

## PERCEPTION OF NURSING WORKERS ABOUT THE WORKLOADS IN A NEONATAL INTENSIVE CARE UNIT

Percepção dos trabalhadores de enfermagem acerca das cargas de trabalho em uma unidade de terapia intensiva neonatal

Percepción de los trabajadores de enfermería acerca de las cargas de trabajo en una unidad de terapia intensiva neonatal

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### ABSTRACT

**Objective:** the study's purpose has been to know the perception of nursing workers about the workloads in a Neonatal Intensive Care Unit. **Method:** this is a qualitative study performed with 24 nursing professionals in a Neonatal Intensive Care Unit at a University Hospital, on June 2017, through semi-structured interviews and analyzed through textual discourse analysis. **Results:** it has been verified that the nursing workers notice their exposition to workloads and relate them with the occurrence of accidents and illnesses at work. The psychic workloads were the most representative in the working environment, however, it is highlighted the relation identified by the workers between the chemical workloads and the products used in the cleaning of incubators. **Conclusion:** the recognition of workloads makes possible the creation of measures that can minimize them during the assistance to newborns in intensive care, aiming at the workers' health.

**Descriptors:** Workload, Occupational health, Intensive care units neonatal, Nursing.

### RESUMO

**Objetivo:** conhecer a percepção dos trabalhadores de enfermagem acerca das cargas de trabalho em uma Unidade de Terapia Intensiva Neonatal. **Método:** estudo qualitativo com 24 trabalhadores de enfermagem em uma unidade de Terapia Intensiva Neonatal em um hospital universitário, em junho de 2017, por meio de entrevistas semiestruturadas e analisadas por análise textual discursiva.

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**Resultados:** verificou-se que os trabalhadores de enfermagem percebem sua exposição às cargas de trabalho e as relacionam com a ocorrência de acidentes e doenças de trabalho. As cargas psíquicas foram as mais representativas no ambiente de trabalho, entretanto, destaca-se a relação identificada pelos trabalhadores entre as cargas químicas e os produtos utilizados na limpeza das incubadoras. Conclusão: o reconhecimento das cargas de trabalho oportuniza a criação de medidas que possam minimizá-las durante a assistência de recém-nascidos em cuidado intensivo, visando à saúde do trabalhador.

**Descritores:** Carga de trabalho, Saúde do trabalhador, Unidades de terapia intensiva neonatal, Enfermagem.

## RESUMEN

**Objetivo:** conocer la percepción de los trabajadores de enfermería acerca de las cargas de trabajo en una Unidad de Terapia Intensiva Neonatal.

**Método:** estudio cualitativo con 24 trabajadores de enfermería en una unidad de Terapia Intensiva Neonatal en un hospital universitario, en junio de 2017, por medio de entrevistas semi-estructuradas y analizadas por análisis textual discursiva. **Resultados:** se verificó que los trabajadores de enfermería perciben su exposición a las cargas de trabajo y las relacionan con la ocurrencia de accidentes y enfermedades de trabajo. Las cargas psíquicas fueron las más representativas en el ambiente de trabajo, sin embargo, se destaca la relación identificada por los trabajadores entre las cargas químicas y los productos utilizados en la limpieza de las incubadoras.

**Conclusión:** el reconocimiento de las cargas de trabajo proporciona la creación de medidas que puedan minimizarlas durante la asistencia de recién nacidos en cuidado intensivo, objetivando la salud del trabajador.

**Descriptor:** Carga de trabajo; Salud laboral; Unidades de cuidado intensivo neonatal; Enfermería.

## INTRODUCTION

The process and work environment of the nursing staff present conditions that lead to different workloads, which influence workers' health, in order to develop work-related diseases and accidents.<sup>1</sup> These consequences occur as a result of direct and indirect action of workloads on health.<sup>2</sup> Workloads are differentiated by the way they interact with the worker; they can be of external materiality such as biological, chemical, physical and mechanical, and internal material, physiological and psychic one.<sup>3</sup>

Among the most frequent workloads in nursing work are biological ones that include body fluids and secretions resulting from the manipulation of patients and contaminated materials; chemicals that include medicines, disinfectants and sterilizers; the physics that include the difference in temperature, noise, ionizing and nonionizing radiation; Mechanics are related to the occurrence of tissue injury, caused by situations such as trauma, falls, cuts and lacerations, such as accidents; the physiological ones that involve weight lifting, improper posture, night shift work exercise; and psychic, related to the work rhythm, repetitiveness and lack of autonomy.<sup>3</sup>

The study<sup>4</sup> identified the prevalence of workloads in public and university hospitals in different regions of Brazil, showing that physiological workloads were most frequently highlighted by 36.6% nursing workers, followed

by biological loads with 27.2%, mechanical workloads with 25.9% and psychic with 18.9% and in fewer notifications the chemical and physical workloads.

According to the main health stresses resulting from exposure to workloads, the ones related to biological loads stand out more frequently, followed by physiological workloads, and less frequently to psychological, mechanical, physical and chemical stresses. Among the injuries are identified diseases of the respiratory system, diseases of the musculoskeletal system and connective tissue, gastrointestinal infections, conjunctivitis, headache, varicose veins, depression, and hypertension.<sup>5</sup>

Among nursing work environments, in Neonatal Intensive Care Units (NICU), workers play a fundamental role in the management and care of newborns, encompassing individual and collective knowledge, experiences and specific and complex professional skills, generating workloads. In this unit, we highlight as activities the guidance to parents and the encouragement of breastfeeding, which demand excessive time, considering that the relactation and parents empowerment are characterized as a slow and continuous process.<sup>6</sup> The complexity of the neonatal NICU is linked to the routine of the sector that can be stressful, due to activities that require extreme skill in procedures and handling of care technology. The nurse is also responsible for managing materials and equipment necessary for the continuity of care and maintenance of the newborn's life, which can generate physical attrition, tiredness and overload of workers.<sup>7</sup>

Given the aforesaid context, it is highlighted the complexity of nursing work in the Neonatal ICU, considering the particularities of care provided to premature newborns, including use of technologies, the need for specific care and emotional involvement of workers. In this sense, the interest arose to highlight whether nursing workers identify the workloads that they experience in this work environment, as well as their relationship with work-related accidents and diseases, aiming to contribute to the construction of strategies for workers' health and consequently, for the quality of care for the newborn and their family.

Therefore, this study presents as a research question: what is the perception of nursing workers regarding the workload present in a Neonatal Intensive Care Unit? Bearing in mind the aforesaid, the objective is to know the perception of nursing professionals about workloads in a Neonatal Intensive Care Unit.

## METHODS

This is a descriptive-exploratory study with a qualitative approach, which was performed in a Neonatal ICU, located in a university hospital, characterized as a public institution that exclusively serves patients from the Brazilian Unified Health System, composed of 195 hospitalization beds. The referred Neonatal ICU has three hospitalization sectors: intensive hospitalization with ten beds, intermediate hospitalization with eight beds and kangaroo

hospitalization with three beds, the nursing staff comprises 12 nurses and 36 nurse technicians.

Inclusion criteria for the selection of participants were as follows: being a nursing professional working in the Neonatal ICU of the selected hospital and working for at least six full months in this unit. Exclusion criteria for participants were limited to the absence of the worker at the place and at the time of data collection due to vacation, work or medical leave of any kind.

Five registered nurses and 19 nurse technicians participated in the study, selected through non-probabilistic convenience sampling, according to their presence at the study site and availability to participate in the study. Data collection took place on June 2017, conducted by the lead author, through semi-structured interviews, recorded, with an average duration of 20 minutes, containing open and closed questions of participants' characterization (age, gender, professional category, time training, length of professional practice) and open questions focusing on aspects related to the workloads of nursing workers present in the Neonatal ICU.

Data analysis occurred through discursive textual analysis,<sup>8</sup> from the steps of unitarization, categorization and communication. In the unitarization stage, the units of meaning were identified from the reading and fragmentation of the interviews. Afterwards, a priori categorization of the units of meaning was performed according to the types of workloads.<sup>9</sup> Conclusively, in the communication, there was a description and interpretation of the meanings constructed from the text.

Ethical aspects were respected, according to the Resolution No. 466/12 from the National Health Council, so that the study was approved by the local Research Ethics

Committee, according to the Legal Opinion No. 43/2017 and *Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appreciation] No. 60797916.1.0000.5324. Participants were identified by the letters NW (Nursing Worker) followed by a sequential number, corresponding to the interview number (NW1 to NW24), with no differences between professional categories, ensuring anonymity.

## RESULTS AND DISCUSSION

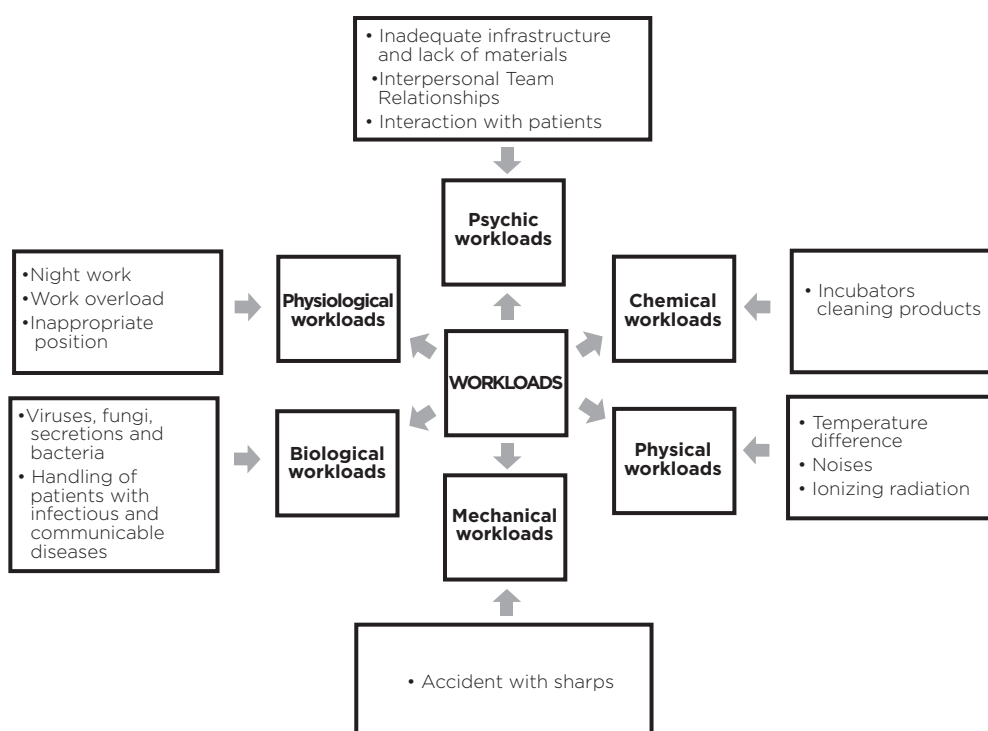
From a total of 24 study participants, five were registered nurses and 19 nurse technicians, all female, aged between 25 and 56 years old. According to the time of professional formation, there was a minimum of four years and a maximum of 32 years and the time of professional practice ranged from three to 32 years. Among them, one participant affirmed to have employment in another institution.

Concerning the frequency that workers identify the workloads present in the Neonatal ICU, there was a predominance of psychic (92%), followed by physiological (40%) and chemical (40%), biological (36%), physical (24%) and mechanical workloads (16%).

Regarding the work accidents, 20 participants stated that they have already suffered or witnessed some type of accident in the Neonatal ICU. Also, among them, 18 participants attributed the occurrence of accidents and illness to workloads.

From the data analysis, six categories were constructed according to the workloads identified by the research participants: 1) psychic workloads; 2) physiological workloads; 3) chemical workloads; 4) biological workloads; 5) physical workloads; 6) mechanical workloads (**Figure 1**).

**Figure 1** - Workloads perceived by nursing workers in a Neonatal ICU.



## Psychic workloads

Psychic loads were identified by nursing workers as the most frequent in the Neonatal ICU environment, causing accidents and illness. Such burden may be associated with the precariousness of the infrastructure and the scarcity of adequate materials to guarantee the quality of patient care, conditions lead to a series of psychological problems for the team, such as stress, anxiety, and depression.

*The problem is the lack of structure and adequate material. It is a broken crib that you have to mend, crib that has no conditions and you have to admit a child in an emergency. And yet there is the medical tape that does not stick, the abboath that breaks the baby's skin, so, thus, the most structural and material part is that has given more attrition, not work. I have lately been worn out [...] ICU is a thing that wears out, the time inside the ICU should be about 15 years, 25 years is too much. Everyone is at a very high stress level. I don't even feel like coming to work, I think: It's another stressful day. (NW1)*

*And the conditions to do it [work], I consider minimal, within what exists today. This may be associated with some kind of illness such as anxiety, depression. (NW4)*

Another important aspect associated with psychic workloads in the Neonatal ICU environment and that generates stress among nursing workers refers to the interpersonal relationship with other members of the health team. In this environment, relationships are established through the interaction of team professionals, to provide quality care to newborns. However, the nursing workers pointed out that the work performance occurs with excessive pressure and demands from the medical team, making the workday tense, conflicting and stressful.

*Some shifts have a lot of pressure from the medical staff. Depending on who is on duty, we work tense, by the collection and pressure. Stress, because doctors throw an overload on us. In the long run, it can create stress and even fights between colleagues. (NW7)*

*The contact with the medical staff too, it is harsh. With nursing, they are often stupid. This causes pressure. We already work under pressure. It causes a lot of stress, that kind of matter. For sure, we even have panic to come to work, many times. There is a shift that you are already going to work tense. (NW18)*

Nursing workers also reported other situations characteristic of work in the Neonatal ICU that identify psychic workloads through their relationship with newborns and parents, such as prematurity, suffering and severe health

status of babies, the possibility of death, feelings of fear and anguish, parental expectations and confrontation with one's feelings as a professional.

These situations are intensified due to the prolonged stay of a patient in a Neonatal ICU, which creates a bond between the nursing staff/family/patient. Therefore, work in this unit was highlighted by nursing workers as conducive to stress, depression and burnout syndrome, and may also cause occupational accidents.

*When we see the suffering of a child, we think there is no way to divide, because we do not have support outside here to know how to deal with this psychological pressure. We have to see the suffering and try to work to attempt to see and deal with it every day. When I get home, my shower is my psychologist, I cry a lot, I put it all out. If we don't know how to work it, it ends up being consumed. In the long run, it can lead to depression, psychological distress, stress or even workplace accidents. (NW2)*

*Dealing with premature babies and sometimes with the mother, you have to do the psychological part because the mother is there, stressed out, distressed by the situation. And then you have to give psychological support, however small, but you have to be there, doing this service, because it is with us that they share all fears and anguishes. I think these workloads can help lead to stress and even depression. And we absorb the stress of family and routine into our lives. (NW6)*

*Psychic, especially when dealing with mothers, because they deposit everything in us. Over time, this burden can lead to illness or even accident, both with us and with the patient. (NW10)*

*In the psychic, knowing how to deal with prematurity and not hardening yourself when you face prematurity. You work the premature loss, fast and sometimes with much suffering. It is such a small being and so young, that goes through so much suffering, it ends up hurting the team too. But we think we deal with it very well, but at some point, it screams at you, it's not normal for us to get used to dealing with death and so many painful things. Some people do not strengthen themselves, either psychologically or spiritually, and it is easier to come to depression, to Burnout syndrome. (NW12)*

Psychic workloads come from situations that can cause suffering, stress and tension among nursing workers, and are related to work organization, such as work routine, little autonomy to perform activities, supervision, and control between teams.<sup>4</sup>

Intensive Care Unit workers experience patients' suffering and death, insufficient human resources, inadequate infrastructure, poor quality materials, old and maintenance-free equipment, high work demands, difficult interpersonal relationships, and complexity of care actions. These working conditions can create stress among nursing workers, which can lead to physical and mental disorders, such as Burnout Syndrome, characterized by the constant stress of health workers, as well as failures in patient safety.<sup>10,11</sup>

In Intensive Care Units, the work can contribute to workers' mental illness due to factors such as night work identified as a cause of stress and poor sleep quality, difficulty in relationships between colleagues of the multidisciplinary team and with the manager, institutional rigidity, difficulty in dealing with patient relatives and patient death.<sup>12</sup>

### Physiological workloads

the physiological workloads identified by nursing workers are related to working conditions such as night work, which generates changes in the circadian cycle, which can cause changes in metabolism and diseases such as stress and hypertension.

*You work at night, which is not the usual of the human being, you do not have a rest time as it should. This, in the long, run causes stress, hypertension, even disturbance of the metabolism itself, from night work and overload. (NW11)*

Other factors were found to be inherent in physiological loads, such as repetitive movements, the weight of babies and inadequate positions during procedures. Nursing workers reported that activities depend on staying in the orthostatic position for a long time, guiding mothers about breastfeeding, with babies on their laps to calm them and during feeding. These characteristics were identified as responsible for musculoskeletal disorders and repetitive strain injuries.

*Sometimes we are feeding or guiding breastfeeding, a long time in a bad and wrong position, and feel the spine, I have carpal syndrome myself, with time this repetition becomes sorrowful. (NW5)*

*Most of the time, those who can come to our lap we have to calm down, take in our laps and then we are probably hurting our spine. Repetitive movements, a spinal problem. We have a colleague, who works with us the other shift, who is facing a serious column problem. (NW8)*

Factors that characterize physiological workloads include excessive weight manipulation, development of work in an upright and/or improper position, as well

as night shift work, which is responsible for affecting body functioning. Such conditions may cause headache, sleep disturbance, stress, irritability and musculoskeletal disorders among workers.<sup>4</sup>

During the care of newborns in Neonatal ICU, the work process developed by nursing workers consists of activities that present ergonomic and organizational conditions that favor the development of musculoskeletal symptoms. Equipment such as incubators do not allow the worker to perform care by maintaining an upright posture, requiring constant flexion of the spine, generating low back pain and fatigue.<sup>13</sup>

### Chemical workloads

Chemical workloads were identified by nursing workers from the chemicals used for cleaning materials and incubators. Workers reported that during these activities are used very strong products that cause nausea, dizziness, allergic reactions, even with the use of personal protective equipment.

*Yes, with the product we wash the incubators. It's a product, an enzyme, they even call acid, I don't know the formula. Then two people had skin allergy problems, one of them even left the unit, attributed to this allergy their exit. (NW5)*

*Chemicals, which are the materials we use and which are very strong for washing incubators. The products, I can't say for a long time, but I have already noticed the symptoms, nausea, dizziness, allergies, although all Personal Protective Equipment (PPE's) are worn. (NW15)*

*The place for terminal disinfection is too small. And I already said, the product that we use, I do not know until when it will not harm a child and even our health. As a professional, imagine working twenty years in an ICU exposed to this product, we do not know, we will only see after a long time. (NW14)*

*And the chemical part too, cleaning the incubators, we need to wear apron, glasses, mask, the products are strong. Regarding this cleaning of materials, we sometimes argue about these incubators, that we use these strong products and then continue dealing with patients, we use whole protection and no training we had. You don't even know what you are messing with and the consequences. (NW16)*

Concerning chemical workloads, nursing workers perform activities that involve the handling of drugs and parenteral solutions, terminal cleaning in the workplace, as well as the cleaning and disinfection of materials and equipment.<sup>14</sup>

Among the chemical residues used during the development of nursing work that expose workers' health are glutaraldehyde, formaldehyde, hypochlorite, peracetic acid, and others, used in disinfection or sterilization of instruments. Such products are responsible for generating headache, nasal irritation and stomach pain in workers, who use as a preventive measure of these wear personal protective equipment such as gloves, masks, and aprons.<sup>15</sup>

## Biological workloads

Nursing workers also highlighted the presence of biological workloads in the Neonatal ICU due to exposure to secretions, viruses, and bacteria, which may occur through contact with patients with infectious and communicable diseases.

*Biological too, because we are exposed to disease, also has the secretions, viruses, and bacteria. (NW12)*

*Well, the biological ones for sure, because we work a lot with secretions, we have patients in contact isolation, respiratory. (NW21)*

*And also, the biological ones. Even as babies, we have children with syphilis, HIV. There are those who, when we see, they are already doing antifungal or resistant bacteria treatment. Until we got into isolation, we already handled a lot, without protection, on the child. (NW24)*

A study with nursing workers in three hospitals in São Paulo City sought to measure workers' exposure to workloads and identified that biological workloads present a higher frequency of notification among workers from August 2012 to July 2013 by Health Monitoring System for Nursing Workers and is related to medical leave resulting from respiratory, infectious and parasitic diseases.<sup>16</sup>

Exposure to workloads is characterized by nursing workers as the manipulation of patients with infectious or parasitic diseases, contact with body fluids and secretions during procedures. The handling of contaminated material also exposes workers to biological workloads, requiring the use of appropriate personal protective equipment.<sup>17</sup>

## Physical workloads

the physical workloads were identified by nursing workers as temperature differences resulting from an improper adjustment of the air conditioning unit, leading to abrupt changes in temperatures, in addition to relating these working conditions to diseases such as respiratory and urinary infections.

*The issue of air conditioning that is boiling one hour, another is cold, these are conditions that people get sick, is attested because it is flu, sinus, urinary tract infection. (NW1)*

Other factors inherent in physical workloads are radiation exposure because radiographic examinations are performed at the Neonatal ICU and continuous noises from respirators, monitors, infusion pumps and even infant crying have also been identified as a source of work-related illnesses.

*We are very exposed to x-ray. Only you stop to think, when they are doing x-ray inside the hall, sometimes we don't even see. Only who is wearing protection is who is with that patient. Also, because we only have one apron and cannot abandon the other children. (NW24)*

*All night a cry, the noise of the monitor, also involves physical. These workloads influence the generation of an accident or even long-term illness. (NW8)*

Exposure to ionizing radiation and thermal discomfort due to temperature changes such as heat and cold are identified by nursing workers with physical work present at work.<sup>14</sup> Noises are also characterized as physical workloads. In the Neonatal ICU, noise sources are related to equipment alarms, people flow, washing and incubators, infusion pumps, emergency trolley and can interfere with the development of newborns, work routine and workers' personnel.<sup>18</sup>

## Mechanical workloads

Mechanical loads were identified by accidents with sharps objects resulting from work overload and improper disposal of these materials.

*You are running and then and then you end up sticking. Then you have to follow a whole protocol of exams and cocktails, which would be unnecessary, due to work overload. (NW11)*

*How many colleagues we see recapping or sticking the needle in the mattress, and forget, because it's not just with that patient or because they already call you for something else and forget the needle. (NW12)*

Mechanical workloads are recognized by nursing workers through occupational accidents, which cause skin lesions, causing rupture of some body segment such as contusions, fractures, cuts, bruises, and perforations, for instance, in sharps injuries.<sup>19</sup>

## CONCLUSIONS

Nursing professionals working in the Neonatal Intensive Care Unit perceive the presence of psychic workloads, followed by physiological, chemical, biological, physical and mechanical workloads in the work environment. Workloads were also related to the occurrence of occupational diseases and accidents. The recognition of the workloads present in the Neonatal ICU allows the creation and implementation of measures that can intervene concerning workloads and, consequently, in the occurrence of accidents and occupational diseases.

Psychic workloads were considered by nursing workers as the most representative in the investigated work environment, highlighting the inadequate infrastructure, lack of material, interpersonal relationships with staff and interaction with patients. For physiological workloads, night work and inadequate care development were identified. Nursing workers indicated the presence of chemical workloads during the development of incubator cleaning and terminal disinfection activities through the use of products.

Less frequently identified are biological, physical and mechanical workloads. The biological workloads were evidenced by contact with viruses, fungi, secretions, bacteria, and manipulation of patients with infectious and communicable diseases, for physical, the difference in temperature in the workplace, noise and the presence of ionizing radiation were all highlighted, and the mechanical workloads were the accidents with sharps.

Therefore, it is necessary a service of psychological care and support for nursing workers, helping them to deal with the working conditions of the Neonatal ICU, clinical conditions of newborns and emotional vulnerability of parents. Another aspect that should be considered is the institution's management attention in relation to the working conditions to perform the assistance, seeking the planning of actions and alternatives to reduce workloads and, consequently, minimize the wear generated in the workers.

Also, it should be a warning to the management the possible poisonings and allergies resulting from the use of cleaning products, in order to visualize other products with the necessary efficacy, but that do not create risk to the workers' health, as well as the promotion of training regarding the use of adequate personal protective equipment to perform these routines.

As a limitation of this study, it was evidenced that the realization in a single Neonatal ICU of a university hospital in the South Region of Brazil, which does not allow the generalization of the results.

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