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Background

The oral health of children is one of the greatest unmet health needs in the United States, with dental caries the most prevalent chronic disease found in children^{1,2}. Consequences of poor oral health include pain, dental and soft tissue infections, speech problems, inability to eat, interference with sleep and focus, and decreased self-esteem¹. To prevent dental caries, regular oral hygiene practices must be established and followed. The American Academy of Pediatric Dentistry (AAPD) recommends twice daily toothbrushing with fluoridated toothpaste and regular visits with a dental professional to maintain good oral health³.

When children are admitted to the hospital for inpatient treatment, any regular routines in place are disrupted⁴. Studies show that hospitalization negatively affects oral health regardless of whether there is pre-existing oral disease or not^{5,6}. Routine oral health care is particularly crucial in immunocompromised or critically ill patients, as they are at higher risk of developing systemic infections from untreated dental infections^{5,2}. Within the first 48 hours of admission, the oral microflora of critically ill patients becomes more pathogenic and virulent, leading to the onset of gingivitis and spontaneous bacteremia if oral hygiene measures are not taken^{2,5,7,8}. Despite the systemic sequelae of poor oral hygiene, it is often viewed as low priority by the care team⁴. During hospitalization, children are dependent upon hospital staff and their parents for all care, including the provision of oral care^{1,5,6}.

As the principal healthcare providers for hospitalized patients, nurses are in a unique position to provide oral care and to contribute to the identification and prevention of oral health problems^{7,9}. However, studies show that the majority of nurses do not perform regular oral hygiene or oral assessments¹. Research suggests that nurses perceive oral health care as low-priority, and that they lack the time and the knowledge necessary to provide oral health care^{6,7,8}. A recommendation was made over 20 years ago that dentists and hygienists teach mouth care to nurses, as the current education was found lacking, but the recommendation has not been followed⁵. Despite the numerous challenges to providing adequate oral health care to hospitalized children, oral health is integral to overall health, and regular oral health care should be part of the standard of care in the hospital^{2,4}.

There is a lack of literature available regarding the oral health status and care of hospitalized pediatric patients⁹. Pediatric dental residents at a hospital-based program have the ability to participate in interdisciplinary care teams for hospitalized children. The Children's Hospital at Montefiore (CHAM) is a nationally ranked acute care children's teaching hospital that has approximately 200 pediatric beds and employs many nurses, providing the opportunity to address the gap in research related to hospitalized children. Montefiore pediatric dental residents are positioned to collaborate with and provide education to nurses on CHAM inpatient pediatric units, and to better understand the obstacles and difficulties present in providing adequate oral health care to hospitalized children.

Objective

The main objective of this study was to determine the attitudes and perceptions of pediatric inpatient nurses at the Children's Hospital at Montefiore on the oral health of their patients. The secondary objective of this study was to identify obstacles nurses face in providing oral health care to inpatient children and assessing if nurses utilize the pediatric dental residents and clinics affiliated with the hospital to provide optimal oral health care to hospitalized patients. An aim of this study was to help bring more effective collaboration between Montefiore pediatric dental residents and pediatric nurses in ensuring that hospitalized children receive the best oral health care available.

Study Design and Methods

This was a descriptive survey-based study in which all data was collected from nurses employed by CHAM who are involved in the care of inpatient children. The target population for this study was nurses employed by Montefiore Medical Center that treat children on inpatient floors. There were no exclusions based on age, gender, medical history, race, or ethnicity.

A list of eligible participants' emails was obtained from nursing administration and the survey was distributed via email. Additionally, flyers with QR codes were posted at nurses' stations on CHAM inpatient floors. Recruitment included an explanation of the study via email and flyer. Data collection took place from January-March 2024.

Nurses completed a 25-item survey evaluating their attitudes and perceptions towards oral health, as well as the level of oral health care that they provide. The survey included questions about the frequency and quality of oral hygiene measures performed, barriers to providing oral care, and frequency of collaboration and consultation with the dental team at Montefiore Medical Center. All responses were anonymous, and nurses were able to opt out of completing the survey with no consequence.

Data was compiled and analyzed. In order to measure the attitude of the nurses towards oral care, ten questions were used. Each item was responded using five-point Likert type. The composite attitude scores were totaled from ten questions (nine positively worded and one negatively worded) giving an ideal minimum and maximum scores of 10 and 50, respectively. The responses for the negatively worded question were reversed while computing the composite attitude scores.

Descriptive statistics, frequencies (%) for discrete and nominal variables were employed to summarize participants' selected characteristics. Overall attitude score was summarized as median and interquartile range (IQR). An exploratory analysis assessing association between experience, practice area and total scores was carried out using a nonparametric approach.

Results

PARTICIPANT DEMOGRAPHICS

225 CHAM nurses were on the email list provided by nursing administration.

57 responses were received for a response rate of 25.33%. Of these, 45 surveys were fully completed and included in the analysis. The majority of nurses (71.1%) had a bachelor's degree, were certified nurses (71.1%) and work full time (88.9%).

The distribution of work experience and primary department of work can be seen in **Charts 1** and **2**, respectively.



Chart 1. Years of Work Experience

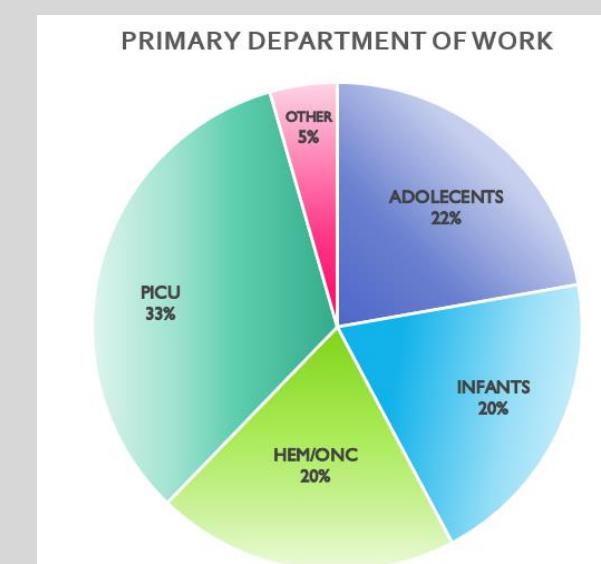


Chart 2. Primary Department of Work

Results (continued)

ATTITUDE

The median raw composite attitude score was 35 out of maximum 50 and minimum 10 (IQR=32, 37, Range=22-42) and 70% (IQR= 64,74, Range=44-84%) as a percentage.

Attitude	Strongly Agree/ Agree	Neither Agree nor Disagree	Disagree/ Strongly Disagree
It is the nurse's responsibility to assess the oral status of a patient.	76% (34)	20% (9)	4% (2)
Ensuring oral hygiene is an essential task for nurses when caring for hospitalized children.	80% (36)	16% (7)	4% (2)
Routine oral care is necessary for hospitalized patients.	87% (39)	9% (4)	4% (2)
Oral care is a high priority for me when I am caring for a patient.	44% (20)	40% (18)	16% (7)
Cleaning the oral cavity is an unpleasant task for me*	16% (7)	40% (18)	80% (36)
I feel educated and knowledgeable regarding oral health for pediatric patients.	51% (23)	38% (17)	11% (5)
I feel comfortable performing oral hygiene for pediatric patients.	76% (34)	22% (10)	2% (1)
I need more education and training to properly conduct oral exams.	58% (26)	24% (11)	18% (8)
I need more education and training to properly educate patients and caregivers on oral health.	49% (22)	31% (14)	20% (9)
I know how to access and consult with the dental department if necessary.	20% (9)	18% (8)	62% (28)

Table 1. Responses to Attitude Survey

Overall, the nurses reported positive attitudes towards oral health with no statistical difference based on years of work experience or primary department of work (**Tables 2 and 3**).

	0-2yrs N = 7	3-5yrs N = 12	6-10yrs N = 10	11-20yrs N = 12	20+yrs N = 4	p-value ¹
ATTITUDE						0.2
Median (IQR)	35 (34, 36)	34 (33, 37)	31 (31, 34)	36 (32, 39)	35 (34, 37)	
ATTITUDE (%)						0.2
Median (IQR)	70 (67, 72)	69 (66, 74)	62 (62, 69)	73 (64, 78)	70 (67, 74)	

Table 2. Total Score by Years

	adolescents N = 10	infants N = 9	hem/onc N = 9	PICU N = 15	other N = 2	p-value ¹
ATTITUDE						0.9
Median (IQR)	36 (32, 38)	35 (34, 39)	34 (32, 35)	33 (32, 36)	34 (32, 35)	
ATTITUDE (%)						0.9
Median (IQR)	72 (64, 76)	70 (68, 78)	68 (64, 70)	66 (63, 73)	67 (64, 70)	

Table 3. Total Score by Department

PRACTICE

Table 4 displays responses to the subset of questions that surveyed the nurses regarding the oral care they provide to their patients, such as intraoral assessments, oral hygiene instruction and care, and referrals to the dental department.

Practices	Yes	No
Conduct regular intraoral exams	20% (9)	80% (36)
Provide oral hygiene care*	93.3% (42)	6.7% (3)
Delegation of oral care	35.6% (16)	64.4% (29)
Discuss oral hygiene with caregiver	44.4% (20)	55.6% (25)
Have supplies to perform oral exams	60% (27)	40% (18)
Have supplies to provide oral hygiene	68.9% (31)	31.1% (14)
Consult with dental department	37.8% (17)	62.2% (28)
Refer to dental department	15.6% (7)	84.4% (38)

Table 4. Responses to Practices Survey

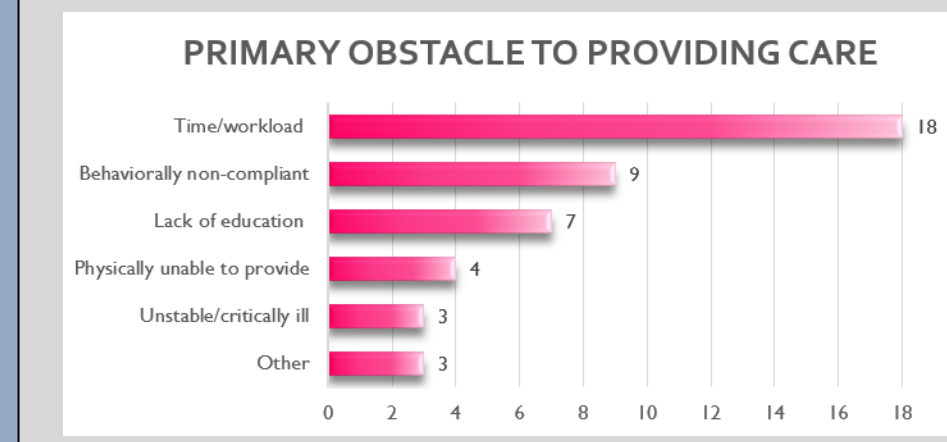


Chart 3. Nurses' Primary Obstacle to Providing Care

While the majority of nurses report that they have provided oral hygiene care, as seen in **Table 4**, only 35.6% regularly provide oral health care to every patient.

The primary obstacles to providing oral care were the nurses' time/workload (40%), followed by behaviorally non-compliant patients (20%), and lack of education (15.6%).

Discussion

Oral health care is one of the greatest unmet health needs among all children and hospitalization further negatively impacts this. Nurses, as a primary caregiver for hospitalized children, are in a position that allows them to contribute to the identification, care, and prevention of oral health problems. The results of this study show that while the majority of nurses agree that it is the nurses' responsibility to assess oral health and provide oral hygiene care, this is not reflected in practice. Overall, the nurses reported a positive attitude, as reflected by the median attitude score of 70%, with no difference in score by primary floor of work or years of work experience.

Barriers to incorporating oral assessments and care in regular nursing practice include time and workload, behavioral noncompliance, and lack of education. The majority of nurses reported having adequate supplies to both conduct assessments and provide oral care, but there was still a percentage of those who did not have access to supplies. Additionally, there is a lack of knowledge about and collaboration with the dental department at Montefiore Medical Center. The vast majority of nurses are interested in learning more about oral health and support the development of oral healthcare guidelines for the pediatric patient.

Conclusion

Nurses have a positive attitude towards oral health care, but the practice levels are not reflective of that attitude. Barriers need to be addressed in order to provide the optimal level of oral care for each patient. The dental and nursing departments can engage in interprofessional collaborative efforts to improve the oral status of hospitalized children through further education and training, as well as the development of oral healthcare guidelines.

Limitations to this study were the small sample size due to low response rate and the potential for recall bias.

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