Quality Improvement: Titration of Continuous Vasopressors

Describe the scenario.

A 60-year-old male was brought into the ER status post high speed, rollover, motor vehicle crash. CT body trauma showed right fractured humerus, spleen laceration and liver laceration. The patient was immediately taken to the OR to stop the internal hemorrhage from lacerations. The post anesthesia care unit nurse, transferred the patient to Surgical ICU and gave report to the receiving nurse. “The patient tolerated surgery well. His spleen was removed and the laceration to the liver was repaired. He is currently on Epinephrine drip running at 1mcg/min, with protocol to titrate as needed. The patient currently reports pain 7 out of 10, and reports nausea.” After the initial assessment and report, the SICU nurse gives the patient pain medications, which caused his blood pressure to drop more. The nurse noticed the drop in blood pressure and goes into to titrate the Epinephrine from 1mcg/minute to 2mcg/minute. At the same time the nurse starts altering the pump, a code blue alarm goes off just down the hall. In a hurry, the nurse enters in what she thought was 2mcg/min, punches the start button, and swiftly heads to the code to help. She did not realize that her thumb hit 2 twice, and entered 22mcg/minute, and the pump did not flag her due to technical malfunctions. The patient used his call light after 20 minutes and told the nurse tech that he had a headache. The tech told the nurse amidst the chaos, but the nurse did not act on it immediately because she was helping to resuscitate another patient and figured it was just a little headache, no big deal. Another 15 minutes went by when the patient started having slurred speech and left sided weakness. He dropped the call light while attempting to grab it and was unable strike the attention of anyone on the unit due to the code event. 30 minutes later, the nurse walked in to find her patient obtunded and unresponsive with blood pressure 230 systolic. He was immediately taken off the pressor, intubated and taken to CT. CT head revealed a massive bleed.

In what way did the patient care or environment lack? Is this a common occurrence?

The patient care lacked because the nurse did not take the time to double check herself and she down played the headache. The environment lacked because the pump malfunctioned and the call light was able to fall to the floor. I would say mistakes made due to hospital chaos, and cutting corners by not double and triple checking things is a common occurrence. I find myself mesmerized by codes and wanting to learn more with each one, that I could see why other patients on the floor get pushed aside, because acuity wise the coding patient is priority. However, we cannot forget about the other patients on the floor.

What circumstances led to occurrence?

It was a busy day, with high acuity patients on SICU. The nurse heard a code blue called while dealing with dangerous medications, and did not double check to make sure she was accurately titrating. She was distracted by all the commotion. She was also neglectful to the patient

complaint of a headache, by assuming it was just a little headache. No one entered the room for a little over an hour to check on or reassess the patient.

In what way could you measure the frequency of the occurrence?
The Texas board of nursing has many resources for sentinel events. If there was a way to "advance search" for errors with pressor titrations or titration errors in general causing patient harm, there would probably be more than you thought. Another way is to gain permission to do a study of intensive care units and record the occurrence and the events over a certain period of time. This could be done at multiple hospitals in the state as well to really grasp the severity of the problem. Lastly another way is to interview nurses that have titrated wrong, causing harm to patients. Asking them what events happened that day, why they feel it happened, and what actions were put in place to prevent it from happening again.

What evidence based ideas do you have for implementing interventions to address the problem?
Evidence based nursing shows that when sentinel events happen, it is important to analyze the factors leading up to the events, what happened during the event itself, and how the situation was handled. Evidence based practice also shows that reinforcing education that you have previously learned sticks inside your brain the more you hear it. Continuing education of titration medications and providing teachings of new equipment or new protocols is crucial to implementing a change with this kind of error. Another way to motivate your nurses to prevent them from cutting corners is to remind them of the possible consequences. Hospitals should also have equipment maintenance done at regular intervals to make sure that there are no malfunctions or faulty devices that could potentially cause problems for patients as well. Lastly in this specific scenario, there should always be one or two people rounding to check on patients and their status.

How will you measure the efficacy of the interventions?
Efficacy of the equipment maintenance can be done by the specific units keeping a list of the equipment that has or has not been tested, and arranging for the maintenance department to assess things. As for the titration intervention, efficacy is measured by nurses being able to perform and understand the protocols necessary. Having the nurses teach back what was taught to them and asking them why they are doing them will help reiterate what they just learned, in hopes of decreasing the occurrence of the incident.