

Identifying Venous Thromboembolism in Cancer Patients Using Veterans Affairs Administrative Data

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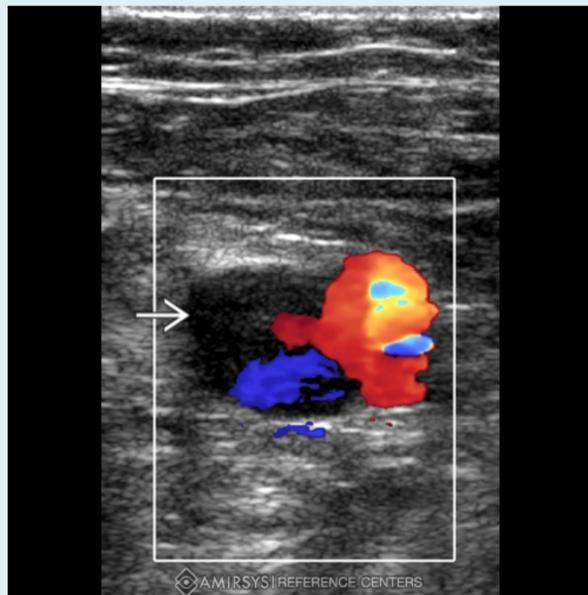
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Background and Purpose

- The validity of administrative data in identifying diagnoses within the Veterans Affairs (VA) database, including viral hepatitis, cirrhosis, H. pylori, and cancer metastasis has been reported.
- International Classification of Diseases-9 (ICD-9) validity for venous thromboembolism (VTE) in cancer patients within the VA database is unknown.
- The **objective** of the study was to determine the validity of ICD-9 codes for VTE in cancer patients in a local VA database.

Methods

- Design:** We conducted a retrospective study utilizing data from the Washington, DC VA Cancer Registry and the Electronic Health Records (EHR). VTE diagnosis was identified using the ICD-9 codes for Pulmonary Embolism and Thrombosis, with subsequent confirmation via comprehensive chart reviews.
- Setting:** Veterans Affairs Medical Center, Washington, DC.
- Participants:** 6,678 patients with cancer were identified from 1999-2015 using the cancer registry. We applied the algorithms above and identified subjects with VTE in the database.



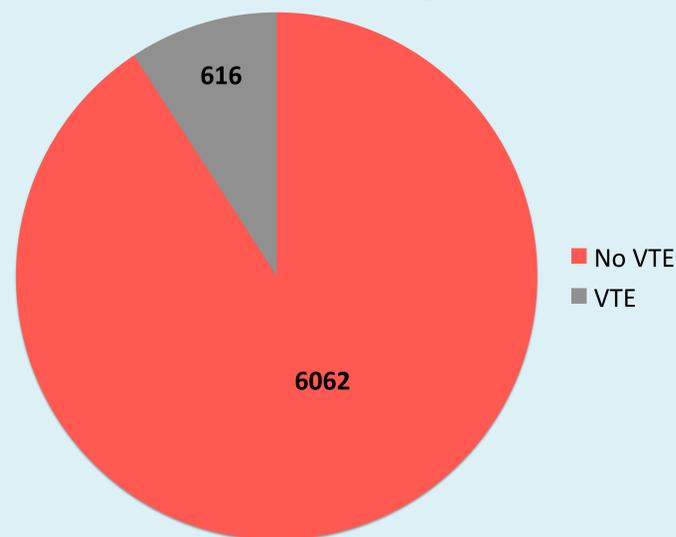
Source: Amirsys Imaging Reference Center™

Axial color Doppler ultrasound shows partial nonfilling (white solid arrow) of left common femoral vein consistent with partial thrombosis.

Results

- Initial application of ICD-9 codes for VTE among 6,678 subjects yielded 616 VTE.
- Chart reviews confirmed the presence of VTE among 403/616
- The ICD-9 codes had a 65% PPV, 95% NPV
- 57% sensitivity and 96.4% specificity
- Estimated prevalence of VTE in 6,678 subjects is 10.6%. Prevalence was determined by searching the cohort for patients who had either received anticoagulation (enoxaparin, dabigatran, warfarin) or an IVC filter. This number added to the 403 patients with VTE confirmed by chart review.
- Positive and negative likelihood ratios were 15.8 and 0.45, respectively

DC VAMC Cancer Registry



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Validation by Chart Review

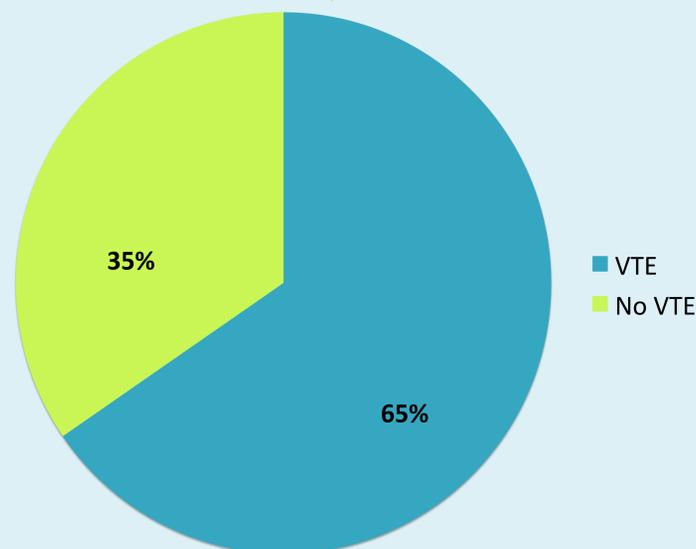
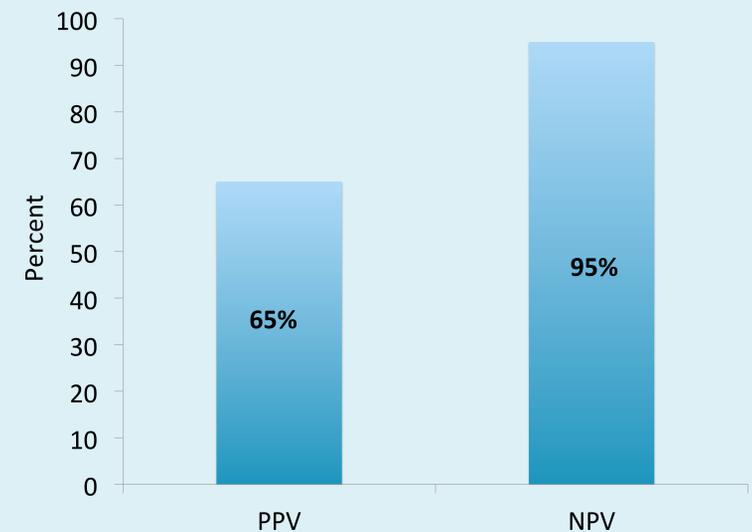
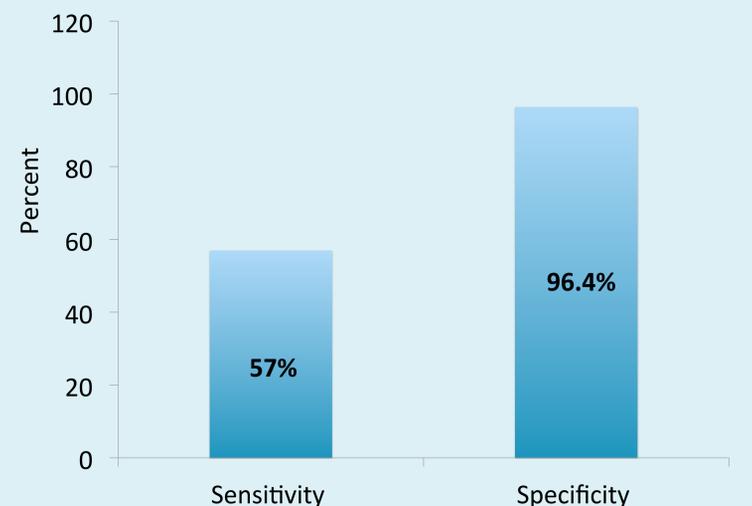


Chart reviews confirmed presence of VTE in 403/616

PPV and NPV for ICD-9 codes



Sensitivity and Specificity for ICD-9 codes



Conclusions

- Within our local VA database, ICD-9 codes for VTE are not sensitive for identifying patients with VTE. Accurate ICD coding by physicians is paramount for patient care and research purposes.
- There is a lack of data on physician coding education. A systematic literature review revealed variable ICD-9 code validity based on the population of interest making larger studies challenging with added need for manual abstraction for validation.
- Provider education on proper use of ICD code is important for health outcomes research perspective and would allow for more accurate retrospective research.

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Disclaimer: The conclusions, opinions, and recommendations expressed in this article are not necessarily that of the VA.