Critical Care Nursing: Purewicks

Abigail G. Lovejoy

Brigham Young University – Idaho

NURS 422

Sarah Hiebert

October 24, 2021

Introduction

In the last two years, the the Purewick External Catheter has been implemented in hospital floors across the country. While the Purewick has improved patient care across all levels of care, it has also specifically affected the Intensive Care Unit (ICU) nurses. One of the main roles of an ICU nurse is to maintain a patient's health and life. With this external catheter, patients have had a decrease in infections and pressure injuries. As a result of this, ICU nurses have been able to maintain the patient's health by preventing infections and sepsis. It has also allowed them to promote the life and comfort of the patient with the decrease in pressure injuries. In addition, the decrease to pressure injuries decreases the wound care needed for a patient.

Another important role of an ICU nurse is to monitor whether a patient is declining or has a sudden change to the patient's medical condition. One of the ways that the ICU nurses do this is through the use of hemodynamic monitoring. Hemodynamic monitoring can be seen through measuring heart rate, blood pressure, blood volume, and cardiac output. Urine output is a primary way to assess the cardiac output of a patient and assists with hemodynamic monitoring. With the Purewick, ICU nurses are able to get an accurate reading of urine output without the need for an invasive procedure. The Purewick is able to suction urine into a suction canister, where it can be easily and accurately measured.

A final role of an ICU nurse that applies to the use of a Purewick is the ability to work independently and assess without direction. An article from the American Journal of Infection

Control stated, “an external female urinary catheter is a non-invasive adjunct to care and requires no order” (Warren et al., 2021). The Purewick is a non-invasive procedure that does not require a doctor’s order. This allows ICU nurses to function more independently without the intervention from a doctor. Instead, through the use of an algorithm, ICU nurses can determine whether patients are good candidates for purewicks.

Nursing Role

As stated previously, purewicks affect the care given by an ICU nurse. Implementing purewicks also affects nursing interventions, patient and family teaching, and patient goals and outcomes. It does this in several ways. This essay will discuss the nursing interventions of wound care, antibiotic administration, infection management, critical thinking with independent assessments. It will also discuss patient teaching of skin breakdown, as well as supporting patient goals for preventing hospital infections and skin breakdown.

Wound Care

The most important example that purewicks affect the role of the critical care nurse is by decreasing the need for wound care. Previously, patients that were incontinent but were not candidates for in indwelling catheter would resort to adult diapers and absorbent pads. Unfortunately, this caused an increase in skin breakdown. This was because the urine would sit on the skin, and the wet environment would breakdown skin at increased speeds. Warren et al., (2020) stated that diapers and absorbent pads were “often times not an acceptable substitute for an indwelling urinary catheter and can lead to skin breakdown”. Using a Purewick can maintain

a dry environment for the perineal area without an invasive procedure. This can decrease wound development and decrease the workload for the ICU nurse when managing wounds.

In addition to decreasing the need for wound care, using purewicks can also allow the ICU nurse to assess perineal skin more frequently and prevent pressure injuries before they happen. In the St. Vincent Hospital's policy for managing a purewick, the hospital recommends two things. First, the policy states to "replace the female external catheter at least every 8-12 hours or if soiled with feces or blood." It also recommends "assess device placement and patient's skin at least every two hours" (2019). As opposed to indwelling catheters, external catheters should be checked every two hours and replaced every eight to twelve hours. This can prompt the ICU nurse to do more frequent skin assessments and identify skin breakdown before it has developed into an open wound.

Infection and Antibiotics

Originally, purewicks were developed as a solution to the increasing number of catheter-associated urinary tract infections (CAUTI). In multiple studies, it was found that female external urinary catheters significantly decreased the amount of CAUTIs the hospital was receiving. In one study from the US National Institutes of Health, research supported that "there was a statistically significant decrease in CAUTI rate, a meaningful outcome which also further supports the conclusion that the IUC use decreased" (Zavodnick et al., 2020). In other words, internal urinary catheter usage decreased and CAUTI rates decreased. This affects ICU nurses in many ways. With decreased infections, ICU nurses will administer less antibiotics. If taken a step further, this could also decrease MRSA infection rates and require the ICU nurse to use droplet

precautions less frequently (Takiguchi et al., 2020). Decreased use of internal urinary catheters also allows ICU nurses to use less sterile instruments and sterile solutions. Instead, with purewicks, these nurses can provide more thorough and frequent perineal care.

Independent Functioning of ICU Nurse

ICU nurses play an important role in the interdisciplinary team that makes up the ICU staff. However, the development of the purewick has allowed the ICU nurse to work more independently in their roles without provider orders. Warren stated that "an external female urinary catheter is a non-invasive adjunct to care and requires no order" (2020). The purewick does not require a doctor's order to implement. This affects the ICU nurse in a few ways. Nurses will not have to call a provider as often to implement a catheter. Instead, they can use an algorithm to determine the type of urine collection usage for each patient.

Purewicks promotes simpler measurements of patient outputs. In the past, if a patient did not have an indwelling catheter, the nurse would have to weigh diapers and bedsheets to get an estimate of patient output. However, with an external urinary catheter, the need to weigh such items is eliminated (Warren et al., 2020). Instead, output can be easily recorded from the suctioning canister on the wall. This saves the ICU nurse time and can allow for a more accurate estimate of output for a patient. This accuracy can also allow the ICU nurse to assess better the patient's status.

Patient and Family Education

With the implementation of purewicks in place of other urinary management devices, patient and family education is vital. The most vital teaching that should be done with the patient

and family is how to decrease skin breakdown. As opposed to foley catheters, purewicks make contact with a large amount of skin. Patients and the family should be taught "to avoid pushing or pulling the collection tip against the skin during the removal or placement of the purewick" (Uhr et al., 2021). If the purewick needs to be adjusted, it should be done gently to avoid tearing or irritating the skin. Another way to prevent skin breakdown with the use of a purewick is to avoid items that will prevent airflow. It is important that the patient avoid the use of a bedpan or wear underwear that is not breathable. Instead, mesh underwear can promote airflow while also helping secure the device (Uhr et al., 2021) With the teaching of proper purewick adjustment and allowing adequate airflow, the patient and family will prevent skin breakdown.

Patient Goals and Outcomes

The biggest takeaway from the implementation of purewicks is that CAUTIs have significantly decreased. This research affects three patient goals and outcomes. It can decrease the patient's risk for infection, maintains skin integrity, and decreases healthcare costs.

One of the highest priorities for a patient is preventing additional infections. The use of indwelling catheters Warren et al. stated that "we know that indwelling urinary catheter use is a significant risk factor for CAUTI and implementation of the external female catheter coincided with a significant decrease in the use of indwelling urinary catheters in ICUs" (2020). Through the implementation of purewicks, the risk of infection decreases. The patient's outcome is then significantly increased.

A second patient goal and outcome is to remain without skin breakdown through the entire hospital stay. As previously stated, purewicks can help decrease skin breakdown

(Zavodnich et al., 2020). A patient without skin breakdown is less prone to infections, pain, and sepsis. This in turn provides for a better patient outcome.

Conclusion

In conclusion, the new application of external catheter devices affects the patient and ICU nurse in multiple ways. It allows the nurse to provide less wound care and antibiotic administration, while increasing the ability to function independently. Purewicks allow the patient to have less skin breakdown and infection. This device will continue to affect the patients and ICU nurses in a positive way.

References

St. Vincent Hospital. (2019). *External Female Catheter – Purewick.* Nursing Policy and Procedure Committee. https://www.usnursing.com/sites/defautl/files/purewick.pdf

Takiguchi, M., Qureshi, K., Tessier, K., & Truncellito, T. (2020). Reducing catheter-associated urinary tract infections by developing and implementing a protocol for the use of the purewick. *A Doctor of Nursing Practice Project.* Retrieved from: https://scholarspace.manoa.hawaii.edu/bitstream/10125/69050/Takiguchi_hawii_0085A_10537.pdf

Uhr, A., Glick, L., Barron, S., Zavodnick, J., Mark, J. R., Shenot, P., & Murphy, A. (2021). How I do it: PureWick female external catheter: a non-invasive urine management system for incontinent women. *Can J Urol 28*(3): 10669-10672. Retrieved from: https://www.canjurol.com/html/free-articles/Cdn_JU28_13_09_FREE_DrUhrS.pdf

Warren, C., Fosnacht, J. D., & Tremblay, E. E. (2020). Implementation of an external female urinary catheter as an alternative to an indwelling urinary catheter. *American Journal of Infection Control, 49*(6), 764-768. https://doi.org/10.1016/j.ajic.2020.10.023

Zavodnick, J., Harley, C., & Adler, J. R. (2020). Effect of a Female External Catheter on Incidence of Catheter-Associated Urinary Tract Infection. *US National Library of Medicine, 12*(10). DOI: 10.7759/cureus.11113