

Quality Improvement Activity: Central Line - Associated Bloodstream Infection (CLABSI)

A 35-year-old man was admitted to the medical ICU from another hospital with alcohol-induced pancreatitis. A CT of the abdomen showed severe pancreatitis with pancreatic inflammatory changes. The patient is ventilator dependent requiring a tracheostomy and has a vascular catheter in place in the right subclavian. A nursing student shadowing a nurse observed that the patient's oncoming day shift nurse was very distracted and dismissive of the night nurse giving the report. The night nurse stated the patient's central line dressing is soiled and needs to be changed. After the report was given the day nurse went to the central supply room to gather materials but got distracted as she ranted to her coworker about her personal problems and stated that she did not want to be at work today. A few hours pass and the nurse changes the dressing. During the procedure, the student noticed that her nurse did not perform hand hygiene before donning gloves, in addition, the student noticed she was using regular gloves rather than the sterile ones provided in the package. While sterilizing the site the nurse cleans over a previous cleaned area and the nurse's hair falls onto the exposed central line. The nurse sighed and pinned up her hair mid procedure using the same gloves. A couple of days later the patient complains the central line is painful, red, edematous, and spikes to a temperature of 101°F. The physician orders blood cultures x2 and CBC. The physician ordered for the line to be discontinued - the patient's primary nurse removed the subclavian line, and the catheter tip is sent for culture. Three days later, the blood culture results were reported as *Staphylococcus hominis* in both sets with identical susceptibility. The physician was notified: "positive blood culture = contaminant; no antibiotics required". All other cultures are negative, the following day the catheter tip results are reported as *Staphylococcus epidermidis*.

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

In the scenario above the patient was admitted from another hospital due to alcohol-induced pancreatitis. After the initial CT scan the patient was transferred to the Medical ICU and a non-sterile central line dressing change was performed which led to an infection. The patient care was lacking during the dressing change. If the ICU nurse were observing and following sterile technique per protocol, they could have prevented the line infection. A central line bloodstream infection occurs when bacteria or other germs enter the patient's central line then enters the bloodstream. The nurse should have followed the correct procedure in dressing changes and maintained sterile technique. In addition, if the student shadowing does not understand or if the patient's safety is questionable, the student should have spoken up. The patient's safety should always be the number one priority despite personal issues.

What circumstances led to the occurrence?

The circumstances that directly led to this occurrence was the student not speaking up and especially the distracted ICU nurse that did not take an adequate amount of time to thoroughly perform the procedure correctly.

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

The frequency of central line infections is constantly being reviewed to promote infection prevention within health care facilities. Due to the severe and fatal outcomes that can arise from CLABSI, hospitals around the world strive to prevent its occurrence by adopting proven and tested preventative measures. One frequently used method to track the occurrence of CLABSI is an instituted mandatory hospital acquired infections (HAI) reporting law which includes the number of CLABSI occurrences in each hospital. Other ways that can help determine how frequently CLABSI occurs on a floor, is by also reviewing patients' health history documentation recorded by every individual involved in their care. Or by distributing patient surveys to be filled out concerning the care they were given and any setbacks they feel could have been prevented such as infections with their central lines.

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

Having a zero tolerance for CLABSI infections to start with should be proposed for staff to take preventative measures more seriously. Having weekly meetings when any CLABSI infections are identified should also be implemented on each floor with prior history related to CLABSI. Reinforcing protocols with every occurrence and then following up with the benefits of current practices can also help to guide the hospitals and caregivers as they provide safe care to each patient. With each case noted, each nurse involved with the patient who acquired CLABSI will be permitted to write a reflection as to what they could have done differently in preventing the CLABSI from happening.

CLABSI can be prevented and should be seen just as any other medical error in all health care facilities, the more it can be phrased as incidental, the harder it will be to prevent it. So continuous feedback and recommendations should always be applied in promoting the absence of CLABSI occurrences.

How will you measure the efficacy of the interventions?

Measuring the efficacy of these interventions can be accomplished by having charts on every floor, with marked and updated occurrences of each CLABSI the floor has noted. Any decrease or increase in occurrence can be documented and even compared to previous data. This will also help each unit to reflect on their progress and work as a team while combating the cause of CLABSI in hospitals.