

## Blood Clots, or Thrombosis, in Patients With Cancer

### What Is Thrombosis?

Blood clotting is a normal process in which blood cells (platelets) combine with special proteins (clotting factors) to heal injuries. When clotting occurs within blood vessels, it is called thrombosis. Thrombosis most commonly occurs in the deep veins of the legs or arms, called a deep venous thrombosis (DVT). Parts of a DVT can also break off and travel to the lung, called a pulmonary embolism (PE). People with cancer have higher risk of developing blood clots. Around 15% of patients with cancer will develop a venous thrombosis.

### Why Does Cancer Increase the Risk of Blood Clots?

Multiple factors increase the risk of blood clots in patients with cancer. Cancer cells can produce clotting factors and increase their activation. Patients with cancer can have higher numbers of blood cells and genetic changes that increase clotting factor activity. Higher-stage and certain types of cancers (blood, brain, lung, pancreas, colon, stomach, kidney, and ovary) have higher risk because they have genetic changes or produce factors that increase clotting activation. Some cancers can also lead to thrombosis by compressing or damaging blood vessels. Venous catheters and cancer treatments can irritate or damage the lining of blood vessels, causing inflammation and blood clotting. Catheters also reduce blood flow in the veins, which can cause thrombosis. Also, being hospitalized or having surgery can increase the risk of thrombosis.

### What Are Symptoms and Signs of Blood Clots?

When blood clots form in veins, they can block normal blood flow. Patients may experience redness, swelling, warmth, or pain when a DVT forms in an arm or leg. If the DVT becomes a PE, patients may experience trouble breathing, low oxygen levels, chest pain, or rapid heartbeat. Sometimes blood clots do not cause any symptoms and are found during imaging studies for other reasons.

### How Are Blood Clots Diagnosed?

When a DVT is suspected, your clinician will use Doppler ultrasonography to evaluate the blood flow in the veins of the affected leg or arm. If a PE is suspected, your clinician may order a computed tomography scan to evaluate blood flow in your lungs.

### How Are Blood Clots Treated and Prevented?

Blood clots are treated with medications that prevent blood from clotting, which are called anticoagulants or "blood thinners." They are usually taken as pills but are also given as injections. Clinicians choose an anticoagulant based on the patient's other medical prob-

### Cancer-related thrombosis

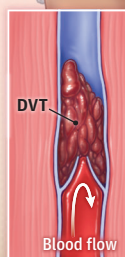
Thrombosis is when a blood clot forms within a blood vessel. Patients with cancer are at high risk for thrombosis for several reasons:

- Genetic changes that may increase clotting activation
- Damage to the lining of blood vessels, causing inflammation and clotting
- Increased activity of proteins in the blood that cause clotting
- Frequent hospitalizations and surgeries

**Deep venous thrombosis (DVT)** occurs in deep veins of arms or legs and can block normal blood flow.

#### Symptoms of DVT

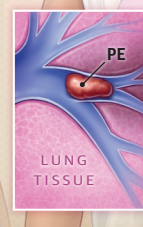
- Redness
- Swelling
- Warmth
- Pain



**Pulmonary embolism (PE)** occurs when parts of a DVT break off and travel to the lung.

#### Symptoms of PE

- Chest pain
- Low oxygen levels
- Rapid heartbeat
- Trouble breathing



PE travels through the veins and heart to enter the lung



Thrombosis often resolves after 3 to 6 months of treatment with blood thinners. Patients with cancer often continue taking blood thinners for a longer time to prevent recurrence.

lems and medications, risk of bleeding, financial considerations, and preferences. Clots often resolve after 3 to 6 months of treatment, but most patients with cancer will take their anticoagulant for longer to prevent recurrence. The main risk of anticoagulants is bleeding, which is also common in patients with cancer.

In some situations, your clinician may recommend taking an anticoagulant to prevent clots. This includes after surgery, while in the hospital, or for certain high-risk cancers.

### FOR MORE INFORMATION

National Blood Clot Alliance

[www.stoptheclot.org/about-clots/cancer-and-blood-clots/](http://www.stoptheclot.org/about-clots/cancer-and-blood-clots/)

Cancer.Net

[www.cancer.net/coping-with-cancer/physical-emotional-and-social-effects-cancer/managing-physical-side-effects/clotting-problems](http://www.cancer.net/coping-with-cancer/physical-emotional-and-social-effects-cancer/managing-physical-side-effects/clotting-problems)

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