It has been 8 years since the last issue of the *Veterinary Clinics of North America: Small Animal Practice* was dedicated to clinical pharmacology (March 1998). In the intervening years, the profession has enjoyed several advances in the discipline. Approximately 90 new drugs have been approved for either dogs or cats. Included is the reformulation of some tried-and-true drugs, as well as new members of diverse drug classes. The number of previously approved parasiticides, anesthetics, antimicrobials, analgesics, and hormones has increased, and new drug classes such as behavior-modifying drugs have been added. Several novel drug delivery systems also have been approved. The decade also has brought a relatively new paradigm: the availability of multiple products within the same drug class. Although competition has its attributes, practitioners must become increasingly more familiar with the clinical pharmacology, pharmacodynamics, and therapeutic use of each product, such that the basis for choice is rational. Advances in human pharmacology continue to “trickle down” to our small animal patients. Gratifyingly, veterinarians increasingly seek scientific support for extrapolation of the use of human drugs in their small animal patients. Not surprisingly, the literature has increased to incorporate several new scientific journals dedicated to veterinary therapeutics. However, availability of non–peer-reviewed information on the Internet often detracts from the science. Advances in molecular biology have made their mark—and promise to continue to do so—in veterinary clinical pharmacology. New understanding of drug actions, reactions, and species differences has benefited our patients. Unfortunately, however, not all changes have been beneficial. The decade has seen the advent of resistant microbes in response to decades of unfettered antimicrobial use.
The topics chosen for this issue are intended to exemplify the changes that have occurred in the use of drugs in small animals. The lead article on evidenced-based medicine is perhaps the most important, because it is applicable to all aspects of pharmacology and therapeutics. Although seemingly a new concept, veterinarians have long embraced—perhaps unknowingly—this common sense approach to the practice of medicine. The article emphasizes the importance of critical scientific review of information and offers a hierarchy of import, as well as examples of credible resources. An article on pharmacogenomics has been included to demonstrate what can be anticipated in the future as we increase our understanding of the genetic basis for drug response in the individual patient. Already, collies have benefited following the elucidation of their basis for avermectin sensitivity. In the same context, molecular technology has helped us understand the role of cytochrome P450, a superfamily of drug metabolizing enzymes, in drug interactions.

Among the classes of drugs that have changed mechanistically in the last 10 years are the nonsteroidal anti-inflammatories. Six products have been approved in the intervening 8 years for use in either dogs or cats. Understandably, confusion exists regarding the importance of “COX-1 protection” and its impact on safety and efficacy. Accordingly, an article has been included in an attempt to offer guidance regarding the use of these exciting drugs in dogs and cats. Updates on endocrine and anticonvulsant therapy were chosen because of the lack of comprehensive and timely reviews elsewhere.

Perhaps no class of drugs has drawn as much attention in medical communities in the intervening years as has the antimicrobials. Their indiscriminate use increasingly is problematic. Public health considerations often elicit emotional responses that may not be scientifically justified. Yet bacterial resistance must be perceived as an insidious, unrelentless side effect of antimicrobial therapy. Antimicrobial resistance must be understood as both a global and local issue, hospital and community-based, impacting both populations and individuals. It is a side effect that will decline only with de-escalation and judicious use. Accordingly, three articles in this issue are dedicated to the use of antimicrobial therapy in dogs and cats. The first focuses on antimicrobial resistance and its advent in veterinary medicine. The second offers principles upon which the selection of an antimicrobial drug might be based. Guidelines are offered for the design of individual dosing regimens, such that therapeutic success can be achieved both in terms of eradicating infection and minimizing resistance. The third article addresses one of the more common uses of antimicrobial drugs: prophylaxis in the canine or feline surgical patient.

The rapid emergence of both internet and mortar and brick pharmacies specializing in veterinary compounding has been both a gain and bane to the advent of veterinary therapeutics. Compounding has always been a vital aspect of individual drug therapy to our veterinary patients and its presence in the forefront is associated with many sequelae that benefit our patients. However, in some respects the veterinary profession has come full circle, broadly embracing the use of therapeutic products for which little scientific evidence of efficacy or
safety exists. Accordingly, this issue concludes by addressing a subject for which the application of evidence-based medicine is paramount: veterinary compounded drug products. The article is offered as a comprehensive review that addresses not only the long, rich history of veterinary compounding, but also the current (dynamic) regulations that must be understood in the context of both public health and veterinary patient considerations. The article concludes with a discussion of those aspects of compounding that may contribute to therapeutic failure due to quality assurance, safety, or efficacy concerns, with a particular focus on transdermal gels.

The intervening years since our last issue have been amazing. The increased standard of veterinary care has been astounding, surpassing what I had envisioned as a veterinary student many years ago. The discipline of clinical pharmacology has been the perfect venue within which to enjoy these changes. This preface would not be complete without recognition of the American College of Veterinary Clinical Pharmacology, whose members have dedicated their professional efforts to the advancement of knowledge and application in the field of clinical pharmacology and therapeutics. No one article in this issue could have been generated without the input provided by members of this College. It has been an honor to be among the members of this College and a privilege to contribute to its efforts through the editing of this issue.

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