Evaluation of venous thromboembolism risk assessment models for hospital inpatients: the VTEAM evidence synthesis

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Investigation Branch. Beverley Hunt, Dan Horner and Xavier Griffin were previously involved in developing relevant National Institute for Health and Care Excellence (NICE) guidance on prevention and management of venous thromboembolic disease.

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Plain language summary

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Plain language summary

People who are admitted to hospital are at risk of blood clots that can cause serious illness or death. Patients are often given low doses of blood-thinning drugs to reduce this risk. However, these drugs can cause side effects, such as bleeding.

Hospitals currently use complex risk assessment models (risk scores, which usually include patient, disease, mobility and intervention factors) to determine the individual risk of blood clots and identify people most likely to benefit from blood-thinning drugs. There are a lot of different risk scores and we do not know which one is best. We also do not know how these scores compare to each other or whether using scores to decide who should get blood-thinning drugs provides good value for money to the NHS.

We reviewed all previous studies of risk scores. We found that they did not predict blood clots very well and we could not recommend one score over another. We then created a mathematical model to simulate the use of blood-thinning drugs in people admitted to hospital. The model suggested that giving blood-thinning drugs to everyone who could have them would probably provide the best value for money, in medical patients. Our findings were the same, but less certain, for surgical patients.

We also collected information from four NHS hospitals to explore possibilities for future research. Our work showed that routinely collected electronic data on blood clots and bleeding events is not very accurate and that using different scores could result in variable use of blood-thinning medications.

Our findings suggest that it may be better value to the NHS and better for patients if we were to offer blood-thinning medications to everyone on admission to hospital, without using any risk score. However, this approach needs further research to ensure it is safe and effective. Such research would not be able to rely on routine electronic data to identify blood clots or bleeding events, in isolation.

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