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Computerized Tool Improves VTE Prophylaxis

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CHICAGO – By implementing an online risk assessment tool, researchers at one institution were able to improve hospital-wide prophylaxis and significantly cut the number of venous thrombotic events, according to Dr. Nicholas J. Morrissey.

"Our overall level of prophylaxis at both campuses was 98%; whereas preimplementation, we had about a 71% level of appropriate prophylaxis," said Dr. Morrissey of the department of surgery at Columbia University in New York at the Vascular Annual Meeting.

Starting June 2010, all patients admitted to New York–Presbyterian Hospital were required to have their venous thromboembolism (VTE) risk assessed as part of their electronic admission orders. Physicians were free to use a specially developed online risk assessment tool or their own judgment regarding prophylaxis.

The VTE risk assessment tool was created by a bicampus committee of clinicians from various specialties, IT support, nursing, and data management staff. This group also reviewed all documented VTE events from June 2010 to the present. Each event was subjected to clinical adjudication for accuracy.

Risk assessment and prophylaxis were monitored using AMALGA (Microsoft) software that allows real-time accumulation of clinical data that goes into the patient's hospital electronic health record. VTE rates were monitored through chart review by certified coders.

Patients who were positive for VTE events were further examined and rates were compared before and after implementation of the assessment tool. In addition, a random sampling of patients on several inpatient floors was performed to determine if the adequate level of VTE was being used.

"Through a very recent random sampling of 503 patients in the entire hospital, we looked to see what the adequate prophylaxis level was after the implementation of our tool," said Dr. Morrissey. This was defined as appropriate pharmacologic prophylaxis when indicated.

They also compared pre- and post-implementation periods to assess VTE rates. At New York–Presbyterian's Columbia University Medical Center campus, the VTE rate prior to assessment implementation was 1.08/1,000 patient-days from January through June 2010. At the same campus, the VTE rate dropped to 0.80/1,000 patient-days from July through December. Similarly, at New York–Presbyterian's other campus, Weill Cornell Medical Center, the VTE rate was 1.19/1,000 patient-days from January through June 2010; it dropped to 0.84/1,000 patient-days from July through December 2010.

"Interestingly, what we found at both institutions was that our pulmonary embolism rate dropped significantly between the first and second half of 2010," said Dr. Morrissey. At Columbia, the number of pulmonary embolisms dropped

from 24 to 15. At Cornell, the number of PEs dropped from 41 to 15.

"We saw that a significant number of patients actually suffered from upper-extremity line-associated clots," he noted. At Columbia, there were 31 upper extremity events from January to June 2010; there were 33 from July to December. At Cornell, there were 38 upper extremity events in the first half of the year and 33 in the second half.

Both institutions used the AMALGA system to provide clinicians with feedback. The software calculates the patient's risk score in real time as patients are admitted, based on their past medical history. The software also collects all of the information entered into the electronic order set. This allows staff to look and see which patients are listed as high risk or low risk and whether the clinician used the tool appropriately. "So we're actually able to assess hospital wide how these patients are receiving prophylaxis."

The tool also allows the identification of patients that are inappropriately classified based on risk and who are receiving inappropriate prophylaxis. "We can reach out to those clinicians in real time and discuss with them the issues related to prophylaxis."

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