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شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

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شبكة المعلومات الجامعية

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التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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بعض الوثائق الأصلية تالفة

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بالرسالة صفحات لم ترد بالأصل

UTILIZATION PATTERN OF THE PEDIATRIC INTENSIVE CARE UNIT OF THE ALEXANDRIA UNIVERSITY CHILDREN'S HOSPITAL DURING THE YEAR 1998.

Thesis

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Preface

"The pediatric intensive care is place where miracles and heart breaks occur side by side. It is where the latest technology does things only dreamed of just years ago and where the changing face of health care is ensuring that children who require hospitalization are sicker than in years past.

Children who need intensive care frequently are in life and death situation. So Critical Care is more and more a place for children with complex and very acute needs. We see many children who survive and do well. We see those who survive but remain chronically ill or handicapped. And we unfortunately see those who do not survive.

Nevertheless, regardless of the outcome, the intensivist has tremendous potential to help children and their families deal with critical illness.

As the other side of the moon is really dark, the other side of the PICU could be even darker if not gloomier. They say Critical Care Units are dangerous places specially for children. Ventilators become disconnected in the middle of the night; Fresh gas hoses become kink or disconnected from their sources, into the esophagus or hypopharynx. Children may suffer hypoxic brain damage from these accidents and die or become permanently vegetative.

The public expectations for the critical care is: if a Child is placed in an intensive care, the high likelihood of a bad outcome is assumed.

So God Be with us all Patients, Nurses, and Physicians.

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In The Name Of God Most Gracious Most Merciful

INTRODUCTION

Pediatric Intensive Care Unit (PICU) is a facility specially designed, staffed and equipped for the treatment and management of the critically ill child from early infancy to adolescence. It is a young specialty of less than 40 years old. Worldwide, in the 1950s and 1960s, PICU birthed from sister intensive care units (ICU), namely: neonatal ICU, pediatric general surgery ICU, pediatric cardiac surgery ICU, pediatric anesthesia and adult ICU with the common objective to monitor patients closely in an environment where physiologic changes can be easily recognized and acted upon rapidly.[1]

PICU has come to rely on doctors, nurses , social workers, and occupational, physical and respiratory therapists with specific training in the care of the critically ill children. It also relies heavily on invasive and noninvasive monitoring devices, invasive procedures and constant manipulation and assessment of the child's condition. The degree of monitoring and observation, although playing a vital part in therapy and eventual outcome, may carry some risk to the child.[2]

HISTORY OF THE PEDIATRIC INTENSIVE CARE:

The Pediatric Critical Care has its roots in the development of adult intensive care and neonatal intensive care. In 1863, Florence Nightingale grouped postoperative patients into a common area until they recovered from the immediate effects of their operations.[3] Similarly, early recovery rooms were developed at Johns Hopkins Hospital in 1947 which lead to a significant reduction in postoperative morbidity and mortality in patients who were cared for in these specialized recovery units.[4]

In the 1950s the anesthesiologists utilized their intubation and artificial ventilation skills cultivated in the operating room to provide continuous endotracheal tube/bag ventilation for victims of a poliomyelitis epidemic in Scandinavia.[5] The success of this approach marked the introduction of 'intermittent positive pressure ventilation' to reverse respiratory failure. Subsequently, physicians and nurses skilled in monitoring hemodynamic and mechanical status of patients in respiratory failure and requiring mechanical ventilation were integrated into the development of the first intensive care units. Because children had a higher mortality than adults in these common ICU, it was decided to establish separate pediatric intensive care units (PICU).[5]

Nevertheless, the real and immediate forerunner of the PICU was the neonatal intensive care units (NICUs) which took a real shape late in the 1950s. These NICUs in fact established a new model for pediatric care. They were not organized along traditional organ system models but rather grouped children by age and severity of the illness; the neonatologist being the leader of a team that utilized the consultation and advice of a large number of pediatric specialists.[5]

It was not before 1964, that an exclusive PICU was established using the new medications and techniques of tracheostomy, muscle relaxants and mechanical ventilation that had been successfully demonstrated in 1959 for children with tetanus; in fact PICUs started as respiratory care service in the regular hospital rooms for children who developed respiratory failure.[6]

Later, the year 1967 witnessed the development of the first multidisciplinary PICU in USA and most of the world. By extending their activities to patient's care outside the operating room, pediatric anesthesiologists played a major role in developing these early PICUs which were, in fact, an adaptation to the operating room experiences in which the unconscious (anesthetized) and muscle relaxed (paralyzed), mechanically ventilated children were managed.[5]

In the early 1970s, as increasing numbers of PICUs were developed, physicians with pediatric medicine background became active in the PICUs. This marked the beginning of an era of 'non-anesthesiologist' pediatric 'intensivist' and formed a turning point in the PICU functions and activities. Gradually, PICUs moved from just clinical evaluation of signs and symptoms of disease to the measurement of organ dysfunction.

The great advance in PICU technology in the 1980s and onwards was a major turning point. This included methods for measuring of the intracranial pressure, respiratory therapy particularly mechanical ventilation and aerosol treatment, innovated and sophisticated therapies and the development of ICU laboratory, particularly the ultramicro-

technology, that provide data such as blood gases, electrolytes, blood sugar and drug levels.[5]

In the Alexandria University Children's Hospital (AUCH), the PICU has gone through different stages. Very early on, there had been special room on each pediatric ward where special maneuver such as lumbar punctures, withdrawing blood and pleural tap, etc. were carried out. Not uncommonly very sick children were transferred to that room for special attention. When an ICU was first thought of (about 30 years ago), a special room was allocated to host the critically ill children. This primitive PICU contained no more than O_2 cylinders, suction apparatus and an extra nurse. Though too modest it was designated as ICU.

The pediatric ICU proper was only established three years ago with standard equipment of monitors , ventilators , central O2 supply and was properly staffed and the admissions mounted to 218 patients only within two years.[7]

CHARACTERISTICS OF PICU:

As opposed to the adult critical care patient, the pediatric critical care children are typically an innocent victim of some illness afflicting a developing physiological system.[8] By essence, the characteristics of the pediatric critical care patient closely reflect the major causes of pediatric mortality. This was found positively true in some developed communities as USA, and yet it should be worked out in individual countries.[9] It is reported that hypovolemic shock from gastroenteritis is probably the most common pediatric critical care illness worldwide.[10] In developed nations, however, in addition to congenital malformations, sudden infant death syndrome, and cancer, various accidents are responsible for a major share

of pediatric critical illness.[8] In the United States, it is estimated that apporoximately 200 per 10,000 sick children require critical care.[8]

THE COST IN PICU:

The cost of critical care of critically ill children has been of high concern and caused unnecessary health problems even in developed countries.[11] It is believed that governments assume a much smaller share for the critical support of the young as compared to the elderly.[12] Oddly the majority of critical care costs revolve around prolonging inevitable death in the elderly dying patient with multiple organ failure.[12,13]

PICU AND RELATED DISCIPLINES

Although PICU is a separate entity within tertiary care centers, and however most significant it might seem, it only composes a part of an integrated and equally important chain that centers around the care of the critically ill child. The efferent part of the chain includes the pre-hospital resources and care and the emergency departments that mount into PICU; while the efferent side leads the sick child leaving the PICU to the step-down unit, chronic care facilities and rehabilitation units. To meet these needs the PICU must have access to a wide variety of resources.

CATEGORIZATION SCHEME:

Using the criteria proposed by the Southern Wisconsin Emergency Medical Services Council and the Wisconsin Division of Health , EDAP (Emergency Department Approved for Pediatrics) standards[14] and