

4th edition

Compounding Sterile Preparations

E. Clyde Buchanan, RPh, MS, FASHP

Senior Director of Pharmacy (Ret.)
Emory Healthcare
Atlanta, Georgia

Philip J. Schneider, MS, FASHP, FFIP, FASPEN

Professor and Associate Dean for Academic &
Professional Affairs
University of Arizona College of Pharmacy
Phoenix Biomedical Campus
Phoenix, Arizona

Ryan A. Forrey, PharmD, MS, FASHP

Senior Manager, Market Development for
Hazardous Drug Safety
Becton, Dickinson and Company
Franklin Lakes, New Jersey

Any correspondence regarding this publication should be sent to the publisher, American Society of Health-System Pharmacists, 4500 East-West Highway, Suite 900, Bethesda, MD 20814, attention: Special Publishing.

The information presented herein reflects the opinions of the contributors and advisors. It should not be interpreted as an official policy of ASHP or as an endorsement of any product.

The authors would like to acknowledge the contributions of The U.S. Pharmacopeial Convention (USP), including allowing the generous references throughout this book to the *United States Pharmacopeia* and the *National Formulary (USP-NF)*. At the time of publishing, *USP 39-NF 34* (2016) is the current version of the *USP-NF*; however, references herein have also been made to *USP 32-NF 27* (2009), *USP 36-NF 31* (2013), and *USP 39-NF 34 First Supplement* (2016) as indicated in the copyright notice for each *USP-NF* excerpt.

The presentation and interpretation of *USP-NF* provided by the authors do not necessarily reflect the views of USP or the requirements of *USP-NF*, and readers should be aware that all of USP's standards are subject to revision.

Because of ongoing research and improvements in technology, the information and its applications contained in this text are constantly evolving and are subject to the professional judgment and interpretation of the practitioner due to the uniqueness of a clinical situation. The editors and ASHP have made reasonable efforts to ensure the accuracy and appropriateness of the information presented in this document. However, any user of this information is advised that the editors and ASHP are not responsible for the continued currency of the information, for any errors or omissions, and/or for any consequences arising from the use of the information in the document in any and all practice settings. Any reader of this document is cautioned that ASHP makes no representation, guarantee, or warranty, express or implied, as to the accuracy and appropriateness of the information contained in this document and specifically disclaims any liability to any party for the accuracy and/or completeness of the material or for any damages arising out of the use or non-use of any of the information contained in this document.

Editorial Project Manager, Books and eLearning Courses: Ruth Bloom

Editorial Project Manager, Publications Production Center: Kristin Eckles

Cover and Page Design: David Wade

Composition: Carol Barrer

Library of Congress Cataloging-in-Publication Data

Names: Buchanan, E. Clyde, editor. | Schneider, Philip J., editor. | Forrey, Ryan A., editor. | American Society of Health-System Pharmacists, issuing body.

Title: Compounding sterile preparations / [edited by] E. Clyde Buchanan, Philip J. Schneider, Ryan A. Forrey.

Description: Fourth edition. | Bethesda, MD : American Society of Health-System Pharmacists, [2017] | Includes bibliographical references and index.

Identifiers: LCCN 2017001193 | ISBN 9781585284849

Subjects: | MESH: Technology, Pharmaceutical--standards | Drug Compounding--standards | Sterilization--standards | Drug Contamination--prevention & control

Classification: LCC RS199.S73 | NLM QV 778 | DDC 615/.19--dc23 LC record available at <https://lccn.loc.gov/2017001193>.

© 2018, American Society of Health-System Pharmacists, Inc. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, microfilming, and recording, or by any information storage and retrieval system, without written permission from the American Society of Health-System Pharmacists.

ASHP is a service mark of the American Society of Health-System Pharmacists, Inc.; registered in the U.S. Patent and Trademark Office.

ISBN: 978-1-58528-484-9

First printing: October 2017

10987654321