

Introduction

Ensuring children safety in the operating room begins before the child enters the operative suite and includes attention to all applicable types of preventable medical errors (including, for example, medication errors), but surgical errors are unique to this environment. Steps to prevent wrong-site, wrong-person, wrong-procedure errors, or retained foreign objects have been recommended, starting with structured communication between the child and his family, the surgeon(s), nurses and other members of the health care team. Prevention of surgical errors requires the attention of all personnel involved in the pediatrics' care **(Alex et al., 2018)**.

Potentially preventable surgical errors have received increasing attention in recent years, although these errors attached with the nursing staff infrequently compared with other types of nursing and medical errors **(Chabloz et al., 2013)**.

The Joint Commission International (JCI) has collected data on reported sentinel events since 1995 with wrong-site surgery consistently ranked as the most frequently cited reason. In 2017, the year for which most recent data are

available, there were 116 wrong-site surgery sentinel events reviewed. Although specialty specific statistics are not included on the Joint Commission's , no surgical specialty is immune from surgical errors Classic examples in the specialty of pediatric include wrong procedures, such as herniation site (**Joint Commission International {JCI}, 2017**).

The pediatric nurse professional should be dedicated to each child and be immediately present throughout each decided operation (pre, during and post-surgery), and should be responsible for the transport of the child to the post-recovery facility and the transfer of care to appropriately trained nurse (**Smaggus and Weinerman 2015**).

The pediatric nurse professional should retain on overall responsibility for the child during the recovery period and should be readily available for consultation until the child has made an adequate recovery. If responsibility for care is transferred from one surgical nurse professional to another, a “handover stander” should be followed, during which all relevant information about the child’s history, medical condition, anesthetic status, and plan should be communicated. If aspects of direct care are delegated before,

during, or after surgery, that the person to whom responsibility is delegated is both suitably qualified and conversant with relevant information regarding the child and the type of surgery. Where it is impossible for this standard to be attained and the surgeon or other individual assumes responsibility for that, these arrangements should be reviewed and audited by an appropriately trained pediatric nurse professional (**Canadian Nurse Association {CNA}, 2017**).

Surgical Safety Checklist (SSC) was developed to decrease errors, adverse event and improve interpersonal communication in surgery, the checklist has gone on to show significant reduction in both mortality and morbidity however now checklist used around the world (**World Health Organization {WHO}, 2016**).

Nursing international standard for safe surgery is using in all international hospitals Also, it considered one of the most promising and effective advances for defining and improving the quality of care for pediatric surgery (**American Academy of Pediatrics, 2011**).

However, their development, dissemination and implementation in practice are rarely straight forward. The

use of international stander also known as standing orders, preprinted order sets, advanced nursing interventions and computerized order sets, has been recognized as a method of enhancing safety during surgery also, it can defined as the nurses are involved with the child who undergoing of surgery from the moment that set his foot in the hospital until the moment of going home (**Royal College of Surgeons {RCS}, 2017**).

In addition, the nursing standers about pediatric safe surgery involve international-based guidelines, developed for nurses who care for children in surgical unit that allow the nurse to initiate safe interventions to prevent surgery errors and complication (**Bonnaig et al., 2014**).

Global burden of disease report in 2015 showed that a significant proportion of the disability in the world is due to conditions that are treatable by wrong site surgical intervention. WHO estimated that 11% of the 1.5 billion disability-adjusted lives are due to diseases treatable by surgery. Problems associated with surgical safety are well recognized in developed and developing countries alike. In the developing world, the poor state of infrastructure and equipment, unreliable supplies and quality of medications,

shortcomings in organizational management and infection control, difficulties in the supply and training of nursing staff about the stander of safe surgery (**WHO, 2017**).

Significance of the study:

The analysis of several studies finds that there isn't enough data on deaths due to medical and nursing errors specially for children undergoing of surgical intervention, nursing and medical errors from unsafe surgery may be the third leading cause of death. Death certificates don't capture enough information, study finds that It seems that every time researchers estimate how often a nursing who work in surgical unites mistake contributes to a hospital child's death, the numbers come out worse. In 2010, WHO, the Office of Inspector General for Health and Human Services said that wrong surgery at surgical department contributed to the deaths of 180,000 child in Middle East region .

While in Egypt, there is no record about how many cases died because of unsafe surgery. But the files of the children described many unsafe procedure applied to the children at pediatric surgical unit, when the researcher asked about the causes most of the physician reported that this may be due to the wrong signs, sites, wrong and sides that were

the responsibility of the nurse in the surgical unit. That hospital horror stories where the surgeon removes the wrong body part or operates or accidentally leaves medical equipment in the person they were operating on. These errors caused due to unsafe surgery included (time in-out).

Aim of the Study

This study aimed to evaluate the Impact of Applying the international standards of safe Surgery on pediatric nurses' performance through:

1. Assessing knowledge and performance of pediatric nurses regarding applying the international standers of safe Surgery.
2. Applying the international standards of safe Surgery for studied nurses.
3. Evaluating the impact of applying the international standards of safe Surgery on pediatric nurses' performance.

Part I: Patient Safety

Definition

The simplest definition of patient safety by WHO (2016) is the prevention of mistakes and side effects to patients associated with health care. Patient safety has been conceptualized as the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the processes of health care (Kim et al., 2015).

The concept of patient safety has been variously conceptualized. Patient safety forms the basis of healthcare allocation just as physiological and biological, safety needs form the basis of Maslow's hierarchy (Cabral et al., 2016).

Child Patient safety, is a relatively new concept in health care organization, it is a global issue affecting countries at all levels of development. Patient safety has been defined as the freedom from accidental or preventable injuries produced by medical care (Kaissi et al., 2015).

In addition, ensuring child patient safety involves the establishment of operational systems and processes that minimize the likelihood of errors and maximizes the

likelihood of intercepting them when they occur (**Loren et al., 2018**).

Patient safety encompasses the processes and systems that protect patients from injury caused by medical mismanagement. Patient safety aims to prevent harm and negative outcomes of care. Ensuring patient safety requires operational processes and systems that will maximize the likelihood of preventing adverse medical events (**Niu et al., 2017**).

Patient safety is the extent to which the probability of preventable, unintentional injury or complication that may result in disability, death or prolongation of hospital stay, caused by health care management rather than by the patient's disease (**Dharampal et al., 2016**).

The American Academy of Pediatrics, American Public Health Association, and the National Resource Center for Health and Safety in Child Care Settings have developed national guidelines that can help to inform the development of regulations and help parents evaluate out of home child care settings to assure the health and safety of their children. These include safety guidelines relating to

playgrounds, strangulation hazards, child passenger safety, safe sleep practices, and more (**Bate, 2016**).

Importance of Patient Safety

The importance of patient safety has been demonstrated by the widespread adoption of globally specific strategies, to increase the safety and quality of healthcare, while reducing the impact of unsafe events. Safety culture in health care systems is widely recognized as a strategy that should be adopted to improve the safety of care and to prevent the recurrence of adverse events. It has been identified as the main determinant of a health care organization's ability to prevent and mitigate errors (**Macedo et al., 2016**).

The institution of medicine (IOM) has emphasized the need for health care organizations to develop a safety culture such that an organization's care processes and workforce are focused on improving the reliability and safety of care for patients children (**Sendlhofer et al., 2016**).

Additionally, the importance of child safety, child care is a necessity for most working families, and millions of parents across the country rely on it each day. They expect that providers have successfully passed a background check, are well-trained, and are recipients of regular inspections that

ensure that the children in their care remain safe **(WHO, 2018)**.

Child safety requires a multifaceted approach, which includes educating parents and their children about risks, designing safe environments, conducting research, and advocating for effective laws. Education is one of the main pathways to improving child safety and requires the involvement of parents, caregivers, children, health care practitioners, policy makers, and other target groups in order to increase knowledge and change attitudes and behavior **(Askitopoulou & Vgontzas, 2017)**.

Safety culture development requires an understanding of safety culture characteristics. In describing how to develop such a culture, an organization with a positive safety culture will have an informed workforce with an effective safety information system, which collates and analyses data about incidents and near misses. It will have a culture of reporting in which people who are in direct contact with hazards are willing to report their own errors and near misses; and this depends on how errors and near misses are handled **(Biccard et al., 2016)**.

Organizations need a just culture where people are encouraged to report errors and near misses and are rewarded for doing so, rather than receiving blame and punishment **(Hasan & Rashid, 2016)**. A culture of learning is another characteristic of safety culture, where people have the ability to draw the right decisions from the organization's safety information system and thereby improve safety. Organizations must also have a flexible culture that enables them to respond appropriately to a fast-changing environment **(Ong et al., 2016)**.

Goals of Patient Safety

A goal of patient safety, therefore, is to reduce the risk of injury or harm to patients from the structures or processes of care. Patient safety management is the establishment of operational systems and processes designed to minimize the likelihood of errors and maximize the likelihood of intercepting errors when or before they occur **(Askitopoulou & Vgontzas, 2017)**.

Consequently, health institution with positive safety culture and understanding of perceptions about safety culture are essential, because it helps organizations to find the

factors that threaten patient safety, determine the willingness of the nurses to improve safety and report (**Oak et al., 2015**).

In addition, the impact of a positive patient safety culture in changing behavior among nurses is stronger than any rules or regulations. Hospital national patient safety goals include: improvement the accuracy of patient identification, the effectiveness of communication among caregivers, safety of using medications; infection control ;implement best practices to surgical site of infections; minimize mistakes in surgery; make sure that the correct surgery is done on the correct patient and at the correct place on the patient's body; mark the procedure site; a time-out is managed immediately before starting procedures; verify that documents and equipment are correct and functioning correctly before surgery; decrease the risks of patient harm resulting from falls; motivate patients' active involvement in their care as a patient safety strategy; and identify patient safety risks (**Tomazoni et al., 2015**).

The underlying problem in improving surgical safety has been a paucity of basic data. Efforts to reduce maternal and neonatal mortality at childbirth have relied critically on routine surveillance of mortality rates and systems of

obstetric care, so that successes and failures could be monitored and recognized. Similar surveillance has been widely lacking for surgical care **(Haugen et al., 2015)**.

International Patient Safety Goals

The Joint Commission established National Patient Safety Goals to enhance patient safety by assisting healthcare facilities to address specific areas of concern with related to patient safety **(Kang et al., 2016)**. The goals center on problems in healthcare safety and how to resolve them. A Patient Safety Advisory Group, composed of expert nurses, physicians, pharmacists, risk managers, clinical engineers, and other professionals with hands-on experience in addressing patient safety issues in a wide diversity of healthcare framework, assists **(Streimelweger & seiringer , 2016)**.

These goals play an important role in the performance of the hospital since success of any hospital according to its amplitude to maintain the accurate patient safety which involve the introduction of international standards to encourage the hospital's opportunities of creativity and competition, as well, awareness to international goals has become a main role for development and advancement in