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Quality Improvement Activity: Children Early Warning Score (CHEWS)

A seventeen-year-old client with osteosarcoma arrived at the clinic for his chemo treatment. Patient's vital signs were taken, and he had a fever. The clinic nurse accessed his port and drew blood to assess the patient's absolute neutrophil count (ANC). The labs showed that the patient was neutropenic, and he was admitted to the pediatric floor for neutropenic fever. Reverse isolation was set for the patient. Even though these precautions were placed, many nurses did not like the idea of donning personal protective equipment (PPE). Since the patient was afebrile for 24 hours, the nurses believed they did not need to dawn all of the PPE, and they were not making direct contact with the patient. The patient's counts remained low. As the certified nursing assistant began to take twelve o'clock vitals, she documented that the patient's heart rate was 120 beats per minute, respirations 28, a temperature of 100.4 and parents were concerned because the patient was not acting how he usually acts. The registered nurse of the patient had a total of five patients because a coworker called in this morning. The certified nursing assistant reported to the registered nurse the abnormal vital signs and parent's concerns. The nurse stated that it is due to what he was admitted for and she would review the vital signs when she is finished starting blood on another patient. Since the nurse had a full patient load, she never got back to reviewing the vital signs and completing a CHEWS for the twelve o'clock vitals. The patient's family came out of the room yelling because their son was pale and having extreme shortness of breath. The charge nurse rushed into the room and called the rapid response team. The patient was transferred to the pediatric intensive care unit. Blood was drawn and results showed that the patient had an infection, and due to his neutropenic status, his body was not able to fight the infection.

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

The scenario above shows that the patient was admitted for neutropenic fever and placed on reverse isolation to protect the patient since his counts were low. Prior to the patient's condition declining, nurses refuse to follow isolation precautions which led to the patient being exposed to other germs that could be coming from the other patients. The nurse had a full patient load and was busy with other task that she forgot to complete her CHEWS for the twelve o'clock vitals. A oncology patient is at greater risk for infection because of chemotherapy affecting their white blood cells that help fight infections. This is a common occurrence. Since nurses have a full workload, certified nursing assistants are delegated to take the vital signs of the patient. It is the nurses responsibility to review the vital signs and complete a CHEWS. Nurses often get busy and forget to review the CHEWS until later. CHEWS is an algorithm in place to monitor if a patient's condition is getting worse. It is divided into three categories such green (0-2), yellow (3-4) and red (5-11).

CHEWS Scoring and Escalation Algorithm

	0	1	2	3
Behavior/ Neuro	• - Playing/sleeping appropriately OR	- Sleepy, somnolent when not disturbed	- Irritable, difficult to console OR - Increase in	- Lethargic, confused, floppy OR - Reduced response to pain OR - Prolonged or

	• - Alert, at patient's baseline		patient's baseline seizure activity	frequent seizures OR - Pupils asymmetrical or sluggish
Cardiovascular	• - Skin tone appropriate for patient • - Capillary refill < 2 seconds	• - Pale OR • - Capillary refill 3-4 seconds OR • - Mild tachycardia OR • - Intermittent ectopy or irregular HR (not new)	- Grey OR - Capillary refill 4-5 seconds OR - Moderate tachycardia	• - Grey and mottled OR • - Capillary refill > 5 seconds OR • - Severe tachycardia OR • - New onset bradycardia OR • - New onset/increase in ectopy, irregular HR or heart block
Respiratory	- Within normal parameters - No retractions	- Mild tachypnea/ increased WOB (flaring, retracting) OR -Up to 40% supplemental oxygen OR • - Up to 1L NC > patient's baseline need OR • - Mild desaturations < patient's baseline	• - Moderate tachypnea/ increased WOB (i.e. flaring, retracting, grunting, use of accessory muscles) OR • - 40-60% oxygen via mask OR • - 1-2 L NC > patient's baseline	- Severe tachypnea OR -RR < normal for age OR • - Severe increased WOB (i.e. head bobbing, paradoxical breathing) OR • - > 60% oxygen via mask OR • - > 2 L NC

		• OR - Intermittent apnea self-resolving	need OR • - Nebs Q 1-2 hour OR • - Moderate desaturations < patient's baseline OR • - Apnea requiring repositioning or stimulation	more than patient's baseline need OR -Nebs Q 30 minutes – 1 hour OR • - Severe desaturations < patient's baseline OR • - Apnea requiring interventions other than repositioning or stimulation
Staff Concern		- Concerned		
Family Concern		- Concerned or absent		

Green = Score 0-2

Yellow = Score 3-4

-Notify charge nurse or LIP -Discuss treatment plan with team -Consider higher level of care -Increase frequency of vital signs / CHEWS / assessments -Document interventions and notifications

Red= 5-11

-Activate Rapid Response Team or appropriate personnel per unit standard for bedside evaluation

-Notify attending physician
-Discuss treatment plan with team -Increase frequency of vital signs / CHEWS / assessments
-Document interventions and notifications

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What circumstances led to the occurrence?

The circumstances that led to the occurrence was the nurses not following isolation protocols, but the nurse who did not review vital signs to complete her CHEWS because she had a full workload.

In what way could you measure the frequency of the occurrence? (interview nurses, examining charts, patient surveys, observation, etc.)

Measuring the frequency of the occurrence can be done by evaluating if a patient's status could have been prevented by evaluating vital signs. Also, the CHEWS algorithm is used to prevent sepsis. Sepsis can lead to mortality. Evaluating mortality rates which may have been prevented by observing vital sign trends. Collecting data on how many transfers from the main floor to a more critical floor such as the intensive care unit. Seeing if the child could have been moved sooner before the situation worsened or may be prevented with treatment on the floor. Also evaluating a nurse's knowledge on pediatric vital signs. The computer notifies an abnormal vital sign, but sometimes it is not always accurate. Vital signs vary on the age of the child.

What evidence-based ideas do you have for implementing interventions to address the problem?

Since vital signs are usually delegated to an unlicensed professional, many people ignore the importance of vital signs. It has shown how vital signs can be a first indicator of the body responding to change such as infection, fever, and pain. Staying on the facilities policy for vital signs is important. At Covenant Children's Hospital on the pediatric floor vital signs are done every four hours if they are stable and every hour if they are on oxygen. On the pediatric intensive care unit, vital signs are done every hour. These protocols are in place to monitor a patient's status and prevent further complications. Nurses setting reminders to complete CHEWS can help make sure they get completed

How will you measure the efficacy of the interventions?

Measuring the efficacy of documenting CHEWS can be done by setting and evaluating the protocol for completing the CHEWS on a patient. Making sure CHEWS are being done in a timely manner by the RN and not an unlicensed professional. Evaluating charts to make sure CHEWS are being documented. Measuring the mortality rates that could have been prevented by vital signs or the amount of transfers back to the intensive care unit.