



## Venous Thromboembolism (VTE)

Venous Thromboembolism (VTE) consists of two related conditions caused by blood clots: deep vein thrombosis (DVT) and pulmonary embolism (PE).

DVT is an underdiagnosed, serious, potentially preventable medical condition that occurs when a blood clot forms in a deep vein, such as in the lower leg, thigh, or pelvis. A PE occurs when part or the entire clot breaks off and travels through the bloodstream to the lungs. Without appropriate diagnosis and treatment, PE can be fatal.

The precise number of people affected by VTE is unknown, but estimates range from 300,000 to 900,000 annually in the United States. Almost half of all VTEs occur either during or soon after discharge from a hospital stay or surgery. An estimated 60,000-100,000 Americans die of VTE each year.

### 2012 Accomplishments

- Published a summary meeting report from an expert panel of global experts to discuss future research and policy directions for hospital-associated venous thromboembolism. This topic is one of several key priority areas identified in the U.S. Department of Health and Human Services' "Partnership for Patients" initiative.
- Published in the June 8, 2012 *Morbidity and Mortality Weekly Report* (MMWR), the findings of "Venous Thromboembolism in Adult Hospitalizations—United States, 2007-2009." This was the first CDC study of its kind that analyzed data from CDC's National Hospital Discharge Survey to determine the frequency of hospital discharges for patients with a VTE blood clot diagnosis. Findings included that on average 28,726 hospitalized adults aged 18 and older with a VTE blood clot diagnosis die each year. Those findings emphasize the need to increase awareness about VTE and to develop and implement evidence-based strategies for preventing VTE among hospitalized patients.
- Authored a chapter on VTE risk and prevention for the 2014 CDC Yellow Book (published by CDC's Division of Global Migration and Quarantine).

### Caitlin's Story



Caitlin was diagnosed with DVT at 18 years of age.

To read Caitlin's story, visit:  
[www.cdc.gov/  
ncbddd/dvt/stories.html](http://www.cdc.gov/ncbddd/dvt/stories.html)

## **2012 Accomplishments** (continued)

- Convened a Hospital-Associated Venous Thromboembolism Surveillance Stakeholder Meeting to provide CDC information and guidance for surveillance, development and implementation. CDC is developing a surveillance system to assess and monitor the burden of hospital-associated venous thromboembolism as well as the use of prevention practices.
- Tested messages and health promotion products to learn how best to communicate information to different audiences in a future public awareness campaign aimed at increasing awareness of the risk factors, signs, and symptoms of DVT/PE and to empower people to take appropriate action.
- Funded Duke University Medical Center and the University of Oklahoma Health Sciences Center to develop and evaluate pilot programs for population-based surveillance of VTE.
- Developed a Flickr® album of personal stories of people who are affected by deep vein thrombosis and pulmonary embolism to help others understand what it's like to have and survive these conditions. Several of these stories were collected from Clot Connect, an education and outreach project of the University of North Carolina at Chapel Hill, Blood Clot Outreach Program.
- Hosted the 2nd National Conference on Blood Disorders in Public Health. The purpose of this conference was to promote the health and improve outcomes among people with blood disorders.

### **Did You Know?**

- Up to one-half of all VTEs occur during or soon after hospitalizations.
- Among people who have had a DVT, up to one-half will have long-term complications such as swelling, pain, discoloration, and scaling in the affected limb.
- Approximately 6% of the U.S. population has one of several genetic risk factors that increase the risk for VTE.

## **Looking to the Future**

There are few public health problems as serious as VTE. It is a national priority.

The National Center on Birth Defects and Developmental Disabilities' Division of Blood Disorders is committed to addressing this condition with a comprehensive public health approach by supporting and conducting epidemiologic and health services research on the causes, prevention, and treatment of VTE; clarifying and promoting use of evidence-based practices for screening, preventing, diagnosing, and treating VTE; increasing public and provider's knowledge and awareness; and implementing surveillance to track VTE rates and monitor the use and effectiveness of interventions over time.

## **Notable Scientific Publications**

CDC. Venous Thromboembolism in Adult Hospitalizations — United States, 2007–2009. *MMWR*; June 8, 2012 / 61(22);401-404.

Grosse SD. Incidence-based cost estimates require population-based incidence data. A critique of Mahan et al. *Thromb Haemost* January 2012; 107:192–193.

Boulet SL, Grosse SD, Hooper WC. Health care expenditures associated with venous thromboembolism among children. *Thrombosis Research* 2012;E publication(5):583-587.

Bean CJ, Boulet SL, Ellingsen D, Trau H, Ghaji N, Hooper WC, Austin H. Increased risk of venous thromboembolism is associated with genetic variation in heme oxygenase-1 in Blacks. *Thrombosis Research* 2012;130:942-947.

Mili FD, Hooper WC, Lally C, Austin H. Family history of myocardial infarction is a risk factor for venous thromboembolism among Whites but not among Blacks. *Clinical and Applied Thrombosis/Hemostasis*. 2012 June 13 [Epub ahead of print].

Tsai J, Grosse SD, Grant AM, Hooper WC, Atrash HK. Trends in in-hospital deaths among hospitalizations with pulmonary embolism. *Archives of internal medicine* 2012;172(12):960-961.

Tsai J, Grosse SD, Grant AM, Reyes NL, Hooper WC, Atrash HK. Correlates of in-hospital deaths among hospitalizations with pulmonary embolism: findings from the 2001-2008 National Hospital Discharge Survey. *PLoS One* 2012;7(7):e34048.

Yusuf HR, Tsai J, Siddiqi A-E-A, Boulet SL, Soucie JM. Emergency department visits by patients with venous thromboembolism, 1998 – 2009. *J Hosp Admin* 2012; 1:1-8.

Okoroh EM, Hooper WC, Atrash HK, et al. Is polycystic ovary syndrome another risk factor for venous thromboembolism? United States, 2003–2008. *Am J Obstet Gynecol* 2012;207:377.e1-8.

Meeting Summary. Prevention of Hospital-Acquired Venous Thromboembolism (HA-VTE) Expert Panel Meeting. August 19, 2011.

To view the annual report online, visit:  
**[www.cdc.gov/ncbddd/2012AnnualReport](http://www.cdc.gov/ncbddd/2012AnnualReport)**

For more information about venous thromboembolism, visit:  
**[www.cdc.gov/DVT](http://www.cdc.gov/DVT)**