

**Materials for this course will release 10/19/2022**

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**Critical Care Pharmacy Specialty Recertification Literature Study: Module 2A-B (Cert # L229111)**

**Teaser:** The Literature Study Module provides immediate access to peer-selected, contemporary articles that are relevant to specialty practice. After learners review the content, they must successfully complete an online assessment to earn recertification credit.

**Tag:** Certifications; Critical Care



**ACPE Numbers:** Various – see listing below

**Pre-Sale Date:** 09/21/2022

**Content Release Date:** 10/19/2022

**Expiration Dates:** 10/17/2023

**Activity Type:** Application-based

**CE Credits:** 10 contact hours

**Activity Fee:** \$55 (ASHP member); \$110 (non-member)

**Accreditation for Pharmacists**



The American Society of Health-System Pharmacists is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education.

**Target Audience**

These Literature Studies are designed to help board-certified pharmacists who are seeking recertification contact hours to maintain their Board of Pharmacy Specialties (BPS).

**Activity Overview**

The Literature Study Module is intended for board certified pharmacists in need of recertification credit and is designed based on the content outline developed by the Board of Pharmacy Specialties (BPS). This module consists of 2 online home study activities (see table below). Each activity is designed to assess the learners' ability to analyze and apply peer-selected contemporary articles to practice and includes a short video for enhanced learning and understanding.

Module 2A -- Sepsis: This module focuses on updates to the management of patients with sepsis, including new guidelines, pharmacist impact on outcomes, heart rate control, and selection of fluids.

Module 2B -- Gastroenterology and Immunology: This module focuses on gastroenterology and immunology topics, including cirrhosis, hepatorenal syndrome, and various topics related to adverse drug reactions and allergies.

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Learners will be required to review the content and complete the associated online assessments. The learner must be able to correctly answer the questions based upon their interpretation of the content, as well as “baseline specialty specific knowledge and/or easily retrievable information.” For purposes of this Literature Study, “baseline specialty specific knowledge and/or easily retrievable information” is defined as product labeling and well-established standards of practice in the specialty practice.

These activities are part of the ASHP professional development program for BCCCP recertification approved by the BPS.

### Recertification Credit

Board certified pharmacists are eligible to receive up to 10 contact hours of recertification credit for completing this module. To earn recertification credit, learners must review the activity content and successfully complete the online assessments by the deadline. Only completed assessments will be eligible for credit; no partial or incomplete assessments will be processed. You are allowed only one attempt to successfully complete this assessment.

Learning Activity	ACPE Number	Contact Hours	Assessment Pass Point
Critical Care Pharmacy Literature Study Module 2A: Sepsis	0204-0000-22-940-H01-P	5	TBD
Critical Care Pharmacy Literature Study Module 2B: Gastroenterology and Immunology	0204-0000-22-941-H01-P	5	TBD
		10.0 BPS	

### Articles and Learning Objectives

#### Module 2A: Sepsis

##### ACPE #: 0204-0000-22-940-H01-P

This module focuses on updates to the management of patients with sepsis, including new guidelines, pharmacist impact on outcomes, heart rate control, and selection of fluids.

Evans L, Rhodes A, Alhazzani W et al. Surviving Sepsis Campaign: international guidelines for management of sepsis and septic shock 2021. *Crit Care Med.* 2021; 49:e1063-e1143.

#### Learning Objectives:

- Describe the 2021 Surviving Sepsis Campaign guidelines for management of sepsis and septic shock.
- Develop recommendations for the management of patients with sepsis or septic shock.

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Tarabichi Y, Cheng A, Bar-Shain D et al. Improving timeliness of antibiotic administration using a provider and pharmacist facing sepsis early warning system in the emergency department setting: a randomized controlled quality improvement initiative. *Crit Care Med.* 2022; 50:418-27.

Learning Objectives:

- Describe the study by Tarabichi and colleagues of an electronic health record (EHR)-embedded sepsis early warning system (EWS) in the emergency department (ED).
- Develop recommendations for an electronic health record (EHR)-embedded sepsis early warning system (EWS) in the emergency department (ED).

Rech MA, Gurnani PK, Peppard WJ et al. PHarmacist Avoidance or Reductions on Medical Costs in CRITically Ill Adults: PHARM-CRIT study. *Crit Care Explor.* 2021; 3(12): e0594.

Learning Objectives:

- Describe the PHARM-CRIT study of the role of pharmacists in reducing medical costs for critically ill adults.
- Develop recommendations for pharmacists to use to minimize medical costs in critically ill adults.

Bosch NA, Rucci JM, Massaro JM et al. Comparative effectiveness of heart rate control medications for the treatment of sepsis-associated atrial fibrillation. *Chest.* 2021; 159:1452-9.

Learning Objectives:

- Describe the study by Bosch and colleagues of atrial fibrillation (AF) medications for heart rate control in critically ill patients with sepsis and AF with rapid ventricular response (RVR).
- Develop recommendations for pharmacotherapy to provide heart rate reduction in critically ill patients with sepsis and atrial fibrillation (AF) with rapid ventricular response (RVR).

Zampieri FG, Machado FR, Biondi RS et al. Effect of intravenous fluid treatment with a balanced solution vs 0.9% saline solution on mortality in critically ill patients: the BaSICS randomized clinical trial. *JAMA.* 2021; 326:818-29.

Learning Objectives:

- Describe the Balanced Solutions in Intensive Care Study (BaSICS).
- Develop recommendations for intravenous (IV) fluid selection for critically ill patients.

Finfer S, Micallef S, Hammond N et al for the PLUS Study Investigators and the Australian and New Zealand Intensive Care Society Clinical Trials Group. Balanced multielectrolyte solution versus saline in critically ill adults. *N Engl J Med.* 2022; 386:815-26.

Learning Objectives:

- Describe the Plasma-Lyte 148 versus Saline (PLUS) study.
- Develop recommendations for the type of intravenous (IV) fluid to use in critically ill patients in the intensive care unit (ICU) who require fluid therapy.

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**Module 2B: Gastroenterology and Immunology**

**ACPE #: 0204-0000-22-941-H01-P**

This module focuses on gastroenterology and immunology topics, including cirrhosis, hepatorenal syndrome, and various topics related to adverse drug reactions and allergies.

O'Shea RS, Davitkov P, Ko CW, et al. AGA clinical practice guideline on the management of coagulation disorders in patients with cirrhosis. *Gastroenterology*. 2021; 161:1615-27.

Learning Objectives:

- Describe the clinical practice guideline from the American Gastroenterological Association (AGA) Institute for the management of coagulation disorders in patients with cirrhosis.
- Develop recommendations for the management of coagulation disorders in patients with cirrhosis.

Bajaj JS, Kamath PS, Reddy KR. The evolving challenge of infections in cirrhosis. *N Engl J Med*. 2021; 384:2317-30.

Learning Objectives:

- Describe the recognition and management of infections in patients with cirrhosis.
- Develop recommendations for the detection and management of infections in patients with cirrhosis.

Wong F, Pappas SC, Curry MP, et al. Terlipressin plus albumin for the treatment of type 1 hepatorenal syndrome. *N Engl J Med*. 2021; 384:818-28.

Learning Objectives:

- Describe the CONFIRM study of terlipressin plus albumin for the treatment of type 1 hepatorenal syndrome (HRS-1).
- Develop recommendations for the use of terlipressin plus albumin for the treatment of patients with type 1 hepatorenal syndrome (HRS-1).

Wulf NR, Schmitz J, Choi A, Kapusnik-Uner J. Iodine allergy: common misperceptions. *Am J Health-Syst Pharm*. 2021; 78:781-93.

Learning Objectives:

- Describe the analysis by Wulf and colleagues of evidence of allergy to medications that contain iodine or seafood.
- Develop recommendations for the use of iodine-containing medications in patients reporting an allergy to iodine or seafood and for documenting reactions to these substances.

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Johnson JL, Hawthorne A, Bounds M, Weldon DJ. New perspectives on propofol allergy. *Am J Health-Syst Pharm.* 2021; 78:2195-203.

Learning Objectives:

- Describe the available evidence of cross-reactivity to propofol in patients reporting an allergy to products containing egg, soy, or peanut; methods for screening for such allergies and determining whether to use propofol in these patients; and the evaluation and management of patients experiencing an anaphylactic reaction to propofol.
- Develop recommendations for the screening of adults for allergy to products containing egg, soy, or peanut; use of propofol or alternative strategies for sedation in these patients; and evaluation and management of patients experiencing an anaphylactic reaction to propofol.

Lee LM, Carias DC, Gosser R et al. ASHP guidelines on adverse drug reaction monitoring and reporting. *Am J Health-Syst Pharm.* 2022; 79:e83-e89.

Learning Objectives:

- Describe the ASHP guidelines on adverse drug reaction (ADR) monitoring and reporting.
- Develop recommendations for a comprehensive adverse drug reaction (ADR) monitoring and reporting program.

Alvarez-Arango S, Ogunwole SM, Sequist TD et al. Vancomycin infusion reaction—moving beyond "Red Man Syndrome." *N Engl J Med.* 2021; 384:1283-6.

Learning Objectives:

- Describe the rationale for the changes proposed by Alvarez-Arango and colleagues to the terminology and best practices used by healthcare providers to describe and document vancomycin infusion reaction.
- Develop recommendations for systemwide improvements in drug-allergy recognition and documentation that ensure the equitable delivery of health care to diverse patient populations.

### Faculty

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#### **Field Testers**

In progress

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### **Disclosures**

In accordance with our accreditor's Standards of Integrity and Independence in Accredited Continuing Education, ASHP requires that all individuals in control of content disclose all financial relationships with ineligible companies. An individual has a relevant financial relationship if they have had a financial relationship with an ineligible company in any dollar amount in the past 24 months and the educational content that the individual controls is related to the business lines or products of the ineligible company. An ineligible company is any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients. The presence or absence of relevant financial relationships will be disclosed to the activity audience.

No one in control of the content of this activity has a relevant financial relationship (RFR) with an ineligible company.

### **Methods and CE Requirements**

Activities consist of educational materials, assessments, and activity evaluations. In order to receive continuing pharmacy education credit, learners must:

- Complete the attestation statement
- Review all content
- Complete and pass the assessments
- Complete the evaluations

Follow the prompts to claim, view, or print the statement of credit within 60 days after completing the activity.

### **System Technical Requirements**

Courses and learning activities are delivered via your Web browser and Acrobat PDF. For all activities, you should have a basic comfort level using a computer and navigating web sites.

View the [minimum technical and system requirements](#) for learning activities.

### **Development**

These activities were developed by ASHP.