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Transforming Value-Based
Deep Vein Thrombosis Care
Through a Pharmacist-Led Clinic


Madison Yates, PharmD, BCACP, CPP
Katie Sfirlea, PharmD
Nicholas Gazda, PharmD, MS, BCPS, CSP, FNCAP
Molly Schneider, PharmD, MHA, CSP
V. Wells Brabham, MD, FACS

Cone Health
Greensboro, North Carolina



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Introduction

Cone Health

- Not-for-profit health system across 5 counties in central North Carolina
- 5 hospitals with a combined 1,231 inpatient beds
- 2 free-standing emergency departments (ED), 3 outpatient surgery centers, 11 urgent care centers
- >120 provider practices
- >13,000 employees and 1,650 physicians
- ~700 deep vein thrombosis (DVT) events annually

Pharmacy Services

- >500 pharmacy FTEs
- 227 pharmacists
- 30 ambulatory care clinic pharmacists
- 9 community pharmacies
- 1 URAC/ACHC-accredited specialty pharmacy

Background

- Venous thromboembolism (VTE) is the third leading cause of cardiovascular death in the United States (US), requiring early diagnosis and treatment¹
- Ambulatory management of DVT is recommended by current clinical practice guidelines¹⁻³
- Acute care management of DVT is costly, with mean hospital costs for an initial DVT of \$9,805 and readmission of \$11,862 in the US from 1998 to 2005⁴
- Fragmented care models and medication access barriers lead to underutilization of ambulatory management
- Few health systems have created VTE clinics and only focus on follow up management after an acute care visit⁵
- There are no examples of pharmacist-initiated ambulatory DVT treatment nor of a clinic that centralizes DVT care to rapidly initiate treatment
- To address these gaps in care, our health system implemented a pharmacist-led DVT Clinic in partnership with vascular surgeons in November 2023

Description of the Program

Program Goals

- Standardize DVT treatment in the community
- Reduce emergency department and inpatient utilization for DVT management
- Ensure access and affordability of medications
- Provide direct, immediate access to vascular surgeons for possible intervention

Clinic Development

- Constructed a multidisciplinary team of systemwide cardiovascular leaders, physician champion, vascular imaging leaders, information technology, and marketing, led by a clinical pharmacist to build clinic and operations
- Embedded within the system's outpatient vascular surgery practice, located on the same floor as the system's largest outpatient vascular imaging center
- Established collaborative practice agreement with vascular surgeons and protocol to distinguish patients requiring management solely by the pharmacist from those needing vascular intervention and coordinated care with both a surgeon and pharmacist
- Updated vascular ultrasound orders within our electronic health record to include an option for referral to DVT Clinic upon a positive outpatient study
- Collaborated with independent practices within our community who utilize our vascular imaging to update faxed ultrasound orders to also include this option
- Created standalone referral to clinic to allow follow up of patients started on treatment elsewhere, such as the ED

Clinic Workflow for Rapid Treatment Initiation

Diagnosis of acute DVT with referral to clinic and no exclusions to outpatient care

Patient scheduled with clinic pharmacist and seen same day to initiate anticoagulation

Identify and resolve access barriers, provide counseling, fill medication at on-site pharmacy

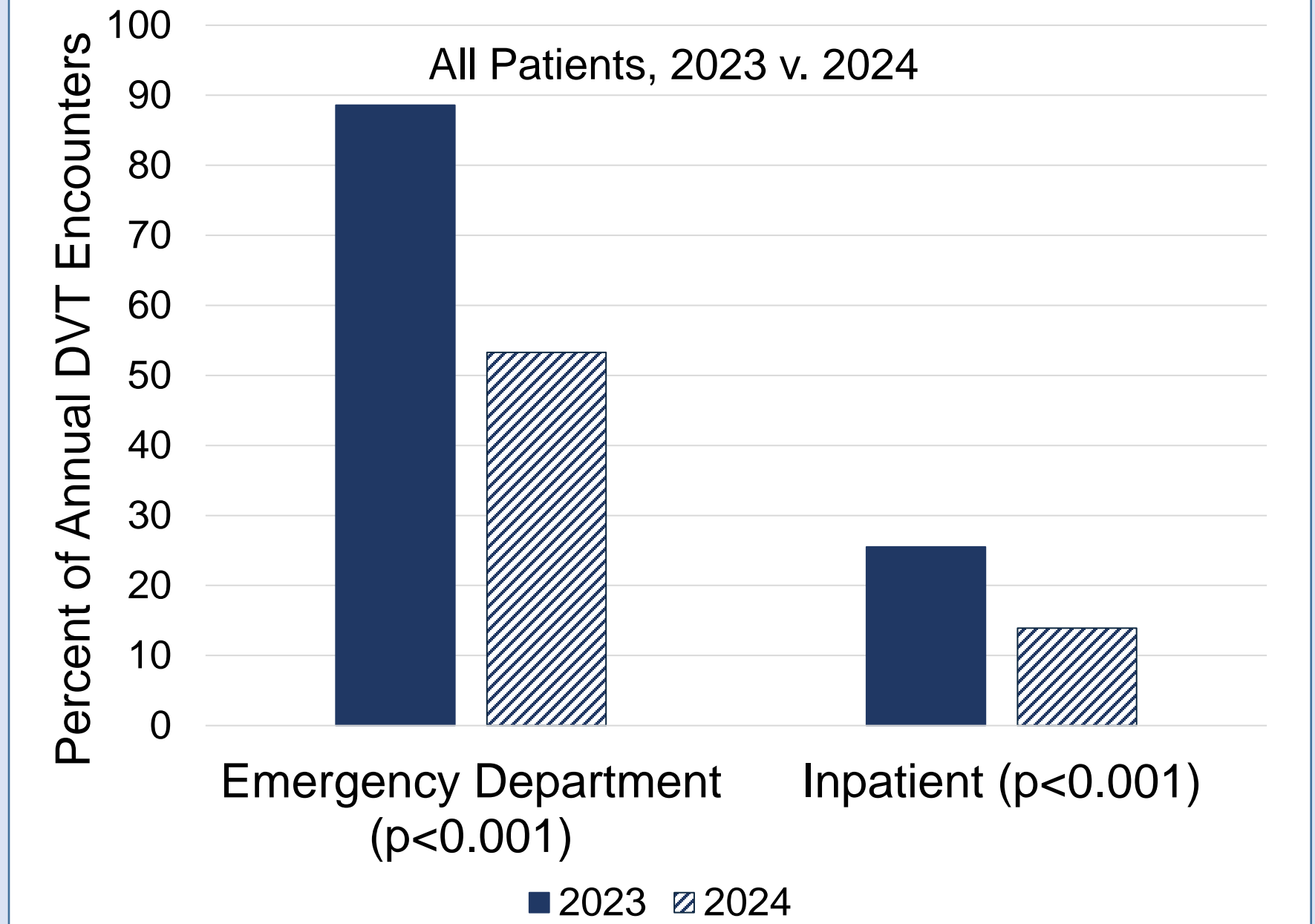
Evaluate need for vascular intervention, coordinate refills and appropriate follow up

Experience with the Program

- 205 patients (363 visits) were seen at DVT Clinic in 2024
- 55% of patients seen for initial visits were same-day appointments that directly avoided an ED visit
- 97% of initial prescriptions and 26% of refills prescribed were filled at a health system-owned pharmacy
- 96% adherence to first 3 months of anticoagulation, indicated by proportion of days covered
- >\$50,000 in savings for patient out-of-pocket costs for initial 3-month supply in 2024 (~\$250/patient)
- No major bleeding events occurred

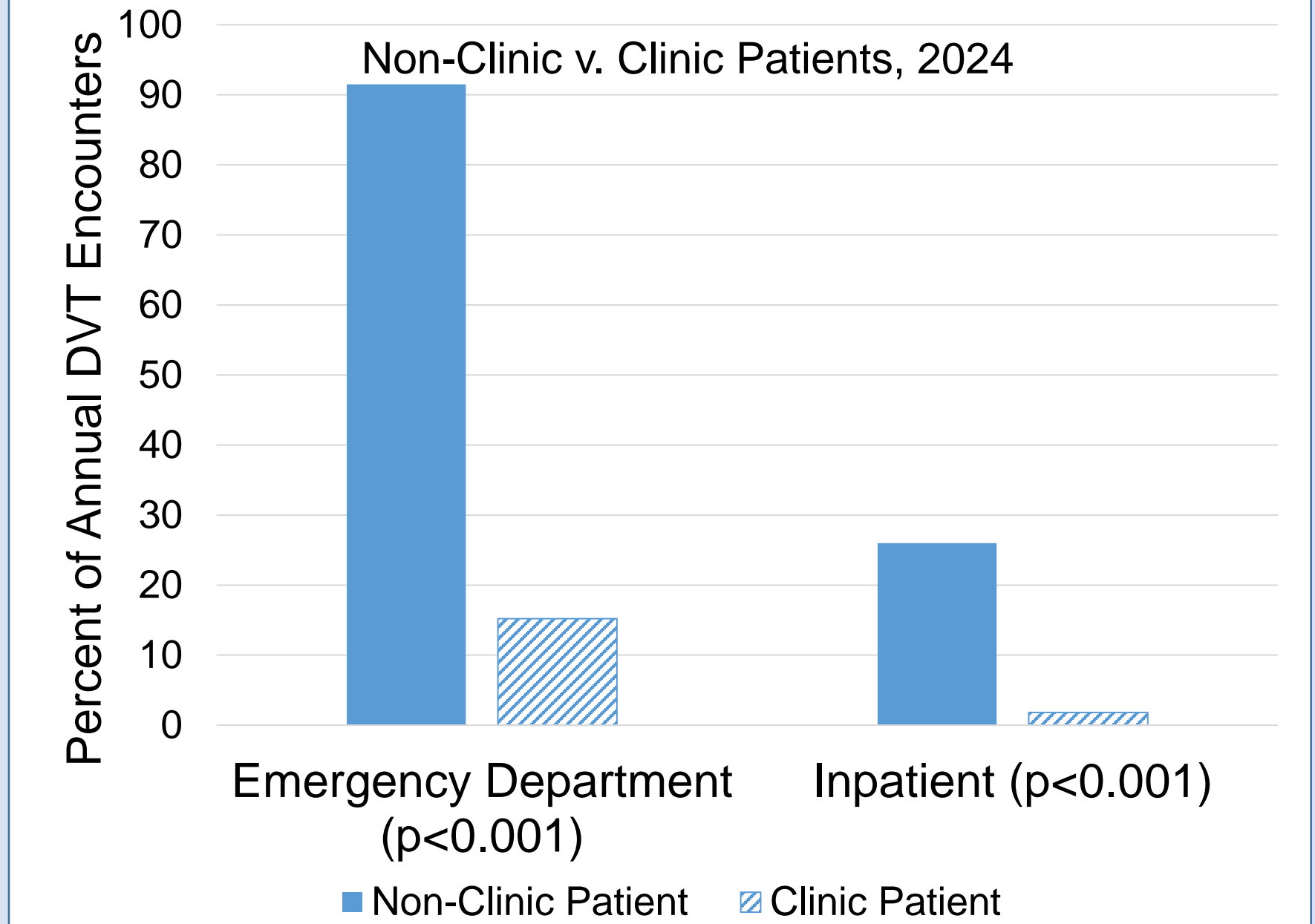
Referring Specialty	n (%)
Emergency Department	71 (34.6)
Primary Care	48 (23.4)
Orthopedic Surgery	44 (21.5)
Urgent Care	5 (2.4)
Other	37 (18)

Table 1. Acute Care Utilization for DVT by Year



Category	2023 (%)	2024 (%)
Emergency Department	~88	~54
Inpatient	~26	~14

Table 2. Acute Care Utilization for DVT by Clinic Status



Category	Non-Clinic Patient (%)	Clinic Patient (%)
Emergency Department	~92	~15
Inpatient	~26	~1

Discussion / Conclusion

Significance of Program

- Novel approach for rapid outpatient treatment of DVT by centralizing diagnosis, treatment, and medication access into one care center
- Collaboration between pharmacist and vascular surgeons allows for immediate comprehensive care during a single visit
- Reduced systemwide acute care utilization for DVT, decreasing costs to patients and payers while reducing emergency services burden
- Provided access to affordable medications for all patients, increasing medication adherence
- Utilization of on-site pharmacy allows for financial retention of prescription revenue and streamlined pharmacy experience for patients

The DVT Clinic is a transformative advancement in pharmacy practice, redefining the role of pharmacists in ambulatory care and establishing a replicable model to optimize value-based care that shifts treatment for appropriate populations from acute to outpatient management. The clinic provides clinical, financial, and operational benefits, highlighting how pharmacists can lead systemwide interprofessional initiatives to enhance quality, access, and affordability of care.

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