

Skills of Nurses Regarding Oral Health Care Provision to Patients in Pediatric Intensive Care Units: A Nurses Perspective

Author's Details:

Tahira Khatoon¹, Anum Fatima*², Hizbullah Khan, Ayyazda Farhana, Tabassam Zia, Tahira Yasmine

⁽¹⁾Nursing Superintendent, Government Nawaz Sharif Teaching Hospital, Lahore-⁽²⁾Associate Professor, Principal Institute of Nursing Wah Medical College, Wah Cantt-⁽³⁾Assistant Professor Nursing, Bacha Khan Medical College, Mardan-

⁽⁴⁾Head Nurse, Government Nawaz Sharif Teaching Hospital, Lahore ⁽⁵⁾Head Nurse, School of Nursing, Services Hospital, Lahore-⁽⁶⁾Nursing Instructor, School of Nursing, Services Hospital, Lahore

Corresponding Author*;Ms. Anum Fatima, Principal/ Head of Department, Institute of Nursing Wah Medical College, Wah Cantt

Abstract:

Introduction: Oral health is known as, an important part of the overall health of every person but it may not be provided as it is needed for hospitalized children worldwide. Oral hygiene done by a nurse is not appropriate especially, in a patient who is semiconscious and non-cooperating. **Objectives:** Assess the skills among nurses regarding the provision of oral health care to patients in Pediatric Intensive Care Units. **Research Methodology:** The cross-sectional descriptive Survey approach was used. This study was conducted in three Government hospitals from Lahore. 100 nurses participated from different PICU. Non-probability purposive sampling technique was used. **Findings and Discussion:** The result of the observation made by a researcher also showed that majority of the nurses were providing care to the intubated patients once or two times per shift but oral care for non-intubated patients was not taken as a priority by nurses working in PICU. The second factor was non availability of oral care applicators and solutions in these particular areas. That may create a hindrance in providing standardized oral care in seriously ill children as for nursing skill in oral care that was observed by researcher in PICU; result showed that nurses were not paying attention to this critical issue because of not having any guideline regarding oral care and be unaware of the oral complication that may arise as a result of neglected oral. **Conclusion:** the standardized oral hygiene has considerable contribution to improve oral care practice of nurses working in intensive care units hence be organized with better information and practice recommendation. This shortcoming of nurse's practices can be improved through short courses. It was also observed that there was the absence of the guideline/protocol. Therefore, there is the need of the hour to develop the protocol/guideline for nurses to advance the nurses practice

Key Words: Pediatric Intensive Care Units, Oral hygiene, skills, guideline/protocol.

Introduction: Oral health is known as, an important part of the overall health of every person but it may not be provided as it is needed for hospitalized children worldwide¹. Improper oral care itself is considered one of the major risk factor for oral infection such as candidiasis, bacteremia, and septicemia. Particularly, immunosuppressive drugs taking patients such as corticosteroids, methotrexate, or azathioprine.² When the patient is on an EndoTracheal Tube (ETT), defenses mechanism of the patient against pneumonia is impaired. ETT serves as a foreign body and pressures on cuff may damage the tracheal wall, potentially cause of long-term harm.³ In intensive care, patient's salivary flow is severely declining and result in xerostomia (dry mouth).⁴ and later in Mucositis (oral inflammation).⁵

A number of studies^{6,7,8,9} advocated that oral care help to minimize the colonization of dental plaque and also in the prevention of Ventilator Associated Pneumonia (VAP). Consistent, regular and standardized oral hygiene practices in the PICU will also set a model for children and their parents motivating and teaching them about the lifetime significance of oral hygiene.¹⁰ It is the responsibility of nurses to clean the oral cavity of intubated and non intubated patients with a toothbrush or sponge-tipped swab and use saline solution, mouthwash or chlorhexidine as cleansing agents on daily bases. The patient's airway must be secure to prevent aspiration, and endotracheal tube must be stabilized, and ETT tape should be changed if it is loose or contaminated in intubated patients. Lubricants should be applied to the lips. This important nursing task is

neglected or overlooked by most of the nurses because of being occupied in other nursing activities and lack of time.¹¹

Literature Review: Oral hygiene done by a nurse is not appropriate especially, in a patient who is semiconscious and non-cooperating. The purpose of oral care is to improve oral health that helps in reducing the oropharynx colonization and dental plaque by bacteria and aspiration of saliva. However, oral care is often ignored or performed inefficiently in critically ill patients. The patient's oral cavity is swabbed only for comfort. Frequency and type of oral care provided to critically ill patients may upgrade of nursing interventions that may get better outcomes in these patients.

Nurses 'current oral care practice is not evidence based and improperly defined. A study of critical care nurses and other research indicated that in the absence of evidence-based practice strategy, nurses provide multiple oral care interventions to address patient's comfort. ICU nurses may be cautious for oral care to those patients who are ventilated because endotracheal tubes may limit access to the oral cavity. Oral care may be affected by the opinion of nurses that it is less contributory to the patient's health and welfare (or less significance) than are other nursing interventions.

In a study by Furr et al. (2002) investigated hospital factors that directly affected the quality of oral care in hospitals. Which included hospital policy regarding oral care, hospital supplies, nurses' education in oral health, not having enough time for oral care, not giving importance to oral care and not perceiving oral care as an unpleasant task.

A study conducted in Malaysia by Kim et al. (2012) provided insight into oral hygiene practices in Malaysian intensive care units. Results showed that oral hygiene is an everyday practice of nurses in the hospital; however, nature and rate of oral care practices varied among nurses in ICUs that indicates a standardized oral care practice is to be needed, including the use of tooth brushing and chlorhexidine mouthwash. There are also required evidence-based practices that facilitate to improve patient's outcome.

Griffiths et al. (2000) supported that oral care is a necessary part of patient health care. An appropriate oral care plan according to each person needs should be developed. Certain factors should be taken into consideration, such as the patient's overall health, medical condition, and prognosis, medications and therapeutics regime as well as the previous standard of oral hygiene and oral care skills. Cindy (2004) stated that current oral care practices by nurses are poorly defined and inconsistent and not evidence based.

A study by Nancy et al. (2012) pointed out that in critical care units, patients who are uncooperative, have a high risk for aspiration or on a ventilator can be a real challenge to healthcare members. However, precise and accurate oral care measures and enough evidence are needed to prevent oral health complication. An efficient oral care plan can reduce the incidence of pneumonia in serious patients. So nurses should be given higher priority to oral care working in the intensive care unit. In the absence of evidence-based practice guideline in Pakistan, oral care is still badly unobserved, and nurses are not given the priorities to provide oral care to their patients.

Objectives:

- Assess the skills among nurses regarding the provision of oral health care to patients in Pediatric Intensive Care Units.

Research Question:

This study aims to answer the following questions:

- Is skill among nurses regarding the provision of oral health care meeting the standard?

- Is there any guideline/standard protocol related to oral health care existing in PICU?
- Are nurses working in PICU using the existing guideline for the provision of oral care to patients?

Hypothesis:

- A skill among nurses regarding the provision of oral health care to patients in pediatric intensive care units is not meeting the standards.

Research Methodology:

A cross- sectional descriptive Survey approach was carried out to conduct the study. This study was conducted in PICU of Government hospitals Lahore that was Children Hospital, Jinnah Hospital, and Mayo Hospital, Lahore. Total 100 nurses participated in the study. Non-probability purposive sampling technique was used. The data was collected by Self-administered questionnaire. All the ethical aspect of the study was taken off. Data were collected after obtaining administrative permission from selected Hospitals of Lahore.

Statistical Analyses:

The data were analyzed by SPSS version 20 and was presented in the form of figures, tables, and percentage.

Section-1: Analysis of demographic information of the respondents.

Section-II: Analysis of multiple choice question and scenario to assess the nurses’ knowledge, skills in the provision of oral health care in the PICU by using frequency and pie charts and bar table.

Section-III: Analysis of the direct observation of the procedural skill by using frequency chart

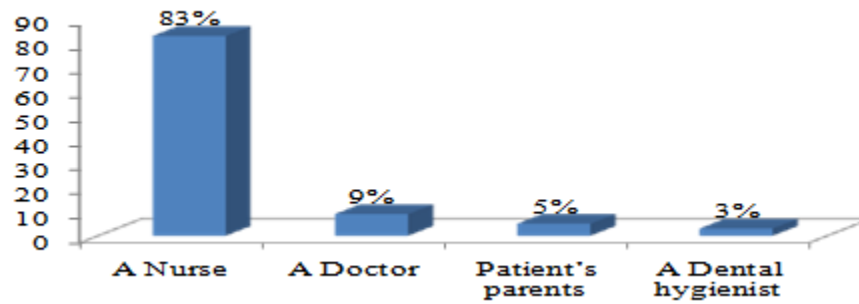
RESULTS

Table -4.1: Institution, Department, Shift, and Any Specialization

		<i>Frequency out of 100</i>	<i>Percent %</i>
INSTITUTE	<i>The Children Hospital</i>	45	45
	<i>The Mayo Hospital</i>	40	40
	<i>The Jinnah Hospital</i>	15	15
DEPARTMENT	<i>Medical ICU</i>	47	47.0
	<i>Surgical ICU</i>	21	21.0
	<i>Cardiac ICU</i>	9	9.0
	<i>Cardiac S ICU</i>	10	10.0
	<i>Medical 2 ICU</i>	13	13.0
SHIFT	<i>Morning</i>	41	41.0
	<i>Evening</i>	30	30.0
	<i>Night</i>	29	29.0

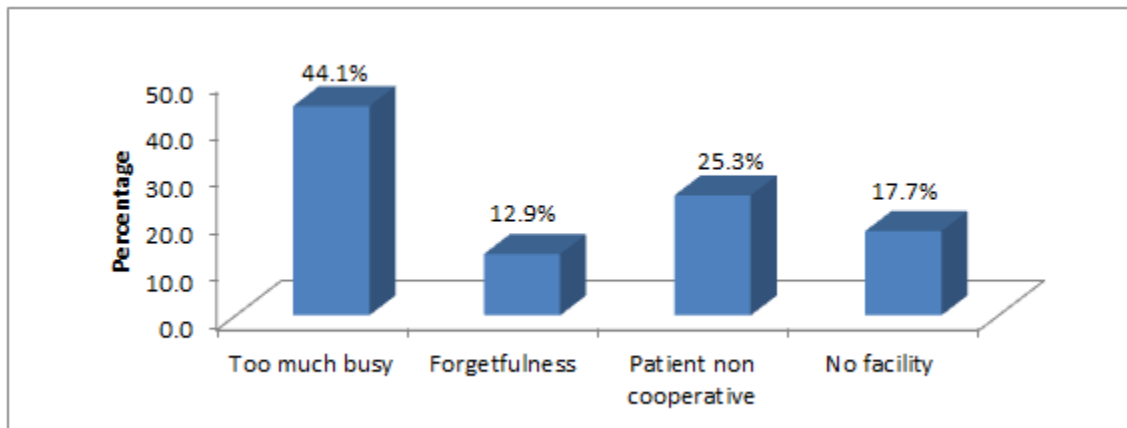
Table No. 1 shows that among 100 nurses 45% were from children hospital, 40% were from Mayo hospital and 15% were from Jinnah hospital Lahore. Department wise 47% nurses from Medical ICU, 21% from surgical ICU, 9% from cardiac ICU, 10% from cardiac SICU and 13% were from medical 2 ICU. From three shift 41% of nurses from the morning, 30% from the evening and 29% from night shift.

Figure-4.1: Frequency Distribution Regarding Oral Care of a Child Admitted in PICU



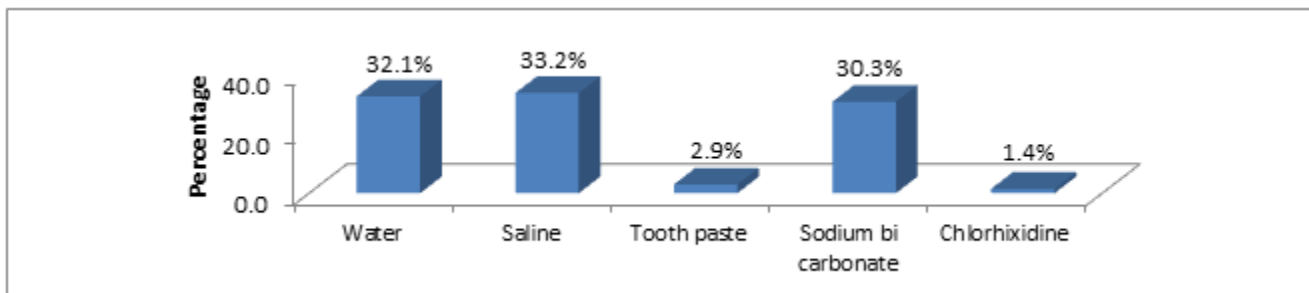
Among the total number 83% of nurses who replied that oral care of a child admitted in PICU is the responsibility of nurses, 9% responded that it is the responsibility of a doctor while 5% thought that the patients' parents are responsible for oral care and only 3% of the nurses replied that dental hygienist is responsible for oral care of an admitted child in PICU.

Figure-4.2: Limitations in Providing Oral Care in PICU



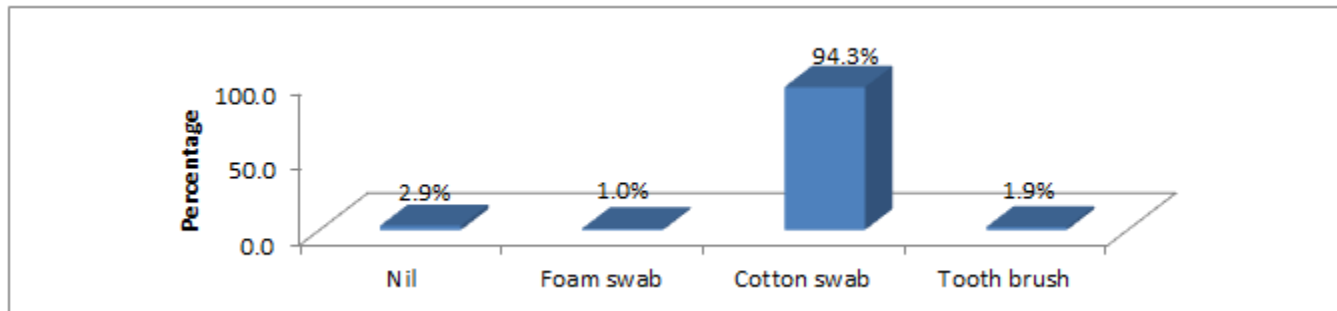
According to figure#, 4.2 44.1% nurses reported that a tight schedule prevents a nurse for providing oral care to her patients. 12.9% said forgetfulness, 25.3% said that patients are not corporative and 17.7% nurses reported that lack of facilities contributing to the limitation of providing oral care to their patients.

Figure-4.3: Availability of Oral Cleansing Solutions



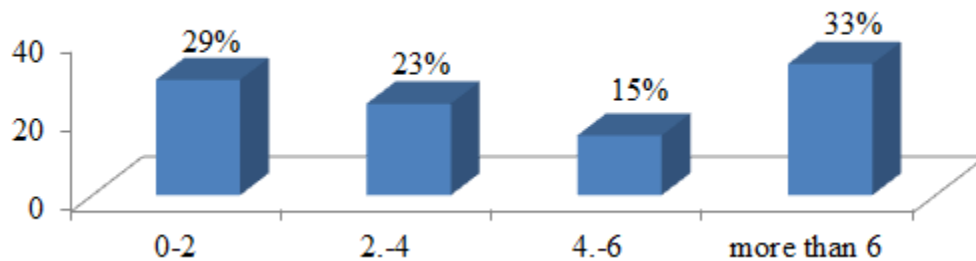
The above figure# 4.3 describes the availability of oral cleansing solutions in the ward for patients. Water, saline, and sodium bicarbonate were the top 3 oral cleansing solutions available in the PICU. While toothpaste and chlorhexidine were not used due to non availability.

Figure-4.4: Availability of Oral Cleansing Material



The above figure# 4.4 describes the availability of oral cleansing materials in the PICU. A cotton swab was most frequently available cleansing material found in PICU. While toothbrush and foam swab were hardly available in PICU.

Figure-4.5: Number of Patients attended by Nurses each Day



A researcher wants to assess the workload of nurses results of figure# 4.5 showed that 29% of nurses attended 0-2 patients each day, 23% nurses attended 2-4 patients, 15% attended 4-6 patients and 33% nurses had to attend more than 6 patients per day.

RESULT OF OBSERVATION

A checklist for oral care procedure was used to evaluate the nurses’ skills in oral care to critically ill patients. Three days observation was done in each hospital in the morning and evening shifts. Purpose of the observation was to observe the nurse’s skill is standardized or not. Either they follow any guideline. During the observation, it was found by the researcher that in the absence of any protocol/guideline majority of nurses use cotton and forceps for oral care and doing suction through the endotracheal tube to ventilated patients after washing hands and wearing gloves. No one nurse was observed providing oral care by toothbrush in intubated and nonintubated patients. There was no any routine to assess the oral cavity of the critically ill patients before and after the procedure. Nurses’ documentation after the procedure was also observed lacking. Nurses not guided the patient’s attendant for patient’s oral care. All this shows that nurses are lack of nursing knowledge and skill in oral care in the pediatric care unit.

Table -4.2: Number of Staff on Duty during Different Visits

<i>Number of Staff on Duty</i>	<i>Shift</i>	<i>Days</i>	<i>Mayo Hospital</i>	<i>Children Hospital</i>	<i>Jinnah Hospital</i>
	<i>Morning</i>	<i>1</i>	4	7	3
		<i>2</i>	3	6	3
		<i>3</i>	5	6	4
	<i>Evening</i>	<i>1</i>	3	4	3
		<i>2</i>	2	5	2
		<i>3</i>	3	4	2

In this research, section III was about the direct observation of the nursing skills on oral care of pediatric patients. The observers stayed for 6 hours in the morning and evening shift with the permission of the head of the department without telling staff nurses working in PICU that their skill of oral care is observed by an observer. It helped to prevent any pretension by nurses. The observer stayed for three consecutive days in morning and evening shift in each hospital. Details regarding the number of nursing performing their duty in different teaching hospitals in the pediatric ICUs was given in the above table.

Table .No. 4.3 Number of Non-Intubated Patients Receiving Oral Care

		<i>No. of non-intubated patients observed</i>			<i>No. of non-intubated patients receiving oral care</i>		
<i>Shift</i>	<i>Days</i>	<i>Mayo Hospital</i>	<i>Children Hospital</i>	<i>Jinnah Hospital</i>	<i>Mayo Hospital</i>	<i>Children Hospital</i>	<i>Jinnah Hospital</i>
<i>Morning</i>	<i>1</i>	8	8	6	2	4	3
	<i>2</i>	6	7	4	2	3	2
	<i>3</i>	7	8	7	3	2	2
<i>Evening</i>	<i>1</i>	8	7	6	2	2	1
	<i>2</i>	7	4	4	3	2	2
	<i>3</i>	8	7	5	2	4	2

Table No. 4.3 show the non-intubated patients in different hospitals receiving oral care in PICU during their stay.

On the first day of observation in the morning shift, 22 patients were present in PICU, but only 9 of them were receiving oral care.

On the second day, 17 patients were present in PICU, but only 7 patients were receiving oral care.

On the third day, 22 patients were there, but only 07 of them were receiving oral care.

On the first day of observation in evening shift, the first day of observation 21 patients was present, but only 05 of them were receiving oral care.

On the second day, 15 patients were present in the unit, but only 07 patients were receiving oral care.

On the third day, 20 patients were in ICU, but 08 patients were receiving oral care.

These results indicated that nurses are ignoring non-intubated patients for oral care.

Table - 4.4 Numbers of Intubated Patients Receiving Oral Care

		<i>No. of intubated patients observed</i>			<i>No. of intubated patients receiving oral care</i>		
<i>Shift</i>	<i>Days</i>	<i>Mayo Hospital</i>	<i>Children Hospital</i>	<i>Jinnah Hospital</i>	<i>Mayo Hospital</i>	<i>Children Hospital</i>	<i>Jinnah Hospital</i>
<i>Morning</i>	<i>1</i>	5	8	3	3	8	2
	<i>2</i>	3	6	3	3	6	3
	<i>3</i>	4	6	2	3	6	1
<i>Evening</i>	<i>1</i>	4	6	2	4	6	2
	<i>2</i>	3	7	2	2	7	2
	<i>3</i>	3	8	2	2	8	1

Table No.4.4 shows the total intubated patients in different hospital receiving oral care in their stay in PICU.

On the first day of observation in the morning shift, 16 patients were on a ventilator, but 13 of them were receiving oral care.

On the second day, 12 patients were on a ventilator, and all of them were receiving oral care.

On the third day, 12 patients were on a ventilator, but only 10 patients of them were receiving oral care.

On the first day of observation in the morning shift, 12 patients were on a ventilator, and all were receiving oral care.

On the second day, 12 patients were on a ventilator, and 11 patients were receiving oral care.

On the third day, 13 patients were on a ventilator, but only 11 patients were receiving oral care.

Table- 4.5 Any Guideline/Protocol Exist and Follow for Oral Care

	<i>Mayo Hospital</i>	<i>Children Hospital</i>	<i>Jinnah Hospital</i>
Yes	-	-	-
No	✓	✓	✓

No proper guidelines or protocol existed in any of the hospitals for the oral care of patients for both intubated and non-intubated patients in pediatric ICU of hospitals.

Table-4.6 Oral Care Methods Adopted In Different Hospitals

	<i>Mayo Hospital</i>	<i>Children Hospital</i>	<i>Jinnah Hospital</i>
<i>Tooth Brush</i>	-	-	-
<i>Foam Sticks</i>	-	-	-
<i>Other Method</i>	✓	✓	✓

A standardized method of oral care was not applied, but a conventional method was used to oral care of both intubated and non-intubated in PICU.

Table-4.7 Direct Observation of Performance Checklist for Nurses Working in PICU

S.No	Criteria	Yes	No
1	Wash hand, and wear disposable gloves.	80%	20%
2	Inspect integrity of lips,Teeth, buccal mucosa, gums, palate, and tongue.	20%	80%
3	Identify the presence of a common oral problem.	20%	80%
4	Remove gloves and wash hand.	0%	100%
5	Prepare equipment at bedside.	50%	50%
6	Explain procedure to the patient/relative.	30%	70%
7	Raise the level of the patient’s head by 30 degrees.	20%	80%
8	Make the patient’s head turn to one side in a very gentle way.	50%	50%
9	Move patient closer.	50%	50%
10	Wash hand, and wear disposable gloves.	0%	100%
11	With the help of a tongue depressor (held in one of her hands), open the mouth of the patient.	20%	80%
12	With the help of a toothbrush, start cleaning the patient’s mouth include gums, tongue, and teeth of the patient in the cleaning process	0%	100%
13	Suction the toothpaste and saliva from the mouth of the patient.	0%	100%
14	Make sure that the patient is brought back into a comfortable position.	50%	50%
15	After the cleaning process is completed, take off the gloves and dispose of it in a proper receptacle.	80%	20%
16	Wash hands after that.	80%	20%
17	If the patient is physically capable, assist the patient in a proper way	50%	50%

Table # 4.7 shows that 80% of the people working in PICU are doing oral hygiene care in a self assumed way but the rest of 20% are not even practicing anything regarding oral care. Oral care provided by nurses table shows nurses lack an assessment technique. The secondary only oral cavity is swabbed with gauze attached in forceps. No one nurse use toothpaste to clean the oral cavity. Only ETT suction is done in intubated patients.

DISCUSSION

The study evaluated the concept of nurses in understanding the importance of oral health care in children who are critically ill. The importance of oral hygiene for the well being as well as for the maintenance of health in pediatric patients is undeniable (Munro and Grap, 2004).

Generally, not much attention is paid to examine oral hygiene practices particularly, in seriously ill children. Also, till now not any definitive approach could be determined to decide the most the appropriate method for the maintenance of oral hygiene among children (Edelstein, 2002).

It is necessary to take initiatives for researches and increase nursing expertise to improve pediatric oral hygiene skill. (Berry and Davidson, 2006). Unfortunately, in all countries, the expertise of intensive care nurses for keeping oral hygiene has not been focused much. While nurses are responsible for cleaning the oral cavities regularly and keeping oral surfaces of children in ICU safe (Fulton, 1951).

The first part of the research questionnaires was about the demographic information. 100 nurses participated in three tertiary care hospitals of Lahore. The number of nurses was based on the available nurses from each hospital. The mean age of the nurses was 28.57 ± 5.66 years. A large number of nurses were from the age group of 20-30 years. That showed nurses working in these areas were quite young and active. Level of knowledge was equal among these nurses. About half of the nurses had more than 6 years of the professional experience.

Systematically implementing the standardized protocol/ guidelines for monitoring the clinical skills of nurses can improve clinical outcomes (Bingham et al., 2010; Black et al., 1999).

A good number of nurses reported that by remaining too busy prevent them from providing oral care to their patients. Among other factors that limit nurses' for the provision of oral care are forgetfulness, non cooperative patient, and has no facilities. Another study by Lisa, J. (2010) result indicated that only 9% of nurses did not provide oral care due to workload. While 91% of nurses reported that there are other factors preventing them from providing oral care such as unstable and non sedated patients. In response to the availability of oral cleansing solutions inward, water, saline, and sodium bicarbonate were the top 3 oral cleansing solutions. A limited number also responded to the availability of toothpaste and chlorhexidine.

Majority of the nurses provide oral care to their patients with conventional methods such as cotton or gauze with forceps applies sterile water and saline to take care of the oral cavity. Unavailability of the toothbrush in PICU in these hospitals may prevent the nurses from providing oral care (Kite, 1995). These results strongly show that nurses provide care to their patients according to the available material (applicator and solution) for oral care. Nurses do not use toothpaste and other oral care product due to non availability of these products. It shows a lack of management interest regarding oral care.

In the current research, only 1% nurse responded to oral care protocol/guideline available in units. But the result of the study by Lisa, J. (2010) showed that 99% responded that the units had developed the guideline for nurses for the provision of oral care.

One of the objectives of the study was to assess the nurse's skill of nurses in oral care.

our observation showed that most of the nurses provide oral care to intubated patients but neglect the non-intubated patients. The second factor was non availability of oral care applicators and solutions in these particular areas. That may create a hindrance in providing standardized oral care in seriously ill children as for nursing skill in oral care that was observed by researcher in PICU; result showed that nurses were not paying attention to this critical issue because of not having any guideline regarding oral care and be unaware of the oral complication that may arise as a result of neglected oral.

Standardized oral hygiene practice potentially contributes to improving the oral and general health of children in a pediatric critical care setting. Nurse's responsibility of providing oral health to critically ill children is being

recognized as an important task as providing other health requirements. Providing mouth care is a basic nursing procedure. By implementing the standardized oral hygiene practice, we can reduce the risk factor of hospital acquired pneumonia in non ventilated patients and ventilated associated pneumonia in intubated patients.

In this study, it was also observed The result of the observation made by a researcher also showed that majority of the nurses from three hospitals were providing care to the intubated patients once or two times per shift but oral care for non-intubated patients was not taken as a priority by nurses working in PICU.

The main aim of the protocol is to enhance the nurse's knowledge of oral health and oral care. Two flow charts (for intubated and none intubated) are developed to cover this gap of nursing practice in oral hygiene in PICU. We can conclude that standardized oral hygiene has a noticeable contribution to improve oral care practice of nurses working in intensive care units hence organized with better information and practice recommendation. More research in pediatric intensive care units is needed to conduct an evidence based study.

Limitations of the study

The major limitation in the research is its generalizability of the study findings.

Conclusion

Nurses skills are not standardized due to many factors such as nurses' workload because they are attending more than 6 patients, non availability of oral care applicators and solutions in these particular areas and the important one is the absence of any protocol/guideline of oral care for nursing practice in PICU. We can also conclude that standardized oral hygiene has considerable contribution to improve oral care practice of nurses working in intensive care units hence be organized with better information and practice recommendation.

This shortcoming of nurse's practices can be improved through short courses. It was also observed that there was the absence of the guideline/protocol .Therefore, there is the need of the hour to develop the protocol/guideline for nurses to advance the nurses practice.

Recommendations:

It is required to develop and implement the oral assessment tools and oral hygiene protocol, as such protocol/guideline is necessary for the effective oral care and reducing hospital acquired infections. Standardized protocol/guideline is also essential in planning and evaluating of oral hygiene in serious children. Oral care in the PICU is important not only for facilitating patient comfort but also to lessen the risk of hospital acquired infections.

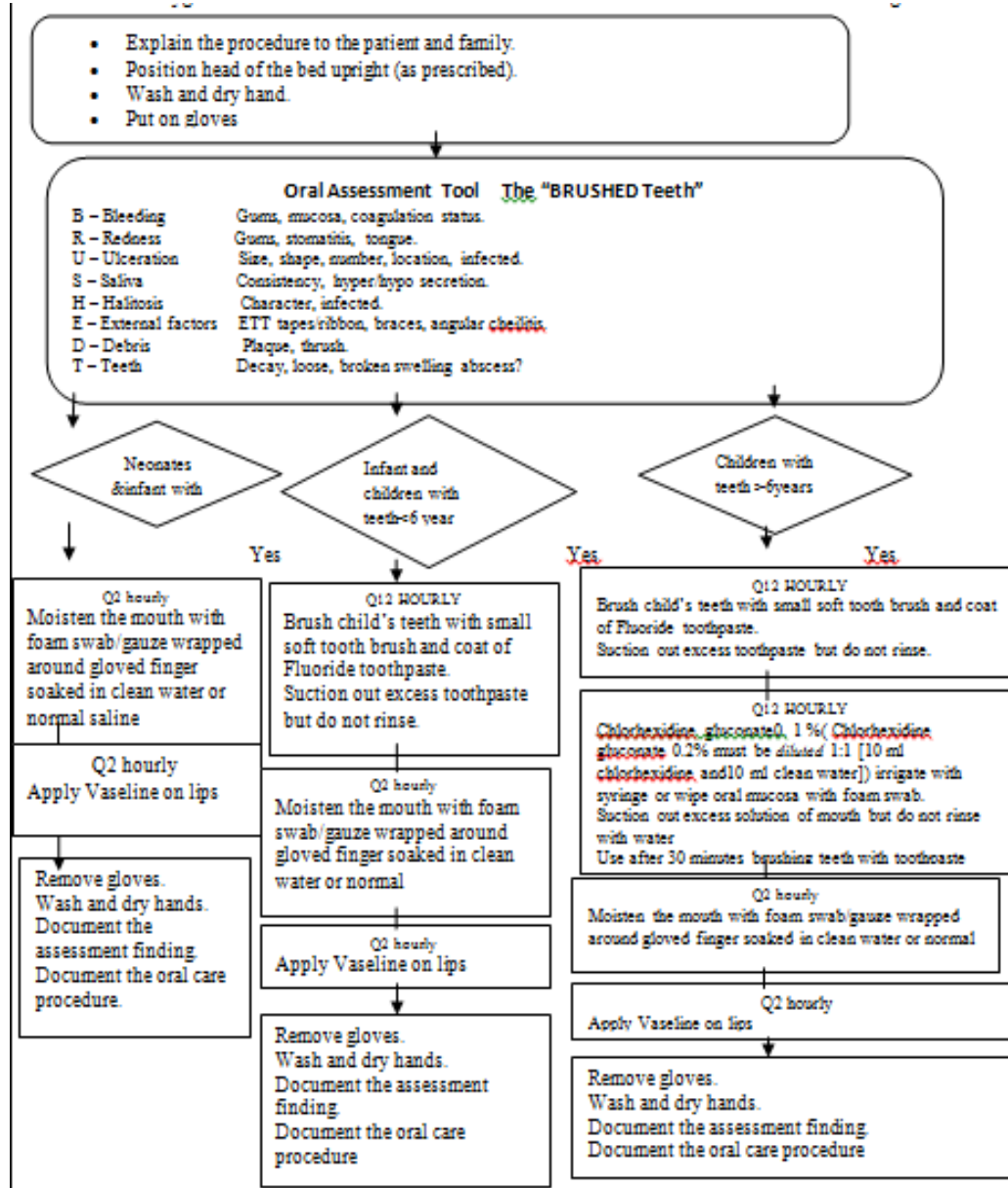
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Flow Chart 1

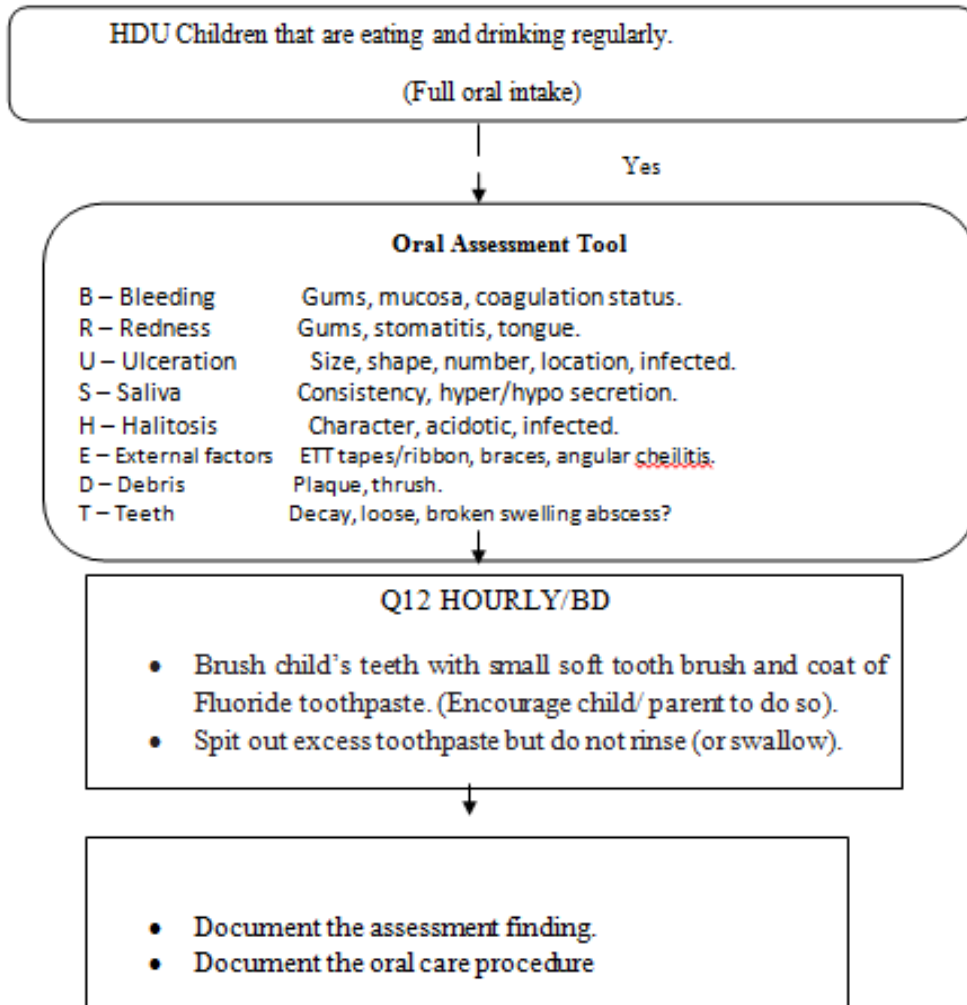
Oral Hygiene in the PICU Guideline for Intubated Children or Those with a Lowered Glasgow Coma Score



Flow Chart 2

Oral Hygiene in the PICU Guideline for Children Who Are Eating and Drinking

Oral Hygiene in the PICU Guideline for Children Who Are Eating and Drinking



Adapted from: Lisa, J. Deb, S. and Jane, K. 2010