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# Assessment of the public's knowledge of venous thromboembolism

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Venous thromboembolism (VTE) is a major public health problem impacting 600,000 people and causing 100,000 deaths annually. Nurses are in a unique position in all health care settings to educate patients and the public to prevent and provide early detection for this devastating complication. A dearth of information exists regarding the knowledge level of those affected. This manuscript presents a study that investigates and quantifies the general public's knowledge level of VTE through a 13-question survey of 325 participants. The results indicate that >70% of the general, nonmedical participants involved in the survey were not familiar with VTE. The findings suggest the need for nurses to consistently and systematically educate patients and the public about VTE to decrease morbidity and mortality. (J Vasc Nurs 2015;33:68-71)

Venous thromboembolism (VTE), which includes the 2 vascular conditions of deep vein thrombosis (DVT) and pulmonary embolism (PE), is the cause of mortality for more people in the United States than car accidents, AIDS, and breast cancer combined (American Public Health Association).<sup>1</sup> According to the US Centers for Disease Control and Prevention, it is estimated that between 300,000 and 600,000 people suffer from VTE each year, and ≤100,000 people die as a result of it.<sup>2</sup> As the most common cause of preventable death in hospitals in the United States,<sup>1</sup> it is critical to gain an understanding of the level of knowledge of the public related to VTE as well as best practices for education to promote prevention.

The scope of the problem of VTE is enormous. In addition to the human costs, the financial costs are estimated to be substantial owing to lengthy hospitalization and treatment.<sup>3</sup> Patients are likely to have recurrent DVT, and many remain on anticoagulants for years or even for the rest of their lives.<sup>4</sup> Owing to the high morbidity, mortality, and costs, increasing efforts are underway to raise public awareness of VTE. In 2008, the US Surgeon General, along with the US Department of Health and Human Services, published the *Call to Action to Prevent Deep Vein Thrombosis and Pulmonary Embolism*.<sup>3</sup> National *Healthy People* 2020 goals call for a 10% reduction of the incidence of VTE from 54.3 per 10,000 to 48.9 per 10,000.<sup>5</sup> Based on projected data, it is estimated that the increasing population of older adults in the United States will further increase the magnitude of the problem.

Although the knowledge level of groups under prophylactic treatment for  $VTE^6$  and those at risk for  $VTE^7$  have been studied, no research was found which described the level of knowledge of

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Copyright © 2015 by the Society for Vascular Nursing, Inc. http://dx.doi.org/10.1016/j.jvn.2014.11.001 the general public about VTE and VTE prevention. Assessing levels of knowledge and increasing VTE awareness of the general population is the first step toward meeting the strategic goals of prevention and early detection. Unless the public is aware, primary prevention and early detection will be limited and outcomes negatively impacted. The Institute of Medicine has charged nurses with "leading change" and "advancing health."<sup>8</sup> Nurses generally, and vascular nurses in particular, are in a unique position to use their knowledge and experience to impact this major health issue and promote positive outcomes through education.

A recent study examining health care professionals' perspectives on VTE risk assessment and prophylaxis demonstrated low levels of knowledge among some health care professionals. One finding was confusion about which member of the health care team was responsible for risk assessment and management of VTE.<sup>9</sup> A similar study by Gao and Kause<sup>10</sup> found that 90% of physicians, nurses, and pharmacists in 1 facility recognized VTE as an issue and were aware of the prevention tools available. Despite this seemingly high knowledge level, only 52% of physicians completed VTE prophylaxis labels on admission<sup>9,10</sup>; the study also highlighted that, with shorter hospital stays, many cases of VTE are missed in patients after discharge.

#### METHODS

The purpose of this research study was to explore the level of knowledge of the public related to VTE as well as best practices for education to promote prevention. After approval by the Institutional Review Board at Rhode Island College in August 2013, participants were recruited through social media websites, including Facebook and Twitter. Informed consent was obtained using an informational letter describing the survey and the research study, and no identifying data were collected.

A mixed method was employed using a 13-question survey to assess the knowledge level of the general public about VTE. The survey was hosted through Surveymonkey.com. The first 12 questions collected quantitative information related to the participants' demographics, knowledge of DVT and PE, and typical sources of health information. The last question was an optional

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TABLE 1   DEMOGRAPHIC DATA							
18-24 years old	41%	High school/GED	36%	Education	31%		
25-39 years old	17%	Associate's/certificate	12%	Medical	26%		
40-64 years old	34%	Bachelor's	27%	Business	16%		
> 65 years old	8%	Graduate	24%	Liberal arts	15%		
				Sciences	8%		
				Trades	3%		

comment box employed to gather some qualitative information about participants' experiences with VTE. Over a 2-month period, 325 participants completed the survey.

#### RESULTS

#### **Demographics**

Participants were from all adult age groups with the greatest number represented by those 18-24 years old (41%) followed by those 40-64 years old (34%). Variability was demonstrated in the level of education with the largest subgroup having completed high school/GED at 36%. The largest number represented occupationally were those who selected education (31%), followed by medical at 26%. The complete results are contained in Table 1.

#### Awareness of VTE

When participants were asked whether they were familiar with both DVT and PE, only 137 of the 325 participants (42%) were familiar with both DVT and PE. To determine VTE awareness in the general public, participants were separated into 2 groups according to occupational survey responses. The groups were "medical" (n = 83) and "nonmedical" (n = 242) participants. Seventy-two nonmedical participants (30%) answered yes to knowledge of both DVT and PE. The remaining 70% of participants were unsure or unaware of DVT and PE. Sixty-six of the medical participants (80%) indicated that they had knowledge of both DVT and PE. The remaining seventeen medical participants answered either "no" or "unsure."

#### How participants learned about VTE

Participants familiar with VTE gained knowledge about it through a family member or friend (29%), a health care professional (27%), from television (11%), the Internet (4%), and magazines or newspapers (4%). Twenty-four percent learned of it from another source. Seventy-six percent of those who chose "other" stated that they learned about VTE through school or work in a health care setting. Seven participants either personally had VTEs or had immediate family members with VTEs.

### TABLE 2

## **RECOGNITION OF THE SIGNS OF DEEP VEIN THROMBOSIS BY MEDICAL PARTICIPANTS**

No. of signs correctly identified	No. of participants	Percentage
≤2 (<50%)	3	5
3-4 (>50%)	23	35
All 5 (100%)	36	55
Participants who chose unsure	4	6

#### TABLE 3

**RECOGNITION OF THE SIGNS OF PULMONARY EMBOLISM BY MEDICAL PARTICIPANTS** 

No. of signs correctly identified	No. of participants	Percentage
≤3 (<50%)	18	27
4-6 (>50%)	28	42
All 7 (100%)	17	26
Participants who chose unsure	3	5

### Signs and symptoms of VTE

Fifty-four percent of participants were unsure of any signs of DVT. Those participants who correctly identified signs included 45% who chose swelling of a limb, 43% who chose pain, 39% who chose warmth, 37% who chose redness, and 20% who chose increased pain with pointing the toe up. Similarly, 50% of participants were unsure of any signs of a PE. Those who correctly identified signs included 50% who chose shortness of breath,

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