

Deep Vein Thrombosis (DVT) and Underwriting

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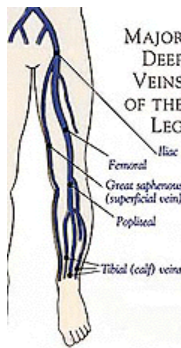


Blood clots of the deep veins of the legs, called **deep vein thrombosis** or DVT, can have lethal outcomes. A portion of the leg clot can break off and move up to the lungs. This is known as a **pulmonary embolism**. A pulmonary embolism can cause sudden death.



DVT Statistics:

- Deep vein thrombosis (DVT) occurs in approximately 2 million Americans each year
- Each year 600,000 of these patients develop pulmonary embolism
- Each year as many as 200,000 patients die of pulmonary embolism
- More people die each year from pulmonary embolism than do from breast cancer
- Pulmonary embolism is the most frequent cause of maternal death associated with childbirth
- Women are affected by pulmonary embolism more often than men
- DVT recurs in 5-10% of patients the year after anticoagulant therapy is discontinued
- DVT recurs in 30% of patients eight years after anticoagulant therapy is discontinued

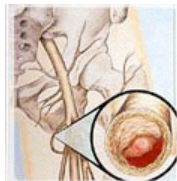


The legs contain two major types of veins, deep and superficial.

Deep veins, located in the center of the leg near the leg bones, are enclosed by muscle and return approximately 85% of the blood to the heart. As shown in the diagram, the iliac, femoral, popliteal, and tibial (calf) veins are the deep veins in the leg.

Superficial veins are near the surface of the skin and have very little muscle support. Superficial veins return approximately 15% of the blood to the heart.

In DVT, a blood clot develops in a deep vein



The clot, which is called a **thrombus**, may block blood flow through the vein completely or partially. Deep vein thrombosis may occur wherever there is a deep vein: in the iliac veins, above the knee in the femoral vein, behind the knee in the popliteal vein, or below the knee in a tibial vein.



Risk Factors for developing DVT

- Age greater than 40, and increases with age
- Birth control pills

Cancer (although having a clot does not necessarily mean that you have cancer) and chemotherapy

- Certain congenital heart defects
- Congestive heart failure (CHF)
- Chronic respiratory failure
- Hormone replacement therapy (HRT) (often administered to postmenopausal women)
- History of obesity
- Prior DVT
- Prolonged immobility or paralysis
- Stroke
- Surgery, including orthopedic, pelvic, and abdominal surgeries (which can trigger the formation of blood clots)
- Trauma
- Varicose veins (varicosities)



Symptoms of DVT

- Pain
- Sudden swelling in affected leg
- Enlargement of superficial veins
- Reddish-blue discoloration
- Skin that is warm to the touch



Diagnosing DVT

Diagnosing DVT is difficult, and current diagnostic techniques have both advantages and disadvantages. The most commonly used diagnostic tests include:

- Venography
- Duplex or Doppler ultrasonography
- Magnetic resonance imaging (MRI)
- Cuff-impedance plethysmography.



Venography uses a radiographic material injected into a vein on the top of the foot. The material mixes with blood and flows toward the heart. **An X-ray of the leg and pelvis will then show the calf and thighs veins and reveal any blockages.**

Although venography is very accurate and can detect blockages in both the thigh and the calf, it is also costly and cannot be repeated often. In addition, the injected material may actually contribute to the creation of thrombi.



Duplex ultrasonography can also be very accurate in identifying clogged veins. Projected sound waves bounce off structures in the leg and create images that reveal abnormalities. The addition of color Doppler imaging improves accuracy. This test is noninvasive and painless, requires no radiation, can be repeated regularly and can reveal other causes for symptoms. It also costs substantially less than venography. **However, it is technically demanding and requires a skilled, experienced operator to obtain the most accurate results. Ultrasonography is less sensitive in detecting thrombi in the calf and it has limited ability to directly image the deep veins of the pelvis.**



Magnetic resonance imaging (MRI) is particularly effective in diagnosing DVT in the pelvis, and as effective as venography in diagnosing DVT in the thigh. This technique is being increasingly used because it is noninvasive and allows simultaneous visualization of both legs. **However, an MRI is expensive, not always readily available, and cannot be used if the patient has certain implants, such as a pacemaker. In addition, the patient can experience claustrophobia.**



Cuff-impedance plethysmography uses blood pressure checks at different places in the leg to identify possible blockages. **Although once used extensively, this procedure is no longer recommended as a diagnostic tool because of its high false-positive rate.**



Treating DVT

Practical measures for treating DVT include:

- Elevating the affected leg
- Applying heat to relieve pain and swelling
- Wearing compression bandages or support hose to reduce swelling and decrease pooling of blood
- Avoiding long periods of immobility, particularly in the weeks following the episode

Medications

Drugs generally used to treat deep vein thrombosis fall into 3 basic categories:

Anticoagulants These drugs *do not dissolve clots* but weaken their stability and prevent further expansion.

Thrombolytic agents these drugs actually help to dissolve clots.

Antiplatelet agents these drugs discourage new clots from forming.

Anticoagulants

Unfractionated Heparin: Administered intravenously or by subcutaneous (under the skin) injection, heparin does not dissolve clots but gives the body's own clot-busting mechanisms a better chance to work. **While unfractionated heparin is fast-acting, its effect on clotting can vary over time, and patients must be closely monitored in the hospital to avoid under- or over-dosing that could lead to bleeding complications.**

Low-molecular-weight Heparins: Given by subcutaneous injection, low-molecular-weight heparins represent a significant advance over unfractionated heparin. Because they produce more stable blood levels, patients do not require frequent blood coagulation tests to monitor the drug's effect and help prevent excess bleeding. This may minimize hospital stays and may allow many patients to complete their course of therapy at home.

Warfarin: An oral anticoagulant suitable for long-term use, warfarin is typically begun at the same time as unfractionated heparin or low-molecular-weight heparins but needs more time to take effect—3 to 5 days is about average. Once blood tests have confirmed that warfarin is working adequately, other therapy can usually be stopped.

Important Note: all of these drugs may precipitate bleeding.

Thrombolytic Therapy

Administered by intravenous infusion or directly into the clot via catheter, thrombolytic agents like streptokinase and tissue plasminogen activator (TPA) target the fibrin mesh that binds clots together, causing it to disintegrate. Hospitalization is required, and risk of bleeding complications is greater than with heparin or low-molecular-weight heparins. At present, thrombolytic therapy is reserved for patients with new large clots and those who are at high risk of long-term complications due to a clotting disorder or other predisposing condition.

Antiplatelet Agents

The following medications are used to discourage new clotformation:

Aspirin

Ticlopidine (Ticlid)

Clopidogrel (Plavix)

Persantine + Aspirin (Aggrenox)

Eptifibatid (Integrilin) and Abciximab (ReoPro)

Surgical Procedures

Patients who can't tolerate anticoagulants (because of allergy or excess bleeding) or who develop pulmonary emboli while on therapy may require either placement of a filter or surgery to remove the clot.

Filters: Small metal filters may be placed in the large vein leading to the heart to prevent breakaway clots from migrating through the heart to the lungs and causing pulmonary emboli.

Thrombectomy (Embolectomy): In some cases, generally involving patients with PE, a clot may be surgically removed or withdrawn by catheter. Additional procedures to improve blood flow may be performed at the same time. Thoracic surgical techniques have been dramatically refined over the past 20 years, and the procedure is considered safe and effective.

Underwriting Comments

Deep vein thrombosis (DVT) is an insurable condition.

Clients who have had a single episode with an uneventful recovery can still qualify for preferred rates.

Clients who have had a single episode but are still on anticoagulant therapy may not qualify for preferred rates.

Applicants with multiple episodes of DVT may not be insurable until the underlying cause has been corrected or stabilized. In addition, they will have to provide proof that they have been DVT free for two or more years.