Materials for this course will release 04/13/2022

Critical Care Pharmacy Specialty Recertification Literature Study: Module 1A-B (Cert # L229108)

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: 03/16/2022
Content Release Date: 04/13/2022
Expiration Dates: 10/18/2022
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 1A– Medication safety and statistics: This module focuses on medication safety issues and research evaluation.

Module 1B– Sedation, Neurology, and Infectious Diseases: This module focuses on current issues in critical care, including sedation, infectious diseases, and ischemic stroke.

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

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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
Pharmacotherapy and Critical Care Literature Study Module 1A: Medication Safety and Statistics	0204-0000-22-932-H01-P	5	TBD
Critical Care Pharmacy Literature Study Module 1B: Sedation, Neurology, and Infectious Diseases	0204-0000-22-939-H01-P	5	TBD
Recertification Assessment Group 1		10.0 BPS	

Articles and Learning Objectives

Module 1A: Medication Safety and Statistics
ACPE Number: 0204-0000-22-932-H01-P

Owen VS, Rosgen BK, Cherak SJ et al. Adverse events associated with administration of vasopressor medications through a peripheral intravenous catheter: a systematic review and meta-analysis. *Crit Care.* 2021: 25:146.
Learning Objectives:

- Describe the systematic review and meta-analysis by Owen and colleagues of studies of the administration of vasopressor medications through a peripheral intravenous (PIV) catheter.
- Develop recommendations for the route of administration of vasopressor medications.

Nazer LH, Brown ART, Awad W. Iatrogenic toxicities in the intensive care unit. *Critical Care Clinics.* 2021; 37 (3): 625 - 641.
Learning Objectives:

- Describe the mechanisms, clinical presentation, diagnosis, and management of iatrogenic toxicities associated with medications commonly used in the intensive care unit (ICU).
- Develop recommendations for the management of iatrogenic toxicities associated with medications commonly used in the intensive care unit (ICU).

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Kane-Gill SL. Nephrotoxin stewardship. Critical Care Clinics 2021; 37: 303-320.
Learning Objectives:

- Define nephrotoxin stewardship and describe its goals and the approaches used to achieve them.
- Develop recommendations for nephrotoxin stewardship to improve medication safety, ensure kidney health, and minimize unnecessary costs for medical tests and treatments for critically-ill patients.

Kollef MH, Torres A, Shorr AF et al. Nosocomial infection. *Crit Care Med.* 2021: 49: 169-187.
Learning Objectives:

- Describe trends in nosocomial infections (NIs) in the intensive care unit (ICU) setting, the roles of the host-microbiome interaction and antimicrobial resistance, and strategies for the treatment and prevention of these infections.
- Develop recommendations for the management of nosocomial infections (NIs) in patients in the intensive care unit (ICU).

Afanasjeva J, Burk M, Cunningham FF, et al. ASHP Guidelines on Medication-Use Evaluation. *Am J Health Syst Pharm*. 2021; 78(2): 168-175. https://pubmed.ncbi.nlm.nih.gov/33399190/.
Learning Objectives:

- Describe the 2021 ASHP guidelines on medication-use evaluation (MUE), including goals and objectives, performance improvement methods, indicators suggesting a need for MUE, prioritization of medications and processes for evaluation, typical steps in the process, roles and responsibilities of the interdisciplinary team, and common problems and pitfalls.
- Develop recommendations for medication-use evaluations (MUEs), including goals, methods, roles and responsibilities of team members, indicators of the need for MUE, and common pitfalls.

Gershon AS, et al. Informing healthcare decisions with observational research assessing causal effect: An official American Thoracic Society Research Statement. *Am J Resp and Crit Care Med.* 2020; 203(1): 14-23.
Learning Objectives:

- Describe the American Thoracic Society (ATS) research statement on making healthcare decisions and establishing clinical practice guidelines and healthcare policies for critically ill patients based on findings from observational studies of the causal effect of an intervention on outcomes
- Develop recommendations for the use of findings from observational studies of the causal effect of an intervention on outcomes in establishing clinical practice guidelines and healthcare policies and making healthcare decisions for critically ill patients.

Abrams D, Montesi S, Moore SKL et al. Powering bias and clinically important treatment effects in randomized trials of critical illness. *Crit Care Med.* 2020; 48: 1710-1719.
Learning Objectives:

- Describe the study by Abrams and colleagues of powering bias and clinically important treatment effects in multicenter randomized controlled trials (RCTs) of critically ill adults.
- Develop recommendations for the design of multicenter randomized controlled trials (RCTs) of critically ill adults.

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Module 1B: Sedation, Neurology, and Infectious Diseases
ACPE Number: 0204-0000-22-939-H01-P

Cioccari L, et al. The effect of dexmedetomidine on vasopressor requirements in patients with septic shock: a subgroup analysis of the Sedation Practice in Intensive Care Evaluation [SPICE III] Trial. *Critical Care.* 2020; 24: 4411.
Learning Objectives:

- Describe the subgroup analysis by Cioccari and colleagues of the Sedation Practice in Intensive Care Evaluation (SPICE III) trial of dexmedetomidine in critically ill mechanically ventilated patients with septic shock.
- Develop recommendations for the use of dexmedetomidine in critically ill mechanically ventilated patients with septic shock.

Shehabi Y, et al. Early sedation with dexmedetomidine in ventilated critically ill patients and heterogeneity of treatment effect in the SPICE III randomised controlled trial. *Intensive Care Med.* 2021; 47: 455-466.
Learning Objectives:

- Describe the subgroup analysis by Shehabi and colleagues of the heterogeneity of treatment effect in the Sedation Practice in Intensive Care Evaluation (SPICE III) trial of dexmedetomidine in critically ill mechanically ventilated patients with septic shock.
- Develop recommendations for the use of dexmedetomidine in critically ill mechanically ventilated patients with septic shock.

Garcia R, Salluh JIF, Andrade TR et al. A systematic review and meta-analysis of propofol versus midazolam sedation in adult intensive care (ICU) patients. *J Crit Care.* 2021; 64: 91-99.
Learning Objectives:

- Describe the systematic review and meta-analysis by Garcia and colleagues of studies comparing propofol with midazolam for sedation in adults in the intensive care unit.
- Develop recommendations for the use of sedation in adults in the intensive care unit.

Herpich F, Rincon F. Management of Acute Ischemic Stroke. *Crit Care Med.* 2020; 48 (11): 1654-1663.
Learning Objectives:

- Describe the management of acute ischemic stroke (AIS), including early detection, prehospital and emergency management, neuroimaging, revascularization, management in the intensive care unit (oxygen, ventilation, blood pressure, glucose, cerebral edema, fever), rehabilitation, nutrition, and secondary prevention through risk factor modification.
- Develop recommendations for the management of acute ischemic stroke.

Zhong CS, Beharry J, Salazar D et al. Routine use of tenecteplase for thrombolysis in acute ischemic stroke. *Stroke*. 2021; 52: 1087-1090.
Learning Objectives:

- Describe the study by Zhong and colleagues of tenecteplase for thrombolysis in patients with acute ischemic stroke.
- Develop recommendations for thrombolytic therapy in patients with acute ischemic stroke.

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Campbell BCV, Mitchell PJ, Churilov L, et al. Effect of intravenous tenecteplase dose on cerebral reperfusion before thrombectomy in patients with large vessel occlusion ischemic stroke: The EXTEND-IA TNK Part 2 randomized clinical trial. *JAMA.* 2020; 323 (13): 1257-1265.
Learning Objectives:

- Describe the EXTEND-IA TNK part 2 trial of intravenous tenecteplase prior to endovascular thrombectomy in patients with large vessel occlusion ischemic stroke.
- Develop recommendations for the use of intravenous tenecteplase prior to endovascular thrombectomy in patients with large vessel occlusion ischemic stroke.

Johnson S, Lavergne V, Skinner AM, et al. Clinical practice guideline by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA): 2021 focused update guidelines on management of *Clostridiodes difficile* infection in adults. *Clin Inf Dis*. 2021; 73:e1029-e1044.
Learning Objectives:

- Describe the clinical practice guideline with a 2021 focused update from the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA) on the management of Clostridioides difficile infection (CDI) in adults.
- Develop recommendations for the management of Clostridioides difficile infection (CDI) in adults based on the 2021 focused update from IDSA and SHEA.

Tamma PD, Aitken SL, Bonomo RA, et al. Infectious Diseases Society of America Guidance on the Treatment of Extended-Spectrum β-lactamase Producing Enterobacterales (ESBL-E), Carbapenem-Resistant Enterobacterales (CRE), and Pseudomonas aeruginosa with Difficult-to-Treat Resistance (DTR-P. aeruginosa). *Clin Infect Dis.* 2021; 72(7): 1109–1116.
Learning Objectives:

- Describe the Infectious Diseases Society of America (IDSA) guidance on the treatment of extended-spectrum β-lactamase producing Enterobacterales (ESBL-E), carbapenem-resistant Enterobacterales (CRE), and Pseudomonas aeruginosa with difficult-to-treat resistance (DTR-P. aeruginosa).
- Develop recommendations for the treatment of extended-spectrum β-lactamase producing Enterobacterales (ESBL-E), carbapenem-resistant Enterobacterales (CRE), and Pseudomonas aeruginosa with difficult-to-treat resistance (DTR-P. aeruginosa).

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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.