



# The harmful effects of the latex “Glove Pacifier” in the Neonatal Unit

## Os malefícios da “Luva Chupeta” de látex na Unidade Neonatal

## Los efectos nocivos del “Guante Chupete” de látex em La Unidad Neonatal

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### Abstract

In the Baby-Friendly Hospital-Neo Initiative, the use of pacifiers in the Neonatal Unit (UN) was proposed in a therapeutic way, and always under the supervision of a health professional. However, it should be noted that the device known as “Pacifier Glove” manufactured using a latex glove is being used as an alternative to cherish the newborn. Despite few studies, it is clear that this device should be contraindicated in the UN, since it can cause allergy to latex, transmit infections, cause serious accidents such as laryngotracheal aspiration of cotton due to the rupture of the latex glove, and depending on the size of the material, obstruct the airways, and lead to death. Furthermore, the device may interfere with craniofacial growth and development and cause harm associated with breastfeeding and maternal and child health. The substitution of the “Pacifier Glove” for other strategies, even for the conventional or orthodontic pacifier, to deal with the pain and stress situations of the baby should be avoided to avoid the risk of serious accidents. The teat use protocol, the baby’s pain management protocol, the adoption of the Kangaroo Method in the neonatal unit to promote the baby’s development and behavior, and the training/monitoring of the practices adopted by the Maternal and Child Team, regarding the care offered,

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#### Authors’ contributions:

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are alternatives more complex, but which must be analyzed by those who wish to offer reliability to their institutional processes.

**Keywords:** Patient Safety; Gloves, Protective; Pacifiers; Sucking Behavior; Intensive Care Units, Neonatal; Breast Feeding.

### **Resumo**

Na Iniciativa Hospital Amigo da Criança-Neo foi proposto o uso da chupeta na Unidade Neonatal (UN) de modo terapêutico, e sempre com supervisão de um profissional de saúde. Mas observa-se que o aparato conhecido como “Luva Chupeta” fabricado com o uso de uma luva de látex está sendo utilizado como alternativa para acalantar o recém-nascido (RN). Apesar de poucos estudos, é evidente que esse dispositivo deve ser contraindicado na UN, uma vez que pode provocar alergia ao látex, transmitir infecções, provocar acidentes graves como aspiração laringotraqueal do algodão devido ao rompimento da luva de látex, e dependendo do tamanho do material, obstruir as vias aéreas, e levar a óbito. Além do mais, o dispositivo pode interferir negativamente no crescimento e no desenvolvimento craniofacial e causar prejuízos associados à amamentação e na saúde materno infantil. A substituição da “Luva Chupeta” por outras estratégias, até mesmo pela chupeta convencional ou ortodôntica, para lidar com a dor e situações de estresse do RN deve ser decisiva para evitar os riscos de acidentes graves. O Protocolo de uso de bicos, Protocolo de manejo da dor do RN, adoção do Método Canguru na UN para promoção do desenvolvimento e comportamento do RN, e a capacitação/monitoramento das práticas adotadas pela Equipe Materno Infantil, quanto ao cuidado ofertado são alternativas mais complexas, mas que devem ser analisadas por aqueles que desejam oferecer confiabilidade aos seus processos institucionais.

**Palavras-chave:** Segurança do Paciente; Luvas Protetoras; Chupetas; Comportamento de Sucção; Unidades de Terapia Intensiva Neonatal; Aleitamento Materno.

### **Resumen**

En la Iniciativa Hospital Amigo del Niño-Neo, se propuso terapéuticamente el uso del chupete en la Unidad Neonatal (UN), y siempre bajo la supervisión de un profesional de la salud. Pero se observa que el dispositivo conocido como “chupete Gluva”, fabricado con el uso de un guante de látex, está siendo utilizado como una alternativa para cuidar al recién nacido (NB). A pesar de los pocos estudios, es evidente que este dispositivo debe estar contraindicado en la NU, ya que puede causar alergia al látex, transmitir infecciones, ocasionar accidentes graves como aspiración laringotraqueal de algodón por rotura del guante de látex, y dependiendo de la El tamaño del material obstruye las vías respiratorias y provoca la muerte. Además, el dispositivo puede interferir negativamente con el crecimiento y desarrollo craneofacial y causar daños asociados con la lactancia materna y la salud materno infantil. La sustitución del “Dummy Glove” por otras estrategias, incluso el chupete convencional u ortodóncico, para hacer frente a las situaciones de dolor y estrés del RN debe ser determinante para evitar el riesgo de accidentes graves. El Protocolo de Uso del Pezón, el Protocolo de Manejo del Dolor del RN, la adopción del Método Canguro en la NU para promover el desarrollo y comportamiento del RN, y la capacitación/seguimiento de las prácticas adoptadas por el Equipo Materno Infantil, en cuanto a los cuidados ofrecidos, son más alternativas eficientes, complejas, pero que deben ser analizadas por quienes deseen brindar confiabilidad a sus procesos institucionales.

**Palabras clave:** Seguridad del Paciente; Guantes Protectores; Chupetes; Conducta en la Lactancia; Unidades de Cuidado Intensivo Neonatal; Lactancia Materna.





## Introduction

Promoting breastfeeding in Neonatal Units (NUs) is a challenge for healthcare professionals. The World Health Organization (WHO) has developed a National Policy to Encourage Breastfeeding, known as the Baby-Friendly Hospital Initiative (BFHI), in order to promote strategies to implement practices that promote, protect, and support breastfeeding, preventing early weaning<sup>1</sup>.

In situations of mother-baby separation, prolonged maternal and/or neonatal hospitalization<sup>2</sup>, and difficulties in enteral feeding<sup>3</sup>, the use of non-nutritive sucking (NNS) stimulation is recommended for self-regulation and physiological stability of preterm infants<sup>4</sup>.

In this sense, and with the aim of improving breastfeeding practices and rates in NUs, reducing morbidity and mortality among hospitalized newborns, WHO and UNICEF reassessed the BFHI program and adapted the Ten Steps to Successful Breastfeeding to the needs of NUs, resulting in the Neonatal BFHI<sup>5</sup>.

This program proposes the therapeutic use of pacifiers in NUs, always under the supervision of a healthcare professional<sup>6</sup>. Furthermore, parents and caregivers should be guided and informed about the criteria for pacifier use in NUs<sup>5</sup>.

It should be noted that pacifiers provide analgesia and can be used for pain control, reducing distress and crying time during medical procedures<sup>7</sup>. Despite reducing the length of hospital stay<sup>8</sup> in preterm infants, the use of a pacifier is associated with a shorter duration of breastfeeding<sup>9</sup>.

And although the program indicates the therapeutic use of conventional pacifiers, the device known as the "Pacifier Glove" is a reality in NUs, serving as an alternative for comforting the newborn<sup>10</sup>. The tool consists of forming a nipple with cotton at the end of one of the glove's fingers. This device has also been mentioned in the literature as an "improvised pacifier" that helps to calm babies with inconsolable crying, particularly when the medical procedure is performed by a single healthcare professional<sup>11</sup>.

In this context, and due to the scarcity of scientific studies addressing the "Pacifier Glove," this Letter to the Editor was prepared to report the harms of the device. There are several challenges, but this scenario should be considered to set new directions and paradigm shifts.

According to the criteria defined by the ABNT [Brazilian Association of Technical Standards]<sup>12</sup> and the ANVISA [Brazilian Health Regulatory Agency]<sup>13</sup>, Brazilian Standard 10334 establishes the requirements for pacifier manufacturing, including product packaging; nipple shape, size, and material; size, shape, and concavity of the shield; position and diameter of the holes; labeling and usage recommendations, all aimed at ensuring the safety of newborns.

It is worth noting that producing a "Pacifier Glove" does not require criteria and procedures for evaluating sanitary safety. Each healthcare professional determines the length of the nipple based on their experience in the neonatal unit. In view of this, the elastic, malleable material with an inadequate size can cause serious incidents and have devastating and permanent effects on the newborn.

In the hospital setting, latex gloves are essential for the protection of professionals and patients against the risk of contamination and cross-infection, especially in the risk of contact with bodily fluids. In the neonatal unit, newborns are considered the highest-risk group for latex exposure due to the excessive number of procedures, with greater contact of the product on the epidermis, mucous membranes of the eyes, mouth, and nose<sup>14</sup>.

The prevalence of latex sensitization in the general population ranges from 1 to 2.3%<sup>15</sup>. Studies on newborns are scarce, but it is observed that allergy affects children who undergo multiple medical interventions, with a prevalence of cases such as spina bifida, cloacal anomalies, and congenital anomalies such as gastroschisis, esophageal atresia, and omphalocele. Moreover, there are cases of sensitization to the product in children diagnosed with neurological disorders<sup>16</sup>.

Latex gloves are non-sterile and stored in individual boxes, exposed at the bedside for hours and even days. In addition, when removing the gloves, the professional may touch and/or remove other gloves from the box, leading to contamination of the entire material<sup>17</sup>.

Furthermore, the device is not subjected to disinfection after its use, and the contact of the "Pacifier Glove" with saliva and oral microflora can provide conditions for the growth of bacteria and fungi on the device<sup>18</sup>.

In this regard, it is necessary to emphasize that using the glove in the production of the "Pacifier Glove" poses a risk of microorganism transmission.



There are reports in the literature that gloves taken from open boxes at the time of use can also have imperceptible pores to the naked eye, even after undergoing the tests recommended by regulations, thus allowing the passage of microorganisms<sup>19</sup>.

It should also be noted that *Staphylococcus aureus*, one of the most common bacterial species responsible for many hospital-acquired infections, has the potential to pass through a hole the size of a needle puncture within about 20 minutes<sup>20</sup>.

The shape and size of the shield (outer plastic part) of the pacifier are the main factors in preventing the newborn from introducing it into the oral cavity. However, the “Pacifier Glove” has no protective shield present, and thus, the glove can become lodged in the throat or airways. And, depending on the size of the material, it can block the airways and lead to the baby’s death.

Regarding perforations over time of glove use, it was found that the longer the duration of use, the higher the rate of breakage<sup>21</sup>. These perforations can occur on the palm, back, and fingers<sup>22</sup>, with a prevalence of holes on the fingers and between the fingers of the gloves<sup>23</sup>.

In this context, it should be noted the “Pacifier Glove” can also rupture in the baby’s oral cavity, leading to laryngotracheal aspiration of the cotton or pieces of the glove material<sup>24</sup>.

## Final considerations

Despite limited studies on the “Pacifier Glove,” it is evident that this device should be contraindicated in the neonatal unit (NU). It is important to consider that the use of this device stems from a lack of knowledge and guidance, thus emphasizing the necessity of training the Neonatal Team by qualified healthcare professionals focused on maternal and child health promotion.

Finally, the substitution of the “Pacifier Glove” with other strategies, including conventional or orthodontic pacifiers, to address pain and stressful situations in newborns should be decisive in the hospital routine to prevent the risks of severe accidents. Therefore, strategies such as the use of nipple protocols, neonatal pain management protocols, adoption of Kangaroo Care in the NU to promote newborn development and behavior, and the training/monitoring of practices implemented by the team regarding care provided are more complex alternatives that should be considered

by those who aim to ensure reliability in their institutional processes.

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