



Original Article

BIOLOGICAL MONITORING FROM THE PERSPECTIVE OF NURSING MANAGERS *

MONITORAMENTO BIOLÓGICO SOB A ÓTICA DOS ENFERMEIROS GERENTES

MONITORIZACIÓN BIOLÓGICA BAJO LA ÓPTICA DE ENFERMEROS ADMINISTRATIVOS

Caroline Vieira Claudio¹, Leila Maria Mansano Sarquis², Louise Aracema Scussiato³, Fernanda Moura D'Almeida Miranda⁴

This is a qualitative, descriptive and exploratory research aimed at analyzing nursing managers' knowledge on adherence to nursing workers monitoring after occupational accidents due to exposure to biological fluids, seeking to recommend strategies to reduce monitoring abandonment. We interviewed twelve nursing managers from health institutions in the city of Curitiba-Paraná, from August to November 2010, and after the transcription of these interviews we carried out a thematic analysis. Results showed that eight out of the twelve interviewed nurses have no worker supervision control with regards to complete post-exposure monitoring. The interaction between the victim's workplace and health institutions was proposed to improve monitoring. Therefore, nurse managers and technical managers should raise awareness and monitor workers seeking to achieve adherence to full accompaniment policies and compliance with the current legislation in order to make this practice more efficient.

Descriptors: Nursing Supervisory; Occupational Health; Occupational Exposure; Exposure to Biological Agents.

Pesquisa exploratória, descritiva e qualitativa, cujos objetivos foram analisar o conhecimento dos enfermeiros gerentes acerca da adesão ao monitoramento dos trabalhadores de enfermagem pós-acidentes de trabalho por exposição a fluidos biológicos; e recomendar estratégias para reduzir o abandono deste monitoramento. Entrevistaram-se doze enfermeiros gerentes de instituições de saúde na cidade de Curitiba-Paraná, de agosto a novembro de 2010, e após a transcrição das entrevistas realizou-se uma análise temática. Como resultado, oito dos doze enfermeiros não possuem controle da supervisão do trabalhador quanto ao monitoramento completo pós-exposição. A interação entre o local de trabalho do acidentado e serviços de saúde foi proposta a fim de melhorar a adesão deste monitoramento. Assim, os enfermeiros gerentes e responsáveis técnicos devem conscientizar e monitorar os trabalhadores para aderirem ao acompanhamento completo, cumprindo a legislação vigente e tornando esta prática eficaz.

Descritores: Supervisão de enfermagem; Saúde do Trabalhador; Exposição Ocupacional; Exposição a Agentes Biológicos.

Investigación exploratoria, descriptiva y cualitativa, cuyos objetivos fueron analizar el conocimiento de enfermeros administrativos en cuanto a la adhesión de la monitorización de los trabajadores de enfermería pos accidentes de trabajo por exposición a fluidos biológicos; y recomendar estrategias para reducir el abandono de esta monitorización. Se entrevistaron doce enfermeros administrativos de las instituciones de salud en Curitiba-Paraná, Brasil, de agosto a noviembre de 2010, y después de la transcripción de las entrevistas se realizó análisis temático. Ocho de los doce enfermeros no poseen control de la supervisión del trabajador en cuanto la monitorización completa pos exposición. La interacción entre el lugar de trabajo de la víctima y las instituciones de salud se propuso para mejorar la adhesión de esta monitorización. Así, los enfermeros administrativos y responsables técnicos deben concientizar y monitorizar a los trabajadores para adherir al acompañamiento completo, cumpliendo la legislación vigente y tornando esta práctica eficaz.

Descritores: Supervisión de Enfermería; Salud Laboral; Exposición Profesional; Exposición a Agentes Biológicos.

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¹Nurse. Bachelor and Graduation in Nursing Studies - UFPR. Member of the Multidisciplinary Research Group on Adult Health (GEMSA). Londrina-PR, Brazil. E-mail: caroline.vieirac@gmail.com.

²Doctor in Nursing Practice - São Paulo University. Professor at the UFPR Nursing Department. GEMSA Researcher, Curitiba-PR, Brazil. E-mail: Immsarquis@gmail.com.

³Nurse. Master in Nursing Practice - UFPR. Member of GEMSA. Curitiba-PR, Brazil. E-mail: louisearacema@yahoo.com.br.

⁴Phd in Nursing - UFPR. Operations Coordinator at the Worker's Hospital Health Unit. Post-Graduate Coordinator in Labor Nursing - Positivo University, Curitiba. Member of GEMSA. Curitiba-PR, Brazil. E-mail: fermiranda@sesa.pr.gov.br.

INTRODUCTION

Occupational exposure to biological fluids is considered the most frequent event in professional nursing and it is also the most serious one due to the risk of developing lethal diseases, as workers are exposed to more than 20 different pathogenic agents⁽¹⁾.

Among the consequences for the professionals exposed to biological fluids we can mention the risk of infection, risk of getting sick, tendency to develop emotional problems related to the loss of benefits such as food aid, salary reduction and sector transfer and feelings of insecurity due to the tests results, which may lead to instability in their family environment⁽²⁾.

Therefore, it is of paramount importance that health workers, including nurses, are aware of the Exposure to Biological Material Protocol recommended by the Ministry of Health (MH). This protocol aims at diagnosing, treating and preventing the Human Immunodeficiency virus (HIV), the Hepatitis B virus (HBV) and the Hepatitis C virus (HCV). It also offers information on accident risks, possible use of chemoprophylaxis, serologic tests consent guidelines, secondary transmission prevention, emotional support, biosecurity practice reinforcement, basic security measures in the workplace and serologic accompaniment period, among others⁽³⁾.

Despite the importance of health workers' serologic follow-up after occupational exposure to biological fluids, monitoring adherence is not being performed in a complete and satisfactory way. Among the reasons for non-adherence are the chemoprophylaxis treatment with antiretroviral medication, its side effects and the need for regular medicine intake⁽⁴⁾.

It is therefore necessary to reinforce managers/supervisors and nursing coordinators awareness as the responsible team authorities, so that they can recognize the risks involved in occupational

exposure to biological agents, obtaining better serologic monitoring adherence until workers' discharge, thus avoiding chances of contracting a virus and developing an infection as a consequence of such exposure⁽⁵⁾.

Consequently, the goal of this study is to analyze nursing managers' knowledge on nursing workers adherence to exposure to biological fluids post-accident monitoring, recommending strategies to reduce monitoring abandonment.

MATERIALS AND METHOD

This is an exploratory-research with a descriptive and qualitative approach. Data was collected from twelve nurses with managerial duties in health institutions from the city of Curitiba-Paraná, from October to November, 2010. These institutions were selected from a research performed through the Information System for Notifiable Diseases (SINAN) of a Worker's Health Unit. This research allowed us to find the institutions with the highest record of labor accidents caused by exposure to biological fluids. The Workers' Health Unit (UST) at the Worker's Hospital is located in Curitiba-Paraná, and this institution allowed us to disclose their names for scientific publication purposes.

Data collection was made through recorded semi-structured interviews following a data saturation criterion from August to November 2010. Interviews consisted of closed questions on personal data and open questions on post-biological exposure routines. After full interviews transcription, a theme analysis was developed, seeking to discover meaning units that may result useful for the desired analytic objective⁽⁶⁾.

The research was approved by the Research Ethics Committee of the Paraná State/Workers Hospital Health Secretary, under protocol number 062/09. Seeking to grant individuals' anonymity, interviews

excerpts were codified with the letter E, followed by decreasing figures according to their order (E1, E2 ...). Interviewees were informed on the study purpose and asked to sign an Informed Consent Agreement (ICA).

RESULTS

Seeking to approach results and discuss researched data, we shall introduce information related to the health institutions participants' profiles. Chart 1 details managerial nurses' profiles according to sex, age, type of institution and nursing employment time.

Chart 1 – Participants' profiles according to sex, age, type of institution and nursing employment time. Curitiba, 2011.

Code	Sex	Age	Type of Institution	Nursing Service Time (Years)
E 1	F	55	Hospital	16
E 2	M	55	Hospital	23
E 3	M	42	Hospital	20
E 4	F	42	Hospital	16
E 5	F	44	Blood Transfusion Unit	21
E 6	F	46	Hospital	25
E 7	F	52	Hospital	29
E 8	F	29	Hospital	12
E 9	F	54	Hospital	30
E 10	F	32	Hospital	10
E 11	M	26	Hospital	2
E 12	F	44	Hospital	6

In the present study, nine participants were females with an average age of 44 and average employment in the nursing department of 18 years, being that only two interviewed nurses were in the profession for less than 10 years. These profiles demonstrate that managers/supervisors/coordinators have a certain experience before they are offered an administrative position. Besides, out of the twelve institutions in which interviews were conducted, 11 were hospitals, where there is a higher occupational exposure to biological fluids, which obviously increases exposure risks.

A qualitative thematic analysis allowed us to build three different categories with their respective theme units, based on the participants' statements. The first

category, nursing managers' knowledge and accompaniment, permitted to dismember thematic units into "unawareness of post-biological exposure protocol" and "nursing managers' technical responsibility exemption". The second category, human resources training, is related to the importance of training workers due to the "inexistence of continuous in-service education programs, which is the thematic unit of this category. The third and last category, entitled Strategic Recommendations, is related to the suggestions proposed by nursing managers in order to achieve a more efficient adherence to the post-biological exposure monitoring protocol. Therefore, the thematic unit developed was "interaction between the accident

workplace and health services". The chart below summarizes results obtained.

Chart 2 – Categories and their respective thematic units analyzed according to the interviews with nursing managers. Curitiba, 2011.

Categories	Thematic Units
Nursing managers awareness and accompaniment	Unawareness of biological post-exposure protocol Nursing managers' technical responsibility exemption
Human Resources Training	Inexistence of in-service continuous education programs
Strategic Recommendations	Interaction between the accident workplace and the health service

DISCUSSION

The first category is related to the knowledge and accompaniment of nurse managers on the biological post-exposure monitoring protocol. The knowledge on the HM Biological Material Exposure Protocol or other organization protocol and its application is fundamental to ensure full assistance, which can last from six months to a year. Complete post-accident monitoring enables to prevent infections with the HIV, HBV and HCV viruses in injured workers⁽³⁾.

It is also possible to establish an assistance system that allows for adequate treatment in case of seroconversion. This can also permit to monitor the appearance of pathologies such as Hepatitis B or C in follow-up exams after the first care is provided, as they can appear as a post-exposure consequence. For this reason it is important to continue with full monitoring by the responsible health team⁽³⁾.

Due to the importance of being familiar with this protocol, the thematic unit "Unawareness of Post-biological exposure monitoring protocol was created. Through the participants' statements, we learned that nursing manager's knowledge on this HM protocol is insufficient or inexistent. This affirmation is evidenced in the following statements: *I am not aware of this operational protocol within the UST, I don't know it...* (E1). *I know the protocol of my institution but not this one, no...* (E6). *I don't know if it's one or two years, can't remember* (E11).

The steps to be followed by health workers after biological exposure are fundamental to enable early exams and chemoprophylaxis, thus minimizing seroconversion risks. The sequence of post-exposure measures is expressed in the following speech: *Yes, I know it. Its... first step the employee who has an accident reports it immediately to the department boss. Then he/she is sent to the First Aid for the first care. Then the injured worker is sent to HT, then returns to the SESMT so that the doctor can also accompany the injured worker* (E2).

Therefore, it is absolutely necessary that the nursing managers are familiar with the protocol and involved in its compliance in order to lead the working team, seeking to minimize undesirable consequences.

Still in the first category, the second thematic unit, "nursing managers' technical responsibility exemption" is approached in the next statements: *As a nursing manager, I am not responsible for monitoring the entire treatment. This is a responsibility of the work safety service* (E3). *We, as managers, have a lot of duties so we just get the consultation reports from the responsible employee* (E7).

The above statements express a problem with regards to the serologic accompaniment of nursing workers who suffered accidents due to biological fluids exposure. It can also be perceived that some nurse managers do not accompany their teams. Besides, E3 and E7 declined any technical responsibility with regards to accompanying workers who suffered this type of accident.

The managerial nurse, as the responsible authority for his/her team and for being familiar with the service dynamics, has a key role in relation with occupational exposure to biological fluids in aspects such as treatment prevention and guidance and antiretroviral intake, considering that significant number of workers who abandon treatment due to its side effects^(2,4).

After literature and legislation verification, we concluded that full monitoring adherence is also a responsibility of the Labor Medicine and Safety Engineering Specialized Service (SESMT)⁽⁷⁻⁹⁾, which is, for the most part, the body that performs such monitoring. The next statement corroborates this: *The monitoring authority is SESMT, they do the follow-up, they ask the worker if he attended consultations and they request all relevant documentation.* (E12).

The Regulating Norm (NR) 04 establishes that SESMT goal is to promote health and protect the worker's integrity in the workplace, besides performing activities aimed at raising awareness, educating and assisting workers in order to prevent workplace accidents and occupational diseases⁽⁷⁾.

Complementing, article 8º, aside II, paragraph o of decree nº 94.406/87 that regulates Law nº 7.498/86, establishes that the nurse is responsible for attending workplace safety and occupational diseases prevention programs. We concluded that performing post-exposure monitoring is also a legal duty of these professionals⁽⁹⁾.

The nurse manager must not transfer duties such as the accompaniment of workers after exposure to biological agents to the SESMT and decline any responsibilities, as this is the responsibility of both parties. Therefore, it is by working together that they can develop a more efficient accompaniment. It is important to highlight that institutions that have an active SESMT usually manage to achieve full monitoring adherence, which was not considered to be true by all interviewees.

In health institutions, nurse managers' duties are aimed at administrative and bureaucratic activities and team coordination is not a priority⁽¹⁰⁾. This situation is an aggravating factor for the workers' health, as some previous statements such as E3 and E7 suggested lack of involvement in complying with the monitoring protocol.

Full monitoring adherence by nursing workers who suffered occupational exposure to biological fluids is still a problem. However, a study carried out at a UST demonstrated that full adherence to monitoring in 2004 was only 9.3%. In 2008, another study in the same workplace found full monitoring adherence of 46.8% revealing a dramatic abandonment reduction⁽¹¹⁻¹²⁾.

We also notice that some corporations do not free their workers to attend consultations, or that when they are allowed, they discount the hours spent on complying with this duty, which is illegal and unacceptable. To highlight this issue, the Normative Regulation 32 establishes that workers are entitled to seroconversion and disease diagnosis, accompaniment and prevention, should they suffer an occupational accident⁽¹³⁾.

It is essential that the manager, when learning about a case of occupational exposure, can act effectively assisting and/or guiding nursing workers with regards to immediate care and specialized assistance services, besides reporting the accident and remarking the need to adhere to prevention practices, as well as accompanying the injured worker throughout the entire serologic process⁽²⁾.

The second category, human resources training, is related to the thematic unit that approaches the inexistence of in-service continuous education programs. In other words, it refers to the lack of adequate training for workers, as their statements reveal the inexistence of educational programs aimed at ongoing training, including technical information.

The following statements highlight that the lack of technical training, educational workshops and continuous education courses for the nursing team are mentioned as the reasons for incompliance with serologic monitoring, despite being a concern expressed by many interviewees. *Health education workshops for professionals...* (E4). *Information for technicians since they graduate... and there, in the yearly trainings offered at each institution there has to be something on biosecurity, quality, care, so that they feel the need, they will realize the need for this* (E5).

Nurses must provide technical training for their teams. In this sense, it is worth mentioning that article 8º, aside I, paragraph *b* of decree nº 94.406/87, which regulates Law nº 7.498/86, outlines that these professionals are responsible for the organization and management of nursing services and related technical activities⁽⁹⁾.

The importance of continuous education and educational lectures in health institutions is also emphasized, as according to the World Health Organization (WHO) continuous education is defined as a process that includes all experiences posterior to initial training, complementing basic education and seeking to update and train individuals and groups with regards to technical and scientific changes⁽¹⁴⁾. Besides, it also enables the development of an ongoing learning process considering the reality of labor procedures and the institution, as well as the workers' needs⁽¹⁵⁾.

The study concluded that for 99% of nurses, their presence in continuous education programs is important for their professional development, their knowledge on the reality or on some specific topics, for motivational reasons and to encourage participation and integration with their teams⁽¹⁵⁾. Continuous education activities for nursing workers with emphasis on occupational exposure to biological fluids, standard prevention measures, use of individual protection equipment (IPE), accidents report, etc, are considered extremely relevant. Educational lectures on biosecurity, quality and care

should also be organized, as stated by E5.

According to the NR 32, professional training must take place continuously and before activities begin, including documents reporting course dates, hours, contents, instructor name and training offered, as well as data on all attending workers, so that these training sessions can be verified during workplace inspections⁽¹³⁾.

In agreement with the Ethics Code, it is up to the nurse to stimulate and promote technical, scientific and cultural improvements for the entire team, besides offering them guidance and supervision⁽⁸⁾.

For this reason, these professionals must have independence and capacity, being ethical when elaborating and performing yearly training sessions for the workers under their supervision. In agreement with these ideas, article 63 highlights that nurses are responsible for the development of activities in safe and adequate working conditions, including the supply of individual and collective protection equipment for their own safety, their families and the society as a whole⁽⁸⁾.

The educational process in health institutions must be an ongoing, interactive priority for all nurses. These professionals need to raise health workers' awareness on the risks of exposure to biological fluids through the construction of individualized and effective strategies proposing lifestyle and quality of life changes, thus becoming co-responsible in the development of healthy practices⁽¹⁶⁻¹⁷⁾. Therefore, nursing workers need to demand from managers the planning of ongoing education activities, thus granting the necessary scientific and technical support to their careers.

Workers' turnover also implies a human resources failure, being considered one of the causes for non-adherence to full serologic monitoring by nursing workers after exposure, once they are not being permanently trained. The following statement emphasizes high turnover levels at health institutions: *In think the turnover issue is also bad; technicians' turnover is high...* (E12). This represents a problem that managers have to

face, with implications in the assistance quality and institutional costs⁽¹⁸⁾.

High turnover levels can be considered as a nursing management problem related to a failure to adapt to nursing worker's needs. As a consequence, the nursing professional may suffer from stress. In this context, turnover is inserted in a process in which the frequent admission of a new worker as a nurse or team member difficult in-service ongoing education and adherence to complete post-exposure monitoring, as the checking of this monitoring activity is not always reported to the management.

The third and last category, Strategic Recommendations, includes suggestions proposed by nursing managers in order to improve adherence to the post-biological exposure monitoring protocol. The thematic unit, or in other words, the emphasis on the proposal to improve adherence is based on the interaction between the accident workplace and health services. The following statements describe this thematic unit: *an interaction between two services should involve more communication. This exchange should happen I think (E6). Yes, I imagine that if we were informed by UST on the consultation attendance record of an employee, we could encourage him not to miss consultations and comply with the entire treatment (E1).*

The above statements also emphasize the importance of an interaction between the Workers Health Unit (UST), which is the Workers Health Protection Unit and the institution in which workers perform their duties, seeking to improve and encourage communication between these two authorities. This way, it would be possible to have more control and data on post-exposure monitoring.

Interactions between the UST and health services may contribute to achieve higher adherence to serologic accompaniment. NR 32 affirms that occupational exposure to biological fluids is considered an emergency, so health institutions must check worker treatment after exposure. Besides, it is necessary that

the worker is aware of the importance of complying with full post-exposure treatment. Otherwise, treatment becomes the sole responsibility of health institutions⁽¹³⁾.

The UST implemented an online scheduling system, seeking to improve post-exposure adherence. However, this strategy alone is not enough, being necessary that health institutions monitor their workers and that they become aware of the importance of serologic follow-up⁽¹⁾.

Another strategy related to the proposed thematic unit "interaction between the accident workplace and health services", is the interaction between the SESMT and the nursing management, as explained in the statements of E3 and E10 managers: *A partnership with the workplace doctor should be developed so that he could report to the nursing management whenever an employee is not complying with the set protocol. Then the management could call, guide or assist the worker, to ensure he/she complies with the full treatment (E3). It's not just the work of SESMT, it also involves the manager, as he is responsible for the employees' health (E10).*

This strategy is also relevant because in agreement to NR 4, all sectors of an employing institution need to be in partnership with SESMT⁽⁷⁾. If the worker doesn't attend consultations, SESMT must immediately report it to the nursing manager of the department this employee belongs to. The worker must then be called to explain the reason for not attending post-exposure accompaniment consultation. Therefore, institutions must be committed to complying with the current legislation and not limit themselves to sending the worker to the consultation after exposure.

The knowledge on the risks provoked by occupational exposure to biological fluids, the pathologies that can be acquired after these kind of accidents, the presence of an immunological window, the accompaniment period, among others, are extremely important for the professional. We must then remark the importance of being familiar with the Biological Materials Post-Exposure Protocol recommended in Brazil, both for

managers and employees, as a strategy to reach full post-exposure treatment monitoring⁽³⁾.

Health institutions need to pay more attention to occupational exposure to biological fluids due to the high number of exposure cases, offering measures for accident report, medical referral and exposed worker accompaniment. Besides, prevention and education measures must be taken in order to reduce the number of exposure cases⁽¹⁹⁾.

Monitoring adherence needs to be more efficient and nursing workers must be aware that occupational exposure to biological fluids has biological, psychological and consequences and may even put their lives at risk.

FINAL CONSIDERATIONS

Worker's health is a public health area that needs more attention, monitoring and awareness, mainly by managers, workers and employing institutions.

Supervising and coordinating managers have a key role in the monitoring of their teams. These professionals are responsible for the post-exposure monitoring, which is generally not performed in an efficient and complete way. They are also responsible for developing ongoing prevention and education activities that can raise awareness among nursing workers on the risks and consequences of occupational exposure to biological fluids and the importance of full monitoring.

This study corroborated that eight out of the twelve nurse managers interviewed have no control over their nursing workers with regards to post-exposure monitoring in their health institutions. Another aggravating factor is that the nurses' technical responsibility is transferred to the SESMT, which in addition to their unawareness of the adherence protocol confirms a certain disinterest in their employees. It was also verified that only three of the interviewed managers

comply with the current legislation together with the SESMT.

Seeking to modify this lack of biological monitoring adherence, it is fundamental that nursing workers are informed on the importance of monitoring adherence. Besides, nurse managers and responsible technicians of employing health institutions must perform full injured workers' accompaniment, thus complying with the current legislation.

Finally, it is important that nursing managers adopt the strategy proposed in this study, which is based on the interaction between the injured worker's institution and health services, improving communication between the nurse manager and the relevant SESMT with the employing institution and the Worker's Health Protection Units where serologic accompaniment consultations take place, seeking to transform biological post-exposure monitoring into an efficient practice.

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