

# Infant Oral Health Care in Pediatric Intensive Care Unit: Need for Capacity Building

## Abstract

Oral health care is very important for the overall health of infants. To minimize the risk of infection, the development of healthy and strong teeth is the major benefit to take care of the oral cavity. Infants admitted to the pediatric intensive care unit (PICU) are most of the time either intubated or on ventilators and are subsequently at a higher risk of the development of nosocomial infections. The researcher's highlighted that there is consistent negligence of infant's oral health while their PICU stay. This article explores that there is a strong need for standardized oral hygiene practices and guidelines use to be followed in PICU. Pediatric nursing professionals and health-care providers should be educated and encouraged regarding the life-long importance of good oral health care for infants.

**Keywords:** *Infant oral health care, pediatrics intensive care unit, pediatrics*

## Introduction

Oral health is an integral part of general health and its very essential to maintain the overall health of a person.<sup>[1]</sup> Infants (0–12 months) admitted to the pediatric intensive care units (PICUs) are more prone to hospital-acquired infections also known as nosocomial infections. These types of nosocomial infections became predominant, especially when the oral health of infants is neglected which leads to further deterioration of health.<sup>[2,3]</sup> Literature suggested that there will be a transformation of oral microbial flora into harmful ones, i.e., from Gram-positive to more virulent Gram-negative microbes after 24 h of admission to PICU.<sup>[4,5]</sup> Apart from this pathogenic transformation of oral microbial flora, xerostomia, bleeding, and injury to oral or oropharyngeal mucosa due to the intubation procedure and plaque accumulation are the other factors associated with poor oral health. Development of teeth begins in utero, and the first tooth erupts in the oral cavity at the age of 6 months. These teeth are known as deciduous teeth or milk teeth. These newly erupted teeth act as a reservoir of plaque and are responsible for bacterial colonization of harmful pathogens in the oral cavity.<sup>[6]</sup>

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Saliva provides a protective layer for oral mucosa and teeth due to its antimicrobial properties and keeps the oral cavity moist, thus acting as a natural cleanser for the mouth.<sup>[7]</sup> In PICU, this action of saliva gets hampered. Administration of xerostomia-causing medicines along with disturbance of regular oral hygiene practices due to the use of sedatives further add to the problem.<sup>[8]</sup> This will increase bacterial colonization in the oropharyngeal region and can cause ventilator-associated pneumonia (VAP).<sup>[9,10]</sup> Intubation can further enhance the chances of transmission of microbes from the oral cavity to the infant's lungs. This highlighted that PICU patients have complex oral care needs. Inadequate oral care may predispose PICU patients to nosocomial infections. Hence, maintaining good oral hygiene is a need of the hour for the infants admitted to PICU.

The aim of this article is to draw attention to the urgency to maintain the oral health of infants admitted to the PICU.

## Evidence-Based Infant Oral Health Care in Pediatric Intensive Care Unit

There is a limited literature available on this important issue relevant to nurses, pediatric intensivists, and pediatricians. Researchers tried to generate evidence based on limited literature.<sup>[6,11,12]</sup> Nursing

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staff acceptance and involvement in providing oral health care is a paramount and key feature as nursing staff are the prime health-care providers delivering health-care services in the PICU. The relation between poor oral health care and associated complications like VAP is not still completely clear to many frontline health-care professionals like pediatric nurses appointed to the PICUs why and how the oral health management of these infants should be done while their stay in critical care settings. These health-care providers should be aware regarding the need of good oral health care and proper procedure of performing oral hygiene practices.<sup>[13-17]</sup>

Pediatric nursing staff should be familiar with the proper health-care management of infants in the PICU. Regular use of mouthwash solutions and monitoring of the infant's oral cavity with the help of a torch for cleanliness, dental plaque, bleeding or ulcer areas should be done to minimize the risk of development of harmful pathogens in the oral cavity.<sup>[18]</sup> Oral microbial cultures should be taken on a regular basis for checking the status of oral pathogens. If the tooth is not present, gentle wiping of gums and oral mucosa can be done with sterile water to freshen up the oral cavity. If tooth is present in the oral cavity of infant, figure tip or small-headed soft toothbrush along with a smear of nonfluoridated toothpaste can be used to brush teeth, gums, and tongue. This action will stimulate gingival tissues and maintain the circulatory flow in the oral cavity. After every 2–4 h, the use of swabs or form sticks soaked in sterile water and wiping of gums and mucosa is highly recommended, especially in case of gingival bleeding or oral mucosa damage.<sup>[6]</sup>

Nursing personnel attending the PICU should carefully check for other oral health pathologies such as candidiasis, colored mucous membrane of the oral cavity, any kind of blisters in the mouth or lips, bleeding gums, dry or cracked oral mucosa, mucositis, etc.<sup>[19,20]</sup> If the infant is having any kind of oral infection or he/she is immunocompromised, medicated oral mouthwashes or gels can be prescribed.<sup>[21,22]</sup> Oral biofilm from teeth and tongue containing debris and pathogenic microbes can be easily removed by normal saline solutions. Antiseptic solutions can also be used such as Bicarbonate, Povidone Iodine, Triclosan, Listerine, Chlorhexidine gluconate mouth rinses, and oral Biotene.<sup>[4]</sup> Moreover, topical antibiotics, probiotics, and systemic antibiotics can also be recommended for good oral care.<sup>[4]</sup> However, many nurses are not aware that few of these antibiotics can interact with components of the toothpaste used for oral health care that's why a thorough knowledge of all these oral health regimes should be provided to pediatric nurses for proper application of these therapeutic products.<sup>[23,24]</sup>

## Conclusion

In summary, the impact of good oral health of infants admitted to PICU on their general health is well documented

and indisputable too. Forming standardized and regular oral health assessment guidelines and practices is the need of the hour for PICU infants. Capacity building of pediatric nursing professionals for oral hygiene practices should be done to ensure regular, consistent and effective oral health care in pediatric critical care settings. There should be proper oral health assessment charts and guidelines those are required to be followed by these health-care providers. These charts should be carefully monitored by the senior doctors at least once a day. For the establishment of evidence-based guidelines for oral hygiene, more research and trials in the pediatric critical care setting are needed in future.

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## Conflicts of interest

There are no conflicts of interest.

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