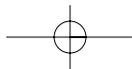
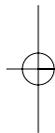
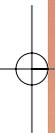
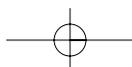
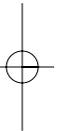
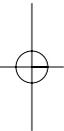
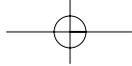


Urinalysis and Body Fluids





Urinalysis and Body Fluids

Fourth Edition

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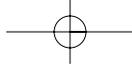
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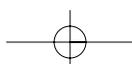
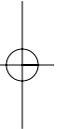
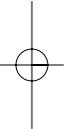


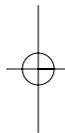
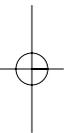
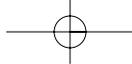
To Harry, my Editor-in-Chief

SKS

*To my husband, Scott, and my children,
Michael, Christopher, and Lauren*

MSD





Preface

As will be apparent to the readers, the fourth edition of *Urinalysis and Body Fluids* has been substantially revised and enhanced. However, the objective of the text—to provide concise, comprehensive, and carefully structured instruction in the analysis of nonblood body fluids—remains the same.

This fourth edition has been redesigned to meet the changes occurring in both laboratory medicine and instructional methodology.

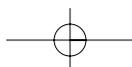
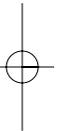
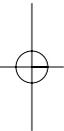
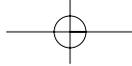
To meet the expanding technical information required by students in laboratory medicine, additional chapters have been added and previous chapters expanded. Chapter 1 is devoted to overall laboratory safety and the precautions relating to urine and body fluid analysis. Chapter 7 addresses quality assurance and management in the urinalysis laboratory. Preanalytical, analytical, and postanalytical factors, procedure manuals, current regulatory issues, and methods for continuous quality improvement are stressed. In Chapter 8 the most frequently encountered diseases of glomerular, tubular, interstitial, and vascular origin are related to their associated laboratory tests. To accommodate advances in laboratory testing of seminal, synovial, serous, and amniotic fluids, individual chapters have been added for each of these fluids. Appendix A provides coverage of the ever-increasing variety of automated instrumentation available to the urinalysis laboratory.

This fourth edition has been redesigned to include not only color, but also a larger variety of instructional aids. In response to the reader's suggestions, the number of color slides has been significantly increased and they have been included within the text to increase user-friendliness. The text has been extensively supplemented with tables, summaries, and procedure boxes and many figures are now in full color. The multiple-choice format of study questions at the end of each chapter has been revised to require students to consider more in-depth responses. Case studies in the traditional format and clinical situations relating to technical considerations are included at the end of the chapters. Answers to the study questions, case studies, and clinical situations are also included at the end of the book. Highlighted terms and abbreviations in the text are included in the glossary and abbreviations appendices. Additional support is provided to adopting instructors in the form of accompanying test-generating software.

We have given consideration to the suggestions of our previous readers and believe these valuable suggestions have enabled us to produce a text to meet the needs of all users.

SUSAN KING STRASINGER

MARJORIE SCHAUB DI LORENZO



Acknowledgements

Many people deserve credit for the help and encouragement they have provided us in the preparation of this fourth edition. Our continued appreciation is also extended to all of the people who have been instrumental in the preparation of previous editions.

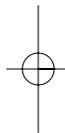
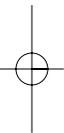
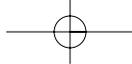
The color illustrations would not have been possible without the expertise of Sherman Bonomelli, M.S. from the University of West Florida.

New color plates of urine sediment constituents were very skillfully photographed by Bo Wang, M.D. from the Creighton University School of Medicine. Persons assisting in collection of sediments include: Ulrike Otten, M.T.(A.S.C.P.)SC, Darlene Waters, M.T.(A.S.C.P.), Karen Keller, M.T.(A.S.C.P.)SH, Valerie Henry, M.T.(A.S.C.P.), and Katherine Swanson, M.T.(A.S.C.P.)SC from the University of Nebraska Medical Center.

Laboratory personnel in Omaha were extremely helpful in providing us with procedures, forms, and information. We extend our thanks to Linda Fell, M.S., M.T.(A.S.C.P.)SH and Carol Larson, M.S., M.T.(A.S.C.P.) from the University of Nebraska Medical Center, Julie Richards, M.P.A., M.T.(A.S.C.P.)BB from Methodist Hospital, and Patricia Studts, M.T.(A.S.C.P.)NRCC-TC and Susan Wilwerding, M.T.(A.S.C.P.) from St. Joseph Hospital.

We would like to thank Michael Di Lorenzo for using his computer skills to provide the basis for many of the color tables, charts, and procedure boxes.

The valuable suggestions from previous readers and the support from our colleagues at The University of West Florida, Northern Virginia Community College, The University of Nebraska Medical Center, Methodist Hospital, and St. Joseph Hospital have been a great asset to us in production of this new edition. We thank each and every one of you.



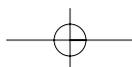
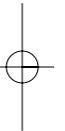
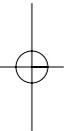
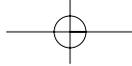
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