

Clinical Pharmacist Practitioner (CPP) Role in Emergency Departments August 2023

The Clinical Pharmacist Practitioner (CPP) is an integral provider in the provision of comprehensive medication management (CMM) services in Emergency Medicine. Full integration of the CPP in collaborative care roles can significantly improve access to CMM for patients in the Emergency Department (ED) throughout the VA.

Key Takeaways include:

- [VHA Directive 1101.14 Emergency Medicine](#) states dedicated onsite CPPs have been proven to expand access to care, increase patient safety and be cost-effective collaborative members of ED teams and it is therefore strongly recommended that dedicated CPPs are integrated in all EDs. [VHA Directive 1101.13 Urgent Care](#) includes ideal CPP services based on level of urgent care at facility.
- The impact of clinical pharmacy services in the ED is clear in the literature:
 - Reduced medication omission errors and discrepancies upon admission, appropriate medications at discharge and significantly reduced adverse drug events.
 - Fewer medication errors during resuscitations and trauma situations, finding that over 13 times more errors were recorded when pharmacists were absent.
 - Cost-avoidance through addressing formulary management, suboptimal disease/medication management, drug interactions/adverse drug events/allergy, untreated diagnosis, drugs with no indication and duplication of therapy.
 - Refer to the Evidence Bibliography: Clinical Pharmacy Practice in Emergency Medicine for a collection of publications and resources contributing to the growing literature of pharmacist impact on care in the ED setting.
- The VA EM CPP is a highly trained advanced practice provider functioning independently and collaboratively under a Scope of Practice with prescriptive authority as described in [VHA Handbook 1108.11\(2\) Clinical Pharmacy Services](#). In FY22, 113 EM CPP providers recorded 61,053 patient care encounters for 52,417 Veterans, addressing both acute and chronic disease management.
- The EM CPP provides comprehensive medication management (CMM) for **acute care**, including:
 - **Medical emergencies**, code resuscitation efforts, **and high-risk procedures**, like rapid sequence intubations
 - Antimicrobial selection for **infections and sepsis** (sepsis bundles, early goal directed therapy (EGDT))
 - **Acute Coronary Syndromes (ACS)** emergent treatment
 - **Stroke** identification and time sensitive treatment
 - **Anticoagulation initiation**, education and care coordination for new thromboembolic events
 - Emergency **anticoagulation reversal**
 - **Toxicologic emergencies** recognition and treatment, including overdose
 - **Disaster preparedness and management**

- **Acute or Acute on Chronic Pain Management and Opioid Risk Mitigation**
- **Acute exacerbations** of ambulatory care sensitive conditions (ACSC) and discharge follow-up
- The EM CPP provides CMM intermittently for new onset and transitions of care: new diagnosis, traveling Veterans, and Veterans transferring care. The EM CPP provides CMM for Veterans with an established diagnosis.
- As the medication expert, the EM CPP is a champion for ED quality improvement (QI) efforts such as, but not limited to medication safety, Opioid Safety Initiative (OSI), and Overdose Education and Naloxone Distribution (OEND).
- To support the successful and effective integration of the EM CPP, the roles and responsibilities should be clearly delineated with adequate space, resources, appropriate ED staffing, and inpatient and outpatient pharmacy support.

SEE FOLLOWING SECTION FOR FULL NARRATIVE OF THESE POINTS

Background

The Emergency Department (ED) is a busy, unpredictable, and often chaotic setting that requires a coordinated interprofessional team approach to deliver safe and effective patient care. The work of clinical pharmacists in the ED was first recognized in the 1970s. Initially, ED pharmacy services were distributive in nature including mainly medication dispensing, inventory management, and cost-containment efforts.ⁱ ED clinical pharmacy practice expanded in response to the 1999 Institute of Medicine (IOM) report “To Err is Human”, which highlighted the ED as a practice setting with great potential for preventable medication errors that could benefit from clinical pharmacy services.ⁱⁱ Since that time, the role of the clinical pharmacist in the ED has continued to advance with pharmacists implementing improvements in ED medication ordering and timely drug information, and management of toxicologic emergencies.ⁱⁱⁱ In 2008, the American Society of Health-System Pharmacists (ASHP) issued a position statement recommending pharmacy services in the ED.^{iv} ASHP Guidelines on Emergency Medicine Pharmacist Services was updated in 2021 specifically highlighting services in medication therapy monitoring to improve patient clinical outcomes by monitoring for efficacy and safety and providing real time medication information for appropriate medication selection and prescribing.^v The American College of Emergency Physicians (ACEP) issued a policy statement recognizing clinical pharmacists as integral members of the ED multidisciplinary team and created policy which advocates for emergency medicine specific post-graduate training, 24/7 ED CPP coverage, and pharmacy involvement in ED clinical research efforts.^{vi-vii} ACEP’s statement affirmed pharmacists serve a critical role in ensuring efficient, safe, and effective medication use in the ED, advocating for health systems to support dedicated roles for pharmacists in the ED. Furthermore, the American College of Medical Toxicology issued a statement that clinical pharmacists are integral to the care and safety of adult and pediatric patients in the ED, recognizing the critical role pharmacists have in ensuring safe, efficient and effective medication use in the ED and advocating for dedicated clinical pharmacists in ED settings.^{viii} Multiple studies have evaluated the impact of clinical pharmacy services in the ED and show number benefits, including:

1. Reduced medication omission errors and discrepancies upon admission, appropriate medications at discharge and significantly reduced adverse drug events.^{ix,x,xi,xii,xiii}
2. Fewer medication errors during resuscitations and trauma situations, finding that over 13 times more errors were recorded when pharmacists were absent.^{xiv}
3. Cost-avoidance through addressing formulary management, suboptimal disease/medication management, drug interactions/adverse drug events/allergy, untreated diagnosis, drugs with no



indication and duplication of therapy.^{xv, xvi, xvii, xviii, xix, xx}

Refer to the [Evidence Bibliography: Clinical Pharmacy Practice in Emergency Medicine](#) for a collection of publications and resources contributing to the growing literature of pharmacist impact on care in the ED setting.

[VHA Directive 1101.14 Emergency Medicine](#) states dedicated onsite CPPs have been proven to expand access to care, increase patient safety and be cost-effective collaborative members of ED teams and it is therefore strongly recommended that dedicated CPPs are integrated in all EDs. [VHA Directive 1101.13 Urgent Care](#) includes ideal CPP services based on level of urgent care at facility. Both of these directives support recognize CPP practice models significantly improves access to care, quality and safety for Veterans. Models of expanded ED clinical pharmacy services have been put into practice over time in the VA. One early adopter was the VA San Diego Healthcare System (VASDHS), where a 24-hour comprehensive ED pharmacy service within a tertiary care teaching hospital was successfully implemented. Subsequently, the impact of this program was demonstrated during the initial 6-month implementation period with published results concluding improved patient care through decreased medication errors, improved medication reconciliation processes, prospective medication order review, increased overall patient safety, decreased costs of care, and an ED staff survey indicating the value of clinical pharmacy services within the ED.¹⁹

Over the last 20 years, position statements, policy, guidance and established clinical pharmacy services have provided foundational support for the evolution of ED clinical pharmacy practice expansion in the VA. This document describes ED clinical pharmacy services in the VA, highlighting the critical role of the Emergency Management Clinical Pharmacy Practitioner (EM CPP).

ROLE OF THE EMERGENCY MEDICINE CLINICAL PHARMACY PRACTITIONER (EM CPP)

A Clinical Pharmacist Practitioner (CPP) refers to a clinical pharmacist specialist (CPS) with a scope of practice authorized by the medical staff as an Advanced Practice Provider (APP) defined within medical staff bylaws. The EM CPP is located in the ED to provide direct patient care and functions at the highest level of clinical practice, working with a high level of autonomy and independent decision-making within the parameters of their scope of practice, as defined by the individual medical facility and performs functions as described in VHA Handbook 1108.11¹, Clinical Pharmacy Services. The EM CPP collaborates with the ED team providing comprehensive medication management, prioritizing information pertinent to the ED visit. The EM CPP also provides medication education to the Veteran and caregivers and care coordination related to medication management for patients transitioning between care needs. In addition, the EM CPP serves as a champion for ED quality improvement efforts involving medications and a liaison with operational pharmacy service personnel (e.g., clinical pharmacists and pharmacy technicians) for emergent ED medication needs. Training and/or experience of the EM CPP typically includes Post Graduate Year 1 (PGY1) training and may also include Post Graduate Year 2 (PGY2) training in emergency medicine or critical care, board certification and/or direct patient care experience or mentorship in acute and ambulatory care settings. It is recommended that dedicated EM CPP coverage be available during the peak times of the day, or as determined appropriate to individual facility needs as outlined in Appendix A. The roles and responsibilities include the following but are not limited to:

- Interview and evaluation of patients' medication regimens during the initial presentation to the ED and/or before admission to the hospital for accuracy and appropriateness of therapy.
- Designing a pharmaceutical care plan if needed and document the plan in the initial assessment or progress note. All activities and interventions performed are documented in the electronic health record, allowing for seamless transitions of care and effective communication within the patient's healthcare team.



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- Developing and directing innovative, progressive clinical pharmacy services in the ED. The EM CPP actively participates in bedside procedures requiring high-risk medications or interventions.
- Serving as the pharmacy representative on multidisciplinary committees involving the ED and may also develop ED specific educational programs, protocols, standard operating procedures, order sets and more.

Acute Disease State Management

Common acute and critical illnesses encountered in the ED include sepsis, infections, stroke, acute coronary syndromes, arrhythmias, venous thromboembolism, hemorrhagic complications, diabetic ketoacidosis, various acute pain disorders, and toxicologic emergencies. The EM CPP collaborates with the ED healthcare team to develop treatment protocols for many of these conditions to ensure expedited, appropriate treatment. In addition, the EM CPP is actively involved in performing specific high impact interventions as outlined:

- **Medical Emergencies and High-Risk Procedures:** As part of the multidisciplinary team, the EM CPP is Advanced Cardiac Life Support (ACLS) certified and responds to medical emergencies in the ED, playing a vital role in resuscitation efforts, one of the most urgent activities in the ED. Primary EM CPP responsibilities include selecting appropriate medication and dosing in accordance with ACLS protocol, preparing medications for immediate use, confirming appropriate administration, recommending alternative routes of administration when necessary, and procuring medications that are not readily accessible within the ED. The EM CPP role for high-risk procedures includes high-risk medication selection, dosing and timing of doses, such as sedatives for rapid sequence intubation and paralytic agents to facilitate successful intubation in patients with acute respiratory failure. The EM CPP participates in drug selection during all steps including pretreatment, induction, paralysis, and post-intubation analgesia and sedation to facilitate a safe and successful procedure.
- **Infections and Sepsis:** In collaboration with the ED physician and the patient, the EM CPP plays a key role in antimicrobial stewardship and determining antimicrobial selection. This process entails determining the source of infection, prior antimicrobial usage, prior culture results, lab results, concurrent medications, comorbidities and pertinent local bacterial resistance patterns. The EM CPP provides post-discharge follow-up and reviews culture results, susceptibility profiles and initiates change in antimicrobial therapy when indicated. The EM CPP works with ED providers to ensure adherence to Surviving Sepsis Campaign Guidelines. When sepsis is identified, the EM CPP recommends antimicrobials and facilitates prompt administration. The EM CPP is knowledgeable in sepsis bundles and early goal directed therapy (EGDT) to include advanced hemodynamic interventions such as vasopressors and inotropes. The EM CPP takes an active role in monitoring hemodynamic parameters and titrating medications accordingly. This collaboration improves quality of care for patients by minimizing resistance rates, treatment failures, readmission rates, and potentially increasing patient satisfaction.
- **Acute Coronary Syndromes (ACS):** The EM CPP works closely with the ED team to expedite treatment for patients presenting with ACS. Drug therapy in ACS is complex, frequently updated, and carries a high risk for bleeding complications if used inappropriately. The EM CPP is well versed on current guidelines and assists with selection, dosing, and administration of emergent ACS medications (e.g. anticoagulants, antiplatelets, and thrombolytics).

- **Stroke:** The EM CPP plays an important role in the management of patients presenting with suspected acute ischemic stroke. The EM CPP assists with initial workup inclusive of neurologic status (i.e., National Institutes of Health Stroke Scale-NIHSS), medication history, accurate patient weight, blood pressure and blood glucose, and eligibility for thrombolytic therapy with attention to critical time sensitive goals for thrombolytic administration and appropriate transfer. The EM CPP provides thrombolytic dosing, nursing administration guidance, and patient monitoring. The EM CPP may participate in the design of local protocols to enhance the safe preparation and prompt administration of thrombolytic therapy, such as a “stroke toolbox”, in which all of the essential supplies required for the preparation and administration of thrombolytic can be created and made available when needed.
- **Anticoagulation Initiation:** The EM CPP helps determine anticoagulation treatment for patients with acute venous thromboembolisms (VTE). For patients with VTE who do not meet admission criteria, the EM CPP initiates anticoagulation treatment, education, and care coordination for further follow-up and monitoring.
- **Emergency Anticoagulation Reversal:** The ED is often the setting where hemorrhagic complications from oral anticoagulants are diagnosed. The EM CPP recommends treatment and doses of anticoagulation reversal agents and specific antidotes treatment and provides nursing administration guidance and patient monitoring.
- **Toxicologic Emergencies:** The EM CPP possesses unique knowledge in regard to the toxicology and toxicokinetics of various pharmacological and non-pharmacological substances. The EM CPP is experienced in the recognition and management of common toxidromes and assists in the ordering and administration of available antidotes. If eligible, the EM CPP may pursue certification with the American Board of Applied Toxicology (ABAT).
- **Emergency Preparedness:** The EM CPP has the skills and knowledge to prepare for and respond to emergencies related to natural disasters, disease outbreaks, biological, radiological, or chemical exposures, mass casualty incidents and acts of terrorism. The EM CPP is a resource during disaster preparedness drills. During the COVID-19 pandemic, EM CPP played a pivotal role in the development of emergency operations plans, including facilitating timely access to emergency use authorization (EUA) medications and vaccination.
- **Pain Management:** The EM CPP may provide or offer treatment recommendations for pharmacologic and nonpharmacologic treatment options for acute pain care (i.e., pain due to injury or shingles pain) and acute on chronic pain management (i.e., neuropathy exacerbation or gout flare). The EM CPP uses opioid stewardship principles to consider non-opioid alternatives, discouraging replacement of repetitive lost or stolen controlled substances, preventing prescribing of long-acting opioids within the ED setting and advocating for limited supply when opioids are indicated, in accordance with VA/DOD guidelines. The EM CPP helps ensure that opioids are not routinely prescribed for treatment of general dental pain, chronic back pain, neuropathic pain, chronic abdominal pain, and migraine headaches, as these indications have been associated with increased harm.
- **Risk Mitigation and Opioid Safety**
Additionally, the EM CPP helps identify Veterans that may be at risk for opioid overdose or other

adverse event and recommends or implements individualized risk mitigation strategies for Veterans (e.g., opioid use disorder or alcohol use disorder medication treatment, overdose education and naloxone distribution (OEND), syringe services). The EM CPP may be involved in care coordination for treatment at discharge, particularly for high-risk patients. The EM CPP offers or recommends naloxone prior to discharge for patients receiving prescribed opioids or using illicit opioids. The EM CPP may check the PDMP or order urine toxicology as part of risk screening, however this is ultimately the responsibility of the attending ED provider. The [Fact Sheet - CPP Role in Opioid Safety](#) outlines CPP roles that impact opioid safety.

- **Acute exacerbations of ambulatory care sensitive conditions (ACSC):** The EM CPP plays a vital role in ensuring disease states identified as ACSC (i.e., CHF, COPD, diabetes, pneumonia, dehydration) receive optimized treatment options in the ED, acute care, and subsequently discharge follow-up. The EM CPP can maximize diuretic therapy in heart failure patients or optimize medication and inhaler regimens for chronic obstructive pulmonary disease (COPD) patients. For exacerbations treated in the ED setting and not meeting admission criteria, the EM CPP provides education with a discharge follow-up and plan for care coordination.

Chronic Disease State Management

Patients with diabetes, hypertension, chronic pulmonary diseases, arthritic diseases, arrhythmias, heart failure, psychiatric disorders and other chronic conditions often present to the ED with acute exacerbation, new onset of condition or when transitioning care. The EM CPP is well-trained in chronic disease states and performs comprehensive disease management inclusive of ordering necessary labs, medications, consults, or supplies, and ensuring coordination of care with patient's primary care team. The EM CPP should encourage and may assist with the referral of ongoing chronic disease management to the appropriate provider to ensure continuity of care.

Transitions of Care/Continuity of Care

The EM CPP may monitor the results of labs and cultures initiated in the ED. Culture and sensitivities are followed and antibiotic selections can be optimized based on results if needed. To ensure continuity of care, the EM CPP may also assist with medication management for traveling Veterans and Veterans transferring care from the private sector, DOD or another VA facility. For chronic medications, Veteran's should continue to obtain medications from his/her prior provider until new care is established. If there is a true lapse in care coverage, the EM CPP may, on rare occasions, prescribe an interim supply of medication and ensure referral for needed care until that follow-up is available, such as with the Primary Care Provider or Anticoagulation Clinic. In these scenarios, the EM CPP performs medication reconciliation with the Veteran, caregiver and/or Veteran's prior healthcare team, identifying current medications and indications and may continue, change or discontinue medications as appropriate in alignment with VA formulary and patient specific treatment goals. The EM CPP may be able to expedite appropriate Primary Care or Specialty Care follow up and coordinate with a PACT or Specialty Care CPP for medication-related or monitoring needs. The EM CPP must be diligent to ensure close communication with other care providers and document any transitions of care or continuity of care activities fully in the EMR.

Quality Improvement

- **Medication Safety:** The fast-paced, time-sensitive and high-stakes nature of the ED increases the potential for medication errors and adverse outcomes. The EM CPP plays a key role in identifying strategies to improve medication use and safety and may be involved in root cause analyses or healthcare failure mode and effect analyses related to past medication errors in the ED. In



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addition, the EM CPP is a proponent for medication verification systems, such as Barcode Medication Administration (BCMA) technology, and guides staff on other methods to reduce the potential for errors. The EM CPP may be involved in the creation of order sets or other techniques to aid in expedited, safe and proper selection of evidence-based and/or guideline-directed therapies in the ED. At facilities where ED patient volume is lower, the EM CPP may be more heavily focused on quality improvement and regulatory compliance activities.

- **Opioid Safety Initiative (OSI), Opioid Overdose Education and Naloxone Distribution (OEND):** The Stratification Tool for Opioid Risk Mitigation (STORM) tools are used to identify Veterans at risk for opioid related overdose or another adverse event. The EM CPP may use these population management tools to identify needed risk mitigation such as state prescription drug monitoring program query and UDS as well as overdose education and a naloxone kit. Also, for facilities where VA emergency responders carry naloxone kits, the EM CPP can provide education on how to identify opioid overdose and proper naloxone administration.
- **Committee Participation:** The EM CPP is involved in various quality improvement committees designed to evaluate and improve patient safety and outcomes in the ED. Quality improvement committees are typically multidisciplinary and designed to ensure the facility is meeting performance standards, such as time-sensitive goals for medication administration and appropriate use of high-risk medications. The EM CPP should represent pharmacy service by participating in local committees that evaluate outcomes of ED cases including myocardial infarction, ischemic stroke, sepsis, and cardiopulmonary arrest. The EM CPP participates in training for medical emergencies requiring advanced cardiac life support (ACLS) and other emergent bedside procedures such as rapid sequence intubation (RSI). Lastly, antimicrobial stewardship initiatives are expanding into the ED where antimicrobials are typically initiated. The EM CPP should work closely with the antimicrobial stewardship team to ensure these initiatives are implemented and maintained appropriately.
- **Education and Training:** The EM CPP serves as the medication expert in the ED and is available to provide time-sensitive, accurate information for other healthcare providers in acute scenarios. Educational in-services for the ED healthcare team on pharmacy-related topics can improve safe and appropriate medication use and enhance team awareness overall. The EM CPP may provide patient and caregiver medication education, with special attention to medications that are high-risk for adverse effects. In addition, the ED setting offers a wide array of acute and chronic disease states and emergent/urgent care situations for trainees to hone their skills. The EM CPP is encouraged to serve as a preceptor for advanced experiential rotations for pharmacy students as well as pharmacy practice residents looking for emergency medicine training. The Board of Pharmacy Specialties (BPS) is recognized as the gold standard for determining which pharmacists are qualified to contribute at advanced practice levels and as of 2023, offers a Board-Certified Emergency Medicine Pharmacist (BCEMP) program.
- **Geriatric Emergency Department Accreditation (GEDA):** The [American College of Emergency Physician \(ACEP\) Geriatric Emergency Department Accreditation \(GEDA\)](#) program recognizes facilities for their work in embracing geriatric focused education, standardized approaches, and interprofessional staffing. GEDA consists of 3 levels with the highest levels, Level 1 and Level 2, including EM CPP integration on the team. Another component of GEDA requires the development of several [geriatric specific models of care](#). One of those models endorsed by GEDA

includes a pathway to minimize the use of potentially inappropriate medications. Utilizing the national, standardized, evidence-based Identification of Seniors at Risk (ISAR) screen, Veterans are triaged to the EM CPP for comprehensive medication management.

CURRENT ASSESSMENT OF CPP PRACTICE IN THE ED

Nationwide, CPPs are integrated into care teams throughout the VA system. In Fiscal Year 2022 (FY22), 113 EM CPPs recorded 61,053 patient care encounters for 52,417 Veterans, addressing both acute and chronic disease management. The 169% growth in the number of EM CPPs since FY17 is attributed to not only new EM CPP practice but also to sites who have increased the number of CPPs in a facility to provide 24/7 coverage. To foster EM clinical practice growth and standardization, large scale education and training is essential. In FY21, the PBM Clinical Pharmacy Practice Office (CPPO) hosted two virtual clinical boot camp trainings for CPPs in Acute Care, Critical Care, and the Emergency Department. The curriculum was crafted to provide 13 ACPE hours in clinical pharmacy practice foundation components, share resources available to support practice implementation, and clinical pearls related to the practice area. The slides and recordings to this training series are available on-demand.

Figure 1: EM CPP Practice Growth by Fiscal Quarter

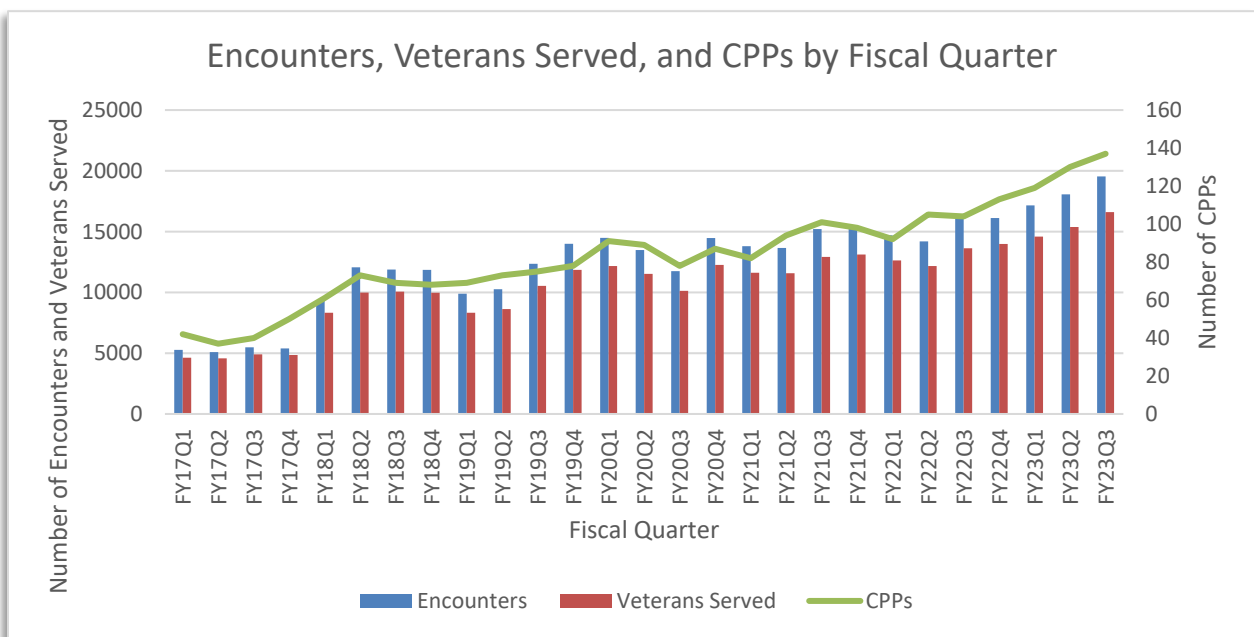
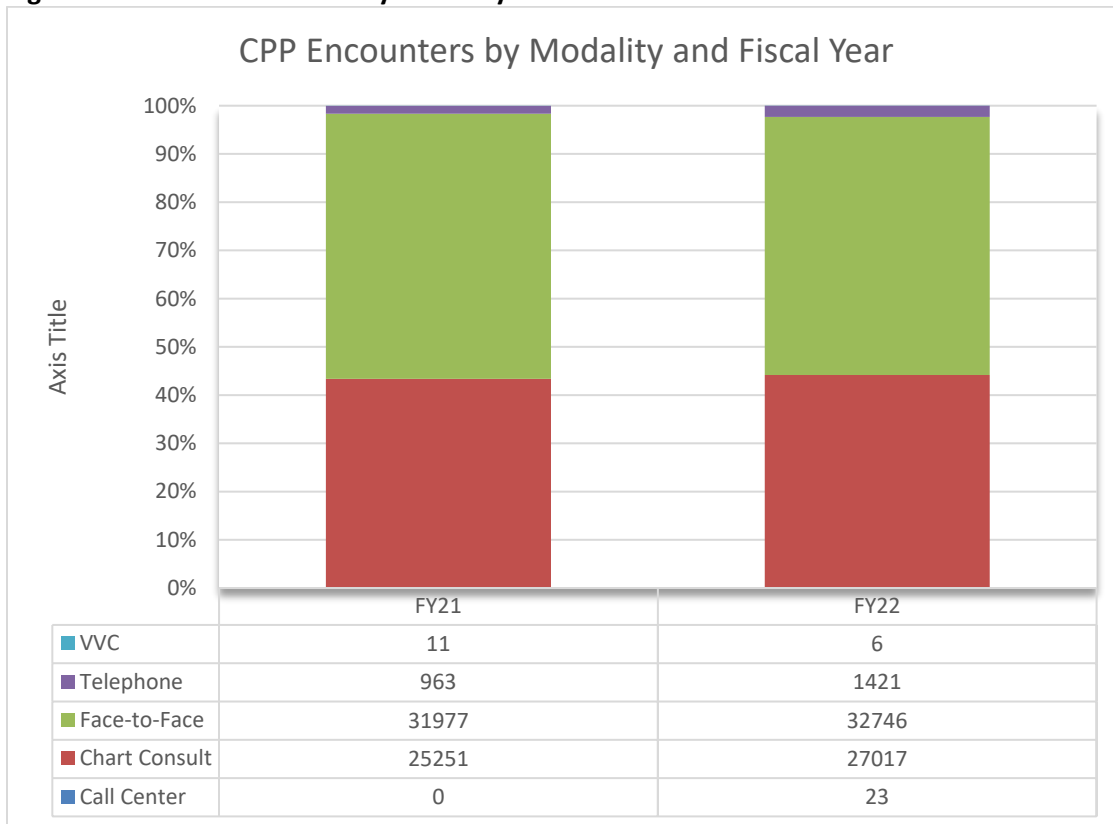
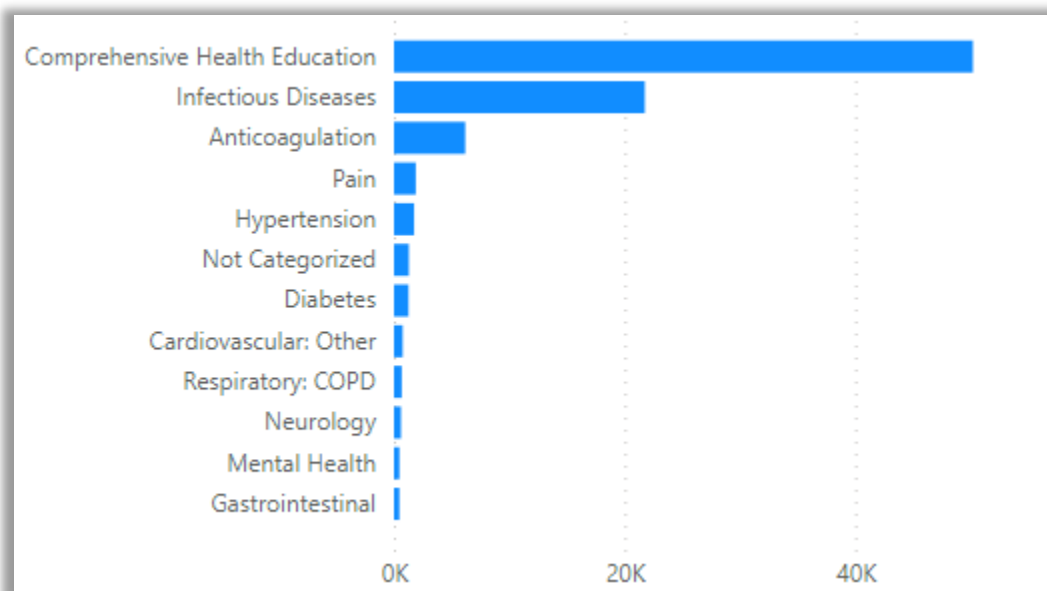


Figure 2: EM CPP Encounters by Modality of Care and Fiscal Year



*Telehealth includes telephone, VVC, and call center encounters

Figure 3. Top ED Clinical Pharmacy Services Provided by EM CPP in FY22F4-FY23Q3



Data extracted from the Pharmacists Achieve Results with Medications Documentation (PhARMD) Tool.

CONCLUSIONS AND RECOMMENDATIONS

The ED is a unique practice setting producing the highest number of preventable adverse drug events; therefore, presenting a clear opportunity to leverage the EM CPP, as the medication expert, as a key ED team member. The EM CPP is uniquely trained to provide CMM to Veterans presenting to the ED due to their extensive knowledge of medications, clinical pharmacology, pharmacokinetics, pharmacodynamics, and therapeutics; this is a combined skill set that is unique to this group of health care professionals. Utilizing this highly trained workforce at the top of their licensure and scope of practice will improve VA's access to safe and effective medication management services and provide a beneficial service to VA providers and patients alike. EM CPPs remain underutilized in the ED and urgent care settings, but the practice is growing. Benefits of expanded EM CPP utilization include improved access to care, operational efficiency and quality of care aligning with VA strategic plans.

The VA CPP workforce has advanced clinical practice training and is ready to take on EM CPP roles system wide. Strong evidence demonstrates that CPP improve access, clinical outcomes and cost-effectiveness when properly deployed. Additional studies have shown effectiveness of the ED pharmacist in decreasing prescribing, transcribing, dispensing and administering errors.^{xxi, xxii} These important outcomes are directly related to the EM CPPs active involvement in CMM and as such, playing a critical role in medication safety.

Questions related to this guidance may be directed to the Clinical Pharmacy Practice Office (CPPO) at VHAPBH Clinical Pharmacy Practice Office (CPPO) ClinicalPharmacyPracticeOfficeCPPO@va.gov.

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