Preface

Superficially, it might be said that the function of the kidneys is to make urine; but in a more considered view one can say that the kidneys make the stuff of philosophy itself.

—Homer William Smith (1895–1962)

Homer Smith and his research group carried out many studies during the 1930s and 1940s that provided insight into how the kidney functions. In particular, their work showed how the renal clearance of certain substances could elucidate aspects of renal function such as glomerular filtration and renal blood flow. A 1945 article in *Journal of Clinical Investigation* demonstrated how the renal clearance of para-aminohippuric acid could be used to estimate renal plasma flow in dogs and humans. Dr Smith believed in the importance of collaboration between basic scientists and clinicians. He also recognized that our clinical preoccupation with urine was perhaps a little misguided. In urine, we find what the kidneys have left behind, whereas in the fluid, electrolyte, and acid base composition of body fluids, we see the real work of the kidneys reflected.

We continue to believe that a good foundation in physiology and pathophysiology will increase the effectiveness of any clinician. Therefore, we have encouraged the authors of the articles in this issue of *Veterinary Clinics of North America: Small Animal Practice* to approach their topics in depth. Understanding the regulation of fluid, electrolyte, and acid-base balance not only improves patient care but also can promote some inspiring discussions at clinical rounds. Also, with the ready availability of data about electrolytes and acid base provided by point-of-care laboratory equipment, clinicians have an urgent need to understand the pathophysiologic principles so as to make the best use of this information.

We reviewed the field to identify topics of current interest as well as those that could benefit from updating since the previous issue of *Veterinary Clinics of North America: Small Animal Practice* on “Fluid, Electrolyte, and Acid Base Disorders” was published in 2008. We sought contributions from the current generation of veterinary clinicians working in the fields of internal medicine, emergency and critical care, and...
anesthesiology. We thank all of our contributors who have sacrificed their time to share their experience. As in the previous issue, this one is divided into three sections. First, a quick reference section provides brief articles that cover important information needed to quickly assess patients with acid-base and electrolyte disturbances. The second section provides longer articles that discuss certain topics in more depth, notably calcium, sodium, acid-base disorders. The third section presents articles that re-examine important topics such as pediatric fluid therapy, the use of isotonic versus hypotonic fluids in maintenance fluid therapy, fluid therapy in trauma patients, the use of colloids, and perioperative fluid therapy as well as fluid therapy in specific clinical situations, such as pulmonary disease, diabetic ketoacidosis, renal disease, and gastrointestinal disease.

We hope this information is useful to veterinary practitioners as well as veterinary students, interns, and residents. We encourage you to let us know of errors or different opinions on controversial issues. We thank Meredith Clinton at Elsevier for her efforts to keep this project moving along to completion.

Helio Autran de Morais, DVM, PhD
Lois Bates Acheson Veterinary Teaching Hospital
Oregon State University
Magruder Hall, 700 Southwest 30th Street
Corvallis, OR 97331, USA

Stephen P. DiBartola, DVM
Department of Veterinary Clinical Sciences
The Ohio State University
601 Vernon L. Tharp Street
Columbus, OH 43210, USA

E-mail addresses:
helio.demorais@oregonstate.edu (H.A. de Morais)
dibartola.1@osu.edu (S.P. DiBartola)