

## The Journey of Educational Training from Competency to Proficiency of Pediatric Intensive Care Unit Nurses (PICU)

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### Abstract

**Introduction:** PICU is a relatively new medical specialty that has shown a marked growing up around the world over the last three decades. The study was conducted for the first time in tertiary care hospital in Karachi, Pakistan on PICU curriculum for residents on basic principles of critical care. However, there is no data and study is available for PICU nurses who are the primary care takers. PICU is one of the specialties which require skilled nurses for early recognition and treatment for critically ill children especially in developing countries to curb pediatric mortality (children under 5 years).

**Aim:** To develop core pediatric competency based module for PICU Nurses and enable them to function competently.

**Method:** To develop the core pediatric competency based module for PICU nurses, I primarily used the data from currently working PICU nurses on the need of clinical teaching and learning. The comprehensive literatures were reviewed, covering the period of 2005 to 2010, using the data bases pubmeds, science direct and journals of pediatrics and medical associations.

**Result:** The practical aspects of this educational project are implemented on PICU nurses including educational sessions, clinical teachings and demonstration especially pediatric respiratory system initially. In post evaluation test 57% nurses scored >80% marks, 29% scored 70-80% and only 14% staff scored between 60-70%.

**Conclusion:** The need of the competent nurse in pediatric critical care specialty with critical thinking skills has to be enhanced that will enable complete patient centered care.

**Keywords:** Pediatrics; Intensive care; Critical care nurses; Education

### Preamble

Pediatric intensive care is a growing medical specialty over the last three decades around the globe. The particular specialty requires highly skilled nurses for early recognition, treatment and advanced care of critically ill children. The pediatric critical care demands to restore a child suffering from both physical and psychological care including pain, anxiety and complications as well as to provide comfort and guidance to the child's family. Pediatric critical care nurse create an environment in which highly vulnerable infants, critically unstable children require vigilant care and the collaborative efforts of skilled multidisciplinary health professional's team. It is based on a unique body of knowledge that integrates the individual effects of system maturation on physiology, pathophysiology, sociology, psychology and human development. Before the early 1980s, the educational materials specific to pediatric critical care nursing were nonexistent. Nevertheless, as we enter in the new millennium, specialization in pediatric intensive care has showed marked growing up subspecialty around the globe that require self-motivated, specialized pediatric critical care nurses in order to curb the children mortality rates which is also the crux of UN millennium development

goal [1]. However in Pakistan, this specialty tract is still in under process to be implemented and it is far behind to achieve this goal.

Haque and Bano (2009) highlighted in their study that the Pediatric critical care unit plays a very important role in the care of critically ill or injured children [2]. The specialty of PICU has developed and matured over 30 years in the developed countries. There are several reports from the developed countries and very few only are available in Pakistan. Another study from Pakistan by Essani and Ali revealed that anxiety and incompetency has great amount of impact on the level of care provided to the patients [3]. Nurses get limited time to upgrade their knowledge and skills with current advancement in technology. This results in possible gap in the integration of knowledge into practice, whereby they are expected by parents and physicians to be rationalists, knowledgeable, and collaborative on daily basis.

The above literature strongly supports the need to train and educate residents and nursing staff in order to provide a comprehensive and proficient care in the pediatric critical care setup. Koroglu, Atasver and Duman stated that "skills and availability of trained nurses and physicians is more important for PICU patient's outcome than the availability of technology" [4]. A recent study from Karachi, Pakistan carried out in one of the Pediatric Intensive care Unit (PICU) of a tertiary care university teaching hospital revealed that there is an intense need to enhance the core competencies and train the residents

working in the PICU for the optimum patient care. Similarly, nurses are the primary care takers of the patients and therefore, along with the physicians, there is also a need to train nurses working in the similar advanced high-tech environment. Likewise, to improve quality of nursing care, healthcare system also requires being accountable for managing qualified faculty members to promote maximum clinical expertise, empowerment, respect and a voice for nurses [5]. Currently, the nursing education standard in Pakistan is dishearteningly low. Moreover, nursing turnover rate is taking toll due to increased market demand of nurses internationally. Pakistan lacks graduate nurses and also lacks specialty track education especially in the field of pediatric intensive care. According to Khowaja only 33% nurses have acquired BScN degree in Pakistan and 1.3% nurses have master's degree in nursing [6]. It signifies that "nurses are needed to fulfill not only the requirement of healthcare system in providing quality care to the patients but also for advanced clinical practice, teaching, and research roles to have competence nurses for future" [5]. Moreover, it is also important to have nurses with specialized expertise like pediatric or intensive care specialty in order to curb children mortality rates which one of the millennium development goal of Pakistan.

As part of my training in the PICU unit during my baccalaureate nursing course, I observed that in the hospital unit, currently there is no such formal course or skills training for the nurses who are assigned in PICU. Most of the nurses working in the unit had more than two years of experience; however, they have not gone through any formal training in this particular area. There were no modules or literature in the unit, where nurses could refer to if they have any concern or want to learn any specific thing related to their area of specialty. The nurses mainly relied on their experiential learning during their work hours or got instructions from their seniors. Therefore, in the unit there was a dire need to prepare a competency based module for the nurses working in the PICU in order to enhance their efficiency at work, moreover to improve their critical thinking and problem solving skills in the patient care. The higher management like PICU manager, head nurse, clinical nurse instructor and clinical nurse specialist was also supportive of the idea as the project overall aimed to increase the work productivity of the nurses and quality care of the patients in the hospital.

## Methodology

This is a small scale clinical project utilizing PDSA (Plan, Do, Study and Act) model [7] which is used as a health care improvement system which represents the whole systemic process of learning and implementing a successful outcome from the assessment part to evaluation and promoting sustainability of the prioritized issue. PDSA model is a learning and improvement cycle which is commonly used in adapting change idea, implementing a change and spreading the change to the rest of the system.

## Assessment

Initially with the consent of the department heads of the concerned unit, a self-administered survey tool (Appendix 2) was developed to identify the training needs of the PICU nurses. A total of twelve (12) PICU experienced nurses (4 critical care nurse, 4 senior critical care nurse and 4 senior critical care technicians) who are permanently assigned on PICU patients participated and were administered the tool. Their working experiences ranged between 2-7 yrs. On analysis, it was identified that since the inauguration of PICU, there was no formal training in this area and similarly, no separate sessions were

conducted for nurses pertaining to building the knowledge and practice skills of the Pediatric Critical Care Nursing. Furthermore, all PICU staff highly demanded to have a separate course or a module to be generated before entering in this subspecialty area.

## Planning Phase

Based on the assessment findings, a separate course guideline for the PICU course was proposed and developed in consultation with the Pediatric Consultant and the Clinical Nurse Instructor (CNI) of the unit. In order to formulate the course guidelines, various literature sources and courses running at various international hospitals were consulted, and evidenced based clinical guidelines in the specialty area were reviewed. Finally, all sources were given a contextual eye and finalized in consultation with the head of the department and the CNI of the unit. Various modules were identified to be included in the training course; however, the priority was given to the respiratory module to begin with. A separate module on Pediatric Respiratory system was developed. A total of seven units were included in the respiratory module on common respiratory disorders with its complications and nursing care especially focusing on the nursing care demands in the PICU. The social and psychological care aspects of the patients on the ventilator and their caregivers such as parents are also the significant part of the content in the module. Various case based scenarios and images for enhancing the assessment techniques were also the part of the course module.

In order to enhance the competencies of the PICU staff, Benner's model of novice to proficient was also studied. Benner's model implies for the future curriculum development, staff development and evidence based practice in relation to clinical teaching and learning. The desired outcome is taking staff to a level of proficiency that enables them to function competently. In addition, learning is influenced by the intrinsic and extrinsic factors. Similarly PICU staff is experiencing intrinsic factors which were interpreted as coming from within staff (e.g. self-perception, confidence, reflection), whereas, extrinsic factors as coming from outside the staff (e.g. limited time and opportunity for practice, lack of assessment and feedback) within the clinical learning environment. To overcome these factors, effective facilitation and collaborations was embraced during the training sessions and self-learning was valued in order to enhance the self-esteem and embracing the interests of the staff.

## Implementation

A total of six educational sessions were conducted over a three week period for training the staff. Various teaching learning pedagogies were utilized during the training sessions such as power point presentations & demonstrations were carried out for teaching the respiratory assessment techniques. Various case based scenarios were also run among the staff to enhance their critical thinking and problem solving abilities. Moreover, to develop their competency skills at the bedside and for successful integration of theoretical knowledge into practice, individual preceptor-ship was provided to the staff on the clinical site by the CNI and other senior staff. In order to evaluate the effectiveness of the training session and staff knowledge after the module implementation, two separate pre and posttest were designed in a form of multiple choice questions from the module taught.

For the sustainability of the project, all the training material was handed over to the PICU team leaders and Clinical Nurse Instructor (CNI). Moreover, upcoming students from Post RN BScN, who were

previously working in ICU, were assigned to develop further next modules on cardiac and neurological disease and its management in Pediatric patients under supervision of head of the department and the CNI. A separate meeting was also arranged with Critical Care Area Manager and Heads to give the follow-up on the existing progress and further development of the staff in the unit.

### Evaluation

For formative evaluation, post tests were taken to assess the knowledge level gained after the sessions and staff were separately monitored and assessed for clinical performance on the bedside, for the application of the respiratory assessment skills and observed for ventilator care, suctioning, positioning, drawing ABGs skills etc. Post test showed commendable results, 57% staff scored >80%, 29% scored 70-80% and only 14% staff scored between 60-70% in the post test. For summative evaluation, I have developed an evaluation tool checklist which would be used every quarterly for continuous monitoring of the outcome of the project.

There were certain limitations of the project including the time limitations as project time was six weeks in total. Moreover, the staff turnover in the unit was another challenge to schedule the staff for training sessions.

### Conclusion

Educating, training nurses and ensuring high quality care in the PICU determine the quality of critical care. The need of the competent

nurse in critical care specialty with critical thinking skills has to be enhanced that will enable complete patient centered care. Therefore, it is highly recommended that training is an essential part of care and therefore, further pediatric based modules should be developed, implemented, and evaluated among the staff working in the unit. These modules should be the essential part of the orientation of the novice staff for proper care and better management outcomes for the patients.

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