



## CE Activity Announcement

### Emergency Medicine Certificate Program

ACPE Activity Number(s): various, see below

Release Date: May 29, 2019

Expiration Date: May 29, 2022

Activity Type: Application-based

Activity Fee: \$445 (ASHP Member); \$545 (Nonmember); modules are not available for individual purchase.

### 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

This activity is intended for pharmacists interested in expanding their knowledge and skills related to pharmacy practice in emergency medicine.

### Activity Overview

The Emergency Medicine Certificate is designed for participants to increase the foundational knowledge and skills necessary to provide optimal patient care in the emergency department. The course presents key roles and responsibilities of pharmacists practicing in emergency medicine and further concentrates on the application of evidence-based pharmacologic and non-pharmacologic therapies for disease states frequently encountered in this practice setting. This self-guided program consists of 11 modules comprised of online home study activities. Upon completion of all the modules, participants should be proficient in the fundamental concepts necessary to provide care and recommend appropriate pharmacotherapy for patients presenting to the emergency department.

### Learning Objectives and Schedule of Activities

CE Information	Title, Descriptions, Learning Objectives, Faculty
<p><b>ACPE #:</b> 0204-0000-19-755-H04-P</p> <p><b>CE Hours:</b> 2.5</p> <p><b>Activity Type:</b> Application</p>	<p><b>Title:</b> The Pharmacist's Role in Emergency Medicine</p> <p><b>Description:</b> This activity covers activities and services provided by pharmacists practicing in Emergency Medicine.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>• David E. Zimmerman, Pharm.D., BCCCP, BCPS</li> <li>• Christopher J. Edwards, Pharm.D., BCPS</li> <li>• Katelyn R. Dervay, Pharm.D., M.P.H., BCPS, FASHP</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>• Describe the services and activities that pharmacists can perform when caring for patients in the emergency department.</li> <li>• Compare techniques to complete medication histories and reconciliations.</li> <li>• Apply principles of medication safety and risk mitigation strategies to the emergency department.</li> <li>• Identify opportunities for pharmacy involvement in prehospital activities.</li> <li>• Evaluate the use of clinical information provided by Emergency Medical Services personnel.</li> <li>• Describe the role of pharmacy personnel in disaster preparedness and response.</li> </ul>



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<p><b>ACPE #:</b> 0204-0000-19-756-H01-P <b>CE Hours:</b> 3.0 <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Trauma, Hemostasis, and Life Support</p> <p><b>Description:</b> This activity discusses therapeutic treatments for traumatic injuries and outlines adult and pediatric life support strategies.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"><li>• Katelyn R. Dervay, Pharm.D., M.P.H., BCPS, FASHP</li><li>• Megan Corrigan, Pharm.D., M.P.H., BCPS</li></ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"><li>• Discuss the role of the pharmacist when caring for patients with traumatic injuries.</li><li>• Recommend appropriate treatment for common injuries in trauma.</li><li>• Propose evidence-based resuscitation therapies for patients with burn injuries.</li><li>• Outline appropriate therapies for hemostasis in trauma patients.</li><li>• Propose evidence-based anticoagulation reversal recommendations for patients presenting with hemorrhage.</li><li>• Identify the core elements of basic life support and advanced life support.</li><li>• Define the pharmacist's role in the care of pediatric and adult patients requiring advanced life support.</li><li>• Apply treatment algorithms for adult and pediatric life support.</li></ul>
<p><b>ACPE #:</b> 0204-0000-19-757-H01-P <b>CE Hours:</b> 2 <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Shock States</p> <p><b>Description:</b> This activity provides an overview of the differing shock states and appropriate therapeutic regimens for each.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"><li>• Christopher J. Edwards, Pharm.D., BCPS</li><li>• Daniel H. Jarrell, Pharm.D., BCCCP, BCPS</li></ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"><li>• Differentiate among hypovolemic, distributive, obstructive, and cardiogenic shock.</li><li>• Compare the distribution patterns of hypotonic, isotonic, and hypertonic fluids.</li><li>• Describe the anticipated physiologic effects of commonly used vasopressors and inotropic agents.</li><li>• Construct a therapeutic plan for patients suffering from common shock states.</li><li>• Differentiate between sepsis and septic shock.</li><li>• Describe goals of therapy for a patient with sepsis or septic shock.</li><li>• Apply a treatment plan for a patient with sepsis or septic shock.</li></ul>



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<p><b>ACPE #:</b> 0204-0000-19-758-H01-P  <b>CE Hours:</b> 3.5  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Cardiovascular and Pulmonary Emergencies</p> <p><b>Description:</b> This activity covers clinical presentations and pharmacologic therapies for cardiovascular and pulmonary emergencies.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>• Kyle A. Weant, Pharm.D., BCCCP, BCPS, FCCP</li> <li>• Patrick J. Bridgeman, Jr. Pharm.D., BCPS</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>• Analyze clinical presentations of hypertensive emergencies.</li> <li>• Describe pharmacotherapeutic priorities when managing patients with acute coronary syndromes.</li> <li>• Assess therapeutic options for a patient with acute pulmonary edema.</li> <li>• Differentiate among therapeutic options for the management of heart failure exacerbations.</li> <li>• Compare the different therapeutic alternatives for the management of atrial fibrillation.</li> <li>• Recognize challenges in the treatment of supraventricular tachycardia.</li> <li>• Identify opportunities to develop outpatient management strategies for patients with dysrhythmias.</li> <li>• Assess a patient case to determine appropriate treatment for venous thromboembolism.</li> <li>• Compare and contrast efficacy and toxicity of pharmacologic treatments for asthma exacerbation.</li> <li>• Choose the most appropriate treatment for a patient experiencing chronic obstructive pulmonary disease exacerbation.</li> </ul>
<p><b>ACPE #:</b> 0204-0000-19-759-H01-P  <b>CE Hours:</b> 2.5  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Infectious Diseases</p> <p><b>Description:</b> This activity describes treatment options for infections commonly encountered in the emergency department and identifies appropriate antimicrobial prescribing practices.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>• Brett Faine, Pharm.D., M.S.</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>• Recognize the roles of an emergency department pharmacist as an antimicrobial steward.</li> <li>• Identify common pathogens associated with pneumonia.</li> <li>• Apply evidence-based guidelines to guide antimicrobial therapy for pneumonia.</li> <li>• Recommend appropriate antibiotic regimens for meningitis.</li> <li>• Compare and contrast the various classifications of urinary tract infections.</li> <li>• Select the most appropriate treatment for urinary tract infections</li> </ul>



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	<p>based on diagnosis and suspected pathogens.</p> <ul style="list-style-type: none"> <li>• Recommend appropriate treatment options for common sexually transmitted infections.</li> <li>• Recognize when antibiotic therapy is clinically indicated for skin and soft tissue infections.</li> <li>• Assess the appropriateness of antibiotic regimens for skin and soft tissue infections.</li> <li>• Select the most appropriate antibiotic therapy based on severity of intra-abdominal infection.</li> <li>• Evaluate the appropriateness of a one-time intravenous dose of antibiotics before discharge.</li> <li>• Discuss appropriate durations of antimicrobial therapy for common infections.</li> </ul>
<p><b>ACPE #:</b> 0204-0000-19-760-H01-P  <b>CE Hours:</b> 2  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Neurologic and Psychiatric Emergencies</p> <p><b>Description:</b> This activity discusses assessment, therapeutic regimens, and monitoring parameters for neurologic and psychiatric emergencies including stroke, seizure, headache, acute agitation, and alcohol withdrawal.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>• Patrick J. Bridgeman, Jr. Pharm.D., BCPS</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>• Compare and contrast efficacy and toxicity of pharmacologic treatments for migraine.</li> <li>• Recommend therapeutic options for acute ischemic stroke.</li> <li>• Apply evidence based guidelines to determine appropriate candidates for tissue plasminogen activator therapy.</li> <li>• Describe evidence-based treatment options for seizures.</li> <li>• Recognize the most appropriate medication to utilize for management of acute agitation.</li> <li>• Select the most appropriate therapy for an alcohol withdrawal patient.</li> </ul>
<p><b>ACPE #:</b> 0204-0000-19-761-H01-P  <b>CE Hours:</b> 3  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Pain, Sedation, and Neuromuscular Blockade</p> <p><b>Description:</b> This activity covers nonopioid, opioid, and adjuvant analgesics for diverse types of pain syndromes and discusses appropriate therapies for rapid sequence intubation and procedural sedation.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>• David E. Zimmerman, Pharm.D., BCCCP, BCPS</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>• Describe the diverse types of pain and pain syndromes encountered in the emergency department.</li> <li>• Compare non-opioid analgesic strategies for the treatment of pain.</li> </ul>



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	<ul style="list-style-type: none"> <li>Analyze prescribing practices for opioids in the emergency department and at discharge to minimize misuse and abuse.</li> <li>Apply knowledge of rapid sequence intubation and therapies involved to provide optimal pharmacotherapy.</li> <li>Identify the most appropriate analgosedation treatment plan for a patient following rapid sequence intubation.</li> <li>Differentiate among pharmacotherapy options for procedural sedation.</li> </ul>
<p><b>ACPE #:</b> 0204-0000-19-762-H01-P  <b>CE Hours:</b> 2  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Acid-Base &amp; Electrolyte Disorders and Oncologic &amp; Hematologic Emergencies</p> <p><b>Description:</b> This activity describes the pharmacist's role in identifying and managing therapies for acid-base and electrolyte disorders as well as oncologic and hematologic emergencies.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>Patrick J. Bridgeman, Jr. Pharm.D., BCPS</li> <li>Kyle A. Weant, Pharm.D., BCCCP, BCPS, FCCP</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>List common electrolyte disturbances found in patients presenting to the emergency department.</li> <li>Design treatment plans for patients presenting with hyponatremia and hypernatremia.</li> <li>Describe therapeutic options for patients with hyperkalemia.</li> <li>Differentiate characteristics of metabolic acidosis and alkalosis and compensatory mechanisms.</li> <li>Given a scenario, select the most appropriate treatment for specific oncologic and hematologic emergencies.</li> </ul>
<p><b>ACPE #:</b> 0204-0000-19-763-H01-P  <b>CE Hours:</b> 1.5  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Gastrointestinal and Renal Emergencies</p> <p><b>Description:</b> This activity outlines appropriate pharmacologic therapies for multiple gastrointestinal and renal emergencies encountered in the emergency department.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>Anne Zepeski, Pharm.D., BCPS</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>Compare common etiologies for nausea that may present in the emergency department and specific treatments associated with each.</li> <li>Construct an initial pharmaceutical treatment plan for a patient with acute variceal bleeding.</li> <li>Select appropriate empiric antibiotics for patients diagnosed with acute appendicitis and acute cholecystitis.</li> <li>Identify supportive pharmaceutical treatment for patients presenting in acute liver failure.</li> </ul>



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	<ul style="list-style-type: none"> <li>• Develop a treatment plan for a patient with acute pain from nephrolithiasis.</li> <li>• Identify medications used in the emergency department with potential to cause acute kidney injury.</li> <li>• Analyze medication orders to determine required dose adjustments in a patient with acute kidney injury.</li> </ul>
<p><b>ACPE #:</b> 0204-0000-19-764-H01-P  <b>CE Hours:</b> 2  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Endocrine and Dermatologic Emergencies</p> <p><b>Description:</b> This activity discusses clinical presentations and treatment strategies for common endocrine and dermatologic emergencies.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>• David E. Zimmerman, Pharm.D., BCCCP, BCPS</li> <li>• Megan Corrigan, Pharm.D., M.P.H., BCPS</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>• Discuss presentations and therapies for the management of myxedema coma and thyrotoxicosis.</li> <li>• Design pharmacotherapy regimens and monitoring plans for the treatment of diabetic ketoacidosis and hyperglycemic hyperosmolar syndrome.</li> <li>• Apply appropriate treatment strategies for adrenal emergencies.</li> <li>• Compare clinical and laboratory findings for Stevens Johnson Syndrome, Toxic Epidermal Necrolysis, Necrotizing Fasciitis, and Rocky Mountain Spotted Fever.</li> <li>• Describe the goals of care for a patient presenting with a dermatologic emergency.</li> </ul>
<p><b>ACPE #:</b> 0204-0000-19-765-H01-P  <b>CE Hours:</b> 3  <b>Activity Type:</b> Application</p>	<p><b>Title:</b> Toxicology and Special Populations</p> <p><b>Description:</b> This activity outlines clinical pearls when caring for geriatric, pediatric, and obstetric patients and also covers general treatment strategies for the management of poisoned patients including common toxicants.</p> <p><b>Faculty:</b></p> <ul style="list-style-type: none"> <li>• Kristin Bohnenberger, Pharm.D., DABAT</li> <li>• Megan Corrigan, Pharm.D., M.P.H., BCPS</li> </ul> <p><b>Learning Objectives:</b></p> <ul style="list-style-type: none"> <li>• Explain the general approach to managing a poisoned patient.</li> <li>• Describe methods of gastrointestinal decontamination.</li> <li>• Compare and contrast common toxidromes.</li> <li>• List common antidotes used for the management of overdose patients.</li> <li>• Explain how to effectively administer hyperinsulinemia-euglycemia therapy in the overdose patient.</li> <li>• Calculate an appropriate digoxin immune fab dose for a digoxin toxic patient.</li> </ul>



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	<ul style="list-style-type: none"> <li>• Recommend a treatment plan to manage toxicity resulting from an unknown cardiovascular toxicant.</li> <li>• Describe the therapeutic endpoints when managing an acetaminophen overdose.</li> <li>• Analyze laboratory results to appropriately stage a salicylate toxic patient.</li> <li>• Describe general approaches for pharmacologic treatment of pediatric patients.</li> <li>• Identify appropriate treatment plans for obstetric emergencies.</li> <li>• Assess how the pharmacologic needs of geriatric patients differ from other populations.</li> </ul>

### Methods and CE Requirements

This internet enduring material activity consists of a combined total of 11 learning modules. Pharmacists are eligible to receive a total of 27.0 hours of continuing education credit by completing all 11 modules within this certificate program.

**Continuing education credits must be claimed within 60 days of being earned.** All participants must complete each module and evaluation, as well as score 70% or higher on the assessment test to earn continuing education credit, and a score of 80% or higher in the final exam to earn the certificate. Follow the prompts online at the ASHP eLearning portal (<http://elearning.ashp.org>) to claim or be awarded credit within 60 days of completing the activity.

**Pharmacists only:** Your credits will be reported directly to CPE Monitor. To verify that you have completed the required steps and to ensure your credits hours have been reported to CPE Monitor, we encourage you to check your NABP eProfile account to validate your credits were transferred successfully before the ACPE 60-day deadline. After the 60 day deadline, ASHP will no longer be able to award credit.

### Faculty Information

**Kristin Bohnenberger, Pharm.D., DABAT**

Clinical Assistant Professor  
Ernest Mario School of Pharmacy at Rutgers, The State University of New Jersey, Piscataway, New Jersey;  
Clinical Pharmacist – Emergency Medicine  
Penn Medicine Princeton Medical Center  
Plainsboro, New Jersey

**Brett Faine, Pharm.D., M.S.**

Clinical Assistant Professor  
Emergency Medicine Clinical Pharmacy Specialist  
University of Iowa College of Pharmacy  
Carver College of Medicine  
Iowa City, Iowa

**Patrick J. Bridgeman, Jr. Pharm.D., BCPS**

Clinical Assistant Professor  
Ernest Mario School of Pharmacy, Piscataway, New Jersey; Robert Wood Johnson University Hospital, New Brunswick, New Jersey

**Daniel H. Jarrell, Pharm.D., BCCCP, BCPS**

Clinical Pharmacy Specialist - Emergency Medicine  
Program Director - PGY2 Emergency Medicine  
Banner - University Medical Center Tucson  
Tucson, Arizona

**Megan Corrigan, Pharm.D., M.P.H., BCPS**

Clinical Pharmacy Manager  
Advocate Good Samaritan Hospital  
Downers Grove, Illinois

**Kyle A. Weant, Pharm.D., BCCCP, BCPS, FCCP**

Emergency Medicine Clinical Pharmacy Specialist  
Residency Program Director, PGY2 Emergency  
Medicine; Affiliate Assistant Professor, Medical  
University of South Carolina College of Pharmacy;  
Medical University of South Carolina



## CE Activity Announcement

Charleston, South Carolina

**Katelyn R. Dervay, Pharm.D., M.P.H., BCPS, FASHP**  
Pharmacotherapy Specialist - Emergency Medicine;  
Director, PGY2 Emergency Medicine Residency  
Tampa General Hospital  
Tampa, Florida

**Anne Zepeski, Pharm.D., BCPS**  
Clinical Pharmacist, Emergency Medicine  
University of Iowa Hospitals and Clinics  
Iowa City, Iowa

**Christopher J. Edwards, Pharm.D., BCPS**  
Assistant Professor  
University of Arizona College of Pharmacy  
Tucson, Arizona

**David E. Zimmerman, Pharm.D., BCCCP, BCPS**  
Assistant Professor of Pharmacy  
Duquesne University School of Pharmacy;  
Emergency Medicine Pharmacist, University of  
Pittsburgh Medical Center-Mercy Hospital  
Pittsburgh, Pennsylvania

### Disclosures

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In accordance with the ACPE's and ACCME's Standards for Commercial Support, **anyone** in a position to control the content of an educational activity is required to disclose to the accredited provider their relevant financial relationships. In accordance with these Standards, all potential conflicts of interests have been resolved. *An individual has a **relevant financial relationship** if he or she (or spouse/domestic partner) has a financial relationship in any amount occurring in the last 12 months with a commercial interest whose products or services are discussed in the activity content over which the individual has control.*

As defined by ACCME, a **commercial interest** is any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients. The Standards for Commercial Support do not consider providers of clinical service directly to patients to be commercial interests.

#### In this activity:

- All planners, presenters, reviewers, and ASHP staff report no financial relationships relevant to this activity.

### System Technical Requirements

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

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