

EFFECT OF A MULTIFACETED CLINICAL DECISION SUPPORT INTERVENTION ON ADHERENCE TO THROMBOPROPHYLAXIS GUIDELINES IN NON-SURGICAL PATIENTS

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BACKGROUND AND IMPORTANCE

- Venous thromboembolism (VTE) is a potentially fatal complication of hospitalisation, **affecting ±3% of non-surgical patients.**
- Administration of low molecular weight heparins to appropriate patients **decreases VTE incidence with 80%**, but guideline adherence is notoriously low.

MATERIALS AND METHODS

A prospective study with a **pre- and post-intervention measurement** was conducted between October 2018 and March 2020. The components of the intervention are presented in Table 1. Adherence to guidelines was assessed by calculating the **Padua prediction** and **Improve bleeding risk score** for each patient.

Table 1: The components of the multifaceted intervention. EHR = Electronic Health Record; VTE = venous thromboembolism; CDS = Clinical Decision Support

Component	Description
Mobile phone application 'Pocket Cards'	A decision support mobile phone application, based on the Padua prediction score, could be consulted at any time by the prescriber. Patients' risk factors for a VTE had to be entered manually, with no link to the EHR.
Clinical rule 'duplicate anticoagulant medication'	A patient list in the EHR that automatically demonstrated patients with combinations of thromboprophylaxis and therapeutic anticoagulation. The patient list was assessed daily by a pharmacist for rationale of combinations of anticoagulants.
Training of prescribers	Training of prescribers on the wards, covering the incidence of VTEs in non-surgical patients, the effect of thromboprophylaxis on the incidence of VTEs and the results of the control group data collection about prescribers' guideline adherence.
CDS	An advanced CDS, with a built-in Padua prediction score calculation, gave an automated advice to the physician in the EHR if a patient had a Padua score ≥ 4 and no anticoagulant in use. Thromboprophylaxis could be prescribed with one click.

RESULTS

170 patients were included. No significant differences in baseline characteristics between both groups were present.

- Guideline adherence significantly increased from 42/85 to 70/85 (Table 2).
- Guideline adherence in the patient group with a high VTE risk also increased significantly from 30/55 to 43/51.
- Extrapolation of these results to an annual admission rate of 25,000 patients in our hospital, **resulted in the potential prevention of ±261 VTEs per year.**

Table 2: Overall guideline adherence in pre- and post-intervention measurement. T0 = pre-intervention measurement; T1 = post-intervention measurement; OR = Odds Ratio, CI = Confidence interval.

*Statistically significant (95%CI > 1.00) ^aAdjusted for immobility, malignancy and VTE in the past.

Guideline adherence	T0 (n=85)	T1 (n=85)	OR (95%CI)	Adjusted OR (95%CI) ^a
Overall guideline adherence, n	42	70	4.78 (2.37 - 9.63)*	5.88 (2.74 - 12.62)*
- Thromboprophylaxis according to guidelines	17	30	2.18 (1.09 - 4.36)*	2.56 (1.21 - 5.42)*
- No thromboprophylaxis according to guidelines	25	40	2.13 (1.13 - 4.01)*	2.59 (1.21 - 5.58)*

CONCLUSION AND RELEVANCE

- Our multifaceted intervention significantly increased guideline adherence from 42/85 to 70/85, preventing ± 261 VTEs per year in our hospital.
- Implementation of this multifaceted intervention globally may prevent numerous VTEs.

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