Challenges in the Design and Implementation of Venous Thromboembolism Risk Assessment and Prophylaxis in a Pediatric Trauma Center

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What is the problem or challenge you identified?
The American College of Surgeons Committee on Trauma requires that a Level 1 Pediatric Trauma Center has well defined guidelines of Venous Thromboembolism (VTE) Risk Assessment and Prophylaxis for all trauma patients. As part of our preparation to become a Level 1 Pediatric Trauma Center, we discovered that our institution had a multidisciplinary team working on establishing formal guidelines, but they were still incomplete and not mandatory. We decided to investigate this further by collecting data from providers and medical records.

Describe the intervention you developed/change you implemented to address the problem:
We designed a survey using the Survey Monkey tool with ten questions addressing general knowledge of VTE risk assessment and prophylaxis. This survey was sent to physicians, nurses, nurse practitioners, and physician assistants providing care to trauma patients in the Emergency Room, Intensive Care Units and Surgical Floors. We also analyzed our Trauma Database of 542 patients for the period January 2014 to May 2015. We selected all the Trauma Alert patients (n=136) and evaluated the medical records of those who were admitted to the PICU (n=52).

The outcome of interest was compliance with the existing VTE risk assessment guidelines and the use of pharmacological and/or mechanical prophylaxis. Data collected from the medical records included demographics, type of injury, GCS, ISS scores, PICU length of stay (LOS), hospital LOS, VTE risk assessment, and orders for pharmacological and mechanical prophylaxis.

Our response rate was 38% (73% nurses and 14% physicians). Only 30% of the respondents agreed that the institution had well established VTE risk assessment and prophylaxis guidelines. Risk factors for VTE were identified correctly by 60% of the respondents. Over 82% of the respondents stated that it was important to use some VTE prophylaxis in trauma patients and 93% answered that it was important to reassess the need for VTE prophylaxis after 72 hours of the trauma.

From the 52 medical records reviewed, 35 were males and 17 were females. The median age was 10 years. There were no differences in GCS, ISS scores, PICU LOS, or hospital LOS. There was no documentation in the medical records of VTE risk assessment. One female patient had pharmacological prophylaxis (1.9%) and three male patients had orders for mechanical prophylaxis (5.7%). These four patients had ISS scores higher than 9. There were no mortalities.

How did you sustain the change?
Our preliminary data showed that our clinicians are not compliant in identifying VTE risk and using prophylaxis in our trauma population. As our current institutional guidelines are neither mandatory nor final, clinicians are treating patients on an individual basis. We believe that barriers in implementation are due to lack of education, clinician's perceptions of "no need" for guidelines, and lack of acceptance of standardized protocols.

We see a critical need for mandatory implementation of VTE risk assessment and prophylaxis guidelines. We are working on developing active strategies to solve this problem, including a mandatory computer based clinical decision tool to help clinicians identify risk upon admission. This tool will also allow them to follow guidelines according to risk. In addition, this will be accompanied by a strong educational campaign, pocket guides, wall posters and lectures. In order to measure our implementation, we plan to perform an audit of all trauma cases 24 and 72 hours after their admission to assess compliance. We expect that this tool will also be used to standardize care for the non-trauma surgical patients. It is our goal to become a Level 1 Trauma Center and completing this project will improve our opportunity to fulfill our objective.