

# NURSING TECHNICIANS' PERCEPTIONS REGARDING THE OCCUPATIONAL RISKS IN VACCINATION ROOMS

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**ABSTRACT:** This descriptive study with a qualitative approach aimed to identify the occupational risks in vaccinations. A total of 10 nursing technicians participated in the research; these worked in five vaccination rooms in a municipality in the North-west of the state of Rio Grande do Sul. The data were collected through semi-structured interviews and simple observation, and were analyzed using thematic analysis in the period March – May 2012. It was observed that the vaccination rooms present innumerable occupational risks – and that many workers do not perceive these. There was a work surface with a basin for handwashing, but these were at a very low height in the five rooms observed, in addition to there being inadequate lighting in all rooms. The vaccinators understand occupational risks as relating only to work accidents. The attention of the municipal service for the promotion of worker's health could add value to the quality in these subjects' work.

**DESCRIPTORS:** Vaccines; Occupational risks; Health professionals.

## A PERCEPÇÃO DOS TÉCNICOS DE ENFERMAGEM EM RELAÇÃO AOS RISCOS OCUPACIONAIS EM SALAS DE VACINAS

**RESUMO:** Estudo descritivo, de abordagem qualitativa, cujo objetivo foi identificar os riscos ocupacionais em salas de vacinas. Participaram da pesquisa, 10 técnicos de enfermagem que atuam em cinco salas de vacina de um município no noroeste do Rio Grande do Sul. Os dados foram coletados por meio de uma entrevista semiestruturada e observação simples, e analisados por meio da análise temática no período de março a maio de 2012. Observou-se que as salas de vacinas apresentam inúmeros riscos ocupacionais e que muitos trabalhadores não os percebem, pois havia balcão com pia para lavar as mãos, mas estas continham uma altura muito baixa nas cinco salas observadas além da iluminação deficiente em todas salas. As vacinadoras entendem que os riscos ocupacionais estão relacionados somente aos acidentes de trabalho. A atenção do serviço municipal de promoção à saúde do trabalhador pode conferir valor à qualidade no trabalho destes sujeitos.

**DESCRITORES:** Vacinas; Riscos ocupacionais; Profissionais da saúde.

## PERCEPCIÓN DE LOS TÉCNICOS DE ENFERMERÍA ACERCA DE LOS RIESGOS OCUPACIONALES EN SALAS DE VACUNAS

**RESUMEN:** Estudio descriptivo, de abordaje cualitativo, cuyo propósito fue identificar los riesgos ocupacionales en salas de vacunas. Participaron de la investigación 10 técnicos de enfermería que actúan en cinco salas de vacuna de un municipio del noroeste de Rio Grande do Sul. Los datos fueron obtenidos por medio de una entrevista semiestructurada y de observación simple, y analizados por medio del análisis temático en el periodo de marzo a mayo de 2012. Se observó que las salas de vacunas presentan muchos riesgos ocupacionales y que muchos trabajadores no los perciben, pues había local para lavar las manos, pero este presentaba una altura muy baja en las cinco salas observadas, además de la iluminación deficiente en todas las salas. Las personas que aplican las vacunas entienden que los riesgos ocupacionales están relacionados solamente a los accidentes de trabajo. La atención del servicio municipal de promoción de la salud del trabajador puede agregar valor a la calidad en el trabajo de estos sujetos.

**DESCRIPTORES:** Vacunas; Riesgos ocupacionales; Profesionales de la salud.

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## INTRODUCTION

Among workers in the area of health, nurses stand out through their exposure to innumerable occupational risks, as they work with fluids, blood and chemical products, arising from the handling of disinfectants, sterilizing agents, and medications, under temperature and acoustic conditions which are not always within comfortable levels, involving inappropriate posture, and a fatiguing pace of work, which contribute to work accidents, among other health issues<sup>(1-2)</sup>. The occupational risks originate from unhealthy and dangerous activities, which can provoke harm to the health of the worker who is exposed to the agents which cause illness<sup>(3)</sup>.

In order to reduce the number of accidents and the occupational risks, it is necessary to set up protective measures in the work environment. If the worker's needs are met in the physical, psychological and social dimensions, fewer opportunities arise to undertake unsafe acts and, consequently, there is less exposure to risks.

The work environment, besides providing the worker with satisfaction, should provide safety. Regulatory Norm (NR, in Portuguese) 32, is a legislation which deals with safety and health at work in health care establishments, and is essential for ensuring improvements in the work environments<sup>(4)</sup> - with less exposure to risks - for professionals working in this area.

The occupational risks are divided in five groups, according to the Pan-American Health Organization, these being: physical, chemical, biological, ergonomic and psychosocial, and mechanical and to do with accidents<sup>(5)</sup>. Studies which seek to identify these risks are relevant to the extent that they confer protagonism on the worker in the management of these risks, so that they can collectively seek alternatives, aiming to avoid problems for the workers' health, and, consequently, absenteeism and having to take leave.

In this context it is relevant to contextualize the work dynamic of the nursing technicians who work in the vaccination rooms, this study's object. The National Immunization Program (PNI, in Portuguese) is a program instituted with the objective of organizing the vaccination actions, and contributing to the eradication of various diseases. The PNI is responsible for monitoring the undertaking of vaccinations within Brazil, as well

as coordinating the correct use of the vaccines.

The main objective of vaccination is to reduce morbidity and mortality from illnesses which can be prevented through immunization<sup>(6)</sup>.

A large number of resistant microorganisms is present in the vaccination rooms, such as fungi, bacterias and viruses, among others. As this is a place where immunobiological products are administered, it must be a clean environment, the walls and floors must be washable and there must be a basin for handwashing. The environment must be well ventilated and with good lighting, avoiding strain on the professional who works there<sup>(6)</sup>. In addition to this, materials for asepsis, and Personal Protection Equipment, must be available. All of this material must have an appropriate place to be discarded, being single use for each vaccination.

In relation to the human resources, in order to staff a vaccination room there must be a minimum of two staff in each shift, one professional to record the vaccinations, and one to administer the vaccines. In the case of vaccinations outside the unit, which require the health team to move, a larger number of professionals is necessary, meeting the population's needs<sup>(6)</sup>.

The professionals who work in vaccination rooms must be alert to important aspects such as the route and place for administration of the vaccine, its validity, and its state of conservation, as well as the age recommended for each vaccine, the interval between doses, and the composition of the vaccine. Handwashing is essential, before and after undertaking any procedure with vaccines, as this is one of the most important methods in the prevention of infections<sup>(6)</sup>.

In the light of the above, and of the complexity which immunobiological products and the vaccination room represent for the worker's health in the dynamic of the work routine in environments such as this, this study is justified, and aims to identify the occupational risks in vaccination rooms, in the perspective of the worker in this environment.

## METHOD

This research has a qualitative and descriptive approach. The data were collected between February and March 2012. A total of 10 nursing technicians, who worked in five vaccination rooms in a municipality in the North-West of the

state of Rio Grande do Sul, participated in the study. The sample of 10 participants in the study was defined based on authors' recommendations, which is that in qualitative research, data saturation begins to be evidenced approximately at the 10th interview<sup>(7-8)</sup>. All of the municipality's vaccination rooms were visited, and all of the nursing technicians were invited to participate in the research. The inclusion criteria for the study were: to be nursing technician, to work in the vaccination room, and to accept to participate in the study.

The data were collected through semi-structured interviews<sup>(7)</sup> with the workers in the respective vaccination rooms. In addition to this, the researcher made use of simple observation for complementing the data. Thus, on the days when the interviews were held, the interviewer remained present for the duration of the shift, so as to observe the presence of occupational risks in the environment, making up five periods of one to two hours.

In relation to the observations, notes were made in a field diary regarding the environments of the vaccination rooms; these involved aspects of the physical area, furnishings, lighting, ventilation, noises, and preparation of vaccines; these helped in the better understanding of the information obtained through the interviews. The analysis of the data was made through analysis of the content of the subjects' accounts<sup>(7)</sup>. The pre-analysis consisted of the exhaustive reading of the accounts, followed by the organization of the material. Based on the exploration of this material, the results were codified and categorized and – through the interpretation – were discussed with the relevant scientific literature. Two categories emerged from the analysis of the data: The perception of the nursing technicians in relation to the occupational risks, and Occupational risks in the vaccination rooms.

The directives and regulatory norms for research involving human beings, as contained in Resolution 196/96 of the National Health Council<sup>(9)</sup>, were respected. In order to preserve the interviewees' anonymity, the names of flowers were used. The data were selected following the approval from the Ethics Committee of the Integrated Regional University of Alto Uruguai e das Missões, Santo Ângelo Campus, under protocol number 0121-4/PPH/11.

## RESULTS

A total of 10 nursing technicians participated in the study, all female, and aged between 32 and 54 years old. The majority is married and half of them are holding down two jobs. The empirical data were organized, and subjected to repeated readings until the nuclei of meaning were obtained, two thematic categories being extracted: The perception of the nursing technicians in relation to the occupational risks and Occupational risks in the vaccination rooms.

In relation to the category The perception of the nursing technicians in relation to the occupational risks it was possible to perceive that not all had this knowledge in a broad sense, as was observed in the following accounts:

*Everything that happens with repetitive movements, and also postural. (Daisy)*

*They are sequelae caused by excessive repetitive effort [...]. (Bromelia)*

In relation to the occupational and local risk of these risks, the accounts were:

*Too much work, there isn't enough material or physical space. (Rose)*

*It is the risk that your role presents, biological. (Violet)*

*The vaccination room is a preventive environment, and as such, offers fewer occupational risks than the others, in the health environment [...]. There are some, such as, for example, hurting yourself on the openings of the bottles, or pricking yourself with the needles. (Azalea)*

For the category Occupational risks in the vaccination rooms we emphasize the following accounts:

*Pains in my back and legs, sometimes. (Hydrangea)*

*I often have pain in my back, my legs and my arms. (Daisy)*

*I frequently get pain in my legs and my back.* (Bromelia)

In spite of the back, leg and arm pain evidenced by the technicians, none of them related these factors to the height and state of the furnishings, attributing them rather to the fact of administering the vaccines:

*The movement of pulling back when filling syringes with the vaccines and administering them gives you pain in your arm and shoulder.* (Daisy)

*Injuries, from the repetitive effort.* (Gentiana)

They were asked if any vaccinator had never committed any type of error, and three responded:

*Yes, administering the wrong vaccine.* (Tulip)

*Yes, dilution, administration.* (Bromelia)

*No, but I have seen the administration of the wrong immunobiological product.* (Iris)

The participants were questioned regarding to which factors they attributed the errors in the vaccination rooms. The answers were:

*Due to the excess of work.* (Bromelia)

*Stress, and to the amount of attention you need to give.* (Tulip)

*The build-up of work, and lack of staff.* (Rose)

*Most of the time when people make errors, it's the build-up of work, for too few workers.* (Begonia)

It could be perceived that in all the work environments of the five vaccination rooms, there was a work surface with a basin for handwashing, and a table for preparing the immunobiological products. The hand basins, however, were at an inappropriately low height in the five rooms, and in three of them the table for preparation of the vaccines was made of material which

was inappropriate for asepsis; in addition to the inappropriate height and poor state of preservation. In two vaccination rooms, there was no table for handling the vaccines, so the vaccines were prepared in the basins.

Moreover, it was also observed that, of the five vaccination rooms, only two had appropriate furnishings for triaging patients before the administration of vaccines, with an appropriate height and in an acceptable state of preservation. This perception was still valorized after they had been asked if they had any type of pain, and if so, how often.

During the period in which the rooms were observed, it was possible to perceive that the lighting was weak in all of them, and – in addition to this – in one of them, the floor was black, which made the lighting even worse. In relation to the ventilation, all the vaccination rooms are equipped with air conditioning, which equipment helps them to keep the vaccines within the temperature recommended by the Ministry of Health.

It was observed that the air-conditioning equipment is not always turned on, and that in one of the rooms there were no windows for ventilation. Furthermore, when the air-conditioning is turned on, it produces noise, making it hard to hear.

## DISCUSSION

### **The perception of the nursing technicians in relation to the occupational risks**

The nursing team is exposed to innumerable occupational risks when it undertakes its activities. As a result, it is important that all these workers understand what occupational risks are, so that they may be alert to them in order to avoid or minimize work accidents or occupational illnesses.

The results demonstrate that these nursing professionals are unaware in relation to the work process and its relationship with the occupational risks, often provoked by these professionals' difficulty in understanding work as a possible cause of illness and work accidents, which may be attributed to a lack of knowledge regarding what occupational risks are. This was demonstrated

when the interviewees attributed the occupational risks only to the ergonomic risk.

By occupational risks, the researchers mean those situations existing in the work which are capable of provoking physical, mental or social imbalance in the workers – and not only those conditions which resulted in illnesses or work accidents. That is to say, the nature of the exercising of each role has the potential for causing physical or psychological injury or damage to installations, it being necessary for the worker to know the risks to which she is exposed<sup>(10)</sup>.

In relation to the meaning of the occupational risk, it is noted that the interviewees have a better understanding regarding occupational risk, as they relate it to overload, psychosocial agents, physical space, ergonomic agents, to agents intrinsic to contact with ill human beings, and microorganisms. One of the interviewees, in her turn, understands there to be fewer occupational risks in the vaccination room.

Regarding the biological risk cited by Violet and Azalea, there is a strong possibility for accidents with sharps in this environment, considering that the main work instruments are syringes, needles and ampoules used in the preparation and administration of the immunobiological products.

The nursing team represents the largest number of workers in the area of health, and because of this has a higher number of workers performing some sort of procedure in which they are subject to occupational exposure<sup>(11)</sup>. It is known that they are still highly exposed to accidents with sharps, in spite of the standard precautions recommending the use of PPE and the non-resheathing of needles. One study showed that at the time of the occurrence of the exposure to biological material, 60.8% of the professionals reported that they were using PPE during the procedure, as against 28.5% who were not using the same<sup>(12)</sup>, which evidences the workers' incomplete adherence to the use of this equipment, and the consequent vulnerability to exposure.

One study undertaken in Rio de Janeiro showed that the majority of nursing professionals consider the profession to be risky, but that 49% of the total of nurses interviewed who had had accidents considered that in their work in nursing, the risks of accidents with sharps are low or nearly non-existent. These subjects need more

information regarding the influence of biosafety, inappropriate conditions and work overload on the risks of contracting illnesses or of having accidents at any time<sup>(13)</sup>, which are worrying data when one is referring to self-care.

## Occupational risks in the vaccination rooms

The pains mentioned in the present study were reported by nearly all the interviewees, and may be related to the inappropriate posture which the workers present when they receive the patients for triage, wash their hands, and prepare the vaccines for administration. They could be avoided or minimized by raising the height of these furnishings.

NR 17 establishes parameters which allow the adaptation of the working conditions to the workers' psychophysiological conditions, such that they may allow a maximum of comfort, safety and efficient performance: that is, for the work carried out stood up or sitting down, there must be work surfaces, tables or desks which afford the worker conditions in which she has better posture, visualization and operation. This same regulatory norm associates the ergonomic risks with overload and over-effort, and with the poor posture of the nursing professionals, with frequent bending of the spine and mobilization of patients and – in addition to this, poor design of the health center<sup>(14)</sup>.

In addition to this, much attention is necessary in the preparation of the immunobiological agents, as the majority of the bottles which contain the vaccines are similar, potentially causing errors when they are prepared or administered, as the vaccines are administered by different routes. In this regard, the lighting and the height of the table where the vaccines are prepared are important, not only to avoid occupational risks, but also to avoid errors in the administration. The vaccination rooms require great attention and concentration, as any type of error can result in harm to the health of the person being vaccinated.

The overload of work associated with the reduced number of workers, the complexity of the tasks, the time pressure and the effect of having two jobs can produce fatigue and tension in some vaccinators, and can come to constitute psychosocial risks responsible for situations of

stress related to the work. Psychosocial risks in the work can be all the aspects and experiences of the work process which have the potential to trigger physical or psychological harm<sup>(15)</sup>.

As consequences of the overload/excess of work, one literature review demonstrated frequent accidents with sharps or with bodily fluids and secretions; health problems, such as contusions, high blood pressure, allergies, epigastralgia, musculoskeletal problems, and mental illness/suffering, among others. It also indicated that these are causes for absence from work on the part of the nursing team, although the vast majority of workers do not perceive the occupational risks to which they are exposed, as also found in the present study<sup>(16)</sup>.

The nursing technicians related the errors in their activities only to the psychosocial risk. None of the workers cited these risks as potential causes of errors in the administration of the immunobiological agents. The construction of knowledge regarding the physical risks remains scarce, and many workers do not identify its agents as factors which cause illness<sup>(17)</sup>.

## FINAL CONSIDERATIONS

This study made it possible to know the nursing workers' perception regarding occupational risks in vaccination rooms, as well as to identify the risks existing in this environment. Based on the analysis of the data, it was possible to perceive that the majority of the vaccinators in the department studied are unaware of the occupational risks which are found there, given that the majority of the interviewees only mentioned the ergonomic and biological risks.

It is important for the municipality's Workers Health Service to monitor the health conditions and the conditions of the work environment, implementing measures to promote health and prevent poor health among the workers. The health manager needs to have understanding regarding such occupational risks, their seriousness, and the implementation of the measures which are necessary for their control, so that in this way, she may encourage and support the search for improvement in working conditions.

Studies are suggested, which research the occupational risks in the primary healthcare centers, considering the gap identified in these areas and scenarios.

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