

preface

Progressive scientific and medical advances rely on appropriate selection and study of animal models. In contemporary biomedical research facilities, almost without exception, laboratory mice and rats are examined for optimum health status prior to acceptance as research models. Therefore, common ailments (i.e., respiratory tract infections, diarrhea, and overt skin disease) are often grounds to refuse admittance into an existing animal research colony. If laboratory rodents develop these ailments after acceptance into an experimental study, they most likely will be treated by extrapolation of applicable clinical regimens employed in small animal and exotic pet veterinary practice. Unfortunately, for more complex cases that need critical care management, many treatment approaches to veterinary emergencies cannot be applied directly to the laboratory rodent.

For critical care of laboratory rodents, there is a scarcity of sources that provide comprehensive, feasible, and response-oriented information about clinical interventions specific to spontaneous and induced models of disease. This textbook is the first of its kind devoted to the challenges of critical care management for laboratory mice and rats. This text was designed to serve as a specialized resource for all persons and professionals who utilize rodent models for biomedical research. The information herein emphasizes the varied approaches to laboratory rodent patient care, health assessments, characteristics of specific disease models, monitoring and scoring of disease parameters, and humane interventions. Although preservation of animal health and welfare is of primary consideration, achievement of proposed research objectives should also be prioritized.

Within the field of laboratory animal practice, guidance and recommendations for clinical treatments are rarely uniform across the entire profession. The majority of the dosages and treatments in this book are derived from published abstracts presented at national American Association for Laboratory Animal Science (AALAS) conferences (dating from the year 2000 to 2012), journal articles, and personal consultation and experience. Many treatment modalities are based on anecdotal information, pilot work, and empirical evidence. In the spirit of incorporating continued refinements into laboratory animal practice, these treatment guidelines may be modified further for additional clinical support and improved patient-based care for research animals.

This textbook is organized as five chapters: "General Approaches for Critical Care" (Chapter 1), "Critical Care Management for Laboratory Mice" (Chapter 2), "Critical Care Management for Laboratory Rats" (Chapter 3), "Special Considerations for Critical Care Management in Laboratory Rodents" (Chapter 4), and "Resources and Additional Information" (Chapter 5). In addition, three appendices include a glossary, medical supply list, and an abridged rodent formulary. As endorsed by the *Guide for the Care and Use of Laboratory Animals* (National Research Council, 2011), the expectation is for those clinical recommendations herein to be applied with apt professional judgment, including review of evidence- and performance-based outcomes, while advancing animal welfare and science.

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