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CASE REPORT ARTICLE

OCCUPATIONAL ACCIDENTS AND THE COLLECTIVE CONSTRUCTION OF A CARE PROTOCOL

ACIDENTES LABORAIS E A CONSTRUÇÃO COLETIVA DE UM PROTOCOLO ASSISTENCIAL

ACCIDENTES LABORALES Y LA CONSTRUCCIÓN COLECTIVA DE UN PROTOCOLO DE ASISTENCIA

Márcia Astrês Fernandes[1], Keyla Maria Pereira de Sousa[2], Iara Jéssica Barreto Silva[3], Narlene Fontenelle Basílio da Silva[4], Ana Virgínia Uchoa Prado Paz[5], Joyce Soares e Silva[6]

ABSTRACT

Objective: to discuss the deployment and implementation of a protocol for care after occupational accident with biological material from needle-sharp instruments. ***Method:*** this is a qualitative, descriptive study, of the experience-report type. ***Results:*** in 2013, the deployment of the protocol for care after occupational accident with biological material, from which it passed through various implementation stages. The flowchart describes the guidelines regarding local care, immediately after the accident, medical care to evaluate the lesion and the exposure, prophylactic recommendations in a timely manner after exposure, request for serology of the casualty and patient-source, when possible, serological follow-up of the casualty after exposure and issuance of the Occupational Accident Communication. ***Conclusion:*** despite the difficulties for implementing the Protocol, the experience was successful and the flow of the care after accident with biological material includes several important advances for workers' health and safety at the university hospital in question. ***Descriptors***: Occupational Health; Nursing; Occupational Accidents; Exposure to Biological Agents; Accident Prevention; Occupational Accidents Notification.

RESUMO

Objetivo*:** discorrer sobre a implantação e implementação de um protocolo para atendimento pós-acidente de trabalho com material biológico por perfurocortante. ***Método*:** trata-se de estudo qualitativo, descritivo, do tipo relato de experiência. ***Resultados*:** iniciou-se em 2013, a implantação do protocolo para atendimento pós-acidente de trabalho com material biológico, a partir do qual passou por várias etapas de implementação. Informa-se que, o fluxograma versa sobre as orientações quanto aos cuidados locais, imediatamente após o acidente, atendimento médico para avaliação da lesão e da exposição, recomendações profiláticas em tempo hábil após exposição, solicitação de sorologias do acidentado e paciente-fonte, quando possível acompanhamento sorológico do acidentado após exposição e emissão da Comunicação de Acidente de Trabalho. ***Conclusão: mostraram-se que, apesar das dificuldades para implementação do protocolo, a experiência foi exitosa e o fluxo de atendimento pós-acidente com material biológico desfruta de diversos avanços importantes para a saúde e segurança dos trabalhadores do hospital universitário em questão. ***Descritores*:** Saúde do Trabalhador; Enfermagem; Acidentes de Trabalho; Exposição a Agentes Biológicos; Prevenção de Acidentes; Notificação de Acidente de Trabalho.

RESUMEN

Objetivo: analizar la implantación y aplicación de un protocolo para el cuidado post-accidente laboral con material biológico por perforantes/cortantes. ***Método:*** este es un estudio cualitativo, descriptivo del tipo relato de experiencia. ***Resultados:*** se inició en 2013, la implementación del protocolo para el cuidado post-accidentes laborales con material biológico, pasando por distintas fases de ejecución. El diagrama de flujo versa sobre las directrices relativas a los cuidados, inmediatamente después del accidente, la asistencia médica para la evaluación de la lesión y de la exposición, la profilaxis con recomendaciones en forma oportuna después de la exposición, la solicitud de serología del accidentado y el paciente-fuente, cuando posible, el seguimiento serológico del accidentado después de la exposición y la emisión de la Comunicación de Accidente Laboral. ***Conclusión:*** a pesar de las dificultades para la aplicación del Protocolo, la experiencia fue exitosa y el flujo de atención post-accidente con material biológico incluye varios avances importantes para la seguridad y salud de los trabajadores en el hospital de la universidad en cuestión. ***Descriptores***: Salud Laboral; Enfermería; Accidentes Laborales; Exposición a Agentes Biológicos; Prevención de Accidentes; Notificación de Accidentes Laborales.

[1]PhD, Federal University do Piauí (UFPI). Teresina (PI), Brazil. Email: m.astres@ufpi.edu.br. ORCID iD: https://orcid.org/0000-0001-9781-0752; [2]Nurse, Federal University do Piauí (UFPI). Teresina (PI), Brazil. Email: keyla.ms@hotmail.com. ORCID iD: https://orcid.org/0000-0003-0864-8912; [3]Nurse. Federal University do Piauí (UFPI). Teresina (PI), Brazil. Email: iarajessica16@hotmail.com. ORCID: https://orcid.org/0000-0003-1102-7172; [4]Nursing Student. Federal University do Piauí (UFPI). Teresina (PI), Brazil. Email: narlenefb@hotmail.com. ORCID: https://orcid.org/0000-0001-9666-7122; [5]Nurse. Federal University do Piauí (UFPI). Teresina (PI), Brazil. Email: avupp@yahoo.com.br. ORCID: https://orcid.org/0000-0001-9666-7122; [6]Nursing Student, Federal University do Piauí (UFPI). Teresina (PI), Brazil. Email: joycesoaresc@yahoo.com.br. ORCID: https://orcid.org/0000-0001-6544-9632

INTRODUCTION

Occupational exposure in the health sector can cause physical damage and psychosocial repercussions for workers' health, especially when they are affected by work-related accidents with needle-sharp material with biological risk. This situation usually results from high workloads, unhealthy working environments and the development of direct and indirect care activities provided by professionals.[1]

The hospital environment is a complex place, where workers are exposed to blood and organic fluids through percutaneous route, harmed skin and mucosa, exposing themselves to various pathogens, and the ones with the largest epidemiological significance are the hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV), and occupations accidents of this nature are characterized as exposure to biological material.[1]

The serological prevalence of hepatitis B virus (HBV) in healthcare workers is high, around three to five times higher than that found in the general population. When comparing with other diseases, the risk of acquiring hepatitis B is approximately 100 times greater than the risk of HIV serological conversion and 10 times greater than the risk for hepatitis C virus (HCV), depending on the characteristics of the accident. The risk of HIV transmission, after exposure of the mucous membrane to fluids, is 0.09%, and after accidents with needle-sharp instruments, 0.3 through 0.5%.[2]

Accidents with needle-sharp materials in the hospital environment are more common in female professionals, highlighting nursing professionals, because they act directly on patient care, developing invasive activities, thus, being constantly exposed to infectious agent during the whole work period.[3]

In a study conducted at a Worker's Health Reference Center (CEREST - *Centro de Referência em Saúde do Trabalhador*) of Sobral, Ceará, most of professionals injured by biological material were female with 74.82%; regarding the occupation, the highest frequency occurred in the category of nursing assistants and technicians with 50.54%; the main causative agent was the needle with lumen in 69.75% of cases of exposure to biological material.[4]

Therefore, health institutions need to establish routines that aim to prevent these accidents through the use of Individual (IPE) and Collective Protection Equipment (CPE), as well as the functionality of protocols and flows to be followed by the victims of this type of accident.[5] Furthermore, the professionals affected by this event must be notified in the Health Information Systems Program (SINAN - *Sistema de Informação de Agravos de Notificação*), as well as a Occupational Accident Communication (OAC) must be issued to the National Social Security Institute (INSS - *Instituto Nacional do Seguro Social*).[6]

In this perspective, a University Hospital in the Northeast stands out, which, by means of the Occupational Service of Worker's Health (SOST - *Serviço Ocupacional de Saúde do Trabalhador*) team, elaborated and implemented a flowchart for care after occupational accidents with biological material, which contains guidance on the local care immediately after the accident, medical care to evaluate the lesion and the exposure, prophylactic recommendations in a timely manner after exposure, request for serology of the casualty and patient-source, serological follow-up of the casualty after exposure, when possible, and issuance of the Occupational Accident Communication (OAC). When the medical care is not possible, the professional is forwarded to a reference hospital, with support from the institution.

OBJECTIVE

- To discuss the deployment and implementation of a flowchart for care after occupational accidents with biological material from needle-sharp instruments at a University Hospital in the Northeast.

METHOD

It is a qualitative, descriptive study, of the experience-report type, on the intervention developed by the SOST team at a University Hospital in the Northeast, with a view to reducing the deleterious consequences of biological accidents with needle-sharp material. The actions occurred in the period from 2013 to 2015, in the city of Teresina, Piauí.

The activities were planned in four steps. The first step consisted of preparing the flowchart of accidents with needle-sharp material with biological risk. In the second phase occurred the sectorial deployment of the flowchart of accidents; in the third step occurred the evaluation of the effectiveness of the flowchart of accidents; in the fourth and last step occurred the reorganization and deployment of the flowchart.

To observe the due fulfilment of the implemented flowchart, the process that involved the accidents with needle-sharp

materials recorded from its deployment was verified and analyzed. We obtained the data through the experience gained by SOST technical and college-degree professionals, in addition to information obtained from the records of technical documents and reports generated by the flowchart.

Once this is an experience report, it does not require the approval by the Research Ethics Committee.

RESULTS

Step 1- Preparation of the occupational accident flowchart

The first step was the preparation of the first flow of occupation accidents with biological material and occurred in the first year of operation of the hospital, in 2013 (Figure 01). It was an immediate need once there was the imminent risk of occurrence of occupational accidents, considering the characteristic of the company in health services provision.

While preparing the flowchart of accidents with biological material, actions for its deployment were developed, namely: Step 1- Preparation of the occupational accident flowchart; Step 2- Implantation of the flowchart of accident; Step 3- Assessment of the implementation of the occupational accident flowchart; Step 4- Reorganization of the flowchart and redeployment.

Figure 1 refers to the flowchart of accidents with biological material implanted in the institution, as can be seen below.

(FIGURE 1 HERE)

The flowchart drawn up recommended that, after the accident, the worker should communicate the occurrence to the headship immediately and the nursing team for immediate care with the lesion; then, it is necessary to communicate the SOST immediately or on the first working day. In the sequence, there should be the research, assessment, request of exams of the patient-source and the employee, as well as the necessary referrals for vaccination or reference hospital, serologic forwarding and serological monitoring for six months. Then, the second step began, referring to the deployment of the occupational accident flowchart.

Step 2- Deployment of the accident flowchart

The disclosure of the flow of accidents with biological material occurred in the workstations, in different shifts, through Daily Safety Dialog (DSD). The flowchart was presented, as well as the documents used at the time of the accident, such as the patient-source's authorization, request of exams for the employee and patient-source, as well as the prescription of antiretroviral medication.

The adhesion of all health professionals who participated in the activity was satisfactory in the Outpatient Unit, Surgical Center, Intensive Care Unit (ICU), Materials Processing and Sterilization Unit (UPME), Hospitalization Centers and Laboratory. All printed resources were left in each sector in a physical folder. Despite the team's desire, there was resource to confect a banner, in order to assist in the educational activity.

Step 3- Assessment of the deployment of the occupational accident flowchart

The third step corresponded to the evaluation of the deployment of the occupational accident flowchart. After a few months, a survey in the workstations showed that nursing could not locate the folder with documents about the flow of occupational accident that SOST had delivered and oriented. Moreover, when the printed documents ended, there was difficulty for refitting, since they are only available in the SOST. A visit to the sectors, and especially at the time of occurrence of accidents, showed the professionals' lack of knowledge regarding the operation of the flow.

After certain period of validity of flow, some flaws occurred, a fact that led to the adoption of measures to improve its applicability in practice. The first one related to the orientation of the initial conduct in which the casualty should, after immediate care with the lesion, head to the SOST. However, the sector does not work 24h, so that such a measure would not be the most indicated. Therefore, with a view to its correction, it was necessary to recast the flow, including the intensivist doctors in the conduct for evaluation and application of serological tests required when accidents with biological material occur.

Another delicate situation that also compromised implementing the routine was the delay in the release of results of serological tests by the hospital laboratory and the Central Laboratory of Public Health (LACEN - *Laboratório Central de Saúde Pública*), a situation that lasted during a certain period. One of the required adjustments related to the attention not to lack rapid tests in the hospital, once the delivery to the LACEN started to occur only for confirmed cases of HIV when the quick tests showed positive results or when these tests were not available. The results of all tests are currently made available in the system in an average time of one hour after collection, thus within the time recommended by the Ministry of Health.

It was suggested to the laboratory that requests for exams should always occur through the system AGHU (Application of Management for University Hospitals - *Aplicativo de Gestão para hospitais Universitários*), so that they had control of requests and results of all tests, avoiding delays in the release of results. It would be necessary to create electronic medical records for each casualty with register of the casualty's personal data on the AGHU system. After discussions, the flowchart recommended that the nurse in the sector and the hospitalization assistants should be responsible for this inclusion, thus allowing the medical care with appropriate requests for serological tests.

The deployment of the aforementioned flowchart showed the need for creating a flowchart on the conducts in the occurrence of accidents with biological material, as can be seen below.

(FIGURE 2 HERE)

Another issue that needed improvement related to the access to information about the flow by employees of the company, being possible by means of a tool of the hospital, the SISAH (System of Support for Hospital Administration - *Sistema de Apoio à Administração Hospitalar*), to which all servers have free access, and various flows and reports of the hospital sectors are publicized. The flowchart was provided to the SOST, as well as all necessary documentation for the flow follow-up, thus making the information more accessible.

During this experience, the occupational health team experienced a quite complicated situation, when they received, with a 24-hour delay, the result of examinations of the HIV-positive patient-source and had to forward the injured worker with urgency for the reference hospital, for an evaluation with an infectiologist to begin the chemoprophylaxis.

On that occasion, the ambulance of the hospital denied such transport due commitments previously scheduled for other patients. Faced with this situation, the private car of one of the SOST professionals was used. After this episode, a report was generated and measures were taken to prevent this episode from happening again.

In order to solve the problem, the Hospital Staying sector began to provide full support regarding the need to use the hospital ambulance for referral of injured employees to reference hospitals, once this hospital does not have emergency care service.

Another important partnership was held with the Hospital Pharmacy sector, which began to acquire kits of antiretroviral drugs for use in emergency cases. Thus, the routine of maintaining two kits available was deployed, so that the casualty can start the treatment in a timely manner, recommended after the accident, in case of HIV-positive patient-source. Perhaps because its rare use, there was no control regarding the assurance of supply of this kit in situations it was necessary, which requires a new reflection on this routine.

In 2015, a stabilization room was established in the hospital, situated at the entrance of the hospitalization sector, being a reference in the flow of accidents of the hospital for general care, especially those accidents that result in injury, or that require observation. It also became reference to care for accidents with biological material for request of serological tests.

A measure adopted by the SOST considered important with the purpose to streamline the entire process after an accident was that the patient should sign, at his/her hospitalization, a form authorizing blood collection for exams in a situation of accident with his/her blood fluid by the worker. This measure improved substantially the time needed for the completion of serological tests, considering that many accidents occur at the Surgical Center and ICUs with patients without conditions to sign this authorization. Despite the progress, this measure is adopted only for inpatients, this form is not provided to external patients, i.e., the one that seeks only outpatient care. In this case, the authorization form is presented to the patient only at the time of the accident.

Step 4- Reorganization and redeployment of the flowchart

The last step of this experience refers to the reorganization of the flowchart and redeployment. Regarding the needs for adjustments identified, with a view to optimize the responsiveness of the process, the team (Figure 2) idealized a new flowchart.

After the accident, the worker's initial conduct should be the immediate communication to his/her headship and to nursing for care with the lesion. In this sequence, the Intensivist doctor of the sector or of the stabilization room would assess the accident and request serological tests of the casualty and patient-source, firstly verifying the authorization on the chart. The hospital staying should open the worker's medical record on the AGHU system, in case it does not have it.

The laboratory performs the collection of samples and provides results in up to two hours.

Considering the results, the doctor defines the conduct to prescribe the Prophylaxis After Accidental Exposure to HIV (PEP) and referrals, if necessary. After this emergency conduct, the casualty must head to the SOST for research, guidelines regarding the conduct, notification in SINAN (Health Information Systems Program), referrals, serological monitoring, issuance of the OAC and record the occurrence in the sector database.

The publicizing of the new flow occurred more broadly, through the insertion of the flowchart and other printed resources into the SISAH system. All employees were communicated, through email, about the change in the system. This time, there was the confection of banner, with own resources, and dissemination in loco to employees from different sectors and all working shifts.

To maximize the dissemination, playful activities were used, such as parodies and jokes, coinciding with the Internal Week of Occupational Accident Prevention (SIPAT - *Semana Interna de Prevenção de Acidentes de Trabalho*), observing greater participation in the activities. The flowchart banner was exposed next to the indices of accidents, in a visible location in the sectors of higher incidence of accidents, for a considerable time.

There were many advances regarding the issue of monitoring of victims of accidents with biological material, as well as the notifications with the methodology implemented in the hospital. Nevertheless, some difficulties persist, such as the fact that not all doctors are able to request serological tests through the AGHU system, an issue that still needs improvement, despite the requests made to the person responsible for the information system.

The chart opening on the AGHU is also another difficulty that needs to be overcome, for unknown reasons, those defined as responsible in the flow end up not performing it. This function ends up as the responsibility of the SOST subsequent to the accident, for the laboratory to make the result available on the system. Without this record open, the request of the exams is done manually and the laboratory ends up getting operational difficulties to pass the result formally.

Despite the difficulties inherent to any implementation of protocols, especially in public services, the experience was successful and the flow of care after accidents with biological material includes several improvements, which are very important for the health and safety of workers at the university hospital in question.

DISCUSSION

The National Health Policy of Male and Female Workers seeks to identify workers' needs, demands and health problems; to produce technologies of intervention, assessment and monitoring of health actions; to produce protocols, technical standards and regulations; to guarantee the comprehensiveness in attention to the worker's health, which presupposes the inclusion of actions of worker's health, through linkage and joint construction of protocols and devices of organization and flows in the health network.[7]

Occupational accidents with needle-sharp instruments commonly involve professionals and students within the hospital environment. The needles, in particular, are responsible for most of the contagious transmissions among health workers. Nonetheless, the risk of the injured individual acquiring an infection resulting from these exposures depends on several factors, including the systemic condition of the professional, characteristics of microorganisms and the procedures carried out by the team of Worker's Health Occupational Service after the event.[8]

The underreporting of accidents involving needle-sharp objects is a serious problem in health care institutions. Some reasons include the victims, the extension of the lesion, which can be disregarded by the casualty, the delay in the care to the victim, in addition to the lack of information about the care flow by the worker's health and safety team of the hospital. Several factors contribute to the inadequate notification of accidents. Furthermore, in various Brazilian hospitals, understanding the problem dimension is difficulty by the lack of systematic data on the occurrence of occupational accidents by needle-sharp objects, which prevents the concrete analysis of information at local and national level.[8-10]

It is necessary to establish a notification process, the creation of an effective, clear, concise, objective and confidential post-accident care protocol. The worker's health and safety teams must act in order to lead to professionals' adherence, in addition to promoting the formation of the database in the health institution.[9-11]

Each health institution, from the experienced reality, prepares its own flowchart appropriately to meet its needs. In this sense, a Public Reference Hospital of Araguaína, Tocantins, established that occupational accidents with its workers and students must be notified first to the Nosocomial Infection Control Center (CCIH - *Centro de Controle de*

Infecção Hospitalar) and forwarded to the service of epidemiological surveillance for the notification in the SINAN. Therefore, the data of the accident are forwarded to the Occupational Safety Specialized Service to register and monitor the case along with the CCIH of the hospital.[8]

Permanent educational activities aimed at protocols and flowcharts of the institution are of great importance for the implementation of new procedures. Hospitals must ensure infrastructure, permanent training and education with constant evaluation to ensure that workers have access to knowledge about how to act in the event of an occupational accident.[12]

CONCLUSION

Healthcare workers are daily exposed to biological risks with needle-sharp material in their working environment, and consequently, to contamination by some viruses of diseases such as hepatitis B, hepatitis C and AIDS. However, they need to be involved in the processes of biosafety, as well as the knowledge of the steps during the path that involves the care in case of occupational accidents with needle-sharp material, with biological risk, that is, the knowledge of the flowchart to understand the bureaucratic part and the importance of notifying, investigating and issuing the OAC.

From the deployment of the first flowchart of care after occupational accidents with biological material to the second, there was a notable advance in relation to the access of the company workers to the referred flowchart through the SISAH, a stabilization room for medical care, opening of the employee records, results of examinations in a short time, patient-source, at admission, signing the consent form, transportation for the casualty to the reference hospital when necessary and participation of the Pharmacy to make kits of antiretroviral drugs available for use in emergency cases.

A limitation is that, despite the disclosure of the flowchart in the hospital through lectures, recreational activities and other activities in the sectors covering all shifts, there is still lack of knowledge or interest by some workers, thus, the participation of all involved becomes necessary, as well as training of employees for wide disclosure and adherence to the implemented care protocol.

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Corresponding Address

Márcia Astrês Fernandes
Campus Universitário Ministro Petrônio Portela / Bloco 12
Bairro Ininga
CEP: 64049-550 – Teresina (PI), Brazil