**Microsystem Assessment**

I currently practice as a pediatric nurse educator dealing with pediatric inpatients in the critical care unit. My work as a pediatric nurse educator involves teaching student nurses about patient care. This involves developing a curriculum and teaching using lectures and also practically. My role also involves teaching pediatric nurses how to comfort children who are treated in the acute care departments specifically in the intensive care unit (ICU).

**Purpose of the Microsystem**

Clinical Microsystems are designed in such a way that each patient receives care from a caregiver when needed (The Dartmouth Institute, 2018). The hospital is a teaching non-profit institution that specifically deals with acute-care teaching as well as research. It offers different innovative diagnostic as well as treatment options. The hospital was primarily founded to provide educational leadership to professional nursing practitioners, which is also one of my roles as a pediatric nurse educator. In this environment, student nurses and other nursing staff are mentored through a collaborative-multidisciplinary relationship within the hospital. Nurse educators are required to apply adult learning principles as well as instructional strategies in assessing designing, implementing and evaluating the continuing nursing programs which promote care standards as well as clinical competency.

**Patients**

The pediatric intensive care unit is a 14-bed multidisciplinary unit that offers care for ill patients from a wide range of ages all the way from neonates to 23 years of age. This unit offers medical as well as surgical services to patients. Some of the patients the unit provides care to include complex transplant cases, for instance, the pediatric liver, small bowel, kidney as well as the multivisceral organ transplants. These pediatric patients are usually from all parts of the world. The Pediatric intensive care unit also offers significant care to critically ill surgical as well as medical patients including those who require inhaled nitric oxide, high-frequency oscillatory ventilation, and continuous venovenous hemofiltration. In collaboration with the residents, attending physicians as well as interns, three intensivists supervise the patients` care.

**Professionals**

The hospital is always open 24 hours a day including on holidays and weekends. All registered professional nurses (both pediatric nurses and clinic nurses) add up to thirty. However, there are other professionals such as social workers, therapists, pharmacists, medical assistants, pediatric nurse educators, doctors, child-life specialists and the clinical technicians. All the healthcare professionals work in shifts. Typically, the first shift begins from 8 am to 1 pm, the second shift from 1 pm to 7 pm, the third shift from 7 pm to midnight and the last shift from midnight to 7 am. However, the doctors` working hours vary depending on the number of cases in the unit at a specific time.

The pediatric nurses serve patients in the pediatric transplant unit who receive "life-saving organ transplants" such as the liver, kidney, colon, small bowel and pancreas. The pediatric team offers complex medical as well as surgical care to regional, national and international patients. Notably, the pediatric professionals have been recognized for their high rate of success, innovation, family-friendly approaches as well as cohesive teamwork in carrying out the transplant process in the ICU. Pediatric nurses also collaborate with the physicians, nurse educators, pharmacists, and other professionals to deliver high-quality patient care. In my role as a clinical educator, I am responsible for training nurses on how to care for the patients who need telemetry monitoring, in-depth discharge education and high-risk medications.

**Processes**

The pediatric intensive care unit has 14-bed multidisciplinary units and an adjacent pediatric transplant unit with 15 beds. In comparison to outpatient care, the inpatient care cycle is much longer typically receiving many patients internationally, regionally and nationally. Many of the professionals attached to this unit work in shifts due to the high number of inpatients. Despite the challenges associated with the high patient population, the healthcare professionals are quite adept at providing high-quality care.

The clinical technicians are equally highly-trained to ensure efficiency in the support processes to ensure high-quality patient care. They ensure there is a reliable communication network to share knowledge with other professionals as well as to provide patient education through telephone or emails. The diagnostic procedures are scheduled through patient software, and the physicians receive the examination or test results through the same software. The physicians rely on accurate medical records as well as the information given by the patient or the patients` parents or other caregivers to diagnose or make a decision.

**Patterns**

The patterns usually vary for each member of the healthcare team depending on their assigned roles. The most consistent pattern is the patient pattern. The hospital is a busy institution with a large number of patients to be attended. During the day, the number of inpatients exceeds 3,500 with about 100 of these patients needed intensive care exceeds. As a result, there are problems with congestion in the ICU which can be quite interruptive to the delivery of high-quality patient care. However, the hospital has hired many pediatric nurses as well as interns to help the physicians to care for the patients. All the members of the intensive care unit meet regularly to discuss how to improve the quality of patient care in their units. These meetings usually take place twice per week at which time the caregivers discuss any arising issues in the unit and how to address those issues.

**Evidence for Change**

My recommended change is a continuous pediatric nurse education program to help student nurses improve the quality of patient safety. Currently, I am working as a pediatric nurse educator in the intensive critical care unit. During my time in this position, I have witnessed the positive change brought about by teaching nurses how to effectively take care of patients while they actively practice. Continuing to educate and train nurses can be quite effective in improving the care process.

Notably, there is a lot of evidence supporting the fact that nursing education helps to improve patient care in the ICU. For instance, a research study by Bassuni and Bayoumi (2015) revealed that nursing education improves teamwork, turnover rates as well as the safety climate of the ICU. In this study, the safety program provided to patients by the pediatric nurse educators enhanced the "nurses' total knowledge, skills, and attitude" apropos the dimensions of patients safety. Through continuous education and training, it is possible to improve the ICU staff's perception in regards to the safety of patients, and also minimize or altogether eliminate preventable errors in the ICU and, subsequently, the potential nurse turnover. As Bassuni and Bayoumi (2015) assert, effective collaborative systems help in improving patient safety in the ICU. A continuous pediatric nursing education program is, therefore, pivotal in increasing nurses` knowledge and skills as well as improve their safety practices.

**Plan-Do-Study-Act (P-D-S-A)**

The PDSA is a useful tool in documenting tests for changes. PDSA is an acronym for "Plan-Do-Study-Act" (The Dartmouth Institute, 2001).  The PDSA is used to test changes by developing plans to test the changes (Plan), executing the test (Do), learning as well as observing the impacts (Study), and identifying the necessary modifications to the tests (Act).

**Plan**

All the nurses' skills and knowledge will be assessed to determine the areas that need improvement. The assessment tool will determine the nurses' knowledge concerning the patient's safety and care in the ICU. An effective pediatric nursing education program will be introduced to nurses with low performance.

**Do**

With the implementation of the assessment tool, we will also identify the nurses' weak areas of knowledge with reference to the care for critically ill patients in the ICUs. The tool will also determine the nurses' challenges as well as the recommendations on what the management of the hospital should do to improve the safety of patients. For example, the purchase of more life-saving machines is an important step towards saving the lives of critically ill patients.

**Study**

Upon the completion of the assessment tool, the care coordinators and educators will study the information collected. The tool will help us to calculate the percentages of nurses who comply with ICUs safety standards and those who do not comply. Moreover, it will also indicate the areas which require more education and areas in which the nurses and interns have performed well.

**Act**

After the assessment tool has been put into practice for six months, the tool will be evaluated to determine its effectiveness. There will also be an annual reassessment of the nurses to decide if the pediatric nurses' effectiveness has been enhanced or not. If these assessment show improvement in nurses` overall knowledge and safety practices this will be an indication that the assessment tool was effective.

**Evaluation Plan**

The assessment tool will be evaluated half-yearly and then yearly after its full implementation. The evaluation will help to make the necessary modifications so that the nurses' effectiveness, as well as patients' safety, can be enhanced.

**Expected Results**

It is expected that with the implementation of pediatric nursing education program, the nurses` work effectiveness in the care setting will be enhanced. In addition, the rate of nurse turnover is also expected to improve. The number of preventable errors in the ICU is also expected to be reduced or eliminated altogether especially as regards the administration of medication to critically-ill patients. Subsequently, the overall patient safety and the quality of care delivery is expected to significantly improve by implementing a continuing education program for all nurses as well as continued assessment.

**References**

Bassuni, E. M., & Bayoumi, M. M. (2015). Improvement of critical care patient safety: Using nursing staff development strategies, in Saudi Arabia. *Global Journal of Health Science*, *7*(2), 335–343. <http://doi.org/10.5539/gjhs.v7n2p335>

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