The Impact of a Simple Computerized Clinical Decision Support on Venous Thromboembolism Prophylaxis in the Inpatient Setting

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1. BACKGROUND:

- Venous thromboembolism (VTE) are an important cause of mortality and morbidity in hospitalized patients, so payors and regulators are encouraging hospitals to invest in systematic approaches to prevent them.

- In this study, we describe an initiative by a multidisciplinary team to implement VTE prophylaxis best practices through computerized decision support (CDS), and measure the impact of the CDS on VTE process and outcome measures.

2. METHODS:

- The CDS was linked to the admission order set, and designed to improve VTE risk assessment and prophylaxis (Figure 1).

- Admitting physicians were prompted to either accept or decline prophylaxis based on assessed patient risk (Figure 1). Those accepting would proceed to an order set grid providing guidance on appropriate prophylaxis by indication (Figure 2). If prophylaxis were declined, the provider would be prompted for a reason.

- We measured VTE process and outcome measures 12 months before and after the intervention using administrative and clinical databases.

3. RESULTS:

- There were minimal differences in the characteristics of the study population before and after the CDS (Table 1).

- The administration of “recommended prophylaxis” and “any prophylaxis” significantly increased after CDS implementation (Table 2 and Figures 3 - 4).

- The percent of patients with VTE events did not change in the general population, but decreased in a subset with procedure codes from 2.11% to 1.95% (representing 113 fewer patients with VTE) (Table 3).

- The number of bleeds did not significantly change after the CDS intervention (Table 4).

- Most common reason for not ordering prophylaxis was “no risk factors” (data not shown), yet a significant number of patients with hospital acquired VTE did not receive recommended prophylaxis prior to their event (Table 4).

4. CDS SCREEN SHOTS:

- Figure 1. Admission Order Set

- Figure 2. VTE Prophylaxis Order Set Grid

5. BASELINE CHARACTERISTICS:

- Table 1. Baseline Characteristics

6. PROCESS MEASURES:

- Figure 3. Proportion with Recommended VTE Prophylaxis

- Figure 4. Proportion with Any VTE Prophylaxis

7. OUTCOME MEASURES:

- Table 3. Percent of Patient Admissions with VTE or Bleeding Events Before and After CDS

- Table 4. Risk of VTE by Prophylaxis Received

8. REVISED CDS SCREEN SHOTS:

- Figure 5. Revised Admission Order Set

- Figure 6. Revised Admission Order Set (cont)

9. CONCLUSIONS:

- The CDS improved prophylaxis rates while decreasing VTE, with no resulting increase in bleeds.

- Despite the CDS, a significant number of patients with hospital acquired VTE did not receive recommended prophylaxis prior to their event.

- A follow-up study will measure the impact of a revised VTE prophylaxis CDS on process and outcome measures.

- Given the simplicity of the CDS, this intervention could be used by any hospital with computerized physician order entry to improve prophylaxis and reduce VTE.