutraceutical studies in humans, 166
 Glutamate dehydrogenase (GLDH), 489, 490
 γ -glutamyl transferase (GGT), 48, 489
 Glycemia values, 493
 Glycerol, in cryopreservation, 443–444
 Glycogen body, 366
 Glycopyrrolate, for cardiovascular disease in birds, 312t
Goffiniana (Cockatoo, Goffin's)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Goffin's cockatoo. *see* *Goffiniana* (Cockatoo, Goffin's)
 Goiter, 387–388
 postmortem image of, 388f
 Gold-caped conure. *see* *Auricapillus* (Conure, gold-caped)
 Golden eagle. *see* *Aquila chrysaetos* (golden eagle)
 Goldie's lorikeet (*Trichoglossus goldiei*), 154–155, 155f
 Gomori methenamine silver stain, 503–505, 504f
 Gonadal neoplasms, international patterns of, 788–792t
 Gonadotropin-releasing hormone (GnRH), 131

- Gonadotropin-releasing hormone (GnRH) agonist
 clinical applications and considerations for, 446–453
 for immunosuppression, 427
 overview of, 448–453
 synthetic, 448–451
 Graduated exposure therapy, 212
 Gram stain, 503–505, 504f
 Great-horned owl. *see* *Bubo virginianus* (Owl, great-horned)
 Green-cheeked amazon. *see* *Viridigenalis* (Amazon, green-cheeked)
 Green-cheeked conure. *see* *Pyrrhura molinae* (Conure, green-cheeked)
 Green-naped lorikeets (*Trichoglossus baematodus baematodus*), 154, 155f
 Green-winged macaw. *see* *Chloroptera* (Macaw, green-winged)
 Grey parrot. *see* *Psittacus erithacus* (Grey parrot)
 Grey-cheeked parakeet. *see* *Brotogeris pyrrhoptera* (grey-cheeked parakeet)
 Grid approach, 644
 Grief, human-avian bond and, 712
 Gross lesions, interpretation of, considerations in, 770
 Gruiformes
 avian species groups, 857t
 biologic and physiologic values of, 872–875t
 GSP transport medium, 87
 Guanine-cytosine (GC), 56
Guidelines for the Euthanasia of Animals: 2013 Edition, 714, 715t
 Guillain-Barré syndrome (GBS), 418
 Gunshot, in euthanasia of birds, 716
 Gut-associated lymphoid tissue (GALT), 400
 Gyms, 214, 214f
 Gyrrincola batrachiensis, 23

H

- HA. *see* Hemagglutination assay (HA)
 Hahn's macaw. *see* *Diopsittaca nobilis nobilis* (Macaw, Hahn's)
 Half-moon conure. *see* *Eupsittula canicularis* (Conure, half-moon)
Haliaeetus leucocephalus (combined eagle species)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Haloperidol, for compulsive behaviors, 224
 Halothane, in euthanasia for birds, 715
 Halsted's principles, of surgery, 638
 Hand-rearing method, 193, 193f
 of psittacine birds, consequences of, 194–196, 194f, 196f
Handbuch der Vergleichenden Anatomie der Haustiere, 3, 3f
 Haptoglobin, 495
 Harderian glands, 402
 Harrison bipolar forceps, skin incision using, 640
 Hawk
 direct smear of mucus from oral cavity in, 513f
 Harris
 feather louse, 515f
 louse eggs, 515f
 hCG. *see* Human chorionic gonadotropin (hCG)
 HDL. *see* High-density lipoprotein (HDL)
 Healing, monitoring of, 666
 Heart, 252–256, 254f, 258t, 273t
 of domestic fowl, 255f
 longitudinal section of, 259f
 pericardium of, 256
 Heart failure, 271–285, 272f
 causes of, 273f
 compensatory mechanisms in, 284–285, 284f
 pathophysiology of, 271–285, 273b, 273f
 supportive care and husbandry considerations, 319–320
 Heavy metal toxicosis, international patterns of, 788–792t
 Heiss blunt retractors, 639–640
 Hemagglutination assay (HA), 51, 54–55, 60
 Hemagglutination inhibition (HI), 54–55, 60
 Hemagglutination inhibition test (HIT), 102–103
 Hemocytometer, 475f, 476f
 Hemoparasites, 520–522, 520f
 Hemorrhage, 509, 510f
 deflighting and, 700, 700f
 Hemorrhagic mass, in birds, 278f
 Hemostatic clips, 639–640, 640f
 Hens, 550
 Hepadnaviridae, 24–26
 Heparin, 464, 472
 Heparinized whole blood, 591
 Hepatic carcinoma, 354f
 Hepatic cirrhosis, 357, 358f
 Hepatic disease, 376
 in owl, 575
 Hepatic function, evaluation of, 491
 Hepatic lipidosis, sample and, 108
 Hepatic lymphosarcoma with ascites, 359f
 Hepatic peritoneal cavities, 349–350, 349f, 350f
 hernia of, 360
 neoplasia, 356f, 357, 359f
 Hepatic silhouette, 295–297, 296f
 Hepatic vein, right and left, of venous system, 264f
 Hepatocellular leakage, 489–490
 Hepatopathies, noninfectious, international patterns of, 788–792t
 Herbal, nutraceuticals, 169–170
 Hernia
 definition of, 360
 formation, 360
 of abdominal wall, 360, 360f
 of hepatic, 360
 of intestinal peritoneal cavity, 360
 of peritoneal cavity, 360
 of posthepatic septum, 360
 Herpesviral phylogenetic tree, 24, 25f
 Herpesvirus, 570
Heterakis sp., 518f
 Heterophil-to-lymphocyte (H/L) ratio, 469, 470
 Heterophils, in immune system, 402–403
Hexamita spp., 516
 Hexose, 153
 sucrose and, 152–153
 HI. *see* Hemagglutination inhibition (HI)
 Hibiscus pollen, 153–154
 Goldie's lorikeet (*Trichoglossus goldiei*) and, 154–155, 155f
 High-density lipoprotein (HDL), 496
 "Higher-order conditioning," 208–209
 Highly pathogenic avian influenza (HPAI), 60
 current dynamics, 62
 High-resolution DNA melt (HRM), 56
 Hindbrain, 364f
 Hirundinidae, biologic and physiologic values of, 862–863t
 Histochemical stains, 88
 Histomonas, in poultry, 559
Histomonas meleagridis, 516
 Historical income, 759
 History, 197–201, 198–200b, 201t
 HIT. *see* Hemagglutination inhibition test (HIT)
 Homeothermic vertebrates, 22
 Hormone therapy, 131, 225
 for reproduction-related disorders, 225
 Hormones, 812–813t
 stress, 408–409, 409f
 Hounsfield units (HUs), 531
 Housing, in management, of backyard poultry, 550–551, 551f
 HPAI. *see* Highly pathogenic avian influenza (HPAI)
 HRM. *see* High-resolution DNA melt (HRM)
 Human-Avian bond, 709–713
 anthropomorphization, 710–711
 attachment, 710, 710f
 broken, 712–713
 grief and, 712
 social support, 711, 711f
 Human chorionic gonadotropin (hCG), 225
 Human herpesvirus 3, 24
 Humoral immune response, 522–523
 HUs. *see* Hounsfield units (HUs)
 Hyacinth macaw. *see* *Anodorhynchus byacintbinus* (Macaw, hyacinth)
 Hybrid fixator, 663–664
 Hybridization, 23–24
 Hydrocarbons, 595–596, 595t
 Hydromorphone, 617–619t, 619–620
 Hydroxyzine, 224
 Hypercholesterolemia, 496
 Hyperglycemia, 493
 Hyperlipidemic syndrome, 377
 Hyperpallium, 364f
 Hyperparathyroidism, 391
 primary, 391
 secondary, 391
 tertiary, 392
 Hypersensitivity
 cutaneous basophil, 416
 cytotoxic, 415
 definition of, 413
 delayed, 416–419
 immediate, 413–414, 414f
 pseudohypersensitivity, 414

- Hyperthyroidism, 390–391
 Hypertrophic cardiomyopathy
 in psittacines, 267f, 276–277
 treatment of, 318
 Hyphae, 63
 Hypocalcemia, 377
 control of, 391f
 Hypoglossal nerve, 371
 Hypoglycemia, 377, 493
 in anesthetized birds, 602–603
 Hypomagnesemia, 603
 Hypophysis, 385–387
 Hypotension, decompensatory phase of, 586
 Hypothalamic-pituitary-gonadal (HPG) axis, 234–235
 exogenous and endogenous mechanism on, 446–447, 447f, 448f, 449f
 Hypothalamic-pituitary-thyroid (HPT) axis, 381
 Hypothalamopituitary complex, 378–380
 Hypothalamus, 365, 378, 385–387
 Hypothermia, 587
 decompensatory phase of, 586
 Hypothyroidism, 388–390
 diagnosis of, 388
 Hypovitaminosis A, squamous cell carcinoma and, 113
- I**
- IBDC. *see* Inclusion body disease of cranes (IBDC)
 IBV. *see* Infectious bronchitis virus (IBV)
 ICMBio. *see* Chico Mendes Institute for the Conservation of Biodiversity (ICMBio)
 Idiopathic pulmonary fibrosis (IPF), 416–417
 IFT. *see* Indirect immunofluorescence test (IFT)
 IgA. *see* Immunoglobulin A (IgA)
 IgY. *see* Immunoglobulin Y (IgY)
 IH. *see* Immediate hypersensitivity (IH)
 IHC. *see* Immunohistochemistry (IHC)
 Iliac vein, common, of venous system, 264f
 Image cytometry, 482–483
 Imaging modalities, 115–118, 116f
 Imaging techniques, 353, 355f
 Imatinib (Gleevec), 132
 Immediate care, in birds, signs and symptoms for, 582t
 Immediate hypersensitivity (IH), 413–414, 414f
 Immediate postoperative analgesia, 626
 Immune complex reactions, 415–416
 Immune system, 400–432
 adaptive, polarization of, 404, 405f
 basic structure of, 403f
 cells of, 402–403
 deficiencies of, 419–423
 disorders of, 413–423
 genetics of, 406–408, 407f
 hardwired innate, 403
 immunocompetence, assessment of, 423–425, 424f
 innate, 403–404
 modulation, consideration for, 425–427
 physical barriers and, 402
 purpose of, 400
 tumors of, 423
- Immune-mediated disease, 413–419
 amyloidosis, 415
 cytotoxic hypersensitivity, 415
 delayed hypersensitivity, 415
 feather-picking behaviors, considerations on, 413–419
 immune complex reactions, 415
 Immunocompetence
 assessment of, 423–425, 424f
 of newly hatched chick, 411–412, 411f, 412f
 Immunodeficiencies, 419–423
 Immunoenhancing therapy, 425–426
 Immuno-evasion, definition of, 419
 Immunofluorescence test-ABV infected cell culture test, 35–36t
 Immunoglobulin A (IgA), 405–406
 Immunoglobulin Y (IgY), 404–405, 405f
 Immunohistochemical staining, 88
 Immunohistochemistry (IHC), 109–112
 Immunohistochemistry test, 35–36t, 54
 Immunologic fitness, sign of, 408
 Immunologically based testing, 522–523
 Immunology. *see* Immune system
 Immunomodulating agents, 803–804t
 Immunosenescence, 412
 Immunosuppression
 definition of, 419
 drug-induced, 421–422
 therapy for, 426–427
 toxin-induced, 421–422
 virus-induced, 420–421, 420f
 Immunosuppressive drug therapy, on borna disease virus, 39
 Immunosuppressive therapy, 426–427
 Inappropriate pair bonding, international patterns of, 788–792t
 Inbreeding, for color mutations, 410–411
 Inclusion body disease of cranes (IBDC), 747
 Inclusions, 83
 Income, net, programs and, 759
 Indirect blood pressure measurement, 612
 Indirect immunofluorescence test (IFT), 34–37
 Infectious bronchitis virus (IBV), 560
 Infectious bursal disease virus, 421
 Infectious disease, 22–106
 aspergillosis, 63–70
 clinical signs of, 66–67, 66f
 diagnosis of, 67–69
 disease predisposition of, 64–65
 etiology of, 63–64
 lesions of, 66–67
 pathogenesis of, 65–66
 prevention of, 70
 treatment of, 69–70, 69t
 avian bornavirus, 28–33
 as cause of proventricular dilation, 30–31
 clinical disease and disease patterns, 37–38
 diagnosis of, 33–39, 35–36t
 management of, 41–43
 occurrence of, 31
 pathogenesis of, 32–33
 therapy for, 39–41
 transmission of, 31–32
 vaccination of, 43
 avian influenza

Infectious disease (Continued)

- current HPAI dynamics, 62
 diagnosis of, 60–61
 ecology of, 59–60
 other than waterfowl and poultry, 61–62
 overview of, 59–62
 pathobiology of, 59–60
 reportable, 61
 type A, biology of, 59
 vaccination for, 62
 virology of, 59–60
 chlamydia (psittacosis), 82–90
 in avian, 86
 clinical features of, 85–86
 definition of, 82
 diagnosis of, 86–89
 etiology of, 82
 historical data of, 82
 in humans, 86
 pathogenicity of, 85
 replication cycle of, 83–84
 resistance of, 85
 survey, by avian veterinarians, 90, 92t
 therapy for, 89–90
 transmission of, 85
 coccidial diseases of birds, 73–77
 biology of, 73
 cryptosporidiidae, 73–74, 74t
 diagnosis of, 76–77
 eimeriidae, 74–75, 75t
 sarcocystidae, 75–76, 76t
 treatment of, 77
 macrorhabdosis, 78–82
 clinical manifestations of, 79
 description of, 78–79
 diagnosis in live bird, 79–81
 growth in vitro, 81
 history of, 78–79
 host range, 79
 postmortem diagnosis of, 81
 treatment of, 81
 mycobacteriosis, 94–98
 clinical presentation of, 94–95, 95f
 diagnosis confirmation in, 95–96
 etiology of, 94
 exposure of, 94
 follow-up treatment for, 97–98
 prevalence of, 94
 treatment of, 97, 97t
 zoonotic considerations for, 96–97
 pathogenesis of, 22
 proventricular dilation, 28–43, 28f
 psittacid herpesviruses and associated diseases, 47–50, 47t
 psittacine beak and feather disease, 51–57
 clinical pathology of, 54
 clinical signs of, 53–54, 53f
 diagnosis of, 54–56
 etiologic agent of, 51
 histopathology of, 54
 management of, 56–57
 origins of, 51–52
 prevention and control in, 57
 transmission of, 52–53
 Usutu virus, 98–105
 clinical findings of, 101
 diagnostic aspects of, 102–103
- Infectious disease (Continued)
 differential diagnosis of, 103
 epizootiology of, 103–104
 occurrence of, 100–101
 pathologic findings of, 102
 prophylaxis, 104–105
 Inflammation, 507–508
 Inflammatory lung disease, in psittacines, 416–417
 Influenza viruses, 23–24, 59
 type A, biology of, 59
 Informed consent, necessity of, 768
 Informed-Choice, on nutraceuticals, 173
 Ingested foreign material, international patterns of, 788–792t
 Inguvotomy tube placement, 137
 Inhalation anesthesia, 608–610
 in euthanasia for birds, 715
 Inking, 107–108
 In-line capnograph, 611
 INR. *see* Intestinal nerve of Remak (INR)
 Insects, as protein source, 153–156
 Insemination
 artificial, 437–443
 on Spix's macaw, 726–727, 727f
 cloacal, 442, 443f
 of female birds, 439, 442f
 oviductal, 442, 442f
 timing of, 439–442
 Instrumentation
 for coelomic surgery, 639–640, 639f
 for microsurgical techniques, 632–634
 adventitia and suture scissors, 633
 bipolar cautery, 633
 irrigation device, 633
 jeweler's forceps, 633, 633f
 needle holder, 632–633, 632f
 suture material choices, 633–634, 633f
 Insufflation, of air, 338, 338f, 339f
 Insulin, serum, reference interval values for, 393t
 Interatrial septum, in cardiac conduction system and coronary arteries, 259f
 Intergovernmental Panel on Climate Change (IPCC), 103–104
 Intermittent reinforcement schedule, 207, 207b
 Internal carotid artery, of major arteries, 261f
 Internal iliac artery, of major arteries, 261f
 Internal iliac vein, of venous system, 264f
 Internal vertebral venous sinus, of venous system, 264f
 International Crane Foundation, 746
 International patterns, of problems and diagnosis, 788–792t
 International Species Information System (ISIS), 479
 Interosseous catheters, placement of, technique for, 604b, 604f
 Intervention, pharmacologic, for behavioral problems, 219–225
 Interventricular septum
 of avian heart, 257f
 in cardiac conduction system and coronary arteries, 259f
 Intestinal nerve of Remak (INR), 329

- Intestinal peritoneal cavity (IPC), 345, 346f, 350f
 hernia of, 360
 neoplasia, 357
 peritoneal cavities, 350–351, 352f, 353f
 Intestinal tract, surgery of, 653
 anastomosis, 653
 duodenal feeding tube placement, 653
 enterotomy, 653
 intestinal resection, 653
 Intralesional chemotherapy, 130
 Intramedullary pin, 663
 Intramuscular route, in drug administration, 605
 Intranasal route, in drug administration, 605
 Intraoperative analgesia, 626
 Intravascular route, in drug administration, 605
 Intravenous pathogenicity index (IVPI), 60
 Intubation, and tracheal stenosis, 610
 Investment, in financial management, 758
 IO catheterization, 584
 Iodinated contrast media, 532–533
 IPC. *see* Intestinal peritoneal cavity (IPC)
 IPCC. *see* Intergovernmental Panel on Climate Change (IPCC)
 IPF. *see* Idiopathic pulmonary fibrosis (IPF)
 Iron, 494
 avian nutrition and, 144–145
 Iron storage disease (ISD), 144–145, 494
 in mynah birds, 277–278
 Irrigation device, 633
 Ischial artery, of major arteries, 261f
 Ischiatic vein, of venous system, 264f
 ISD. *see* Iron storage disease (ISD)
 ISI Web of Knowledge, 18
 ISIS. *see* International Species Information System (ISIS)
 Isoflurane
 in euthanasia for birds, 715
 general anesthesia and, 458–459
 inhalant anesthetic and, 608–609
 Isoflurane gas anesthesia, 471
 Isoniazid, for mycobacteriosis, 97t
Isospora, 74–75
 Isoxsuprine, for cardiovascular disease in birds, 312t
 Isthmus, 645
 resection and anastomosis of, 648–649
 Itraconazole, for avian aspergillosis, 69t
 IV catheters, 584
 Ivermectin, commonly used medication in South America, 779
 IVPI. *see* Intravenous pathogenicity index (IVPI)
- J**
- Japanese encephalitis virus (JEV), 99
 Japanese quail (*Coturnix coturnix japonica*), with atherosclerosis, 270
 Jenday conure. *see* *Aratinga jandaya* (Conure, jenday)
 JEV. *see* Japanese encephalitis virus (JEV)
 Jeweler's forceps, 633, 633f
Journal of the American Veterinary Association, 678
 Jugular vein, 379f
 right, 461
- K**
- Kahun Veterinary Papyrus, 1, 2f
 Keplerian system, 634
 Keratitis, mycotic, 66
 Ketamine HCl, 607–608
 Ketoconazole, for avian aspergillosis, 69t
 Ketoprofen, 622–623t, 624
 Key management metrics, 757–758
 KI-67, 109, 111b
 Kidney evaluation, 492–493
 retrospective study, 492–493, 493f
 tubular markers, 492
 uric acid and urea, 492
Knemidocoptes, 514, 514f, 515f
Knemidocoptes pilae, 341
 Knot tying, of microsurgical suture, 636, 637f
 K-strategy, 408
- L**
- Laboratory Animal Welfare Act, 679
 Laboratory hematology techniques, 468
 Laboratory reference ranges for enzymes, 840–847t
 hematology, 826–837t
 metabolic, 848–855t
 Laboratory variability, 472–478
 analytical variability, 472–477
 blood smear techniques and staining, 473–474
 manual cell counting, 474–477, 475b, 475f, 476f
 precision and accuracy, 472–473
 general concepts, 472
 laboratory errors, minimizing the impact of, 477–478
 postanalytical variability, 477
 preanalytical variability, 472, 472f
 Lactates, measurement of, 494
 Lactophenol blue stain, 64f
 Lake's diluent, 443
 Lameness, 391f
 Laser surgery, for mucosal papillomas, 49
 Laser vaporization, in endoscopic castration, 456
 L-asparaginase, 129
 Later postoperative period analgesia, 626
 Lateral caudal vein, of venous system, 264f
 Lateral reticular tract, 367
 Lateral reticulospinal tract, of mammals, 367
 Lateral spinothalamic tract, 367
 Lateral ventricle, 364f
 Latex agglutination (LA) test, 89
Latham's Falconry, 2f
Lathamus discolor, 151
 Latin Association of Wildlife Veterinarians (ALVEFAS), 780
 Law of Effects, behavioral principles of, 761
 L-carnitine supplementation, 137
 LCL bodies. *see* Levinthal-Cole-Lillie bodies (LCL bodies)
 LDL. *see* Low-density lipoprotein (LDL)
 Lead, immunosuppressive effects of, 421–422
 Lead toxicosis, 590
 acute or chronic, 376
 clinical signs of, 591
 initial diagnosis of, 591
 meso 2,3-dimercaptosuccinic acid for, 592
 treatment of, 592

- Leaders, successful business, attributes of, 755-756
- Leadership, sharing of, in practice management, 752-753
- Learned aggression, international patterns of, 788-792t
- Learned fear, international patterns of, 788-792t
- "Learned helplessness," 212
- Learning, behavior and, 178
- Lecirelin, for reproductive activity, 448-451
- Leech, 3
- Left atrioventricular valve
of avian heart, 257f
in cardiac conduction system and coronary arteries, 259f
- Left atrium
of avian heart, 257f
in cardiac conduction system and coronary arteries, 259f
of domestic fowl, 255f
of venous system, 264f
- Left brachiocephalic trunk, of domestic fowl, 255f
- Left cardiac vein, of domestic fowl, 255f
- Left circumflex cardiac vein, of domestic fowl, 255f
- Left coronary artery, in cardiac conduction system and coronary arteries, 259f
- Left cranial vena cava
of domestic fowl, 255f
of venous system, 264f
- Left jugular vein, of venous system, 264f
- Left lateral coeliotomy, 643-645, 644f
- Left pulmonary artery, of domestic fowl, 255f
- Left subclavian vein, of venous system, 264f
- Left ventricle
of avian heart, 257f
of domestic fowl, 255f
- Lerp, 153
- Lesions
cutaneous, 66-67
gross, interpretation of, 770
- Lesser sulfur-crested cockatoo. *see Sulphurea* (Cockatoo, lesser sulfur-crested)
- Lethargy, 391f
- Leucocorydon*, 151f
- Leuprolide acetate, 225
for reproductive diseases, 451
- Leveling, in computed tomography, 535
- Levinthal-Cole-Lillie bodies (LCL bodies), 4, 83
- Levothyroxine, 390t
- LHRH. *see* Luteinizing hormone-releasing hormone (LHRH)
- Libro de la caza de las aves*, 2
- Lice, in poultry, 558, 558f
- Lidocaine, 527-528, 528f, 624, 625t
for cardiovascular disease in birds, 312t
- "Life companion," 185-187, 186f
- Light schedules, for laying hens, 553-554
- Lightweight T-pieces, 610
- Lilac crown amazon. *see Finschi* (Amazon, lilac crown)
- α -linoleic acid, atherosclerosis and, 146
- Lipemic samples, 488, 489f
- Lipid emboli, 377
- Lipids, avian nutrition and, 144
- Lipopolysaccharide antigen (LPS), 88
- Lissencephalic, 363
- Liver biopsy, 352f
- Liver evaluation, 489-492
- Local anesthesia, infiltration of, 603
- Local anesthetics, 624-625
- Local line, regional infiltration method, 625
- Localized aspergillosis, 66, 66f
- Locomotor behaviors, parrots and, 182
- Locums, trained, in key management metrics, 757
- Lone Star ring retractor, 639-640, 644-645
- Long acting anesthesia, 603
- Long ascending pathways, 366-367, 366f, 367f
- Long descending pathways, 367-369
- Lophochroa leadbeateri* (Cockatoo, Major Mitchell)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Loridae, advancements in nutrition of, 150-162, 151f
anatomical adaptations to nectarivory, 151-152, 151f, 152f
carbohydrate metabolism, sugars and starches in, 152-153
protein requirements, 153-156
- Lorikeets, 150, 151f
anatomical adaptation to nectarivory, 151-152, 151f, 152f
captive, feeding preferences of, 158-159, 161t
carbohydrate metabolism of, sugars and starches, 152-153
diets of, health problems from, 162
energy requirements of, 157, 158t
fruits for, 157
pollen for, as protein source, 153
seeds for, 157f, 157
- Lorius* species, 156, 156f
- Lory
enzymatic laboratory reference ranges for, 840-847t
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Los Angeles Zoo (LAZ), on California condor, 734, 735-736
- Lovebirds. *see Agapornis* sp. (Lovebirds)
- Low pathogenicity avian influenza (LPAI), 60
- Low-density lipoprotein (LDL), 496
- Low-level laser therapy, 626
- LPAI. *see* Low pathogenicity avian influenza (LPAI)
- LPS. *see* Lipopolysaccharide antigen (LPS)
- Lumbar plexus, 373
- Lung-air sac system, 345-355
diagnostic techniques, 351-355
embryologic development of the body cavities, 346

- Lung-air sac system (*Continued*)
pericardial cavity, 347
peritoneal cavities, 349-351
pleural cavities, 347-348
subpulmonary cavities, 348-349
- Lutein, avian nutrition and, 145
- Luteinizing hormone-releasing hormone (LHRH), 446
- Lymington Foundation, 724-725
- Lymph nodes, in birds, 402
- β -lymphocyte, cloacal bursa and, 334
- Lymphocytes, in immune system, 403
- Lymphoid development, 400-402
- Lymphoid organs, 400, 401f
- Lymphoma, 112
cytologic diagnosis of, 113f
- Lymphopenia, 422-423

M

- Macaw, direct smear of crop swab of, 513f
- "Macaw wasting disease," 28
- Macrolides (azithromycin), for avian chlamydiosis, 90
- Macrorhabdosis, 78-82
international patterns of, 788-792t
- Macrorhabdus ornithogaster*, 78, 113
clinical manifestation of, 79, 79f
diagnosis in live bird, 79-81
growth in vitro, 81
history and description of, 78-79
host range of, 79
misinterpreted, 80f
postmortem diagnosis of, 81
stained, with Gram stain, 80f
treatment, 81
unstained, 80f
unstained wet mount of, 80f
- Magnesium, 493-494
- Magnetic flux density, 539
- Magnetic resonance imaging (MRI), 115-117, 539-544
applications in, 540, 543f
in clinical practice, recommendations, indications, and limitations for, 547t
on cloaca, 337
current limitations in, 540-541, 547t
functional MRI, 542
histological imaging, 542-544, 545f
MR angiography, 541-542, 544f
procedure in, 540
technique in, 539-540
time-of-flight, 542
- Major arteries, diagram of, 261f
- Major histocompatibility complex (MHC)
molecules, 406, 406f
- Major Mitchell cockatoo. *see Lophochroa leadbeateri* (Cockatoo, Major Mitchell)
- Major outer membrane protein (MOMP), 83
- Major soft tissue surgery, 626
- Maladaptive behavior, FDB and, 230
- Male reproductive tract, surgery of, 649-650
anatomy and physiology of, 649
caponization, 649-650
open surgical castration, 650
orchidectomy (castration), 649
vasectomy, 650
- Malfunctional behavior, FDB and, 230
- Malnutrition
energy deficiency and, 422-423
international patterns of, 788-792t
- Malpractice, professional, responding to, 764-765
- MALT. *see* Mucosal-associated lymphoid tissue (MALT)
- Management
eight starting points in, 754-755
financial, 758-763
key metrics of, 757-758
participative, 752-753
practice, 749-776, 751t
veterinary, evolution and revolution in, 753
practice principles in, 749-750, 750b
risk, 749-776
in avian practice, 763-769
successful, elements of, 755
- Management accounting, *versus* tax accounting, 759
- Managerial Grid, 752, 752f
- Manna, 153
- Manpower, as starting point, in practice management, 754
- Manual cell counting, 474-477
eosin techniques, 475b
hemocytometer, 475f, 476f
phloxine B method, 475-477, 475b, 476f, 478f
- Marek disease, 112, 406-407, 410, 559-560, 559f
- Margin right ventricle, of domestic fowl, 255f
- Marketing, as starting point, in practice management, 754
- Maroon bellied conure. *see Pyrrhura frontalis* (Conure, maroon bellied)
- Masitinib (Masivet), 132
- Massage technique, for semen collection, 434, 434f, 435f
- Mast cells, neuronal degranulation of, 414
- Mate-related aggression, 240
towel restraint and, 241-242
- Maternal modulation, of immune function in chicks, 409-410, 410f
- ME. *see* Metabolizable energy (ME)
- Mealy amazon. *see Farinosa* (Amazon, mealy)
- Mechanism (causation), 178
- Medetomidine, 606
- Medial caudal artery, of major arteries, 261f
- Medial metatarsal catheter, 584
- Medical conditions, in birds, pattern recognition of, 777-794
- Medical records, SOAPed, importance of, 767
- Medicine
avian, 1-21
in Central America, 780-781
in Mexico, 780-781
in South America, 778-780
poultry, 4-5
as starting point, in practice management, 754
of Strigiformes, 566-581
zoo, 7
Medroxyprogesterone, 225
Medulla oblongata, 364f, 365f
Megabacterium, 78

- Melan A, 109, 111b
- Melanoma, 109
- Melatonin, 380
- Meleagrididae, biologic and physiologic values of, 866t
- Melopsittacus undulatus* (Budgerigar), 4
enzymatic laboratory reference ranges for, 840-847t
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
problems in, 784t
trichomoniasis in, 517f
- Meloxicam, 622-623t, 622-623
for ABV, 39-41
commonly used medication in South America, 779
for owls, 569
in treatment of cancer, 131
- Mental state, bird's, in animal welfare assessment, 675-676
- Mentation, 369
- Merginae, biologic and physiologic values of, 868-871t
- Mesencephalic colliculus, 364, 365f
- Mesencephalic tectum, 364
- Meso 2,3-dimercaptosuccinic acid, for lead toxicosis, 592
- Mesoamerican culture, 780
- Mesopallium, 364f
- Mesorchia, 350-351
- Mesosalpinx, 350-351
- Mesovarium, 350-351
- Metabolizable energy (ME), 142-143, 143t
- Metastatic disease (M), evaluation for, 115
- Metastatic lesion, 109, 110-111t
- Metatarsal vein, medial, 461
- Method, as starting point, in practice management, 754
- N-methyl-D-aspartate (NMDA) receptor antagonists, 136
- Methylsulfonylmethane, 625
- Metoclopramide
for nausea, 137
for PDD, 29
- Metronidazole, commonly used medication in South America, 779
- Mexican Association of Zoo, Exotic Pets and Wildlife Veterinarians (AMMVEZOO), 780
- Mexico, avian medicine in, perspective on, 780-781
- Meyers parrot. *see Poicephalus meyeri* (Parrot, Meyers)
- Microbial competition, 23
- Microbiologist, 4
- Microbiota, 402
- Microflora, 402
- Micro-immunofluorescence (MIF) test, 89
- Microscope
electron, 112
focusing the, 636
- Microsurgery
assisting in, 637
basic microsuturing techniques, 635-636
- Microsurgery (*Continued*)
definition of, 631
history of, 631
instrumentation and suture material, 632-636
versus macroscopic surgery, 631-632, 632f
magnification, 634-635
principles of, 631-637
techniques, overview of, 631
- Microsurgical thumb forceps' tips, 633f
- Midazolam, 222, 605
in brachial plexus blockade, 603-605
- Midbrain, 364f
- Middle bundle branch, in cardiac conduction system and coronary arteries, 259f
- Middle renal artery, of major arteries, 261f
- Migratory Bird Treaty Act, on disposal of carcasses, 717
- Military macaw. *see Ara militaris* (Macaw, military)
- Milk thistle, 131-132
- Mimidae, biologic and physiologic values of, 862-863t
- Minerals
avian nutrition and, 144-145
nutraceuticals, 169
- Minor soft tissue surgery, 626
- Minutes, as starting point, in practice management, 754
- Miscellaneous agents, 821-823t
- Miscellaneous diseases, in owls, 576-577
- Miscellaneous nutraceuticals, 170-171
- Mission focus, as starting point, in practice management, 754
- Mites, in poultry, 558, 558f
- Mitred conure. *see Psittacara mitrata* (Conure, mitred)
- Modal action patterns, of parrots, 179-180, 209
- Model, flexible, in controlling cash flow, 759
- Modified Robert Jones bandage, 661
- Molecular diagnostic testing, 522, 523-527
culture, 523
high-throughput sequencing, 526
immunologically based testing, 522-523
nucleic acid-based diagnostics, sample collection for, 526-527
polymerase chain reaction, 523-524, 523f, 524f, 526f
consensus techniques, 525-526
probe hybridization quantitative, 524-525, 524f, 525f
rolling circle amplification, 526
- Molecular targeted therapies, 132, 132f
- Molt, unusual, 553-554, 554f
- Moluccan cockatoo. *see Cacatua moluccensis* (Cockatoo, Moluccan)
- MOMP. *see* Major outer membrane protein (MOMP)
- Money, as starting point, in practice management, 754
- Monoclonal gammopathy, 494-495
- Monofilament suture, 634, 640-641
- Monophyletic, definition of, 19
- Monopolar electrosurgery, 640
- Monosodium urate, 333, 333f

- Mood stabilizers, for bipolar affective disorder, 222
- Morale, as starting point, in practice management, 754
- Morphine, 617-619
- Motivating operations, 202-204, 210-211
- Motives, reviewing of, in transforming dreams to reality, 756
- Motor neuron
lower, 372
upper, 372
- Motor pathways, 368f
- Moustache parakeet. *see Psittacula alexandri* (Moustache parakeet)
- MPRs. *see* Multiplanar reconstructions (MPRs)
- MRI. *see* Magnetic resonance imaging (MRI)
- Mucosal-associated lymphoid tissue (MALT), 400
- Mucosal papillomatosis
clinical manifestations of, 47
diagnosis of, 48, 48f
- Multiplanar reconstructions (MPRs), 535, 536f
- Multiple photomultiplier tubes (PMTs), 545
- Multiple protein enzyme-linked immunosorbent assay (ELISA) test, 35-36t
- Muscle layer-by-layer approach, 644
- Muscle metabolism, 385
- Muscle relaxants, 610
in alleviating dysphoria, 136
- Musculus supracoracoideus, tenectomy of, 695-696t
- Mutual preening, 217-218, 218f
- Mycelium, 63
- Mycobacteriosis, 94-98
clinical presentation of, 94-95, 95f
laboratory data and diagnostic findings of, 94-95
diagnostic confirmation of, 95-96, 96f, 96t
etiology and prevalence of, 94
exposure to, 94
infection and pathogenesis, routes of, 94
treatment of, 97, 97t
zoonotic considerations for, 96-97
- Mycoplasmosis, 562, 562f
- Mycotic keratitis, 66
- Mycotic tracheitis, 66
- Mycotoxin T-2, 65
- Mycotoxins, 563
immunosuppressive effects of, 422
- Myelocytomatosis, in owl, 574
- Myenteric nerves, 645
- Myiopsitta monachus* (Quaker parrot)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Myocardial infarction
associated with atherosclerosis, 271
primary, 273-276
- Myocarditis, 274-275, 276t
nonsuppurative, 415
- N**
- NAG. *see* N-acetyl-β-d-glucosaminidase (NAG)
- NaI(Tl). *see* Thallium-activated sodium iodide [NaI(Tl)]
- Nalbuphine hydrochloride, 617, 620
- Naloxone, 224
- NALT. *see* Nasal-associated lymphoid tissue (NALT)
- Naltrexone, 224
- Nanday conure. *see Aratinga nenday* (Conure, nanday)
- NAS. *see* National Audubon Society (NAS)
- Nasal-associated lymphoid tissue (NALT), 400
- NASC. *see* National Animal Supplement Council (NASC)
- National Animal Supplement Council (NASC), 173
- National Audubon Society (NAS)
on California condor, 734
on Whooping cranes, 742
- National Autonomous University of Mexico (UNAM), 780
- National Center for Biotechnology Information, 17
- National Health and Nutrition Examination Survey, on nutraceutical industry, 165
- National Poultry Improvement Plan (NPIP), 554
- National Wildlife Refuge (NWR), Aransas, 742
- Natt and Herrick solution, 474, 476
red blood cell count using, 476
- Nebulization agents, 814
- Necropsy
forensic, 768, 770
procedure of, 770, 771
systematic review in, 770
alimentary system including liver and pancreas, 772, 773
cardiovascular system, 771
central and peripheral nervous systems, 775
ear, 775
endocrine system, 774
eye, 775
hematopoietic and lymphoid tissue, 774
integument, 771
musculoskeletal system, 771, 772
reproductive system, 774
respiratory system, 773
urinary system, 774
- Necrosis, pinioning and, 699
- Nectar, 152
versus dry powdered diets, 161
- Nectarivory, anatomical adaptations to, 151
- Needle/biopsy instrument, placement of, 533, 535
- Needle driving, 636
- Needle handling, 636
- Needle holder, 632f, 632
- Needle consequence, 204
- Negative inotropes, 317-318
- Negative punisher, 761
- Negative reinforcement, 205-206
- Negative reinforcer, 761
- Negligence, in avian practice, 765-766
- Neoadjuvant treatments, 119
- Neognathae, 20
- Neophobia, 195, 195f, 238-239
avian nutrition and, 148
- Neoplasia, 357
cloaca and, 339-340, 340f
- Neoplasms
associated, and mucosal papillomatosis, 48
gonadal, international patterns of, 788-792t
- Neoplastic diseases
in avian species, 107-141
cancer diagnostics, 113-133
decision tree, 118f
emerging trends in pathology for, 107-113
future directions and ongoing efforts, 137-138
support of avian cancer patients, 133-137, 135t
in owl, 574
- Neospora*, 76
- Nephrotic syndrome, 496
- Neubauer's counting chamber, 436-437
- Neural plate, 365
- Neurectomy, radial, in deflighting techniques, 695-696t
- Neuroendocrine, control of, 446-447
- Neuronal degranulation, of mast cells, 414
- Neuron-specific enolase (NSE), 109-112, 111b
certification, on nutraceuticals, 172
Dietary Supplement Certification, 172
- Neuropathy, bornavirus-related, 417-418
- Newcastle disease, 23-24, 560
- NHANES. *see* National Health and Nutrition Examination Survey
- Nidopallium, 364f
- Nifedipine, for cardiovascular disease in birds, 312t
- "Nine-Nine" model, 752
- Nitric oxide (NO), 263-265
- Nitrogen, euthanasia and, 716
- NO. *see* Nitric oxide (NO)
- Noble macaw. *see Diopsittaca nobilis cumanaensis* (Macaw, noble)
- Nociception, 616
- Non-atherosclerotic aneurysm, and arterial rupture, 271
- Non-frost-free standard freezer, 112
- Noninfectious hepatopathies, international patterns of, 788-792t
- Noniodinated contrast media, 532-533
- Nonsteroidal antiinflammatory drugs (NSAIDs), 131, 621-624, 622-623t, 811t
adverse effects of, 622
- Nonsuppurative myocarditis, 415
- Norepinephrine, effects on behavior, 221t
- Normal biological data, 857t
- Normal clinical pathologic data, 826-837t
- Normothermia, restoration of, 587

- NPIP. *see* National Poultry Improvement Plan (NPIP)
- NSAIDs. *see* Nonsteroidal antiinflammatory drugs (NSAIDs)
- NSE. *see* Neuron-specific enolase (NSE)
- Nuclear-imaging techniques, 544-547
positron emission tomography, 546-547
procedure in, 546
scintigraphy in, 545-547, 546f
single-photon emission computed tomography, 546
technique in, 545
- Nucleated platelets, 403
- Nucleic acid-based diagnostics, sample collection for, 526-527
- Numididae, biologic and physiologic values of, 866t
- Nutraceutical
botanical, 169-171
on disease prevention and treatment, 165-167
herbal, 169-170
industry, 164-173
monetary value of, 165
regulation of, 167-168
mineral, 169
miscellaneous, 170-171
NSF certification on, 172
poor quality, on research, 171
research on the quality of, 168-171
adulteration *versus* contamination, 168-169
recalls, 168
selecting high quality, 171-173
studies, in humans, 166
testing organizations for, 173
USP verification services on, 172
vitamin, 169
- Nutrition, avian, 142-176
advancements in, of Loridae, 150-162
fundamentals in, 142-145
- Nutritional diseases, 564
dehydration, 564
exudative diathesis/muscular dystrophy, 564
in owls, 576
rickets/osteomalacia, 564
vitamin A deficiency, 564
- Nutritional/mineral support, 818-819t
- Nutritional secondary hyperparathyroidism, 391
- Nutritional supplement, studies of, in animals, 166-167
- Nutritional therapy, advancements in, 142-176
- Nymphicus hollandicus* (Cockatiel)
direct smear of peritoneal effusion in, 513f
enzymatic laboratory reference ranges for, 840-847t
erythrocytic parameters for, 838t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
problems in, 785t
vitamin A toxicosis on, 20-21
- Nystatin, for *M. ornithogaster*, 81

- O**
- Obesity
avian nutrition and, 145, 145f
international patterns of, 788-792t
- Obliteration
of oviduct, by electrocautery, 455-456
radiosurgical, 457-458
- Observational learning, 209
- Ochratoxin A (OTA), 422
- Ochrocephala* (Amazon, yellow-crowned)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
- Ochrocephala panamensis* (Amazon, panama)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Oculomotor nerve, 370, 370f
- ODNs. *see* Oligodeoxyribonucleotides (ODNs)
- Office International des Epizooties (OIE), 719
- OIE. *see* Office International des Epizooties (OIE)
- OIE Manual of Diagnostic Test and Vaccines Standards, 87
- Olfactory, 369
- Olfactory bulb, 364f, 365f
- Olfactory lobe, 365
- Oligodeoxyribonucleotides (ODNs), 56
- Omega-3 fatty acids, on nutraceutical studies in humans, 166
- Omega-3 polyunsaturated fatty acids, 136, 625
- Omega-6 fatty acids nutraceuticals, 169
- Ontogeny (development), 178
- Open surgical castration, 650
- Operant learning, 196-197
respondent conditioning and, 209
training and, 238
- Operating microscope, 634-635, 635f
advantages of, 635
disadvantage of, 635
- Ophthalmic diagnostic tests, values reported for, in avian species, 876t
- Ophthalmologic agents, 820t
- Opioid antagonists, 222, 224
- Opioids, 617-619t, 617-621
adverse effects of, 617
- Opisthocomidae, biologic and physiologic values of, 866t
- Opisthokonta, 23
- Opisthotonus, 372
- Optic lobe, 364, 365f
- Optic nerve, 369-370, 370f
- Optic tectum, 364, 364f
- Optical aids, 634
- Orange wing Amazon. *see Amazonia* (Amazon, orange wing)
- Oratrix* (Amazon, double yellow-headed)
enzymatic laboratory reference ranges for, 840-847t
hematologic laboratory reference ranges for, 826-837t
metabolic laboratory reference ranges for, 848-855t
- Orbicularis oculi, 369-370
- Orchidectomy, 649
- Organization, change in, failures of, 755
- Ornate lorikeet (*Trichoglossus ornatus*), 159f
- Ornithologist, 4
- "Ornithosis," 4, 82
- "Orphanage syndrome," 195-196
- Orthomyxoviridae, 59
- Orthopedic surgery, 626
- Orthopedics, 657-667
complications, 666-667
fracture patient, evaluation of, 657-658
- Orthoreovirus, 23-24
- Orthostatic hypotension, 613
- Osmolality, 494
- Osmotic cathartics, 590
- Osprey, feather louse, 515f
- Osteoarthritic pain, 627
- Osteomalacia, in birds, 564
- Osteomyelitis, deflighting and, 700-702, 701f
- Osteosarcoma, goose with, 117f
- Ostrich. *see Struthio camelus* (Ostrich)
- OTA. *see* Ochratoxin A (OTA)
- Otidimorphae, 20
- Outliers, 462
- Ovariectomy
endoscopic, 454-455, 455f, 456f
partial and complete, 651
- Ovary, 350-351, 650
surgery of, 651
ovariectomy, partial and complete, 651
- Oversized samples, 108
- Over-the-head Galilean-style loupes, 634f
- Oviduct, 350-351
surgery of, 651-653, 652f
salpingohysterectomy, 652
salpingotomy, 652-653
- Ovotransferrin, 495
- Owl
spectacled, eosinophil of, 470f
synovial fluid direct smear of, 514f
- Oxyurinae, biologic and physiologic values of, 868-871t
- P**
- Pacheco disease, 112
clinical manifestations of, 47
diagnosis of, 48
- Packed cell volume (PCV), 94, 468, 469
- Pain, 616-630
assessment of, 616
behavioral changes associate with, 616
cancer-related, 627
definition of, 616
deflighting and, 703-704
management of, 136, 616-626, 665-666
for specific conditions and procedures, 626-627
osteoarthritic, 627
recognition of, 616
treatment of, 616-617
dietary supplements, 625
drugs, other, 625
local anesthetics, 624-625
nonsteroidal antiinflammatory drugs, 621-624
nursing and supporting care, 626

- Pain (*Continued*)
 opioids, 617–621
 physical therapy, 626
 visceral, 627
- Pain scales, 616
- Pair bonding, inappropriate, international patterns of, 788–792t
- Palaeognathae, 20
- Palliative radiation therapy, 130
- Palladium, 364f
- Panama amazon. *see* *Ochrocephala panamensis* (Amazon, panama)
- Pancreas, 384–385, 392–396
 evaluation, 493
- Pancreatic duct carcinomas, 48
- Papillae, 331–332, 332f
- Papilloma, development of, proctodeum and, 334
- Papillomatous disease, cloaca and, 339–340, 340f
- Paracentesis, 353, 355f
- Paraphyletic, 19
- Parasites, 23
 internal, in poultry, 558–559, 558f
- Parasitic diseases, 572–574, 573t, 574f
- Parasitic load, 518–520
- Parasitism, 558–559
- Parathyroid gland, 382, 391–392
- Parathyroid hormone (PTH), 382
- Parathyroid hyperplasia, 391
- Paridae, biologic and physiologic values of, 862–863t
- Paroxetine, for phobias, 223
- Parrot, 5, 6f, 177
 bathing of, 186f, 219
 captive living environment, characteristics and consequences of, 184–188, 186f, 188f
 characteristics, behavior and activity patterns of, in wild, 179–184
 daily activity patterns of, 219
 enrichments for, 201t
 factors influencing behavioral development of, 193
 feather-damaging behavior and automutilation in, factors involved in onset and maintenance of, 206t
 with generalized phobia, 237
 grey, problems in, 787t
 and humans, socialization with, 193, 193f
 medications for, 238f
 screaming or excessive vocalizations of, 242–244
 stages of development in, 188–193, 189–192t, 193f
 true nature of, 179–188, 203f
- “Partial response,” 133
- PAS. *see* Periodic acid-Schiff (PAS)
- Passeridae, biologic and physiologic values of, 862–863t
- Passerines
 basal metabolic rates of, 143t
 biologic and physiologic values of, 862–863t
- Pasteurella multocida*, 562–563
- Patagictomy, in deflighting techniques, 688, 695–696t
- Patagonian conure. *see* *Cyanoliseus patagonus* (Conure, Patagonian)
- Pathogen-associated molecular patterns, 403
- Pathology, 107–113
 additional tests, 109–113
 polymerase chain reaction, 112–113
 special stains, 109–112, 111b
 clinical, 115–118
 key pathology history, 108–109, 109b
 sample collection, 107, 108f
 specific sample types, 108
- Patient, fracture, evaluation of, 657–658
- Patient management, 665, 665f
- Pattern recognition, of medical conditions, in avian species, 777–794, 777b
 discussion of, 778
 findings of, 777, 782t, 784t, 785t, 786t, 787t, 788–792t
- Pattern-recognition receptors, 403–404
- Patulin, 422
- “Pavlovian learning,” 208–209
- PBFD. *see* Psittacine beak and feather disease (PBFD)
- PCNA. *see* Proliferating cell nuclear antigen (PCNA)
- PCR. *see* Polymerase chain reaction (PCR)
- PCV. *see* Packed cell volume (PCV)
- PDD. *see* Proventricular dilation disease (PDD)
- PDD, international patterns of, 788–792t
- Peak performers, attributes of, 755–756
- Peak Performers: The New Heroes of American Business*, 755
- Pecking, 555
- Pectin, atherosclerosis and, 146
- Pectoral trunk, of major arteries, 261f
- “Pedestal words,” common courtesy and, 753
- Pelecanidae, biologic and physiologic values of, 872–875t
- Pelecyaniformes, biologic and physiologic values of, 872–875t
- Pelvic limb, of owls, 567f, 568
- Pelvic plexus, 329
- D-penicillamine, 592
- Pentosidine analysis
 aging birds and, 527
 aging endangered black cockatoos by using, 529–530
 broader applications of, for avian aging, 530
 methodology of, 529
- Pentoxifylline, for mammals, 313
- Perches, 213–214
- Perfusion, flow chart for correction of, 586b
- Perianesthetic analgesia, 606, 607t
- Periarterial Purkinje fibers, in cardiac conduction system and coronary arteries, 259f
- Pericardial cavity, 347
- Pericardial disease and effusion, 285–287
 and cardiac tamponade, 320, 320f
 treatment for, 320
 clinical manifestations of, 289
 pathophysiology of, 285–287
 prevalence of, 287
 in psittacine, 287
- Pericardial effusion, 356, 358f
- Pericardiocentesis, ultrasound-guided, 320, 320f
- Pericarditis
 associated with effusion, 286
 and visceral gout, 286–287, 286f
- Pericardium, 256, 345–362
- Periodic acid-Schiff (PAS) stain, 109, 111b, 503–505
- Peripheral sampling, of bone tumor, 108
- Peripheral vestibular system disease, 372
- Peritoneal cavities, 349–351
 hepatic, 349–350, 349f
 hernia of, 360
 intestinal, 350–351
- Peritoneum, 345–362
- Peritonitis, 358–360
 bacterial, 358–359
 egg related, 355f, 358
 parasitic, 359–360
 viral, 359
- Perivitelline membrane penetration test, 437, 439f
- Peroxide compounds (Virkon S), 57
- Persistent organic pollutants (POPs), 169
- Pet poultry, 550
- Petroleum distillates, 595–596
- PHA. *see* Phytohemagglutinin (PHA)
- Phaethontidae, biologic and physiologic values of, 872–875t
- Phaethontimorphae, 20
- Phalacrocoracidae, biologic and physiologic values of, 872–875t
- Pharmacokinetics
 of hydromorphone, 619–620
 of morphine, 617–619
- Phasianidae, biologic and physiologic values of, 866t
- Phloxine B method, 475–477, 475b, 476f, 478f
- Phobias, 237–239
- Phoenicopterimorphae, 20
- Phosphorus, 493–494
- Photosensitive phase, 446
- Phylogeny (evolution), 178
- Physical barriers, immune system functional elements and, 402
- Physical examination
 and behavioral observations, 201–202
 of birds, 351–352
- Physical state, bird's, in animal welfare assessment, 674
- Physical therapy, 626, 665–666, 666f
- Physicians, 3–4
- Phytohemagglutinin (PHA), 507
- Phytohemagglutinin (PHA) skin test, 423–425
- Piciformes (Ramphastidae)
 avian species groups, 857t
 biologic and physiologic values of, 872–875t
- Pigeon
 biologic and physiologic values of, 871t
 granulomatous inflammation and hyperemia in the crop of, 518f
Trichomonas gallinae, 517f
- Pigeon circovirus, 421
- Pimobendan, for cardiovascular disease in birds, 312t, 316–317
- Pineal gland, 380, 387
 lobular, 380
 melatonin, 380
 saccular, 380
 tubulofollicular, 380

- Pineal vesicle, 380
- Pinioning, in deflighting techniques, 691, 693f, 694f, 695–696t, 697–698f, 699f, 701f
- Pionites* sp. (Caique)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
- Pionus menstruus* (Pionus, blue-headed)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
- Pionus* sp. (Pionus species group), hematologic laboratory reference ranges for, 826–837t
- “Pip,” 4
- Piriform complex, 364f
- Piroxicam, 622–623t, 624
 in treatment of transitional cell carcinomas, 131
- Pituitary dwarfism, 386
- Pituitary endocrine dysfunction, 385
- Pituitary gland, 378, 379f, 385–387
 anterior, 379
 corticotrophs, 379
 gonadotrophs, 379
 lactotrophs, 379
 somatolactotrophs, 379
 somatotrophs, 379
 thyrotrophs, 379
 generalized diseases of, 387
 posterior, 379
 specific diseases of, 385–387
- Pix disease, 22
- Plan, program-based budget, 759
- Plant alkaloids, 129
- Plaque reduction neutralization test (PRNT), 102–103
- Plasma ammonia, measurements of, 491
- Plasma glucagon, reference interval values for, 393t
- Plasma osmolality, 494
- Plastic drapes, 638–639, 639f
- Plates and nails, 664–665
- Platinum products, 129
- Platyercus* sp. (Rosella)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
- Play stands, 214, 214f
- Pleura, 345–362
- Pleural cavities, 347–348, 348f
- Plumage condition, 233–234
- Plumage quality, as sign of immunologic fitness, 408
- Plumbism, 590
- PMTs. *see* Multiple photomultiplier tubes (PMTs)
- Podomandibulation, 182, 183f

- Poicephalus meyeri (Parrot, Meyers)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
- Poicephalus rufiventris* (Parrot, red-bellied)
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
- Poicephalus senegalus* (Parrot, Senegal)
 enzymatic laboratory reference ranges for, 840–847t
 erythrocytic parameters for, 838t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
- Poikilothermic hosts, 22
- Pollard, 550
- Pollen
 dietary fats from, 157
 as protein source, 153–156
- Polydioxanone, 640–641
- Polyenes, 69–70
- Polyglactin 910, 640–641
- Polymerase chain reaction (PCR), 112–113, 523–524, 523f
 for aspergillosis, 68
 for avian bornavirus infection, 38–39
 for avian chlamydiosis, 88–89
 chromatogram of an adenoviral, 524f, 526f
 for coccidial diseases, 77
 consensus techniques, 525–526
 for mycobacteriosis, 95–96
 probe hybridization quantitative, 524–525, 524f
- Polyneuropathy, avian, 418–419
- Polyomavirus, avian, 421
- Polysulfated glycosaminoglycans (PSGAGs), 625
- Polytetrafluoroethylene (PTFE), 593–594
 pyrolysis of, 593
 temperatures relevant to toxicosis of, 594t
- Polyunsaturated fatty acids (PUFA), 146
- Pons, 364f
- Popliteal artery, of major arteries, 261f
- POPs. *see* Persistent organic pollutants (POPs)
- Positive consequence, 204
- Positive inotropes, 314–317
- Positive punisher, 761
- Positive reinforcement, 205–206
 time-out from, 208, 208b
- Positive reinforcer, 761
- Positron emission tomography (PET), 546–547
 on cloaca, 337
- Postanalytical errors, 464–465
- Posthepatic septum, 346f, 350
 caudodorsal portion of, 351f
 hernia of, 360
- Postintubation stenosis, 610
- Postsurgical causes, 360
- Posture, 372, 635, 635f
 reactions of, 372–373

- Potassium benzoate, for *M. ornithogaster*, 81
- Poultry, 550
- Poultry medicine, 4–5
- Powder down patch, in a gang gang cockatoo, 53f
- Poxvirus, in birds, 560–561, 560f
- Practice budget team, 762–763
- Practice management, in avian, 749–776
 attributes in, 755–756
 doctor-centered *versus* client-centered practice style, 749–750
 eight management starting points in, 754–755
 evolution in, 753
 importance of client perception in, 753–754
 participative management in, 752–753
 principles in, 749–750
 revolution in, 753
 sharing leadership in, 752–753
 transforming dreams to reality in, 756–757
- Practice plan, in controlling cash flow, 759
- Preanalytical errors, 463
- Predilections, species, age, and gender, 227–228, 228f
- Preening behavior, 182–183, 218f
- Prefixation time, 112
- Preload, 262 262
- Preoperative analgesia, 626
- Pressure overload, 271–273, 274f, 276–279, 279f
- Primary consequence, 204
- Primary hyperparathyroidism, 391
- Primary reinforcers, 207, 207t
- Primary tumor, evaluation of, 114, 114f
- Primolius auricollis* (Macaw, yellow collared)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
- Prism loupes, 634
- PRNT. *see* Plaque reduction neutralization test (PRNT)
- Probe hybridization quantitative PCR (qPCR), 77, 524–525, 524f
 measurement of dye release in, 525f
- Probiotics, 170–171
- Proctodeum, 334–335
- Program-based budget planning, 759
- “Progressive disease,” 133
- Prolapse, of cloaca, 340–341, 341f
- Proliferating cell nuclear antigen (PCNA), 109, 111b
- Promontory, cloacal, 331–332
- Propranolol, for cardiovascular disease in birds, 312t
- Prophylaxis, for Spix's macaw, 725–726
- Propofol, 608
- Propranolol, for cardiovascular disease in birds, 312t
- Proprioceptive lesion, 372
- Propriospinal system, 367
- Prostaglandins, 383–384
- Protein, avian nutrition and, 143–144

- Protein hormones
anatomy of, 378
clinical endocrinology of, 378–399
physiology of, 378
- Proteinaceous tissues, signal characteristics of, 542t
- Proteins, 494–495
- Proteobacteria, 523
- Proton-density-weighted/spin-density-weighted images, in MRI, 539
- Prototype, building of, in transforming dreams to reality, 756
- Protuberance, cloacal, 331–332
- Proventricular dilation disease (PDD), 28–29, 28f, 274–275, 376, 417
avian bornavirus as cause of, 30–31, 726
- Proventriculotomy, 646–648, 647f
- Proventriculus and ventriculus, surgery of, 645–655
surgical anatomy and physiology of, 645–646
avian paired stomach system, indications for surgery of, 645–646
biopsy, 646
gastric foreign body and outflow obstruction, 646
gastric neoplasms, 646
ulcerative and infiltrative intramural lesions, 646
- surgical approaches and patient preparation, 646–649
isthmus, resection and anastomosis of, 648–649
proventriculotomy and ventriculotomy, 646–648, 647f
- Proximal tibiotarsus, radiographic image of spinal needle in, 584f, 585f
- Pruning tar, 555
- PSGAGs. *see* Polysulfated glycosaminoglycans (PSGAGs)
- PsHV. *see* Psittacid herpesvirus (PsHV)
- PsHV-1. *see* Psittacid herpesvirus 1 (PsHV-1)
- PsHV-2. *see* Psittacid herpesvirus 2 (PsHV-2)
- PsHV-3. *see* Psittacid herpesvirus 3 (PsHV-3)
- Psittacara mitrata* (Conure, mitred)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Psittacid herpesvirus (PsHV), 112
- Psittacid herpesvirus 1 (PsHV-1), 47–49, 47t
clinical manifestations of, 47
diagnosis of, 48
epizootiology and preventive measures of, 49
history and description of, 47
incubation period of, 49
species affected and geographic distribution of, 47
treatment of, 49
- Psittacid herpesvirus 2 (PsHV-2), 49–50
clinical manifestations of, 47
diagnosis of, 48
epizootiology and preventive measures of, 49
history and description of, 47
incubation period of, 49
species affected and geographic distribution of, 47
treatment of, 49
- Psittacid herpesvirus 3 (PsHV-3), 50
clinical manifestations of, 50
diagnosis of, 50
epizootiology and preventive measures of, 50
history and description of, 50
species affected and geographic distribution of, 50
treatment of, 49–50
- Psittacine beak and feather disease (PBFD), 51–57
clinical signs of, 53–54
diagnosis of, 54–56
disease and treatment, management of, 56–57
etiologic agent of, 51
histopathology of, 54
origins of, 51–52
pathology of, 54
prevention and control of, 57
transmission of, 52–53
- Psittacine beak and feather disease virus, 420–421, 420f
- Psittacine behavioral development, 188–196
- Psittacine birds, biologic and physiologic values of, 858–861t
- Psittacine flock, 180–181, 181f
- Psittacines
atherosclerosis and, 146
diet recommendations for, 147t, 148
inflammatory lung disease in, 416–417
lesions of, 266–267, 266f
wing clip patterns for, 691t
- Psittacopasserae, 20
- Psittacosis. *see* Chlamydiosis (Psittacosis)
- Psittacula alexandri* (Moustache parakeet)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Psittacula eupatria* (Parakeet, Alexandrine)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Psittacula krameri* (Parakeet, ringneck)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Psittacus erithacus* (Grey parrot)
enzymatic laboratory reference ranges for, 840–847t
erythrocytic parameters for, 838t
fine-needle aspirate of a mass in, 514f
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
problems in, 787t
synovial fluid of, 507f
tissue imprint of tongue lesion in, 513f
- Psychoactive drugs, 219
neurotransmitters effects on behavior, 221t
- Psychotropic agents, 816–817t
- Pterotillomania. *see* Feather-damaging behavior (FDB)
- PTFE. *see* Polytetrafluoroethylene (PTFE)
- PTH. *see* Parathyroid hormone (PTH)
- Published reference intervals, 480–481
- PubMed, 17–18
- Pudendal plexus, 373
- Pudendal vein, of venous system, 264f
- PUFA. *see* Polyunsaturated fatty acids (PUFA)
- Pullets, 550
- Pulmonary artery, 379f
of major arteries, 261f
- Pulmonary hypertension
ascites secondary to, 356–357
secondary to chronic pulmonary interstitial fibrosis, 278
- Pulmonary trunk
in cardiac conduction system and coronary arteries, 259f
of domestic fowl, 255f
- Pulmonary vasculature, 260, 263f
- Pulmonary veins, of domestic fowl, 255f
- Pulse oximetry, in birds, 611
- Punishers, 204
- Punishment
Law of Effect and, 761
operant interventions to decrease behavior, 208
- Pylorus, 645
- Pyramidal tract, of mammals, 367

- Pyrrhura frontalis* (Conure, maroon bellied)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Pyrrhura molinae* (Conure, green-cheeked)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t

Q

- QOL. *see* Quality of life (QOL)
- Quaker parrot. *see* *Myiopsitta monachus* (Quaker parrot)
- Quality of life (QOL), 133
assessment tool, for avian cancer patients, 135t
diary, 133–136
- Quarantine, for Spix's macaw, 726, 726f
- Quencher dye, 524–525

R

- Rabies, 571
- Radial artery, of major arteries, 261f
- Radial neurectomy, in deflighting techniques, 695–696t
- Radiation/strontium, 130–131, 130f
- Radiation therapy (RT), 130
- Radiation treatments, side effect monitoring criteria for, 120–124t
- Radioactive tracers, 117
- Radiofrequency electrosurgery, 640
- Radiography, on cloaca, 336–337, 336f, 337f
- Radiosurgery, for mucosal papillomas, 49
- Radiotelemetry devices, in tracking reintroduced birds, 720–721
- Raffinose, 153
- Rampastos* sp. (Toucan)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Raptors, 270
biologic and physiologic values of, 864–865t
- Rathke pouch, 378
- Ratites
avian species groups, 857t
biologic and physiologic values of, 872–875t
- RDA. *see* Recommended daily allowance (RDA)
- Rearing, in management, of backyard poultry, 552–553, 553f
- RECIST. *see* Response Evaluation Criteria in Solid Tumors (RECIST)
- Recognition, pattern of, of medical conditions, in avian species, 777–794, 777b
discussion of, 778
findings of, 777, 782t, 784t, 785t, 786t, 787t, 788–792t
- Recommended daily allowance (RDA), 165
- Rectocoprodeal sphincter, 330, 330f
- Rectum, of birds, 330
- Recurrent laryngeal nerve, 379f
- Red blood cells (RBCs), 468
using Natt and Herrick solution, 477b
- Red chicken mite, 516f
- Red lory, 152f
- Red sex links, 552
- Red-bellied parrot. *see* *Poicephalus rufiventris* (Parrot, red-bellied)
- Red-collared lorikeet (*Trichoglossus haematodus rubritorquus*), 153, 154f
- Red-flanked lorikeet (*Cbarmosyna plecentis*), 159, 159f
- Redirected aggression, 240
- Red-lore amazon. *see* *Autummalis* (Amazon, red-lore)
- Red-tailed hawk. *see* *Buteo jamaicensis* (Hawk, red-tailed)
- Rees-Ecker solution, 474, 475–477, 476b
- Reference change value, 482
- Reference ranges, 462–463
- Refractometry, 494–495
- Reinforcement
differential, 208, 211
factors affecting, 206–207
Law of Effect and, 761
operant interventions to increase behavior, 206–207, 206b
schedules of, 207
- Reinforcers, 204
unconditional, 207
- Reintroduction biology, 720
accidental, 720
in birds, tracking of, 720–721, 720f, 721f
purposeful, 720
- Re-Inventing the Corporation*, 755–756
- “Relative attachment disorder,” 195–196
- Renal disease, 376
in owl, 575
- Renal failure, 376
- Renal function, evaluation of, 492
- Renal portal system, 260, 264f
- Renal portal valve, of venous system, 264f
- Reovirus, 421
- Reporter dye, 524–525
- Reproduction, 433–460
decreasing, methods for, 446–453, 458–460
environmental factors effect on, 446
female physiology, overview of, 446–447
hypothalamic-pituitary-gonadal axis in, 446
improving, methods for, 433–444
problems, treatment comparison for, 450t
reducing, endosurgical methods for, 454–458
castration, of male birds, 456–457, 456f, 457f
ovariectomy, 454–455, 455f, 456f
salpingohysterectomy, 455–456, 456f
vasectomy, 457–458, 457f
- Reproduction-related behavior problems, 186f, 218f, 234–237, 234f, 235f
of psittacine species, 236t
- Reproductive diseases, in owls, 576
- Reproductive effort, immunosuppressive effect of, 410–412
- Research investigator, in animal welfare assessment, 672
- Resource-based reviews, in animal welfare assessment, 673–674
- Respiratory arrest, 583
- Respiratory diseases, in owls, 576
- Respiratory tract
in birds, 297, 297f, 298f
parasites of, 515–516
- “Respondent behavior,” 208–209
- Respondent learning, 208–209
fear response and, 237–238
- Response, rapid, in transforming dreams to reality, 757
- Response blocking, 212
for fear, 238
- Response Evaluation Criteria in Solid Tumors (RECIST), 133
- Responsibility, in transforming dreams to reality, 756
- Rest, parrots and, 182–184, 185f
- Resting respiratory rates, of avian species, by weight, 877t
- Restoration, of normothermia, 587
- Resuscitation
fluid rates for, 585–586
volumes for, 585–586
- Reticulospinal tract, 367
- Retroperistalsis, 332, 333f
- Retrospective study, in liver evaluation, 491–492, 492t
- Retroviruses, 24–26
- Reverse transcriptase polymerase chain reaction (RT-PCR), 35–36t, 60, 103
- “Reward training,” 205–206
- Rhomboid sinus, 365
- Rhynchopsitta pachyrhyncha* (Parrot, thick-billed)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Ribavirin, for ABV, 39
- Ribonucleic acid (RNA) viruses, 22, 24
- Ricketts, in birds, 564
- Rifabutin, for mycobacteriosis, 97t
- Rifampin, for mycobacteriosis, 97t
- Right atrioventricular valve
of avian heart, 257f
closure mechanism of, 254
- Right atrium
of avian heart, 257f
in cardiac conduction system and coronary arteries, 259f
of domestic fowl, 255f
- Right brachiocephalic trunk, of domestic fowl, 255f
- Right bundle branch, in cardiac conduction system and coronary arteries, 259f
- Right coronary artery, in cardiac conduction system and coronary arteries, 259f
- Right cranial vena cava
of domestic fowl, 255f
of venous system, 264f
- Right hepatic portal vein, of venous system, 264f
- Right jugular vein, of venous system, 264f

Right lateral coeliotomy, 645
 Right pulmonary artery, of domestic fowl, 255f
 Right subclavian vein, of venous system, 264f
 Right ventricle
 of avian heart, 257f
 in cardiac conduction system and coronary arteries, 255f
 of domestic fowl, 255f
 Right-angled applicators, 639–640, 640f
 Right-sided congestive heart failure, associated with fungal granuloma, 278f
 Ring retractors, 639–640
 Ringneck parakeet. *see Psittacula krameri* (Parakeet, ringneck)
 Risk management, 749–776
 in avian practice, 763–769
 confidential client information, 767–768
 cracker's case history, 763–767
 SOAPed medical records, 767
 Robenacoxib, for ABV, 39
 Rolling circle amplification, 526
 Romanowsky-type stained samples, 521–522, 522f
 Rose-breasted cockatoo. *see Eolophus roseicapilla* (Cockatoo, rose-breasted)
 Rous sarcoma virus (RSV), 112
 r-strategy, 408
 RSV. *see* Rous sarcoma virus (RSV)
 RT-PCR. *see* Reverse transcriptase polymerase chain reaction (RT-PCR)
 Rubrospinal tract, 367

S

S-100, 109, 111b
 SA node, in cardiac conduction system and coronary arteries, 259f
 Saccoperitoneal membranes, 354, 356f
 Saccopleural membranes, 348–349, 349f
 Sacral plexus, 373
 Saddle, of chicken, 550
 Sagittal eminence, 365f
 Saker falcon, trophozoites of *Babesia shortii*, 520–521, 521f
 Salmon-crested cockatoo, lung imprint from, 513f
Salmmonella, reducing risk of, 23
 Salmonellosis, 561–562, 561f, 562f
 Salpingohysterectomy, 652
 endoscopic, 455–456, 456f
 Salpingotomy, 652–653
 San Diego Zoological Society (SDZS), on California condors, 734
Sanguinea (Cockatoo, bare eye)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
Sarcocystis, 75–76
Sarcocystis calchasi, 23
Sarcocystis falcatula, 274–275
 Scarlet macaw. *see Ara macao* (Macaw, scarlet)
 Scintigraphy
 of grey parrot, 546f
 in nuclear-imaging techniques, 545–547, 546f
 Score sheets, 616
 Scream, of parrots, 242–244

Secondary consequence, 204
 Secondary hyperparathyroidism, 391
 Secondary reinforcers, 207, 207t
 Sedation, 588
 Sedatives, for anxiety, 221
 Segmental synsacral arteries, of major arteries, 261f
 Seizures, 374–377
 acute treatment for, 375
 ictal phase of, 374–375
 long-term control of, 375–376
 postictal phase of, 374–375
 potential etiologies of, 376–377
 preictal phase of, 374–375
 Selective serotonin reuptake inhibitors (SSRIs), 223–224
 Self-injurious behaviors, 226–234, 226f, 227f, 228f
 Self-mutilation, international patterns of, 788–792t
 Semen
 collection of, 434–436, 434f, 435f, 436f
 electron microscopy of, 439f
 evaluation of, 436–437
 extender, 443
 quantity, in rooster, 554–555
 spermatologic values of, from different avian species, 440t
 storage of, 443–444
 Seminal glomera, 458, 459f
 Seminal glomus, 331–332
 Senegal parrot. *see Poicephalus senegalus* (Parrot, Senegal)
Senilis (Pionus, white-capped)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Sensory system, examination of, 373–374
 Sentient, definition of, 671
 Separation anxiety, 243
 Septicemic shock, 413
Serinus canaria, 4
Serinus canaria forma domestica (Canary), 5
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Serology tests, 89
 Serosal patch, 648, 648f
 Serotonin, effects on behavior, 221t
 Serotonin syndrome, 223–224
 Serum protein electrophoresis, 495f
 "Servant leadership," 752
 Setting events, 202–204
 Severe macaw. *see Severus* (Macaw, severe)
Severus (Macaw, severe)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t

Sevoflurane
 in euthanasia for birds, 715
 inhalant anesthetic and, 608–609
 Sex feather, of chicken, 550
 Sexual Ornamentation, immunosuppressive effect of, 410–412
 SG. *see* Specific gravity (SG)
 Shank, of chicken, 550
 Shaping, of behavior, 00014
 Sharp dissection, for mucosal papillomas, 49
 Shock, 583
 Short acting anesthesia, 603
 Sickles, in chicken, 550
 Side stream capnograph, 611
 Sierra de San Pedro Martir National Park (SDSP), on California condor, 739
 Signal characteristics, of proteinaceous tissues, 542t
 Signalment, 197, 198f
 Silver nitrate, topical, for mucosal papillomas, 49
 Silymarin, 131–132
 Single-entry technique, in endoscopy, 454
 Single-photon emission computed tomography, 546
 Single-protein ELISA test, 35–36t
 Sinusitis
 chronic, in citron crested cockatoo, 66f
 international patterns of, 788–792t
 Situational leadership, description of, 752
 Skin disease, autoimmune, 415, 415f
 Skinner's paradigms, to client return visits, 751t
 Smudge cells, 461
 SOAPed medical records, importance of, 767
 Social enrichment, 186f, 217–219, 217f, 218f
 Social stress, 410
 Social support, human-avian bond and, 711, 711f
 Sodium benzoate, for *M. ornithogaster*, 81
 Sodium bicarbonate, 4–5
 Sodium pentobarbital, 714
 Soft tissue surgery, 626
 Soil consumption, as a source of essential minerals, 181–182, 183f
 Song complexity, as sign of immunologic fitness, 408
 South America, avian medicine in, perspective on, 778–780
 Species-typical behaviors. *see* Modal action patterns
 Specific behavior problems, 225–244
 automutilation, 226–234, 227f, 228f
 feather-damaging behavior, 226–234, 226f, 227f
 Specific gravity (SG), 518–520
 Spectrophotometric hydroxyproline analysis, 529
 Sperm, values of, from avian species, 440t
 Spherules, 333, 333f
 Sphincter, rectocoprodeal, 330, 330f
 Spinal cord, 364f
 anatomy of, 366
 development of, 365
 Spinal nerves, 368–369
 Spinal reflexes, 373
 Spironolactone, for cardiovascular disease in birds, 312t, 314

Spix's macaw
 artificial insemination on, 726–727, 727f
 conservation project of, 722–727
 efforts for, 723–725
 recovery program in, 725
 veterinarian's role in, 725
 Working Group (WG) in, 724
 description of, 722, 722f
 genus name of, history of, 722
 medical problems in, 726–727
 proventricular dilation disease (PDD), 726
 population of, 723–725, 723f, 724t
 prophylaxis for, 725–726
 quarantine for, 726, 726f
 Splash blocks, regional infiltration method, 625
 Spleen, in birds, 402
 Squamates, 24
 Squamous cell carcinoma
 cryotherapy for, 131f
 hypovitaminosis A and, 113
 S-S (stimulus-stimulus) learning, 208–209
 SSRIs. *see* Selective serotonin reuptake inhibitors (SSRIs)
 "Stable disease," 133
 Standards of care (SOC), written, update frequency of, 757
 Statistical analysis methods, 462–463
 Status epilepticus, acute treatment for, 375
 Stella's lorikeet, 160f
 Stereotypical behavior, in animal welfare assessment, 675
 Sterilization, of male birds, 457–458, 457f
Sternostoma tracheacolum, 516f
 Steroids, 812–813t
 Stimulation
 and enrichment, 193, 194f
 in FDB, 231–232
 Stock, choosing of, in management, of backyard poultry, 551–552, 552f
 Streptomycin, for mycobacteriosis, 97t
Streptopelia risoria and *Geopelia cuneata* (Dove)
 biologic and physiologic values of, 871t
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Stress
 definition of, 408
 deflighting and, 704–705, 704f, 705f
 hormones, 408–409, 409f
 as key factor in immunocompetence, 408–410
 social, 410
 Stress leukogram, 469
 Striatum, 364f
 Strigidae, 566
 Strigiformes
 anatomy and physiology, 566–568, 567f
 antimicrobial doses in, 570t
 auditory apparatus in, 566
 avian species groups, 857t
 bacterial virus in, 571–572, 572f
 biologic and physiologic values of, 864–865t

Strigiformes (Continued)
 cardiovascular diseases in, 575
 clinical pathology in, 568–569, 569f
 diagnostic imaging, electrocardiogram, and electromyogram, 567f, 569
 endocrine diseases in, 575–576
 eye of, 566–567
 flight, plumage, and thoracic limbs, 567
 fungal diseases, 572
 gastrointestinal diseases in, 575
 gastrointestinal system of, 568
 hepatic diseases in, 575
 infectious diseases in, 570–574
 medicine of, 566–581
 miscellaneous diseases in, 576–577
 noninfectious diseases in, 574–577
 nutritional diseases in, 576
 parasitic diseases, 572–574, 573t, 574f
 pelvic limb of, 567f, 568
 renal diseases in, 575
 reproductive diseases in, 576
 respiratory diseases in, 576
 specificities in diagnostics, 568–569, 568f
 synovial chondromatosis in, 575, 575f
 therapeutics, 569
 toxins in, 576
 viral diseases in, 570–571
 Strontium-90 (Sr-90), 130, 130f
 Stroud, Robert, 6, 6f
Struthio camelus (Ostrich)
 enzymatic laboratory reference ranges for, 840–847t
 erythrocytic parameters for, 838t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Sturnidae, biologic and physiologic values of, 862–863t
 Subclavian artery, of major arteries, 261f
 Subjective, objective, assessment, and plan methodology of documentation (SOAPed), medical records, importance of, 767
 Subpulmonary cavities, 348–349
 Sucrose, hexose and, 153
 Sulfur amino acid deficiency, on obesity, 145
 Sulidae, biologic and physiologic values of, 872–875t
Sulphurea (Cockatoo, lesser sulfur-crested)
 enzymatic laboratory reference ranges for, 840–847t
 hematologic laboratory reference ranges for, 826–837t
 metabolic laboratory reference ranges for, 848–855t
 Sun conure. *see Aratinga solstitialis* (Conure, sun)
 Super-agonists, 448–451
 Superficial ramus, in cardiac conduction system and coronary arteries, 259f
 Supplemental gavage feeding, nutritional support and, 137
 Surface lymphoid tissues, in birds, 402
 Surgeon-farrier, 3
 Surgery, 631–668
 avian, specialization in, 10–16

Surgical fracture management, 663–665
 external skeletal fixator, 663
 hybrid fixator, 663–664, 664f
 intramedullary pin, 663
 plates and nails, 664–665
 Surgical loupes, 634f
 Surgical resection, 118–119
 Suture materials, 633–634, 633f, 640–641
 Suture scissor, 633
 SYBR green stains, in semen evaluation, 436–437, 437f
 Sympathomimetic drugs, for cardiovascular disease in birds, 317
Syngamus trachea, 3–4
 Synovial chondromatosis, 575, 575f
 Syringe pumps, 587f
 Systematic desensitization, 212
 for anxiety, 238–239
 for fear, 238
 for fear-related aggression, 241
 for treatment of distress calls, 243–244
 Systemic arterial blood pressure, 262, 265f
 Systemic arterial hypertension, 277–278
 Systemic hypertension, treatment of, 318–319

T

T-2, immunosuppressive effects of, 422
 T1-weighted images, in MRI, 539, 542t
 T2-weighted images, in MRI, 539, 542t
 Tadorinae, biologic and physiologic values of, 868–871t
 Takae
 decline and conservation of, 728–730, 728f
 veterinary support for, 730
 description of, 727–728, 727f
 disease ecology research on, 732, 733f
 distribution of, 728f
 health issues in, 731–732, 732f
 medical and surgical care of, 730–731, 731t
 pathology in, 730
 recovery program of, 727–732
 aim of, 729–730
 reintroduction program of, 720
 Tamoxifen, for ovarian carcinoma, 131
 Tape splint, 661, 662f
 Target organs, 378
 Targeting, of behavior, 211–212, 212f
 Tarsometatarsus, of chicken, 550
 Tax accounting, *versus* management accounting, 759
 "Taynt," 2
 TCAs. *see* Tricyclic antidepressants (TCAs)
 Technetium-99m, 117, 117f
 Tectospinal tract, 368
 Telemetry, satellite, in tracking reintroduced birds, 721
 Telencephalic complex, 363
 Temperature, of anesthetized birds, 612–613
 Tenectomy, in deflighting techniques, 688, 695–696t
 Tenotomy, in deflighting techniques, 688, 695–696t
 Tension release mechanism, self-injurious behavior and, 230
 Terbinafine, 70
 for avian aspergillosis, 69t

- Territorial aggression, 240
behavioral modification therapy for, 241–242
- Tertiary hyperparathyroidism, 392
- Testicular artery, of major arteries, 261f
- Testicular/ovarian artery, of major arteries, 261f
- Tetracyclines, for avian chlamydiosis, 89
- Tetraonidae, biologic and physiologic values of, 866t
- Tetrapods, 19
- TGA. *see* Therapeutic Goods Administration (TGA)
- Th1 response, 404
- Th2 response, 404–405
- Thalamus, 364f
- Thallium-activated sodium iodide [NaI(Tl)], 545
- The Boke of St. Alban*, 2
- The Change Masters and Men and Women of the Corporation*, 755–756
- The Falcons Lure and Cure*, 2f
- Theory X and theory Y, 752
- Therapeutic exercises, 626
- Therapeutic Goods Administration (TGA), 172
- Therapy
assessing response to, 133, 134f
behavior modification, 209–212, 210b
graduated exposure, 212
hormonal, 131
hormone, 225
molecular targeted, 132, 132f
other/adjunctive, 131–132
radiation, 130
strontium-90, 130f
- Thermoregulation, in birds under anesthesia, 613
- Thick-billed parrot. *see Rhynchopsitta pachyrhyncha* (Parrot, thick-billed)
- Thorax, radiography of, 115
- Through-the-lens Galilean-style loupes, 634f
- Thymus, in birds, 402
- Thyroglobulin, 381
- Thyroid gland, 379f, 380–382, 387–391
histology of, 380f
- Thyroid hormones, 381–382
- Thyroid tumors, 390
- Thyroiditis, autoimmune, 415
- Thyroid-stimulating hormone testing protocols, 389t
- TIBC. *see* Total iron-binding capacity (TIBC)
- Ticks, in poultry, 558
- Timaliidae, biologic and physiologic values of, 862–863t
- Timneh* (Timneh parrot)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Timneh parrot. *see Timneh* (Timneh parrot)
- Tinbergen's four question, to explain behavior, 178, 179b
- Tissue enzyme, 489, 490t
- Tissue glue, 528, 529f
- "TM" approach, 113–114, 114f
- Toceranib phosphate (Palladia), 132
- Toenail clip method, 461
- Toltrazuril sulfone (ponazuril), for eimeriidae or sarcocystidae, 77
- Tomography, 531–544
- Total iron-binding capacity (TIBC), 489, 494
- Toucan. *see Ramphastos* sp. (Toucan)
- Toxicity, vitamin A, 144
- Toxicoses
diagnosis of, 589–600
heavy metal, international patterns of, 788–792t
lead, 590–592
management of, 589–600
zinc, 592–593
- Toxicogenic conditions, agents used in the treatment of, 815t
- Toxins, in owls, 576
- Toxoplasma, 76
- Toxoplasma gondii*, 73
- Toys, and other environmental enrichment, 214–217, 215f, 217f
- Trachea, 379f
- Tracheal stenosis, intubation and, 610
- Tracheitis, mycotic, 66
- Tract of Lissauer, 367
- Training
behavioral problems and, 217
operant learning and, 238
- Tramadol hydrochloride, 617–619t, 621
- Tranquilizers, in alleviating dysphoria, 136
- Transferrin, 494–495
- Transverse coeliotomy, 641–643, 642f
- Trauma
to cloaca, 342–343, 342f
transverse sutures for, 342–343, 343f
deflighting and, 700, 701f
international patterns of, 788–792t
in poultry, 555, 555f
- Traumatic injuries, 360, 361f
- Tribe Chaeturini, biologic and physiologic values of, 872–875t
- Trichoglossus haematodus moluccanus*, 150, 151f
- Trichomonas* spp., 516
- Trichomoniasis, in owls, 573
- Trichothecenes, 564
- Tricyclic antidepressants (TCAs), 222–223
in alleviating dysphoria, 136
- Trigeminal nerve, 370, 371f
mandibular, 370
maxillary, 370
ophthalmic, 370
- Triple entry technique, in endoscopy, 454, 454f, 455f
- Triton cockatoo. *see Cacatua galerita triton* (Cockatoo, triton)
- Trochilidae, biologic and physiologic values of, 872–875t
- Trochlear nerve, 370, 370f
- Tropical fowl mite, 516f
- True positive rate, 462
- True-negative rate, 462
- Tumor(s)
bone, peripheral sampling of, 108
in immune system, 423
- Tumor outcome monitoring form, 134f

- Tumor-node-metastasis (TNM) approach, 113–114, 114f
- Toceranib phosphate (Palladia), 132
- Toenail clip method, 461
- Toltrazuril sulfone (ponazuril), for eimeriidae or sarcocystidae, 77
- Tomography, 531–544
- Total iron-binding capacity (TIBC), 489, 494
- Toucan. *see Ramphastos* sp. (Toucan)
- Toxicity, vitamin A, 144
- Toxicoses
diagnosis of, 589–600
heavy metal, international patterns of, 788–792t
lead, 590–592
management of, 589–600
zinc, 592–593
- Toxicogenic conditions, agents used in the treatment of, 815t
- Toxins, in owls, 576
- Toxoplasma, 76
- Toxoplasma gondii*, 73
- Toys, and other environmental enrichment, 214–217, 215f, 217f
- Trachea, 379f
- Tracheal stenosis, intubation and, 610
- Tracheitis, mycotic, 66
- Tract of Lissauer, 367
- Training
behavioral problems and, 217
operant learning and, 238
- Tramadol hydrochloride, 617–619t, 621
- Tranquilizers, in alleviating dysphoria, 136
- Transferrin, 494–495
- Transverse coeliotomy, 641–643, 642f
- Trauma
to cloaca, 342–343, 342f
transverse sutures for, 342–343, 343f
deflighting and, 700, 701f
international patterns of, 788–792t
in poultry, 555, 555f
- Traumatic injuries, 360, 361f
- Tribe Chaeturini, biologic and physiologic values of, 872–875t
- Trichoglossus haematodus moluccanus*, 150, 151f
- Trichomonas* spp., 516
- Trichomoniasis, in owls, 573
- Trichothecenes, 564
- Tricyclic antidepressants (TCAs), 222–223
in alleviating dysphoria, 136
- Trigeminal nerve, 370, 371f
mandibular, 370
maxillary, 370
ophthalmic, 370
- Triple entry technique, in endoscopy, 454, 454f, 455f
- Triton cockatoo. *see Cacatua galerita triton* (Cockatoo, triton)
- Trochilidae, biologic and physiologic values of, 872–875t
- Trochlear nerve, 370, 370f
- Tropical fowl mite, 516f
- True positive rate, 462
- True-negative rate, 462
- Tumor(s)
bone, peripheral sampling of, 108
in immune system, 423
- Tumor outcome monitoring form, 134f
- Tumor-node-metastasis (TNM) approach, 113–114, 114f
- Tuned out, 583f
- Tunica adventitia, 261, 312t
- Tunica intima, 261, 265f
- Tunica media, 261, 265f
- Turdinae, biologic and physiologic values of, 862–863t
- Turkeys, with atherosclerosis, 270
- Typical antipsychotics, 222
- Tytonidae, 566
- U**
- Ulcerative and infiltrative intramural lesions, 646
- Ulcerative dermatitis, chronic, 228f
- Ulna, radiographic image of spinal needle in, 584f
- Ulnar artery, of major arteries, 261f
- Ultimobranchial gland, 379f, 382, 392
- Ultrasonography, 115
- Umbrella cockatoo. *see Alba* (Cockatoo, umbrella)
- "Unconditional reinforcers," 207
- Unconditioned stimulus (US), 209
- United Kingdom's Animal Welfare Act, 670, 670b
- Upsilon (υ) chains, 404–405
- Urates
monosodium, 333, 333f
retroperistalsis of, 332
spherules and, 333, 333f
- Urea, 492
uric acid and, 332t
- Ureter, 331, 332f
- Uric acid, 492
on birds, 334
urea and, 332t
- Uricotelism, 329–330
- Urine, avian
postrenal modification of, 332–336
protein in, 333–334
retroperistalsis of, 333–334
- Urodeum, 331–332
- Urofeces, 335, 335f
- Urogonimus macrostomus*, 341
- Uroproctodeal fold, 332, 332f, 334f
- U.S. Animal Welfare Act, 678–679
- U.S. Department of Agriculture (USDA)
on animal welfare, 679
on dietary supplements, 167
- U.S. Fish and Wildlife Service, on disposal of carcasses, 717
- U.S. Pharmacopeial Convention (USP), 171
verification services, for nutraceuticals, 172
- USDA. *see* U.S. Department of Agriculture (USDA)
- USP. *see* U.S. Pharmacopeial Convention (USP)
- Usutu virus (USUV) (Continued)
epizootiology of, 103–104
occurrence of, 100–101
geographic range, 100–101, 101f
history, 100
pathologic findings of, 102
physical and chemical properties, 99
prophylaxis for, 104–105
mosquito prevention, 104–105
surveillance, 104
vaccination, 104
taxonomy and description of, 99
- USUV. *see* Usutu virus (USUV)
- UTM (Coban), 87
- Uvulonodular fissure, 365f
- V**
- Vaccination, on California condor, 738, 738f
- Vaccines, new-generation, 425
- Vagus nerve, 371, 379f
- Vallecula, 365f
- Valve branch to muscular right AV valve, in cardiac conduction system and coronary arteries, 259f
- Vane trimming, in deflighting techniques, 688–689, 692t
- Vaporization, laser, in endoscopic castration, 456
- Variable interval (VI), intermittent reinforcement schedules and, 207, 207b
- Variable ratio (VR), intermittent reinforcement schedules and, 207, 207b
- Vascular access, 584–585
IO catheterization, 584
IV catheters for, 584
medial metatarsal catheter, 584
- Vascular anatomy, 256–262
- Vascular microanatomy, 261–262
schematic presentation of, 265f
- Vasectomy, 457–458, 457f, 650
external, 458–460
anatomic considerations for, 458, 459f
fertility assessment of, 459–460
surgical considerations for, 458–459
surgical technique for, 459, 459f, 460f
- Vasoconstriction, 263–265
- VCOG. *see* Veterinary Cooperative Oncology Group (VCOG)
- Venous system, 253f, 260, 260f, 262f, 263f
diagram of, 264f
- Vent, of cloaca, 335, 336f
- Vent blow-out, 556–557
- Ventilation, in birds under anesthesia, 613
- Ventoplasty, 654–655, 654f, 655f
- Ventral cardiac veins, of domestic fowl, 255f
- Ventral coeliotomy, 641, 642f, 643f
- Ventral mesentery, 350–351
- Ventral spinocerebellar tract, of mammals, 367
- Ventricle, right, 252
- Ventricular depolarization, 255–256
- Ventricular septal defects, in tundra swan, 281–282
- Ventriculotomy, 646–648, 647f, 648f
- Ventriculus, 641–643, 645
grit of, 645
- Ventrolateral ascending bundle, 367

- Ventromedian approach, 301f, 302f
for echocardiography, 299f, 307c
echocardiography via, 300f
- Vertebral artery, of major arteries, 261f
- Vertebrate host, 22
- Vesicle, 63
- Vestibular lesion, 372
- Vestibular system, 372
- Vestibulocochlear nerve, 371
- Vestibulospinal tract, 367
- Veterinarians, 4
in animal welfare assessment, 672, 673, 711, 711f
attending, 678–679
evolution of, 3
on grieving clients, 712–713, 713f
in recovery program, of Spix's macaw, 725
relief, in key management metrics, 757
role, in preventing behavior problems, 244–245
- Veterinary Cooperative Oncology Group (VCOG), 133
- Veterinary Information Network (VIN), 18, 137
- Veterinary practice management, 753
- Veterinary Record*, 7
- Villi, 330
- Vimentin, 111b
- VIN. *see* Veterinary Information Network (VIN)
- Vinblastine, 129
- Vinca alkaloids, 129
- Vincristine, 129
- Viral diseases, 559–561, 570–571
avian encephalomyelitis, 561
avian influenza, 561
avipoxvirus, 571
herpesvirus, 570
infectious bronchitis, 560
Marek's disease, 559–560, 559f
Newcastle disease, 560
poxvirus, 560–561, 560f
rabies, 571
West Nile virus, 570
- Viral genomes, segmentation of, 23–24
- Viral recombination, 23–24
- Viral serositis, 359
- Viridigenalis* (Amazon, green-checked)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Virus isolation test, 35–36t
- Viruses, 23
avian bornavirus, 29–33
avian pneumovirus, 26
beak and feather disease virus (BFDV). *see* Psittacine beak and feather disease (PBFD)
circovirus, 51
columbid herpesvirus 1, 24
deoxyribonucleic acid (DNA), 24
flavivirus, 99
human herpesvirus 3, 24
influenza, 59
- Viruses (Continued)
orthoreovirus, 23–24
psittacid herpesviruses, 47–50
retroviruses, 24–26
ribonucleic acid (RNA), 22
Usutu, 98–105
- Virus-induced immunosuppression, 420–421, 420f
- Visceral gout, 286–287, 286f
pericarditis and, 286–287, 286f
- Visceral pain, 627
- Visual system, 371–372
- Vitamin A
commonly used medication in South America, 779
deficiency, in avian nutrition, 144
- Vitamin B complex, commonly used medication in South America, 779
- Vitamin D
avian nutrition and, 144
commonly used medication in South America, 779
metabolism, 383f
on nutraceutical studies in humans, 166
system, 382–383
- Vitamin E, commonly used medication in South America, 779
- Vitamin E deficiency, associated with myocardial degeneration, 275
- Vitamins
avian nutrition and, 144
nutraceuticals, 169
- Vocalizations
excessive, 242–244
functions of, 180
- Volume overload, 271–273, 275f, 281f, 282f
- Voluntary behavior, 196–197
- von Willebrand factor (Factor VIII-related protein), 109, 111b
- Voriconazole, for avian aspergillosis, 69t
- Vultures, 596
- W**
- Wageningen University and Research Centre (WUR), on animal welfare, 681
- Walko tablets, 5f
- Water, nutrition and, 142
- Waterfowl, biologic and physiologic values of, 868–871t
- WBC. *see* White blood cell (WBC)
- WC. *see* White Carneau (WC)
- Weddellii* (Conure, dusky)
enzymatic laboratory reference ranges for, 840–847t
hematologic laboratory reference ranges for, 826–837t
metabolic laboratory reference ranges for, 848–855t
- Welfare
animal. *see* Animal welfare
avian. *see* Avian welfare
West Nile virus (WNV), 462–463, 570
on California condor, 738
vaccination, 738f
infection, in alligators, 22
on Whooping cranes, 748
Western blot test, 35–36t

- WGS. *see* Wright-Giemsa staining (WGS)
 "What Veterinarians Should Know About Diseases of Poultry," 5
- White blood cell (WBC), 468, 469, 474–475
 manual techniques and reported coefficient of variation for, 473t
 morphology of, 477f
 phloxine B and eosin techniques, 475b
- White Carneau (WC), 270–271
- White matter, 366
- White-capped pionus. *see* *Senilis* (Pionus, white-capped)
- Whooping crane
 captive, general health issues in, 747–748, 747f
 description of, 742, 743f
 recovery project of, 742–748
 reintroductions of
 from 1994 to present, 745–746, 745f, 746f
 health issues in, 746–747
 in Louisiana, 746
- Windowing, in computed tomography, 535
- Wing catheter, 585, 585f
- Wing-web dermatitis, 228f
- Wings
 on avian welfare
 anatomy of, 689f, 693f
 clipping of, 688, 689f, 690f, 691f, 692t
 functions of, 686, 686f, 687f
 in psittacines, clipping of, 691t
 role of, 685, 686f
 trimming of, 219, 241–242
- WNV. *see* West Nile Virus (WNV)
- Working Group (WG), in conservation project of Spix's macaw, 724, 725f
- World Organization for Animal Health, 61
 on animal welfare, 669
 on avian welfare, 681
- Worm eggs, classification of, 518–520
- Wright-Giemsa staining (WGS), 503, 503t, 504f, 507f, 508f
- X**
- Xanthomas, 20–21
- Xenophobia, 238–239
- Xylazine, 606
- Xylose, 152
- Y**
- Yellow collared macaw. *see* *Primolius auricollis* (Macaw, yellow collared)
- Yellow nape amazon. *see* *Auropalliata* (Amazon, yellow nape)
- Yellow-bibbed lory (*Lorius chlorocerus*), 153, 154f
- Yellow-crowned amazon. *see* *Ochrocephala* (Amazon, yellow-crowned)
- Yohimbine, 606
- Z**
- Zinc
 avian nutrition and, 144
 normal levels of, 593f, 593t
- Zinc toxicosis, 592–593, 593f
 diagnosis of, 593
 treatment of, 593
- Zoo medicine, 7
- Zygodactyl feet, of parrot, 182