

## Safely Ruling Out Deep Venous Thrombosis in Primary Care

*Summaries for Patients* are a service provided by *Annals* to help patients better understand the complicated and often mystifying language of modern medicine.

The full report is titled “Safely Ruling Out Deep Venous Thrombosis in Primary Care.” It is in the 17 February 2009 issue of *Annals of Internal Medicine* (volume 150, pages 229-235).

The authors are H.R. Büller, A.J. ten Cate-Hoek, A.W. Hoes, M.A. Joore, K.G.M. Moons, R. Oudega, M.H. Prins, H.E.J.H. Stoffers, D.B. Toll, E.F. van der Velde, and H.C.P.M. van Weert, for the AMUSE (Amsterdam Maastricht Utrecht Study on thromboEmbolism) Investigators.

### What is the problem and what is known about it so far?

Blood clots in the large veins of the leg (called *deep venous thrombosis*) can cause serious problems. If pieces of clot break off, they can travel through the bloodstream to the lungs where they block part of the circulation through the lung, strain the heart, and interfere with allowing oxygen into the blood. Even when clots do not break off, they can damage the leg veins and cause painful leg swelling. Treatment with warfarin (a blood thinner) reduces the risk for these serious complications. Because too much warfarin causes serious bleeding events, it is important to make an accurate diagnosis before treating.

The best way to diagnose blood clots in the leg veins is to make an image with an ultrasound scan. This test is expensive and is usually available only in a hospital. Because most patients with suspected clots in the leg veins first seek care in the doctor’s office, a method that allows some patients to avoid ultrasonography would probably save money and be more convenient.

### Why did the researchers do this particular study?

The researchers developed a method to identify patients who probably did not have a blood clot and had proved that this method worked in hospital practice. They wanted to see whether primary care doctors could successfully use the method in office practice. Their method used information from the patient’s history, examination, and a blood test for clotting (called D-dimer). They used an in-office D-dimer test that provided results in a few minutes.

### Who was studied?

1028 patients (in 300 practices) who were suspected of having blood clots in the leg veins.

### How was the study done?

The doctors asked the patient about factors related to blood clots, examined the patient, and did the D-dimer test. Each finding had a number that indicated how much the suspicion of blood clots was increased. The doctors added up the numbers for the findings that were present in a patient. A patient with a low total score had only a small chance of having blood clots, therefore, the patient was not sent to the hospital for ultrasound scanning and the doctor did not prescribe warfarin. Three months later, the researchers asked these low-risk patients if they had problems in the legs or lungs suspicious of a blood clot.

### What did the researchers find?

Half of all patients had a low score, and thus did not have an ultrasound scan or receive warfarin. They had only a 1.4% chance of having a blood clot during the 3 months after seeing the doctor.

### What were the limitations of the study?

The researchers could have missed some low-risk patients who developed blood clots after the doctor decided not to treat them.

### What are the implications of the study?

Doctors can use clinical findings and the D-dimer test in a setting outside of the hospital to identify patients who are unlikely to have blood clots in the leg veins and do not need treatment.

Summaries for Patients are presented for informational purposes only. These summaries are not a substitute for advice from your own medical provider. If you have questions about this material, or need medical advice about your own health or situation, please contact your physician. The summaries may be reproduced for not-for-profit educational purposes only. Any other uses must be approved by the American College of Physicians.