

DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

Consultancies: Christopher M. Bland (Merck, Biomerieux); Mark Goldberger (Bristol Myers, Carb-X); Ron Keizer (Certara); Conan MacDougall (Paratek Pharmaceuticals); Jason Roberts (Accelerate Diagnostics, Biomerieux, Bayer);

Stock Ownership: Jonathan Faldasz (InsightRX); Mark Goldberger (Bristol Myers Squibb, AbbVie, Abbott); Ron Keizer (InsightRX, Pirana Consulting); Ravina Kullar (Merck, Gilead Sciences);

Royalties:

Grants: Christopher M. Bland (ALK Abello, Inc., Merck); Islam M. Ghazi (Merck and Co, Achaogen, Astelas); Lynne C. Krop (Society of Infectious Diseases Pharmacists); Charles Arthur Peloquin (Jacobus Pharmaceuticals) ; Jason Roberts (MSD, The Medicines Company, Cardeas Pharma); Sheryl A. Zelenitsky (Kidney Foundation of Canada, Canadian Society of Hospital Pharmacists Foundation, Pfizer Canada Inc.)

Honoraria: Christopher M. Bland (Merck, Tetrphase); Elias B. Chahine (Merck, Paratek Pharmaceuticals); Jason Roberts (MSD);

Other: Jonathan Faldasz (employed by InsightRX); Ron Keizer (employed by InsightRX); David Nix (spouse or significant other employed by Celerion)

Nothing to disclose: Mohd Haviz Abdul-Aziz; Mohammad H. Alshaer; Melody L. Berg; Gena M. Burch; Brad J. Crane; Aaron Cook; Carmen Faulkner-Fennell; Miki A. Goldwire; Alan Gross; Davey Legendre; Lina Meng; Cynthia T. Nguyen; Emily Mui Ohgami; Ronnie Ozuna; Saira Rab; Melissa Ruble; Allana J. Sucher; Clare Tolley, Ph.D.; Lynn Wardlow;

ROLE OF BPS: The Board of Pharmacy Specialties (BPS) is an autonomous division of the American Pharmacists Association (APhA). To maintain its strict, independent standards for certification, BPS does NOT endorse or provide review information, preparatory courses, or study guides for Board Certification Examinations. The Board, through its specialty councils, is responsible for specialty examination content, administration, scoring, and all other aspects of its certification programs. BPS is totally separate and distinct from ACCP. IDSAP has been approved by BPS for use in BCIDP recertification. Information about the BPS recertification process is available [online](#).

Questions regarding BCIDP recertification should be directed to:

[Board of Pharmacy Specialties](#)

2215 Constitution Avenue NW
Washington, DC 20037
(202) 429-7591

PK/PD in Special Populations and Antimicrobial Prophylaxis I Panel

Series Editors:

Elizabeth S. Dodds Ashley, Pharm.D., MHS, BCPS

Associate Professor of Medicine
Division of Infectious Diseases
Duke University School of Medicine
Director of Operations
Duke Antimicrobial Stewardship Outreach
Network (DASON)
Durham, North Carolina

Alan E. Gross, Pharm.D., BCPS, BCIDP

Clinical Associate Professor
Department of Pharmacy Practice
University of Illinois at Chicago College of Pharmacy
Infectious Diseases Pharmacist
Hospital Pharmacy Services
University of Illinois Hospital and Health Sciences System
Chicago, Illinois

Faculty Panel Chair:

Marc H. Scheetz, Pharm.D., M.Sc., FCCP,

BCPS-AQ Infectious Diseases

Professor and Director, Pharmacometrics
Center of Excellence
Chicago College of Pharmacy, Department
of Pharmacy Practice
College of Graduate Studies, Department of Pharmacology
Midwestern University
Infectious Diseases Pharmacist
Northwestern Medicine
Department of Pharmacy
Chicago, Illinois

PK/PD in Critical Illness

Authors

Mohd Hafiz Abdul-Aziz, Ph.D., M.Clin

Pharm, B.Pharm (Hons)

Clinical Research Pharmacist
University of Queensland Centre for Clinical Research
The University of Queensland
Royal Brisbane and Women's Hospital
Brisbane, Queensland
Australia

Jason A. Roberts, Ph.D., B.Pharm

(Hons), B.App.Sc, FSHP, FISAC

Professor of Pharmacy and Medicine & NHMRC
Practitioner Fellow

University of Queensland Centre for Clinical Research
The University of Queensland
Pharmacist Consultant
Pharmacy Department
Royal Brisbane and Women's Hospital
Brisbane, Queensland
Australia

Reviewers

Christopher M. Bland, Pharm.D., FCCP, FIDSA, BCPS

Clinical Associate Professor
Department of Clinical and Administrative Pharmacy
University of Georgia College of Pharmacy
Infectious Diseases Clinical Specialist
St. Joseph's/Candler Health System, Inc.
Savannah, Georgia

Conan MacDougall, Pharm.D., MAS, BCPS, BCIDP

Professor of Clinical Pharmacy
Department of Clinical Pharmacy
University of California San Francisco School of Pharmacy
San Francisco, California

Lynn Wardlow, Pharm.D., MBA, MS, BCPS, BCIDP

Specialty Practice Pharmacist, Infectious Diseases
Department of Pharmacy
The Ohio State University Wexner Medical Center
Columbus, Ohio

TDM of Anti-Infectives

Authors

Aaron M. Cook, Pharm.D., BCPS, BCCCP

Clinical Coordinator – Neuroscience-Pulmonary/Critical Care
Department of Pharmacy Services
UKHealthCare, University of Kentucky
Associate Adjunct Professor, Pharmacy
Department of Pharmacy Practice and Science
University of Kentucky College of Pharmacy
Lexington, Kentucky

Melissa L. Thompson Bastin, Pharm.D., BCPS

Clinical Pharmacist Medical ICU/Pulmonary
Department of Pharmacy Services
University of Kentucky
Assistant Adjunct Professor
Department of Pharmacy Practice and Science
University of Kentucky College of Pharmacy
Lexington, Kentucky

Reviewers

David E. Nix, Pharm.D., BCPS

Professor
Program Director, PGY2 Infectious Disease Residency
Department of Pharmacy Practice and Science
The University of Arizona College of Pharmacy
Tucson, Arizona

Saira Rab, Pharm.D., BCPS, BCIDP, AAHIVP

Infectious Diseases Clinical Pharmacist Specialist
Department of Pharmacy and Medical Nutrition
Grady Health System
Atlanta, Georgia

Ronnie Ozuna, Pharm.D., BCPS

Assistant Dean
Assistant Clinical Professor
University of Houston College of Pharmacy
Pharmacy Clinical Coordinator
DHR Health
Houston, Texas

The American College of Clinical Pharmacy and the authors thank the following individuals for their careful review of the PK/PD in Special Populations and Antimicrobial Prophylaxis I chapters:

Marisel Segarra-Newnham, Pharm.D., MPH, FCCP, BCPS, BCIDP

Clinical Pharmacy Specialist, Infectious Diseases/HIV Antimicrobial Stewardship Program Pharmacy Director
Veterans Affairs Medical Center
West Palm Beach, Florida
Clinical Assistant Professor of Pharmacy Practice
University of Florida College of Pharmacy
Gainesville, Florida

Ralph H. Raasch, Pharm.D., FCCP, BCPS

Associate Professor of Pharmacy (retired)
Division of Practice Advancement and Clinical Education
Eshelman School of Pharmacy
The University of North Carolina at Chapel Hill
Chapel Hill, North Carolina

PK/PD in Special Populations and Antimicrobial Prophylaxis II Panel

Series Editors:

Elizabeth S. Dodds Ashley, Pharm.D., MHS, BCPS

Associate Professor of Medicine
Division of Infectious Diseases
Duke University School of Medicine
Director of Operations
Duke Antimicrobial Stewardship Outreach
Network (DASON)
Durham, North Carolina

Alan E. Gross, Pharm.D., BCPS, BCIDP

Clinical Associate Professor
Department of Pharmacy Practice
University of Illinois at Chicago College of Pharmacy
Infectious Diseases Pharmacist
Hospital Pharmacy Services
University of Illinois Hospital and Health Sciences System
Chicago, Illinois

Faculty Panel Chair:

Marc H. Scheetz, Pharm.D., M.Sc., FCCP,

BCPS-AQ Infectious Diseases

Professor and Director, Pharmacometrics Center of Excellence
Chicago College of Pharmacy, Department
of Pharmacy Practice
College of Graduate Studies, Department
of Pharmacology
Midwestern University
Infectious Diseases Pharmacist
Northwestern Medicine
Department of Pharmacy
Chicago, Illinois

Surgical Prophylaxis

Authors

Emily Mui, Pharm.D., BCIDP

Infectious Diseases/Antimicrobial Stewardship Pharmacist
Department of Quality – Infection Prevention
and Patient Safety
Stanford Health Care
Stanford, California

Lina Meng, Pharm.D., BCCCP, BCIDP

Infectious Diseases/Antimicrobial Stewardship Pharmacist
Department of Quality – Infection Prevention
and Patient Safety
Stanford Health Care
Stanford, California

Reviewers

Sheryl Zelenitsky, Pharm.D.

Professor
College of Pharmacy, Rady Faculty of Health Sciences
University of Manitoba
Winnipeg, Manitoba
Canada

Cynthia T. Nguyen, Pharm.D., BCPS-AQ

Infectious Diseases, BCIDP

Clinical Pharmacy Specialist, Infectious Diseases
Department of Pharmacy
University of Chicago Medicine
Chicago, Illinois

Lynne C. Krop, Pharm.D., BCPS-AQ Infectious Diseases

Pharmacy Clinical Coordinator
Infectious Diseases Specialist
Department of Pharmacy
BayCare Health/Morton Plant Hospital
Clearwater, Florida

Adult Vaccines

Authors

Elias B. Chahine, Pharm.D., FCCP, FASCP, FFSHP, BCPS, BCIDP

Professor of Pharmacy Practice
Department of Pharmacy Practice
Palm Beach Atlantic University Gregory
School of Pharmacy
West Palm Beach, Florida
Clinical Pharmacy Specialist
Department of Pharmacy Services
Wellington Regional Medical Center
Wellington, Florida

Allana J. Sucher, Pharm.D., BCPS, BCIDP

Professor
Department of Pharmacy Practice
Regis University
Denver, Colorado

Reviewers

Brad J. Crane, Pharm.D., BCPS-AQ Infectious Diseases

Clinical Pharmacy Specialist, Antimicrobial Stewardship
Department of Pharmacy
Blount Memorial Hospital
Maryville, Tennessee

Carmen M. Faulkner-Fennell, Pharm.D., BCPS, BCIDP
Clinical Pharmacy Specialist, Antimicrobial Stewardship
Department of Pharmacy
Prisma Health-Upstate
Greenville, South Carolina

Melissa Ruble, Pharm.D., BCPS
Assistant Professor
Pharmacotherapeutics and Clinical Research
Department
University of South Florida Taneja College
of Pharmacy
Tampa, Florida

Drug Assay Methodologies

Authors

Mohammad H. Al-Shaer, Pharm.D., Ph.D., BCPS
Research Assistant Professor
Infectious Disease Pharmacokinetics Laboratory
University of Florida
Gainesville, Florida

Charles A. Peloquin, Pharm.D., FCCP
Professor
Infectious Disease Pharmacokinetics Laboratory
University of Florida
Gainesville, Florida

Gena M. Burch, Pharm.D., MS
Postdoctoral Associate
College of Pharmacy
University of Florida
Gainesville, Florida

Reviewers

Islam M. Ghazi, Pharm.D., M.Sc., BCPS, BCACP
Assistant Professor of Clinical Pharmacy
Department of Pharmacy Practice and
Pharmacy Administration
Philadelphia college of Pharmacy/University
of the Sciences
Philadelphia, Pennsylvania

Davey Legendre, Pharm.D., MBA, BCPS-AQ

Infectious Diseases

Regional Vice President, Clinical Infectious Diseases
Department of Clinical Services
Comprehensive Pharmacy Services
Woodstock, Georgia

The American College of Clinical Pharmacy and the authors thank the following individuals for their careful review of the PK/PD in Special Populations and Antimicrobial Prophylaxis II chapters:

Mary Wun-Len Lee, Pharm.D., FCCP, BCPS
Vice President and Special Assistant to the President
Midwestern University
Professor of Pharmacy Practice
Chicago College of Pharmacy
Downers Grove, Illinois

Marisel Segarra-Newnham, Pharm.D., MPH, FCCP, BCPS, BCIDP
Clinical Pharmacy Specialist, Infectious Diseases/HIV Antimicrobial Stewardship Program Pharmacy Director
Veterans Affairs Medical Center
West Palm Beach, Florida
Clinical Assistant Professor of Pharmacy Practice
University of Florida College of Pharmacy
Gainesville, Florida

Jeffrey T. Sherer, Pharm.D., MPH, BCPS, BCGP
Clinical Professor
Department of Pharmacy Practice and
Translational Research
University of Houston College of Pharmacy
Houston, Texas

PK/PD in Special Populations and Antimicrobial Prophylaxis III Panel

Series Editors:

Elizabeth S. Dodds Ashley, Pharm.D., MHS, BCPS

Associate Professor of Medicine
Division of Infectious Diseases
Duke University School of Medicine
Director of Operations
Duke Antimicrobial Stewardship Outreach
Network (DASON)
Durham, North Carolina

Alan E. Gross, Pharm.D., BCPS, BCIDP

Clinical Associate Professor
Department of Pharmacy Practice
University of Illinois at Chicago College of Pharmacy
Infectious Diseases Pharmacist
Hospital Pharmacy Services
University of Illinois Hospital and Health Sciences System
Chicago, Illinois

Faculty Panel Chair:

Marc H. Scheetz, Pharm.D., M.Sc., FCCP,

BCPS-AQ Infectious Diseases

Professor and Director, Pharmacometrics Center of Excellence
Chicago College of Pharmacy, Department of Pharmacy Practice
College of Graduate Studies, Department of Pharmacology
Midwestern University
Infectious Diseases Pharmacist
Northwestern Medicine
Department of Pharmacy
Chicago, Illinois

Interactive Case: Clinical Decision Support Systems in Drug Dosing

Authors

Ron Keizer Pharm.D. Ph.D.

Chief Scientific Officer
InsightRX
San Francisco, California

Jonathan Faldasz, Pharm.D., BCPS

Head of Clinical Applications
InsightRX
San Francisco, California

Reviewers

Clare L. Tolley, Ph.D., MPharm, PGCert, FHEA, GPhC

Research Associate/Honorary Pharmacist
Population Health Sciences Institute and School of Pharmacy
Newcastle University
Newcastle upon Tyne, England

Melody L. Berg, Pharm.D., MPH, BCPS

Senior Content Management Consultant
Clinical Drug Information
Wolters Kluwer
Indianapolis, Indiana

Miki A. Goldwire, Pharm.D., MS, BCPS

Professor and Director of Drug Information
School of Pharmacy
Regis University
Denver, Colorado

Recorded Webcast: Regulatory Environment for Drugs

Authors

Ravina Kullar, Pharm.D., MPH, FIDSA

Infectious Diseases Researcher and Consultant
Infectious Diseases Antimicrobial Stewardship
Expert Stewardship, Inc.
Newport Beach, California

Mark J. Goldberger, M.D., MPH, FIDSA

Potomac, Maryland

Reviewers

Alan E. Gross, Pharm.D., BCPS, BCIDP

Clinical Associate Professor
Department of Pharmacy Practice
University of Illinois at Chicago College of Pharmacy
Infectious Diseases Pharmacist
Hospital Pharmacy Services
University of Illinois Hospital and Health Sciences System
Chicago, Illinois

Miki A. Goldwire, Pharm.D., MS, BCPS

Professor and Director of Drug Information
School of Pharmacy
Regis University
Denver, Colorado

The American College of Clinical Pharmacy and the authors thank the following individuals for their careful review of the PK/PD in Special Populations and Antimicrobial Prophylaxis III features:

Ralph H. Raasch, Pharm.D., FCCP, BCPS

Associate Professor of Pharmacy (retired)

Division of Practice Advancement and Clinical Education

Eshelman School of Pharmacy

The University of North Carolina at Chapel Hill

Chapel Hill, North Carolina