**CLABSIs Intervention Plan**

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**Background**

Most patients come to the hospital hoping that they will get better. Unfortunately, patients can also pick infections in the hospital, with ICU patients being the most vulnerable to hospital infections. There are several reasons why ICU patients are among the most vulnerable to hospital infections. For example, ICU patients often have weak immune systems due to their critical conditions. As a result, their natural defenses are often compromised. Additionally, ICU patients are vulnerable to infections due to invasive devices, such as tubes and needles. Invasive treatments also increase the risk of ICU patients contracting infections. This paper proposes a hand hygiene intervention plan for preventing or reducing central line bloodstream infections (CLABSI), one of the most common infections among ICU patients.

**Clinical Problem Statement**

In the ICU, CLABSIs are infections that occur when bacteria or other germs enter the bloodstream of patients through the central line (CDC, 2002). Central lines are catheters that get placed into patients' large veins, usually in the groin, upper chest, or neck. They are often used to draw blood from patients or to give them medications and fluids. In some cases, central lines can be left in place for weeks or months. When this happens, there is a higher chance of bacteria and other germs to enter patients' bloodstreams through the central lines, which in turn causes infections. Poor hand hygiene among ICU staff, especially when handling central lines, has been found to be the primary way bacteria and other germs found their way into the catheters and the bloodstream of ICU patients. Thus, hand washing or hand hygiene is one of the recommendations for dealing with CLABSIs in ICU.

**Purpose of the Change Proposal**

This change proposal aims to recommend proper handwashing techniques of healthcare providers working in the ICU unit. As stated above, poor hand hygiene is one of the risk factors for CLABSIs. CLABSIs can also lead to increased length of stay and high healthcare costs for ICU patients. Significant mortality and morbidity are other risks associated with CLABSIs. Proper hand hygiene is, therefore, crucial for the safety of ICU patients. Most of the germs that cause infections in hospitals are spread by human hands. Unfortunately, most healthcare providers do not take hand hygiene seriously; many wash their hands less than required. This change proposal is expected to change the attitudes of ICU staff regarding hand hygiene.

**PICOT Question**

The following PICOT Question will guide this change proposal plan:

How does proper hand hygiene among ICU staff (I) during hospitalization (T) prevent the spread of CLABSIs (O) among ICU patients (P), as compared to when ICU staff is not practicing proper hand hygiene (C)?

**Literature Search Strategy Used**

Peer-reviewed articles related to the problem were retrieved using search terms such as proper hand hygiene, hospital infections, ICU staff, central line, central line bloodstream infections, hand hygiene guidelines for healthcare providers, CLABSIs risk factors, and others. Articles were searched in the databases such as EMBASE, PubMed, UpToDate, and Google Scholar.

**Evaluation of Literature**

According to Myatra (2019), hospital-acquired infections are a considerable concern in ICU units. CLABSI, for instance, is one type of hospital acquired infection that is associated with increased healthcare costs, increased length of stay, mortality, and morbidity (Myatra, 2019). These views are also shared by Fox et al. (2015), who state that critically ill patients are at the highest risk of hospital-acquired infections. Hand Hygiene is considered the most cost-effective and effective method to prevent CLABSIs and other hospital infections. Hand hygiene protocols have been associated with handwashing compliance and a reduction in hospital-acquired infections.

**Theory Applied**

The theory applied in this discussion is Semmelweis' germ theory, which saw connections between disinfected hands of hospital staff and puerperal fever (Tyagi & Barwal, 2020). According to germ theory, infection-causing microbes can easily be transferred from medical staff to patients, patients to patients, and vice versa. Semmelweis' theory recommends hand disinfection to prevent the spread of infections. The theorist argued that washing hands using chlorinated line solutions could prevent the spread of disease (Tyagi & Barwal, 2020). The concepts of this theory can be implemented to prevent the spread of CLABSIs in ICU.

**Proposed Implementation Plan/Outcome Measures**

**Implementation Plan**

The following is the recommended hand washing plan/guidelines for ICU staff:

1. Wet hands – ICU staff should wet their hands and create a good lather by applying enough liquid soap. The water temperature should be between 350C and 450C (Force, 2002).
2. Rub palms/hands together in circular motions/rotate anticlockwise and clockwise.
3. Interlink fingers of both hands and run the back of your hands. Use the left palm to rub the back of the right hand and vice versa (World Health Organization, 2006).
4. Interlink fingers with hands facing one another and rub fingers and palms together.
5. Rub the fingers of both hands, with left hand under and right hand over. Rub them against the palms with fingers interlocked, and then swap (Force, 2002).
6. Enclose the left hand around the right thumb and rub rotationally, then swap.
7. Use fingers to rub the palms of both hands (World Health Organization, 2006).

Once done with the above procedures, ICU staff should thoroughly rinse their hands using warm running water and then use a clean disposable towel to dry them. Paper towels are recommended, but automatic hand driers may also be used if available in ICU. If using automatic hand driers, ICU staff should be careful not to touch them lest they transfer bacteria back to their hands again. Likewise, reusable towels should not be used as these can harbor infection-causing germs.

**Outcome Measures**

The following measures will determine the effectiveness of implementing the above guidelines:

1. Reduced CLABSIs-related mortality and morbidity cases among ICU patients – as stated above, CLABSIs are associated with high mortality and morbidity rates. Implementing the above guidelines is expected to reduce CLABSIs-related mortality and morbidity cases.
2. Improved healthcare outcomes among ICU patients. CLABSIs often lead to poor health outcomes. Proper hand hygiene can help reduce occurrence rates, thus improving outcomes.
3. Reduced CLABSIs-related length-of-stay and healthcare costs.

**How Evidence-Based Practice was used to create the Intervention Plan**

To begin with, evidence-based healthcare practices are grounded in the best available research. Evidence-based healthcare approaches are guided by the most recent and the best available research recommendations. These approaches are guided by the following guidelines: "evidence gathering, interpretation, and application." Collected evidence should be evaluated or assessed to determine its observability, verifiability, replicability, and credibility (WHO, 2006). The above hand-hygiene hand hygiene guidelines or plan is developed using recommendations by the WHO (2006) and CDC (2002). The recommendations by these two organizations are based on years of research and clinical trials; hence they can be said to be based on evidence-based practice research.

**Evaluation Plan**

The impact of the proposed changed plan will be evaluated using the following outcome measures:

1. Mortality - reduced CLABSIs mortality rates among ICU patients will indicate that the plan is effective.
2. Safety of Care measures – in this case, the safety of care measures will pertain to hospital-acquired infections, which are often caused by fungal, viral, or bacterial pathogens (Tinker, 2018). A reduction in CLABSIs and other hospital-acquired infections will indicate that the change plan is successful.
3. Readmissions - one of the consequences of hospital-acquired infections, such as CLABSIs, is increased readmissions rates. The effectiveness of this change plan will also be measured by evaluating ICU readmissions rates, with reduced readmission rates signifying that the plan is effective.
4. Effectiveness of Care measures – two things will be evaluated: compliance with hand hygiene guidelines provided above and outcomes associated with them. Given the dangers of poor hand hygiene, monitoring compliance with handwashing guidelines ensures that the above CLABSIs are reduced (Tinker, 2018).

**Potential Barriers to Plan Implementation/Solutions**

Many factors could hinder the implementation of the above plan, one of them being negligence among healthcare providers working in ICU. Negligence occurs when healthcare providers intentionally fail to follow handwashing guidelines because they see them as unimportant. Huge workloads may also hamper the implementation of the above plan. When healthcare providers are overworked, they become mentally drained and may not prioritize hand hygiene (Hrustic, 2016). Other factors associated with huge workloads that hinder proper hand hygiene include fatigue and the emotional drain associated with working in ICU settings. These obstacles can be overcome in two ways: First, increase medical staff in ICU to reduce workloads. Second, make hand hygiene a priority for all healthcare providers and ensure those who fail to follow guidelines are held accountable.

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