



Improving INR Door to Result Time: An Interprofessional Performance Improvement Project



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Abstract

PT/INR levels determine the clotting tendency of blood. PT/INR levels are critical in aiding the determination of Alteplase eligibility for stroke patients. This is particularly true within the patient population taking Coumadin (Warfarin). The ability to have prompt results is key to the timely delivery of the medication. Ensuring easy accessibility and proper staff training in the use of point of care INR (POCINR) device is critical. Instituting POCINR testing demonstrated significant reduction in Order to Result times and Door to Drug times over a six month period.

Literature Review

- PT/INR levels are critical in aiding the determination of Alteplase eligibility for stroke patients.
- The ability to have timely results is key to delivery of the medication. Ensuring easy access of the unit and proper training of POCINR devices is critical. INR values are routinely tested to assess risk of bleeding (Tripathi, Egawa, Wirth, Tshikudi, Cott, & Nadkarni, 2017; Poweres et al, 2018)).
- Conventional coagulation testing (COT) can be time consuming in emergent situations (Nusa, Harvey, Almansouri, Wright, & Neeman, 2013).
- POCINR can give results within seconds (Zenlander, Euler, Antovic, & Berglund, 2017).
- Reliability of POCINR compared to COT have be found to be statistically significant $p < 0.05$ (Zenlander et al., 2017)

Implementation

In order to decrease the time from patient arrival to INR lab result, POCINR was utilized in the ED for all stroke patients. All potential Alteplase patients had POCINR preformed. All phlebotomists were trained in performing POCINR using CoaguChek XS Plus. A CoaguChek XS Plus device was placed directly in the ED core area and the phlebotomists were notified for all Alteplase patients in real-time. A phlebotomist is in the ED core at all times, thus reducing the result times of INR and further improving Alteplase administration times.

Data was collected from February 2018 to August 2018. An Excel spread sheet was used to maintain and track all results, and averages were utilized to determine significance. Data was further abstracted from 2016, 2017 and 2018 YTD Alteplase patients to compare POCINR times and Alteplase administration times.

Results

- Thirty-eight patients' POCINR times were reviewed from the trial period which demonstrated a 37-minute average Door to Result time and an 18-minute average of Order to Result time.
- Door to Result time demonstrated a 78% success rate of the 45-minute goal.
- Since implementation, 34 Alteplase patients have had a 79% success rate of the targeted Door to Result time, with an average time of 33 minutes and a median time of 31 minutes.
- In 2018, the target for Alteplase administration in 60-minutes or less had a 79.44% success rate. A 45-minute administration target showed a 58.8% success rate. In 2017, the 45-minute administration success rate was 42.4%.
- The new process demonstrated a 16% improvement in the 45-minute goal of Door to Alteplase time and a 22-minute decrease in Order to Result time.

Discussion/Conclusion

Due to the significance of the results, our hospital policies have been updated to keep CoaguChek XS Plus POCINR monitors in the ED core. All phlebotomists have been trained and competencies maintained yearly on the CoaguChek XS Plus. Phlebotomists are alerted in real-time upon a stroke patient's arrival. Interprofessional collaboration is critical to improve Door to INR lab result. This reduces the time lapse for Alteplase administration therefore decreasing mortality and reducing long-term effects of a stroke.

POCINR Order to Result



POCINR Door to Results



Door to Results – Alteplase



References

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