

## What's With All the UFH Infusions for Acute Pulmonary Embolism?

— Physician interviews reveal that misconceptions abound for anticoagulant choice

by [Nicole Lou](#), Senior Staff Writer, MedPage Today  
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### Key Takeaways

- Professional guidelines recommend LMWH and DOACs over UFH for the majority of patients hospitalized for acute PE.
- Yet physicians expressed general indifference toward anticoagulation choice, or the belief that the choice of in-hospital anticoagulation ultimately did not matter.
- Misperceptions include the idea that UFH users are less prone to bleeding, and that UFH is a stronger anticoagulant.

Despite guidelines recommending other anticoagulants for people hospitalized with acute pulmonary embolism (PE), old habits and misconceptions have kept unfractionated heparin (UFH) the initial choice for many physicians in the U.S., according to one report.

Based on interviews with several dozen physicians spanning various geographic locations and practice settings, investigators found that several common themes underlie the persistent use of UFH over low-molecular-weight heparins (LMWHs) or direct oral anticoagulants (DOACs).

First and foremost, "both emergency medicine physicians and hospitalists routinely referred to inertia carried over from training (generally when discussing a habit of using UFH in patients admitted with PE). This inertia was, at least in part, due to a general indifference toward anticoagulation choice," reported Lauren Westafer, DO, MPH, MS, of University of Massachusetts Chan Medical School-Baystate in Springfield, and colleagues.

"Adoption of new practice patterns requires awareness of clinical guidelines and data," they noted in [JAMA Network Open](#).

In pulmonary embolism, systemic anticoagulation is the cornerstone treatment. Unless a specific contraindication exists, professional guidelines recommend LMWH and DOACs over UFH for the majority of patients hospitalized for acute PE who are treated with parenteral anticoagulation. The reason: these alternatives achieve therapeutic anticoagulation more quickly and consistently and are associated with fewer bleeding complications.

As such, the view that came up again and again in the qualitative study, that the choice of in-hospital anticoagulation ultimately did not matter, is not backed by the literature, Westafer and colleagues stressed.



The group had previously reported a steady climb in the proportion of U.S. patients with acute PE initially treated with UFH, [increasing from 41.9% in 2011 to 56.3% in 2020](#).

The group detailed other themes that arose from their interviews with physicians about anticoagulation in acute PE:

- They have been used to using UFH for decades
- Hospitalists reported rarely switching patients started on UFH to LMWH or a DOAC until the patient was nearing discharge due to reasons like convenience, timing of transitions, and the desire to reduce the number of anticoagulation transitions.
- Some institutions have an unwritten institutional culture of using a UFH-dominant approach
- The short half-life of UFH was more reassuring to physicians fearing decompensation and/or bleeding from the PE
- A misperception that UFH was stronger than other anticoagulants because of its "quick on, quick off" and its IV administration

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In an [invited commentary](#), Brandon Maughan, MD, MHS, of Oregon Health and Science University in Portland, and colleagues highlighted that another common misperception -- that LMWH is contraindicated to



patients undergoing catheter-directed treatment -- was cited as part of physicians' reasoning that upfront UFH would offer the patient more flexibility to change the anticoagulant in downstream care.

"Guidelines recommend continuing anticoagulation during catheter-directed interventions, although there remains heterogeneity in clinical practice regarding choice of anticoagulant and monitoring during catheter-directed thrombolytic infusion. Parenteral anticoagulation with either UFH or LMWH is not a contraindication to systemic thrombolysis," the editorialists clarified.

"Another important misconception is that no steps can be taken to reverse LMWH," Maughan and colleagues continued. "Protamine achieves partial (approximately 60%) reversal of LMWH, and guidelines recommend protamine for management of life-threatening bleeding associated with either UFH or LMWH. DOACs may be reversed with prothrombin complex concentrates or specific reversal agents."

All in all, they said, the present findings "suggest widespread misunderstanding of the pharmacology and guideline-recommended use of heparins in acute PE."

"Addressing these misconceptions and changing clinical practice will require a multifaceted approach, including pragmatic trials of anticoagulation effectiveness and safety in clinical settings, targeted educational programs from professional societies, and adoption of evidence-based policies by institutional quality committees. Ongoing emergency care research using implementation science frameworks should be conducted to modernize anticoagulation choices and improve outcomes for patients with PE," the editorialists wrote.



For their qualitative study, Westafer's group relied on semistructured interviews with 46 participants in emergency medicine (54.3%), hospital medicine (37.0%), interventional cardiology and interventional radiology (8.7%). Participants were invited to a 30-minute interview on Zoom software and received a \$25 Amazon gift card.

Median age was 43 years. Men accounted for 71.7% of the participating cohort. By race, the group was 60% white and 32% Asian. The small group included individuals spanning the spectrum of practice patterns and geographic settings in the U.S.

Chief among the study's caveats was its limited sample and the possibility that participants may have chosen what they said during interviews with some degree of social desirability bias.



Nicole Lou is a reporter for MedPage Today, where she covers cardiology news and other developments in medicine. [Follow](#)

### Disclosures

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Westafer reported receiving grants from the National Heart, Lung, and Blood Institute and Baystate Medical Center.

Co-authors reported relationships with Pfizer, Bristol-Myers Squibb, Janssen, Anthos, Bayer, the Anticoagulation Forum Board of Directors, Boston Scientific Consulting, AstraZeneca, Sanofi, and Abbott Vascular.

Maughan reported receiving grants from the National Academy of Medicine, the American Heart Association, and the Collins Medical Trust.

### Primary Source

*JAMA Network Open*

**Source Reference:** *Stubblefield WB, et al "Factors in initial anticoagulation choice in hospitalized patients with pulmonary embolism" JAMA Netw Open 2025; DOI: 10.1001/jamanetworkopen.2024.52877.*

### Secondary Source

*JAMA Network Open*

**Source Reference:** *Maughan BC, et al "Evidence-based anticoagulation choice for acute pulmonary embolism" JAMA Netw Open 2025; DOI: 10.1001/jamanetworkopen.2024.52850.*

