ROLE OF THE CLINICAL PHARMACIST IN REDUCING DECISION-TO-NEEDLE TPA TIMES DURING CODE STROKE IN THE
EMERGENCY DEPARTMENT
KENMORE MERCY HOSPITAL

Publication Year: 2013

Summary: Pharmacist mixes tPA at the bedside

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Category:
- C: Clinician Initial Evaluation & Throughput

Key Words:
- Door to Needle
- Stroke

Hospital Metrics:
- Annual ED Volume: 30,300
- Hospital Beds: 181
- Ownership: Non-profit
- Trauma Level: N/A
- Teaching Status: No

Tools Provided:
- N/A

Clinical Areas Affected:
- Emergency Department
- Pharmacy

Staff Involved:
- ED Staff
- Pharmacists
Innovation
Clinical observation revealed inconsistent ED decision-to-needle tPa times due to differing processes including pharmacist mixing in the central pharmacy, ED RN mixing at the bedside, and holding the tPa vial for stroke neurologist to mix upon arrival at the bedside.

Pharmacist mixes tPA at the bedside, allowing the nursing and medical staff to focus on clinical assessments and nursing care. Pharmacist is an active member of the Code Stroke team. He/She presents to the ED upon activation of the Code Stroke. They work hand in hand with the nursing and medical staff to establish tPA eligibility, dosing, and preparation. The pharmacist is present in CT to verbally confirm the patient is a candidate for tPA and begins preparation immediately.

Our ED was not consistently administering tPA under 60 minutes. Prior to implementation mixing was done by the ED staff at the bedside or by a pharmacist in the central pharmacy, under a hood. This lead to communication errors between the ED and pharmacy resulting in delays of administration upwards of 20 minutes.

Results
Addition of Clinical Pharmacist to Code Stroke team, with responsibility of calculating and mixing tPa at the bedside, has resulted in improved zero minute decision-to-needle times. 2010: zero minute decision-to-needle time not achieved2011: zero minute decision-to-needle achieved in 60% of administrations2012: (through July): zero minute decision-to-needle achieved in 78% of administrations.

Timeline
- January 2011 - pharmacist began presenting to ED
- February 2011 Pharmacist mixing at bedside
- Ongoing evaluation and review of process

Innovation Implementation
ED staff and pharmacists had honest conversations about the breakdown in communication and the barriers that lead to delays. It was agreed the pharmacists would present to the ED upon Code Stroke activation. Once the decision was made to administer tPA the pharmacist would return to the central pharmacy and mix the tPA under the hood. After implementation, it was realized that there was still a delay and that ED staff mixing at the bedside was a more efficient process. It was proposed that pharmacy mix at the bedside to free up nursing and medical staff during this critical time in patient care. Pharmacy administration was initially resistant to the idea of a pharmacist mixing at the bedside due to misconceptions of pharmacy standards of practice. After researching the issue, we discovered USP 797 Guidelines that expand the pharmacist scope during emergent situations and allows for mixing at the bedside.

Cost/Benefit Analysis
No additional costs incurred. Staffing was already in place. Location of process was changed. The benefit was seen in time saved and potential neurological damage prevented by administering tPA in less time. Neuronal Loss Due to Stroke: 1 minute: 1.9 million neurons, 14 billion synapses and 7.5 miles of myelinated fibers. Saver MD, Jeffrey Time is Brain-Quantified. Stroke.2006;37:263-266

Advice and Lessons Learned
Using a bedside team approach increases the sense of urgency, reduces communication errors, and improves interdisciplinary relationships. We would not have been able to make this change without having bedside champions from both departments that were invested in the process and care of the patient. Innovated change requires questioning traditional practice.
Sustainability

Our plan required no additional resources. We utilized the existing staffing and relocated the pharmacist to the emergency department. Our plan to sustain this change was to hold post tPA huddles to discuss accomplishments and shortcomings of the process. Once this process was ingrained in our culture, we decreased the post tPA huddles to only when we did not meet the target of door to needle less than 60 minutes.