Medical Effect of Venous Thromboembolism Prophylaxis Systems and Common Input Variables: Preliminary Findings from a Systematic Review

Abstract:

Computerized Clinical Decision Support Systems (CDSS) have been frequently implemented in hospitals to improve prevention of Venous Thromboembolisms (VTE).

A physician-driven review was conducted to assess the extent of patient outcome effects of recently published CDSS studies. Two biostatisticians used a standardized approach to determine individual risk of bias (low, medium, high). To facilitate future re-implementations within existing hospital information systems, input variables of included systems were extracted, standardized and annotated with semantic codes.

Item category coverages of the different systems were then compared. Eleven out 15 studies (73%) showed a positive medical effect.
Among them, eight studies (53%) showed a strong positive medical effect by reducing both the incidence of deep vein thromboses and pulmonary embolisms.
None of studies were associated with an increased risk of adverse events or high risk of bias. Outcome-improving systems tend to cover more item categories.

Therefore, a broad set of clinically relevant input variables should be taken into account or reused from the electronic health record if CDSS implementation is considered.

Input data models are provided for download in different standardized formats. Site-specific organizational factors that determine how systems are introduced, implemented and tested are crucial for success as well.