

Review

## Importance of the Pediatric Dentist in the Neonatal ICU.

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**Abstract:** Pediatric dentistry presents great challenges, especially when the professional is interested in the neonatal ICU, where the situation is more delicate and with an imminent risk of infections. The professional should act in prevention, checking, and sanitizing the baby's mouth so that there are no possible future oral health problems or even death. One of the most common causes of infections is, for example, pneumonia in the ICU due to the use of mechanical ventilation or even early diagnosis of aquiloglossia. Objective: To present a pediatric dentistry protocol in a Neonatal Intensive Care Unit and its importance, since the aim is to prevent various diseases and alterations that babies may present in the future. Methodology: The research was bibliographical research analyzing publications, books, and scientific articles whose authors deal with the subject. Final considerations: The presence of a pediatric dentist in the multidisciplinary team of a maternity hospital, in addition to being a law, can improve care, preventing various illnesses that may interfere with the life of the newborn, reducing the length of stay in neonatal intensive care units and improving this baby's quality of life.

**Keywords:** Pediatric dentist in the ICU; Pneumonia inside the ICU; neonatal ICU; Aquiloglossia.

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### 1. Introduction

Currently, hospital dentistry is still advancing, and research is still recent, especially when it comes to pediatric dentistry in neonatal ICU care. This research is even more recent and scarce.[1]

One thinks about oral health only when the baby is already at a certain age. Still, when the newborn (NB) is in the ICU, he needs extra attention so that, when intubated, this NB does not have contact with viruses or bacteria that may make you even more weakened and may have future consequences or even lead you to death.[2]

Explains that although it is not yet a reality in all Brazilian hospitals, the laws that require the presence of a dental surgeon in intensive care units, clinics, and hospitals in the public and private networks tend to be strengthened. Considering that there are already regulations and bills that show the importance and require the presence of these professionals in hospitals.[3]

This research aims to present a pediatric dentistry protocol in a Neonatal Intensive Care Unit and its importance since the intention is to prevent various diseases and alterations that babies may present in the future. [4]

Due to what was explained above, the interest in carrying out the present research and the protocol arose, to add and promote more research in this area. Hence the interest in carrying out this research, as well as the formulation and presentation of a protocol to serve this public.

## 2. Materials and Methods

### 2.1. Study Design

The type of search used was a proposal for a protocol based on the literature and on the practice of experts working in pediatric dentistry and pediatrics, which aimed at a logical sequence that was reproduced by other professionals in different parts of Brazil and the world, in addition to using the literature to provide a basis for a new protocol proposal.

## 3. Results

Based on research carried out in articles and books on the subject, it is clear that there are few publications in the area, there is still much to be researched, but it is a promising area with growth prospects, always aiming at the well-being of the NB in the ICU.

## 4. Discussion

### 4.1. Neonatal ICU

In this study, the emergence of neonatology took place in France, in 1892, through the obstetrician Pierre Budin. The French doctor was the one who instituted principles and methods that formed the basis of neonatal medicine. For Budin, the mother's participation in the care of her child was essential to developing the affective bond. Add that in Brazil, neonatology was influenced by more developed countries; thus, at the beginning of the 20th century, the care provided to newborns began to be organized based on foreign methods. In recent years, there have been great scientific and technological advances, which have provided numerous changes in care practices in neonatal intensive care units (NICUs) in Brazil, in a way following the global trend.[5] This environment provides an experience for the newborn quite different from that of the uterine environment, since this is ideal for fetal growth and development, as it has distinct characteristics, such as a pleasant and constant temperature, softness, warmth, and extraterrestrial sounds filtered and reduced. The structuring of neonatal ICUs provided great progress for neonatal diseases, as well as required the improvement of the technical and scientific knowledge of the professionals involved. The indispensable ability to handle equipment advanced technology and qualified conduct is important. [6]

### 4.2. Dental professionals working in ICUs

The intensive care unit (ICU) is the place intended for the care of patients with difficulties in performing their vital functions by themselves, requiring special and strict monitoring, carried out by an inter and multidisciplinary team, intensively and continuously.

Hospital dentistry, on the other hand, is defined in the literature as a set of practices of low, medium, or high complexity, aimed at the treatment and prevention of diseases through procedures at the hospital level, whose main focus is the care of critically ill patients in need of treatment.[7]

Point out that it was only in 2005, in Barretos, a city located in the interior of São Paulo, that dentistry was integrated into the ICU, which led to the execution of several studies, which demonstrate the need for the dental surgeon as a member of the multidisciplinary team of these units.[8] Such studies motivated the creation of bill nº 2.776/2008, presented by Deputy Neilton Mulim to the Chamber of Deputies, with the following content, in verbs:

Art. 1 establishes the mandatory presence of dentistry professionals in intensive care units and provides other measures. Art. 2nd in all intensive care units, as well as in public or private clinics or hospitals where there are hospitalized patients, the presence of dentistry professionals will be mandatory for the patient's oral health care—single paragraph. Dental professionals will have to be qualified to work in these units.[8]

The inclusion of the dental surgeon in the multidisciplinary team of a hospital helps to prevent infections, reducing the length of hospital stay and the use of medication. This professional has necessary functions in the ICU, such as: performing emergency procedures during possible traumas, preventing infections and oral lesions, preserving and restoring oral health, avoiding the worsening of the patient's systemic conditions and the manifestation of a hospital infection, in addition to interfering with promoting health and comfort to the patient through curative means. [9]

Emphasizes that the presence of the dentist in the hospital environment is of paramount importance, as it is this professional who can make an accurate diagnosis regarding oral alterations, in addition to assisting in medical therapy, it is worth mentioning that the appropriate procedures are carried out so that oral manifestations cannot lead to systemic consequences. Included in these activities are emergency procedures (abscesses or traumas), those that prevent possible nosocomial infection, those of curative means (adaptation of the oral environment), and those that protect against the aggravation of systemic diseases.[10]

#### 4.3. Pediatric Dentistry in the Neonatal ICU

Oral hygiene is a daily practice in human life, this habit aims to prevent different types of pathogens that may cause discomfort and infections. This care should be associated with routine visits to the dentist for more effective prevention.[11]

At birth, the newborn should start breathing in a few seconds. Your lungs, inside your mother's womb, are filled with fluid and have little blood flow. After birth, they transform into an airy organ with a lot of blood flow, capable of performing respiratory movements and promoting hemostasis with the help of the cardiovascular system. In this process, a few minutes of severe oxygen deprivation can seriously affect brain cells, causing permanent damage or even death to the newborn.[12]

Thus, in cases where this breathing does not occur naturally, the patient will need the help of a respirator, even being intubated. Thus, in some cases, the patient may develop ventilator-associated pneumonia (VAP) which, by definition, is a pulmonary infection developed in patients submitted to mechanical ventilation after 48-72 hours, it is an infection related to health care (ARI), being the most common acquired by adults and children within an intensive care unit. Its mortality probably exceeds 10%7,8. Patients with VAP require a prolonged period of mechanical ventilation, increased length of stay, and use of antibiotics, all procedures that increase hospital costs. [13]

In addition to the use of a mechanical ventilator, which is the main risk factor for VAP, some other factors may also favor an increase in the number of this infection in a neonatal intensive care unit. The main risk factors may be the prolonged period of inva-

sive mechanical ventilation; non-hygiene of hands before and after handling the patient, either by the ICU staff or by the patient's relatives; not cleaning the patient's oral cavity, which favors bacterial proliferation; unnecessary manipulation of patients and the non-use of some measures that can reduce the side effects of this positive pressure in the lungs. With the identification of these factors, it is possible to create a preventive protocol. [14]

Specifically in Pediatric Intensive Care Units, care for newborns should be redoubled, as their immunity is low, making them more susceptible to developing infections. Changes in the salivary flow, causing xerostomia, may occur due to the inability of nutrition, hydration, and breathing. Within the neonatal ICU, trained professionals must work in these places, as any touch of the newborn can trigger imbalances in the child's homeostasis. The pediatric dentist has the task of training the nursing team to carry out oral hygiene safely when the doctor accompanying the child authorizes the procedure. Oral hygiene in neonates is delicate, chlorhexidine or saline should not be used to avoid causing oral alterations. [15-16]

## 5. Conclusions

The present research brings a discussion and a reflection on the importance of the performance of the pediatric dentistry professional in neonatal ICUs. There are currently few studies on this subject, which makes it difficult to disseminate information and for hospitals to be aware of the importance of a multidisciplinary team with neonatal dentistry included, as it is not only the illness that took the NB to the ICU but also other diseases that the baby can develop during his stay in this place, which may worsen his condition and even lead to death. The performance of this professional is aimed at prevention, since when intubation occurs, the oral passages are susceptible to viruses and bacteria, so care, prevention, and oral hygiene are allies in the prompt recovery of this patient

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