

# Evidence-based guidelines for COVID-19 patients suspected of VTE

## PRACTICAL DIAGNOSIS AND TREATMENT OF SUSPECTED VENOUS THROMBOEMBOLISM DURING COVID-19 PANDEMIC

CHICAGO, Illinois, APRIL 2020 – A committee comprised of vascular thrombosis experts, surgeons, medical physicians and technologists from the University of Michigan provide an evidence-based algorithm espousing empiric treatment for venous thromboembolism (VTE) without confirmatory imaging during the pandemic.

According to senior author Peter K. Henke, MD, “The COVID-19 pandemic has caused a massive challenge to the diagnosis and treatment of positive patients at risk for VTE. The surge of patients has resulted in delays in diagnosis and therapy for these critically-ill patients for a plethora of reasons during this crisis.

“Facing mounting requests for vascular ultrasounds and CT imaging, we formed an ad hoc committee of venous thrombosis experts to review our existing protocols (including that used during the H1N1 crisis) alongside current guidelines from the American College of Chest Physician and the National Institution for Health and Care Excellence.”

The manuscript is now available as a “pre-proof” online publication of the Journal of Vascular Surgery: Venous and Lymphatic Disorders, in the freely available COVID-19 Collection at the Journal website: <https://www.jvsvenous.org>. Link direct to collection here: <https://bit.ly/3brya9z>

Their critical guiding principles involve:

- All patients with or suspected of COVID-19 should be treated with thromboprophylaxis,
- Elevated D-dimer is expected with severe infection and should not be a determinant in the decision to obtain imaging; however, a negative test in combination with a low clinical score safely excludes VTE,
- Current guidelines recommend empiric treatment for those suspected of pulmonary embolism (PE) and deep vein thrombosis (DVT) if CT is delayed >4h and venous duplex >24h, respectively; during the pandemic, however, benefit of empiric therapy outweighs risk even if imaging is delayed >1mon,
- Duplex ultrasound is indicated when the following exists simultaneously:
  - High bleeding risk,

- Results will change management, and
- Clinical suspicion for PE is high and CT unavailable or clinical suspicion for DVT is high (modified Wells and Wells scoring),
- Most patients with confirmed or suspected VTE not at high bleeding risk should receive therapeutic doses of anticoagulation,
- In patients with Adult Respiratory Distress Syndrome, low dose heparin infusion may reduce risk of major bleeding while protecting from thrombotic events,
- Patients treated with low dose anticoagulation protocols should be transitioned to full dose anticoagulation when no longer in intensive care status,
- Referral for CT or duplex may be performed upon recovery as an inpatient; however, this may be delayed to outpatient setting in a resource scarce environment, and
- Unilateral upper extremity limb swelling should be imaged according to the fourth guideline above.

Dr. Henke further adds, “In this treatment paradigm, we emphasize preventing VTE related morbidity and mortality at the expense of bleeding complications over a short term while imaging is delayed, and also utilizing therapy that has shown benefit for other severe viral states (H1N1).

“With such an approach, the commitment to providing follow up—the DVT scan that would normally be obtained in 24 hours and now will be delayed 2-4 weeks—must be absolute, meticulous and unwavering.”

We are grateful for this evidence-based, solid advice from the clinician researchers at the University of Michigan in this time of crisis.

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