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Antimicrobial Stewardship – A Long-Term Care Certificate Program for Pharmacists

Program Description and Audience

The Antimicrobial Stewardship Long-Term Care Certificate Program is an innovative and intensive practice-based activity for pharmacists focusing on the pharmacist's role in the area of appropriate use of antimicrobial agents. Certificate program participants begin by developing a strong knowledge base in microbiology, pharmacology, and disease state management through online programming and live webinars. Then participants practice developing interventions at their practice site that aim to improve patient/resident care and clinical outcomes, lower healthcare costs, and prolong the longevity of our antimicrobials.

Antimicrobial Stewardship Certificate Program Development

The Antimicrobial Stewardship Long-Term Care Certificate Program was developed by members of The Society of Infectious Diseases Pharmacists (SIDP). All members volunteered their time and knowledge in developing the content of this program. There was no outside financial support for developing this program.

Antimicrobial Stewardship Certificate Program Goals

The certificate program goals/learning objectives are the following:

1. Discuss the essentials of clinical microbiology, pharmacology, pharmacokinetics, pharmacodynamics, and infectious disease state management relevant to antimicrobial stewardship in the LTC setting.
2. Describe the interactions between consultant pharmacists and other members of the healthcare team that are vital to the success of effective antimicrobial stewardship within the LTC setting.
3. Employ skills needed to establish an antimicrobial stewardship program within the LTC setting.
4. Develop interventions that improve patient/resident care, minimize resistance, lower healthcare costs, comply with federal regulations and prolong longevity of antimicrobials.
5. Measure outcomes and evaluate effectiveness of an antimicrobial stewardship program within a LTC setting.

Antimicrobial Stewardship Certificate Program Structure

The Antimicrobial Stewardship Long-Term Care certificate training program is conducted in three parts. Each part must be completed prior to starting the next one. A Certificate of Achievement will be awarded to participants who successfully complete all three program components. Participants who successfully complete the program will be eligible for a 1 year free associate membership in SIDP.

- Phase 1. Self-study learning component available online (approx. 3 months)
- Phase 2. Combination of Live and Home-Study webinars (approx. 5 months)
- Phase 3. Skills component completed in the practice setting (approx. 4 months)

About SIDP

The Society of Infectious Diseases Pharmacists (SIDP) is an association of pharmacists and other allied health care professionals committed to promoting the appropriate use of antimicrobial agents and supporting practice, teaching and research in infectious diseases. Learn more at www.sidp.org.

Self-Study Learning Component (Phase 1)

The first component of the certificate training program consists of self-study modules available for viewing online. Topics, learning objectives, and length of time to complete each self-study module are noted on the outline below.

Module 1.1 – Microbiology

1a - *Staphylococcus species* (ACPE UAN: 0221-9999-20-224-H01-P, Knowledge-based, 0.25 contact hour, Release: 7/1/2020, Exp: 7/1/2023)

- Explain the Gram-stain & morphology of various bacteria
- Discuss commensal flora in the body and where select organisms are pathogenic
- List agents with activity or should be considered for use against various organisms
- Discuss resistance issues associated with various organisms

1b-Streptococcus & Enterococcus (ACPE UAN: 0221-9999-19-481-H01-P, Knowledge-based, 0.5 contact hour, Release: 9/15/2019, Exp: 3/15/2022)

- Explain the Gram-stain & morphology of various bacteria
- Discuss commensal flora in the body and where select organisms are pathogenic
- List agents with activity or should be considered for use against various organisms
- Discuss resistance issues associated with various organisms

1c-Non Fermenters (ACPE UAN: 0221-9999-20-225-H01-P, Knowledge-based, 0.5 contact hour, Release: 7/1/2020, Exp: 7/1/2023)

- Explain the gram-stain and morphology of *Acinetobacter*, *Pseudomonas*, and *Stenotrophomonas maltophilia*
- Discuss the epidemiology of *Acinetobacter*, *Pseudomonas*, and *Stenotrophomonas maltophilia*
- List agents with activity or should be considered for use against *Acinetobacter*, *Pseudomonas*, and *Stenotrophomonas maltophilia*
- Discuss resistance issues associated with *Acinetobacter*, *Pseudomonas*, and *Stenotrophomonas maltophilia* and the roll of combination therapy

1d-Enterobacteriaceae (ACPE UAN: 0221-9999-19-482-H01-P, Knowledge-based, 0.5 contact hour, Release: 9/15/2019, Exp: 3/15/2022)

- Discuss commensal flora in the body and where select organisms are pathogenic
- List agents with activity or should be considered for use against various gram-negative bacilli
- Discuss resistance issues associated with various organisms

1e-Haemophilus, Moraxella, Neisseria, Atypical Organisms (ACPE UAN: 0221-9999-19-483-H01-P, Knowledge-based, 0.5 contact hour, Release: 9/15/2019, Exp: 3/15/2022)

- Explain the gram-stain and morphology of various bacteria.

- Discuss commensal flora in the body and where select organisms are pathogenic.
- Explain the various types of infections.
- List agents with activity or should be considered for use against various organisms.
- Discuss resistance issues associated with various organisms.

1f-Anaerobes (ACPE UAN: 0221-9999-19-484-H01-P, Knowledge-based, 0.5 contact hour, Release: 9/15/2019, Exp: 3/15/2022)

- Explain the gram-stain and morphology of various bacteria
- Discuss commensal flora in the body and where select organisms are pathogenic
- Explain the various types of infections
- List agents with activity or should be considered for use against various organisms
- Discuss resistance issues associated with various organisms

1g-Fungi (ACPE UAN: 0221-9999-19-485-H01-P, Knowledge-based, 0.5 contact hour, Release: 9/15/2019, Exp: 3/15/2022)

- Recognize the differences between yeasts, molds, and dimorphic fungi
- Describe the activity of antifungals against key fungal pathogens
- Discuss challenges that are inherent to antifungal pharmacotherapy

1.2 Pharmacokinetics & Pharmacodynamics Primer for Clinicians

(ACPE UAN: 0221-9999-20-232-H01-P, Knowledge-based, 0.75 contact hour, Release: 5/15/2020, Exp: 5/15/2023)

- Describe pharmacokinetics (PK) and the clinical application of PK parameters in long-term care pharmacy practice.
- Describe physiologic factors and disease states that affect drug disposition in the geriatric patient.
- Describe pharmacodynamics (PD) and how to apply its principles to clinical practice

1.3 Approach to the Infected Patient

(ACPE UAN: 0221-9999-20-233-H01-P, Knowledge-based, 0.75 contact hour, Release: 5/15/2020, Exp: 5/15/2023)

- Describe the assessment process for a long-term care resident with potential infection.
- List hallmarks of infection and accurate diagnosis for common infections (urinary, respiratory and gastrointestinal tract)
- Explain the general process of selecting empiric and definitive antimicrobial therapy in older adults

1.4 – Pharmacology

a-Antimicrobial Pharmacology I (ACPE UAN: 0221-9999-19-486-H01-P, Knowledge-based, 0.75 contact hour)

b-Antimicrobial Pharmacology II (ACPE UAN: 0221-9999-19-487-H01-P, Knowledge-based, 1.0 contact hour)

c-Antimicrobial Pharmacology III (ACPE UAN: 0221-9999-19-488-H01-P, Knowledge-based, 0.25 contact hour)

Antimicrobial Pharmacology (I, II, III) learning objectives (Release: 9/15/2019, Exp: 3/15/2022):

- Explain the principals of anti-infective pharmacology
- Describe the classifications of anti-infectives including mechanisms of action, mechanisms of resistance, spectrum of activity, infections commonly treated, adverse effects (most common, very serious or unique), and drug interactions
- Select and discuss rationale for drugs of choice for various organisms

2. Disease States and Treatments

2.1 Upper Respiratory Tract Infections (ACPE UAN: 0221-9999-20-234-H01-P, Knowledge-based, 0.5 contact hour, Release: 5/15/2020, Exp: 5/15/2023)

- Review the symptoms and etiology of upper respiratory infections, including the common cold, bronchitis, and sinusitis.
- Identify patients who have symptoms consistent with bacterial sinusitis or streptococcal pharyngitis and select appropriate therapy.

2.2 Lower Respiratory Tract Infections (ACPE UAN: 0221-9999-20-227-H01-P, Knowledge-based, 3.0 contact hours, Release: 5/15/2020, Expiration: 5/15/2023)

- Review the national guideline recommendations for community-acquired (CAP), hospital-acquired (HAP), and ventilator-associated (VAP) pneumonia
- List the most common bacterial pathogens associated with CAP, HAP, and VAP
- Identify the risk factors for multidrug-resistant pathogens
- Discuss selection of empiric therapy and de-escalation for CAP, HAP, and VAP
- Describe the role for antimicrobial stewardship in ensuring optimal management of pneumonia

2.3 Skin/Soft Tissue Infections (ACPE UAN: 0221-9999-20-228-H01-P, Knowledge-based, 1.5 contact hours, Release: 7/7/2020, Expiration: 7/1/2023)

- Describe pathophysiology / predisposing factors for skin/soft tissue infections (SSTIs).
- Recognize clinical presentation and monitoring considerations
- List primary pathogens associated with skin and soft tissue infections.
- Discuss appropriate antimicrobial therapy for SSTIs.

2.4 *Clostridioides difficile* Infection (ACPE UAN: 0221-9999-19-133-H01-P, Knowledge-based, 0.75 contact hours, Release: 3/29/2019, Exp: 3/15/2022)

- Explain why CDI is a burden in both inpatient and outpatient settings.
- Identify major risk factors for CDI.
- Discuss rational approaches to the management of initial and recurrent symptomatic CDI.
- Compare and contrast strategies for preventing CDI.

2.5 Definition and Management of Sepsis (ACPE UAN: 0221-9999-20-235-H01-P, Knowledge-based, 0.5 contact hour, Release: 5/15/2020, Exp: 5/15/2023)

- Review the new Sepsis definitions
- Illustrate and demonstrate qSOFA scoring
- Explain the definition and scoring to determine when to transfer a patient to a higher level of care

2.6 Urinary Tract Infections (ACPE UAN: 0221-9999-20-231-H01-P, Knowledge-based, 0.75 contact hour, Release: 7/1/2020, Exp: 7/1/2023)

- Describe and define Urinary tract infections associated in the hospital setting
- Describe the epidemiology, microbiology and treatment of acute pyelonephritis, catheter associated UTI and asymptomatic bacteriuria

3. Stewardship Interventions

(ACPE UAN: 0221-9999-20-236-H01-P, Knowledge-based, 0.75 contact hour, 5/15/2020, Exp: 5/15/2023)

- Describe the benefits and process of appropriate empiric antibiotic selection, antibiotic pause, and de-escalation interventions.
- Review data suggesting when shorter durations of antimicrobial therapy may be appropriate.
- Evaluate effective antimicrobial stewardship strategies in long-term care facilities to enable front line staff to become better stewards.

4. Measuring Outcomes

(ACPE UAN: 0221-9999-20-237-H01-P, Knowledge-based, 1.25 contact hours, 5/15/2020, Exp: 5/15/2023)

- Identify the types of adverse drug events associated with improper antibiotic usage.
- List variables of interest that Stewardship Programs can impact and quantify.
- Categorize the types of studies utilized in measuring outcomes of Antimicrobial Stewardship Programs.
- Compare and contrast different ways to present economical outcomes from a Stewardship Program.
- Determine the most appropriate economical outcomes to evaluate for a Stewardship Program.
- Identify candidates for IV to PO conversion.
- Describe the utility of measuring resistance for Antimicrobial Stewardship.
- Examine the common elements of stewardship programs.
- Prioritize program components based on available resources.

5. Infection Control & Prevention

(ACPE UAN: 0221-9999-20-238-H01-P, Knowledge-based, 0.5 contact hour, 5/15/2020, Exp: 5/15/2023)

- Relate the purpose of a long term care facility's infection control program to its antimicrobial stewardship program.
- Explain what makes seniors susceptible hosts for infections.
- Describe the infection control approaches to be applied during medication administration.

6. Research Series

6.1 Getting Started with Research (ACPE UAN: 0221-9999-20-511-H04-P, Knowledge-based, 1.0 contact hour, Release: 11/1/2020, Exp: 11/1/2023)

- Compare and contrast the difference between quality improvement and IRB-approved research.
- Discuss how to translate current stewardship efforts into a publishable project.
- Identify potential collaborators to build a successful research team.

6.2 Navigating Study Design and Data Capture in Antimicrobial Stewardship Research (ACPE UAN: 0221-9999-20-512-H04-P, Knowledge-based, 1.0 contact hour, Release: 11/1/2020, Exp: 11/1/2023)

- Recognize the optimal study design to answer your research question.
- Identify appropriate and measurable endpoints for your selected study design.
- Describe best practices for designing a data dictionary and case report form.

6.3 Interpreting and Analyzing Data (ACPE UAN: 0221-9999-20-513-H04-P, Knowledge-based, 1.0 contact hour, Release: 11/1/2020, Exp: 11/1/2023)

- Demonstrate capacity to apply descriptive statistics to appropriately characterize your study population.
- Identify the appropriate inferential statistics to analyze differences between study groups.
- Interpret results of statistical analyses to draw meaningful conclusions.

6.4 Disseminating Research Findings (ACPE UAN: 0221-9999-20-514-H04-P, Knowledge-based, 1.0 contact hour, Release: 11/1/2020, Exp: 11/1/2023)

- Illustrate a systematic approach to composing a manuscript for peer-reviewed publication.
- Outline best practices for sharing research on social media.
- Describe traditional and non-traditional options for dissemination of research.

Live and On-Demand Webinar Sessions (Phase 2)

The second component of the certificate training program consists of completing a minimum of four (two of which are required) of the live or on-demand webinar sessions (1 to 1.5 hours each) listed below. You may attend all webinars and receive additional continuing pharmacy education credit for the other topics. The three live webinars are offered quarterly and times for the sessions will be viewable after all Phase 1 Self-Study content is completed. We reserve the right to cancel a live webinar. In the event of a live webinar cancellation, each participant will be notified via e-mail along with the rescheduled date. Topics and learning objectives for each session are:

W1a. *REQUIRED:* Implementation of an Antimicrobial Stewardship Program in a Long-term Care Facility: Justification, Cost, and Challenges (*On-Demand*)

(ACPE UAN: 0221-9999-19-125-H04-P Knowledge-based, 1.0 contact hour, Release: 3/19/2019, Exp: 3/15/2022)

- Describe the resources necessary to initiate an antimicrobial stewardship program in a long-term care facility.
- Describe how to justify the benefits of an antimicrobial stewardship program to administrative and clinical leadership.
- Identify potential institutional barriers to implementation of an antibiotic stewardship program based on different settings.

W1b. *REQUIRED:* Key Strategies for Antimicrobial Stewardship in Long-Term Care Facilities (*On-Demand*)

(ACPE UAN: 0221-9999-19-126-H04-P Knowledge-based, 1.25 contact hour, Release: 3/19/2019, Exp: 3/15/2022)

- Describe antimicrobial stewardship strategies that are high-impact in long-term care facilities
- Provide examples of potential solutions for carrying out antimicrobial stewardship strategies in resource-constrained settings
- Explain key antimicrobial stewardship outcomes and strategies for tracking in the long-term care setting

W2. Understanding the Hospital Antibigram (*Live*)

(ACPE UAN: 0221-9999-18-297-L04-P Knowledge-based, 1.5 contact hour, Release: 10/15/2018, Exp: 10/15/2021)

- List the CLSI M39 guidelines for antibiogram development

- Discuss how to utilize a hospital antibiogram to guide empiric antibiotic selection and to detect bacterial resistance patterns
- Discuss how rates of MRSA, VRE, and other resistant organisms can be calculated using antibiogram data
- Describe how individual and hospital antibiograms may be used to foster prudent antimicrobial prescribing and optimize antimicrobial stewardship

W3. Multidrug Resistant Organisms: Detection, Epidemiology, and Management (Live)

(ACPE UAN: 0221-9999-18-296-L01-P Knowledge-based, 1.5 contact hour, Release: 10/15/2018, Exp: 10/15/2021)

- Discuss the mechanisms of resistance behind common multidrug resistant (MDR) pathogens.
- Describe the microbiology challenges associated with the identification of multidrug-resistant bacteria.
- Discuss the prevalence and epidemiology of multidrug resistant bacteria.
- Describe the current evidence-based strategies in the management of invasive multidrug resistant bacteria.

W4. Computer Support Systems and Technology for Long-term Care Facilities (On-Demand)

(ACPE UAN: 0221-9999-19-127-H04-P Knowledge-based, 1.0 contact hour, Release: 3/19/2019, Exp: 3/15/2022)

- Review various antimicrobial stewardship guidelines and recommendations
- Identify the role of information technology systems in antimicrobial stewardship
- Identify the different clinical decision support systems (CDSS) and their limitations
- Describe the impact that information technology and CDSS can have in the long-term care facility (LTCF) setting (case studies)

W5. Optimizing Infectious Diseases Outcomes in an Antimicrobial Stewardship Program (Live)

(ACPE UAN: 0221-9999-18-299-L04-P Knowledge-based, 1.5 contact hour, Release: 10/15/2018, Exp: 10/15/2021)

- Discuss the impact of antimicrobial therapy and resistance on clinical outcomes
- Review components of antimicrobial stewardship programs and opportunities to improve patient care
- Recognize dosing strategies to optimize antimicrobial pharmacodynamics
- Describe the development of evidence-based guidelines to implement clinical pathways
- Outline novel concepts of antibiotic heterogeneity to address gram negative resistance

W6. Antimicrobial Stewardship Long-Term Care Regulatory Requirements (On-Demand)

(ACPE UAN: 0221-9999-19-128-H04-P Knowledge-based, 1.0 contact hour, Release: 3/19/2019, Exp: 3/15/2022)

- Discuss the problems related to unregulated antibiotic use in long-term care;
- Discuss the historical perspective of the development of antimicrobial stewardship;
- Discuss changes to the CMS regulations for long-term care related to antimicrobial stewardship

Skills Component in the Practice Setting

(ACPE UAN: 0221-9999-20-241-H04-P Application-based; 10 contact hours, Release: 7/1/2020, Exp: 7/1/2023)

After completion of the self-study and live webinars, the participant is required to implement some aspect of antimicrobial stewardship at their facility. The participant should notify SIDP, in writing, of the implementation. Participants should allow approximately 4 months after completion of the last live webinar to complete a project. A panel will review the document and evaluate it for appropriateness within antimicrobial stewardship. If modifications are needed, SIDP will return the document with review comments for change and the participant will have 2 months to resubmit a modified document. After approval by the panel of the required documentation, an overall program evaluation must be completed online. CE for 10 hours will be issued online and a certificate of completion for “Antimicrobial Stewardship – A Long-Term Care Certificate Program for Pharmacists” will be sent to the participant. If a time extension is needed, please submit the request in writing via email to info@proce.com. The request for extension will be reviewed and an email will be returned to you as to whether the extension was granted.

The learning objectives for Phase 3 are the following:

- Implement at least one aspect of antimicrobial stewardship within your practice setting.
- Construct a documentation plan for an antimicrobial stewardship project.
- Identify barriers to implementing components of an antimicrobial stewardship project.
- Outline strategies to overcome barriers identified for an antimicrobial stewardship project.

Accreditation Statement and Continuing Education Credit

Practice Activity Number 0221-9999-20-242-B01-P

Initial Date of Release: July 1, 2020 | Date of Expiration: July 1, 2023



This CE activity is jointly provided by ProCE, LLC and SIDP. ProCE is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. ACPE Practice Activity Number 0221-9999-20-242-B01-P has been assigned to this practice-based CE activity (initial release date 7-17-20). This CE activity is approved for 34.5 contact hours (3.45 CEUs) in states that recognize ACPE providers. The participant can elect to complete additional webinars at no additional cost and earn up to 39 contact hours (3.9 CEUs). Statements of completion will be issued online as individual modules are completed with a post-test score of 80% or higher and completion of an online evaluation. UANs for the individual activity modules are listed above.

The self-study component is 20.25 contact hours or 2.025 CEUs of continuing pharmacy education credits. Statements of completion will be issued online upon completion of the activity evaluations and the post-tests with a score of 80% or higher. It is anticipated the participant will complete this component within 3 months of registration. *Content and CE hours are subject to change: modules are regularly reviewed and updated to reflect current clinical knowledge.*

The combination live and on-demand webinar component will result in 4.25 to 8.75 contact hours of continuing pharmacy education credit (0.425 to 0.875 CEUs). Statements of completion will be issued online upon completion of the activity evaluations and passing the post-tests with a grade of 80% or higher for each of the live or on-demand webinar sessions. It is anticipated the participant will complete this component within 8 months of registration.

A practice or skills component will be completed at your practice setting after completion of the home study component and at least four live webinars. This portion is worth 10 hours or 1.0 CEUs of continuing pharmacy education credit. This component consists of implementation of some aspect of antimicrobial stewardship at your facility. This could be an IV to PO switch program, development and clinical incorporation of an antibiogram, criteria for use, clinical protocol to treat one or multiple infectious diseases, etc. The information must be submitted either by email to info@proce.com or via upload to the ProCE CE Center.

After approval by SIDPs panel of the required documentation, a final program evaluation must be completed online to receive CE credit. It is anticipated the participant will complete this component within 12 months of registration, or 14 months of registration if project modifications are needed. Participants will have access to the content for one year after purchasing the program, unless an extension is granted.

Antimicrobial Stewardship Certificate of Completion

Upon successful completion of all three components, a Certificate of Achievement will be issued to the participant from The Society of Infectious Diseases Pharmacists. The certificate will be mailed directly to participants 2-4 weeks following completion of the program. Participants who successfully complete the program will also be eligible for a 1 year free associate membership in SIDP.

Program Cost

Participant cost is \$850 per pharmacist. This amount includes the self-study section, live webinars, and the skills development/implementation at your practice site. For trainees (e.g., residents, fellows, and graduate students) the cost will be \$650 per individual. For institutions or healthcare facilities with payment from the same institution, we provide the following discounts (*To receive a discount or for questions about them, please contact ProCE at info@proce.com. Note: group discounts do not apply to the trainee rate:*

6-10 healthcare professionals = 5% discount

11-15 healthcare professionals = 10% discount

More than 15 healthcare professionals = 15% discount

Cancellations received in writing prior to accessing any of the program content (send request via e-mail to info@proce.com) will receive a full refund minus a \$150 cancellation fee.

Hardware/Software Requirement

PC: Microsoft Windows 7 or above
Chrome (recommended), Internet Explorer (v9 or greater) or Firefox
Adobe Acrobat Reader
Sound Card and Speakers
800 x 600 Minimum Monitor Resolution (1024 x 768 Recommended)
Flash Player Plug-in, Current Version
JavaScript, Java 1.6 or higher

MAC: Mac OS X
Chrome or Firefox
Adobe Acrobat Reader
Sound Card and Speakers
Flash Player Plug-in, Current Version
JavaScript

Contact for Technical support or CE questions: ProCE, LLC, e-mail info@proce.com or phone: 888-213-4061.

Conflict of Interest Disclosure

The Conflict of Interest Disclosure Policy of ProCE, LLC requires faculty participating in a continuing pharmacy education activity to disclose any relationship(s) with a pharmaceutical, product or device company. Faculty disclosing relationships proven to create a conflict of interest with regard to their contribution to the activity will not be permitted to present. Faculty are also required to disclose during their presentation when discussing any unlabeled or investigational use of any commercial product or device not yet approved for use in the United States.

Faculty

John W. Ahern, Pharm.D.

(Module(s): 1.2)
Clinical Associate Professor of Medicine
Pharmacy Department, University of Vermont Medical Center, Burlington, VT
No conflict of interest reported

Ronda L. Akins, Pharm.D.

(Module(s): 2.3)
Clinical Specialist - Infectious Diseases
Methodist Charlton Medical Center, Dallas, TX
Received research grants from Paratek Pharmaceuticals and Allergan

Muhammad Salman Ashraf, MBBS

(Module(s): W1b)
Associate Professor, Univ. of Nebraska Medical Center
Medical Director, Nebraska Infection Control Assessment and Promotion Program
Co-Medical Director, Nebraska Antimicrobial Stewardship Assessment and Promotion Program
Omaha, NE
Received study grant as principal investigator from Merck

Edina Avdic, Pharm.D., MBA, BCPS-ID

(Module(s): 1.1)
Clinical Pharmacy Specialist, Infectious Diseases
Associate Director, Antimicrobial Stewardship Program
The Johns Hopkins Hospital, Baltimore, MD
No conflict of interest reported

Harrison Bachmeier, Pharm.D., BCPS

(Module(s): 1.4, W5)
Pharmacist Specialist, Internal Medicine
Moffitt Cancer Center, Tampa, FL
Spouse on Advisory Board for KITE Pharma and Legend Biotech; Spouse on Speaker Bureau for Novartis.

Scott Bergman, PharmD, BCPS-AQ ID

(Module(s): 1.3, W1b)
Antimicrobial Stewardship Coordinator
Nebraska Medicine, Omaha, NE
No conflict of interest reported

David Burgess, Pharm.D., FCCP

(Module(s): 1.4, W3)
Professor and Chair, Pharmacy Practice and Science
Univ. of Kentucky College of Pharmacy, Lexington, KY
No conflict of interest reported

Laura Elliott, PharmD, BCGP

(Module(s): W2)
Trauma/Surgical ICU Pharmacist
Palomar Medical Center- Escondido
Palomar Health, Escondido, CA
No conflict of interest reported

Sharon Erdman, Pharm.D.

(Module(s): W2)
Clinical Professor of Pharmacy Practice, Purdue University College of Pharmacy
Adjunct Assoc. Professor, Indiana Univ. School of Medicine
Infectious Diseases Clinical Pharmacist, Wishard Health Services/Eskenazi Health, Indianapolis, IN
Stockholder for Johnson & Johnson and Walgreens

Jason C. Gallagher, Pharm.D., FCCP, FIDP, FIDSA, BCPS

(Module(s): 1.1)
Clinical Professor
Temple University, Philadelphia, PA
Consultant/speaker for Merck and Astellas. Consultant for Qpex, scPharmaceuticals, and Shionogi. Received honorarium from MJH Associates as Editor-in-Chief for Contagion, speaker

Alan Gross, Pharm.D., BCPS, BCIDP

(Module(s): 1.1)

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

No conflict of interest reported

Rupali Jain, PharmD, BCIDP, FIDSA

(Module(s): 2.6)

Co-Director: Antimicrobial Stewardship
Clinical Associate Professor, School of Medicine, Division of Allergy and Infectious Diseases
Clinical Associate Professor, School of Pharmacy,
University of Washington, Seattle, WA

No conflict of interest reported

Marian James, PharmD, FASCP, BCPS, BCGP

(Module(s): W4)

Director of Pharmacy
Parker Jewish Institute
New Hyde Park, NY

No conflict of interest reported

Meghan N. Jeffres, Pharm.D., BCIDP

(Module(s): 1.1, 6.4)

Associate Professor, Department of Clinical Pharmacy
University of Colorado Skaggs School of Pharmacy and
Pharmaceutical Sciences, Aurora, CO

No conflict of interest reported

Alice M. Jenh Hsu, Pharm.D., BCPS, AQ-ID

(Module(s): 1.1)

Clinical Pharmacy Specialist, Pediatric Infectious Diseases
Co-Director, Pediatric Antimicrobial Stewardship
Program
The Johns Hopkins Hospital
Baltimore, MD

No conflict of interest reported

Robin Jump, MD, PhD, FSHEA

(Module(s): 1.3)

Associate Director of Informatics and Analytics, Geriatric
Research Education and Clinical Center, VA Northeast
Ohio Medical Center
Associate Professor of Medicine, Division of Infectious
Diseases and HIV Medicine, Department of Medicine,
Case Western Reserve University, Cleveland, OH
*Received research support from Pfizer, Merck, &
Accelerate; Advisory Board for Roche & Pfizer*

Ronald Kendall, PharmD, BCPS

(Module(s): W4)

Antimicrobial Stewardship and Infectious Disease
Pharmacist
Henry Ford Wyandotte Hospital, Wyandotte, MI

No conflict of interest reported

Scott E. Kinkaid, Pharm.D., BCPS

(Module(s): 1.4)

Professor and Director of Student Services
LECOM School of Pharmacy, Bradenton, FL

No conflict of interest reported

David W. Kubiak, Pharm.D., BCPS

(Module(s): 3)

Advanced Practice Pharmacy Specialist - Infectious
Diseases, Department of Pharmacy Services
Brigham & Women's Hospital, Boston, MA
*Received research grant support and consultant
honorarium from Astellas*

Kerry LaPlante, PharmD, FCCP

(Module(s): W1a)

Clinical Pharmacotherapy Specialist in Infectious Diseases,
Veterans Affairs Medical Ctr, Providence, RI
Professor of Pharmacy, Univ. of Rhode Island, Kingston, RI
Adjunct Professor of Medicine, Brown University
Providence, RI
*Received Research Grants from: Merck, Pfizer, Shionogi, Ocean
Spray Cranberries; Scientific Advisor for: Qpex Biopharma,
Nabriva Therapeutics, Spero Therapeutics, Merck.*

Nancy Losben, RPh, CCP, FASCP, CG

(Module(s): 5)

Senior Director, Quality
Omnicare, A CVS Health company, Moorestown, NJ

Received stock from CVS Health for salary/bonus.

Craig Martin, Pharm.D., MBA

(Module(s): 1.4)

Associate Dean/Chief Operating Officer
Professor
Univ. of Kentucky College of Pharmacy, Lexington, KY

Received legal consulting fees from Walgreens.

Dorothy McCoy, Pharm.D., BCPS, BCIDP

(Module(s): 2.4)

Medical Writer
PharmWrite Medical Communications, LLC; MedVal
Scientific Information Services, LLC, Princeton, NJ

No conflict of interest reported

Jessina C. McGregor, PhD FSHEA

(Module(s): 6.3)

Associate Professor
Oregon State University College of Pharmacy, Portland, OR

No conflict of interest reported

Mary Peace McRae, Pharm.D., PhD

(Module(s): 1.4)

Vice Chair and Graduate Program Director
Dept. of Pharmacotherapy and Outcomes Science
Virginia Commonwealth University School of Pharmacy,
Richmond, VA

No conflict of interest reported

Deborah Milito, PharmD, BCGP

(Module(s): 4)

Dir. Clinical/Consultant Services-LTC Chief AB Steward
Officer

Diamond Pharmacy Services, Indiana, PA

No conflict of interest reported

Lisa Morris, RPh, CGP, FASCP

(Module(s): W4)

Regional Pharmacy Resource

Ensign Services, Inc.

Houston, TX

No conflict of interest reported

Jacob Morton, Pharm.D., MBA, BCIDP

(Module(s): 2.1)

Medical Education Liaison

BioFire Diagnostics, LLC.

Framingham, MA

*Received salary as Medical Education Liason from BioFire
Diagnostics, LLC.*

Michael D. Nailor, PharmD, BCPS

(Module(s): 6.1)

Clinical Specialist-Infectious Diseases

St. Joseph's Hospital and Medical Center

Phoenix, AZ

No conflict of interest reported

Boris Nogid, Pharm.D., BCPS

(Module(s): 1.1)

Team Lead, Regional Medical Scientific Directors

Merck Research Labs

North Wales, PA

Employee of Merck

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(Module(s): 2.2)

Clinical Pharmacy Specialist, Infectious Diseases

Clinical Pharmacy Coordinator, ID/Antimicrobial

Stewardship

University of Chicago Medicine, Chicago, IL

No conflict of interest reported

J. Randy Pittman, PharmD

(Module(s): W6)

Clinical Assistant Professor of Pharmacy Practice

University of Mississippi School of Pharmacy

Jackson, MS

No conflict of interest reported

Diana Quach, PharmD, BCGP

(Module(s): 3)

Clinical Pharmacy Manager

Southwest Medical Pharmacy & Home Medical

Equipment

Las Vegas, NV

No conflict of interest reported

Stacey Ranucci, BS Pharm, RPh, BCGP, CDE, CDOE

(Module(s): W1a)

Clinical Pharmacist

Rhode Island Primary Care Physician Corporation

Warwick, RI

No conflict of interest reported

**Marisel Segarra-Newnham, Pharm.D., MPH, FCCP,
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(Module(s): 4)

Clinical Pharmacy Specialist, Infectious Diseases/HIV

Antimicrobial Stewardship Program Pharmacy Director

Veterans Affairs Medical Center

West Palm Beach, FL

No conflict of interest reported

Michael P. Veve, PharmD, MPH

(Module(s): 6.2)

Clinical Assistant Professor, College of Pharmacy

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Research Principal Investigator for grants received from

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Advisory Board member for Merck and Summit Therapeutics

Memorie Wilcoxon, PharmD, BCPS

(Module(s): 2.5)

Clinical Coordinator

Northside Hospital Cherokee

Canton, GA

Speaker training for Allergan

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DISEASES PHARMACISTS

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