

Management analysis of a preventive program based on a retrospective study in the health care workforce

Análisis gerencial de un programa preventivo basado en un estudio retrospectivo en el personal de la salud

Lenin Stalin Muñoz Villacrés *

Granbay Marcelo Muñoz Villacrés *

Carmen Elizabeth Vargas Pozo *

Glenda Verónica Figueroa Morán *

ABSTRACT

Safety at work is one of the most important issues in the operations of companies. Although there are multiple legal precedents in Ecuador for some years, this issue has gained strength nowadays due to the actions of the last governments. This is due to the fact that, when developing a job without the appropriate safety measures, it causes a great number of accidents. Therefore, the objective of the study is to elaborate a preventive program to reduce the damages determined to the health personnel in the Technical Office 10 of District 09D08 by means of a survey analysis of risk elements to improve the operative place of the professionals. The methodology used has a retrospective, descriptive and correlational study. The study population corresponds to the health personnel of the Technical Office 10 of District 09d08. The survey was the method of data extraction and a statistical study was used in these. The results showed that the operatives are prone to various harmful occupational elements such as physical, biological and

JOURNAL OF BUSINESS
and entrepreneurial
studies

ISSN: 2576-0971



Atribución/Reconocimiento-NoComercial- CompartirIgual 4.0 Licencia Pública Internacional — CC

BY-NC-SA 4.0

<https://creativecommons.org/licenses/by-nc-sa/4.0/legalcode.es>

Journal of Business and entrepreneurial

July - September Vol. 6 - 3 - 2022

<http://journalbusinesses.com/index.php/revista>

e-ISSN: 2576-0971

journalbusinessentrepreneurial@gmail.com

Receipt: 19 october 2021

Approval: 12 May 2022

Page 49-58

* Dr. Maestrando en Seguridad y Salud Ocupacional
Universidad del Pacífico, lenin.munoz@ug.edu.ec, <https://orcid.org/0000-0001-8820-9842>

* Mgtr. Docente de la Universidad de Guayaquil, granbay.munozv@ug.edu.ec, <https://orcid.org/0000-0002-1070-4656>

* Lcda. Licenciada en enfermería, Universidad de Guayaquil, carmen.vargas.p@ug.edu.ec, <https://orcid.org/0000-0002-2616-8181>

* Dr. Maestrante en seguridad y salud Ocupacional, Universidad de Guayaquil, glenda.figueroav@ug.edu.ec, <https://orcid.org/0000-0003-2598-1426>

psychosocial risks, for which a preventive plan appropriate to each risk was proposed.

Keywords: District 09D08, Prevention, Occupational Risks, Occupational Health.

RESUMEN

La seguridad en el trabajo representa uno de los ejes de mayor relevancia dentro de las operaciones de las empresas. A pesar de que existan múltiples antecedentes legales en el Ecuador desde hace algunos años, este tema ha tomado fuerza en la actualidad por acciones de los últimos gobiernos. Esto teniendo presente que, al desarrollar un trabajo sin las medidas de seguridad apropiadas ocasiona un sin número de accidentes. Por ello objetivo del estudio es elaborar un programa preventivo que permita disminuir los daños determinados al personal de salud en la Oficina Técnica I0 del Distrito 09D08 mediante un análisis de encuesta de elementos de riesgo para mejorar el lugar operativo de los profesionales. La metodología utilizada tiene un estudio retrospectivo, descriptivo y correlacional. La población de estudio corresponde al personal de la salud de la Oficina Técnica I0 del Distrito 09d08. La encuesta fue el método extracción de datos y se utilizó un estudio estadístico en estos. Los resultados demostraron que los operativos están propensos a varios elementos dañinos laborales como riesgos físicos, biológicos y psicosociales, para ello se propuso un plan preventivo apropiado a cada riesgo.

Palabras clave: Distrito 09D08, Prevención, Riesgos Laborales, Salud Ocupacional.

INTRODUCTION

According to studies by Eduardo Bouza (2020), work is considered a human right and one of the fundamental parts of life, in addition to being the basis for the economic development of the individual, as well as of a country. However, it is highlighted that, despite the importance of work nowadays, there are numerous risks within the work environment that can be associated with damages at a healthy level in both mental or bodily factors, putting at risk the level of health, safety and even their lives. (Bouza, 2020). On the other hand, José Torres (2018) indicates that workers who are involved in various areas of health such as emergency are in different activities and environments, which creates negative factors on health, as it implies a significant negative effect at the professional level or even accidents within the work environment (Torres, 2018).

In the same way, Héctor Tarabla (2017) indicates that, due to the nature of the work and the functions or activities to be performed by health personnel, there are several risk situations that are closely related to the activity carried out by the professional, which, if the necessary preventive measures are not used, can trigger a high risk of health and safety problems, in terms of occupational diseases and accidents (Tarabla, 2017).

Among these parameters are: physiological, chemical-biological, social, psychic or ergonomic, so the ones statistically more prevalent are the biological ones.

According to studies conducted by the Institute for Safety at Work, occupational hygiene is based on promoting, encouraging and preserving the maximum possible indicator of well-being in workers of all professions, covering the biological, mental and physical-social aspect of these, in addition to the prevention of damage to health that may be triggered by the conditions that exist in their jobs (Alarcón & Maguiña, 2018)..

In addition, one of the basic principles of occupational hygiene is to protect health at work through the supervision and consequent adaptation of the working conditions that must be found so that the worker can perform optimally and in accordance with their psychological and physiological aptitudes.

Health operational employees who provide services in the Technical Office 10 of District 09d08 of the competent body in Ecuador are exposed to a series of risks, which are significantly associated with the working conditions or environment, as well as the nature of the work they perform, both in the provision of care in the office, as well as home care and patient follow-up work in the territory.

Among the most frequent risks are occupational accidents, occupational diseases due to infections such as HIV, Hepatitis, among others, and risks of mental illnesses such as depression, anxiety and bipolar disorders.

Taking into account the above, it is highlighted that there is a high level of deficiencies in terms of preventive culture, which results in the creation of an environment where certain inadequate attitudes at work are valued as acceptable indicators, generating insecurity in the worker.

Therefore, the following research question has been elaborated as a research question: What measures can be adopted to reduce the risks and dangers determined in the health personnel of the Technical Office 10 of District 09D08 Health?

The general objective is to elaborate a preventive program to reduce the damages determined to the health personnel in the Technical Office 10 of District 09D08 by means of a survey analysis of risk elements to improve the operative place of the professionals.

Also, the specific objectives are as follows:

- Determine the risks associated with the operating site within the health system by reviewing previous studies in research related to occupational hazards.
- Epidemiological characterization of the personnel involved in the study by means of a survey of health professionals.
- To identify the health consequences developed in the health personnel of Technical Office 10 through a statistical analysis of collected data.
- Develop a preventive program to reduce the risk and development of health conditions in the personnel by studying the occupational risk indicators obtained in the data collection tools.

On the other hand, this research project acquires its relevance due to the lack of attention, in terms of occupational hygiene, under which health personnel in Ecuador have been found for many years, which leads to an increase in risks, hazards and unsafe

activities that can trigger consequences with a significant negative impact on their quality of life and general health.

Once the evaluations have been obtained in the study, a preventive program focused on reducing exposure to these risks and reducing the consequences that these imply for the personnel, whether in the form of accidents, incidents or occupational diseases, in order to promote a preventive culture within the work environment and the development of activities in a safe manner.

According to the International Labor Organization points out that the concept of a healthy level, as far as the labor sector is concerned, does not simply encompass the lack of pathologies or affections in the person, but also focuses on the adequate maintenance of the different elements that make up an integral health, such as physical and mental elements (Solís, 2017).

In case of an inadequate or non-existent implementation of measures for the prevention of occupational diseases, it can have a significant impact on the worker and his family environment, in addition to the damage it represents at the level of the organization and its productivity and efficiency in terms of functions and processes.

According to the studies of Vicente Delgado (2021), risk is defined as specific work situations that can cause an imbalance between the different states of the individual, whether physical, mental or even social. (Delgado, 2021).

Likewise, it comprises an important probability in producing adverse events and many of these are generated in different circumstances or events that agglomerate variables in terms of time and origin, even being able to associate numerous factors that develop in parallel. Thus, risk is the result between the possibility of an occurrence and the effects that are generated within the circumstances or situations. (Caycho, 2019).

On the other hand, Ana Molineri (2017) defines occupational injury as the probability that an employee suffers specific damages due to his or her activities. This occupational harm will be qualified as serious or imminent when there is a very high probability that this risk will materialize and an occupational accident will occur, in addition to having a significant association with severe consequences or high negative impact on the worker's health (Molineri, 2017).

These consequences can be of a physical, social or psychological nature for the workers. Frequently, health personnel who maintain continuous direct contact with patients, regardless of the type of care and the environment, are exposed to the same group of specific risks, among which the harm caused by contagion of patients who come for consultation stands out, in addition to the risk of injuries or musculoskeletal disorders due to patient transfers.

In contrast, when it comes to operational workers at the auxiliary level who are not directly related to patient care as are several complementary areas according to the value chain, in addition to having effects at the pulmonary or skin level by chemicals in the cleaning of facilities are exposed to contamination by biological waste generated in medical or clinical areas (Mingote, 2018).

Among the risks that are most frequently present in the activities of health personnel, biological risks stand out, which are defined as all those microorganisms that have the capacity to cause diseases of different types, whether infectious, toxic or allergic, in people who come into direct contact with them, either by handling or other causes. (Rubio, 2017).

Likewise, studies of the Pan American Health Organization, adds some extensive definitions, which covers any pathological process of an infectious nature that develops in the body, which can be caused by bacteria, viruses, fungi or even parasites. (Solís R. , 2017).

Another important risk factor to highlight in healthcare personnel are psychosocial risks, which are defined as all those characteristics of labor indicators that generate a negative impact on workers through various mechanisms, both physiological and psychological, whose main mediator or agent is stress. (Valdés, 2017).

These conditions can be highly unfavorable in the performance of operations within the labor and health field, safety and even within the holistic social field of the individual, since they generate important affectations at mental and psychological level (Pinet, 2017). In addition, risk factors at the psychosocial level within the operations at work are considered as the fundamental pillar for the development of occupational pathologies or accidents in this same field. These can be generated at the physical level, by elements in the operations, methodology within the schedules or their relationships (Lazzaro, 2017).

MATERIALS AND METHODS

A retrospective study was conducted, with a descriptive and correlational analysis of the data obtained. The workstations were analyzed, where all the risks and hazards associated with the personnel were evaluated, in addition to a compilation of events such as accidents or illnesses reported within this study group,

The study is non-experimental in that it does not test the variables and has a quantitative approach.

In order to carry out an elementary analysis of the risks that influence the development of accidents, the population to be evaluated was the health care workers in the first level health care clinics of the Technical Office 10 of District 09d08 within the Ministry of Health Zone 8, whose inclusion criteria are the following:

- General practitioners
- Physicians specializing in their fields
- Nurses/ assistants
- Dentists

In addition, the exclusion criteria are as follows:

- Administrative personnel
- Service personnel
- Personnel from outside Technical Office 10 District 09d08

All the aforementioned groups of professionals have direct contact with patients and perform health care tasks, both in terms of primary and emergency care, as well as identification, visits and follow-up at the territorial level, with a schedule of 8 hours a day and 5 days a week, where in certain cases it can reach in case of determining new guidelines and needs of the department.

Therefore, the study population was 95 health professionals.

Of which, using the formula of the sample equations for population proportions, we have the following:

$$n = \frac{Z_{\alpha}^2 N p q}{e^2 (N - 1) + Z_{\alpha}^2 p q}$$

$N=95$; $1-\alpha=95\%$, ($Z_{\alpha}=1.96$); $e=0.05$; $p=0.5$; $q=0.5$, ($q=1-p$)

$$n = \frac{(1.96)^2 (95) (0.5) (0.5)}{(0.05)^2 (95 - 1) + (1.96)^2 (0.5) (0.5)} = 76.32 \cong 76$$

Therefore, there is a sample of 76 health professionals to whom the data collection tool is applied. On the other hand, the sampling is of the convenience type by selecting the professional according to his or her profile and location.

The tools through which data was obtained was the application of an Occupational Risk Matrix where the identification and consequent evaluation of the risk detected was possible through the use of the William Fine method. Through the application of this questionnaire, results were obtained that included the evaluation of the following types of risks:

- a) Physical risk
- b) Chemical risk
- c) Ergonomic risk
- d) Biological risk
- e) Psychosocial Risk

Each risk was assessed according to the methodology used, and then analyzed statistically by means of the IBM SPSS Statistics program, using the tools of frequencies and association between different categorical variables.

RESULTS

Based on the data obtained, the following results were obtained:

Ergonomic risk: From the following list, which do you consider to be the predominant risk factor in your profession?

According to the respondents, 63% consider that the greatest ergonomic risk factor is the constant use of the computer, where the distribution of ergonomic risks per respondent is exposed. According to the results of the survey, the greatest biological risk faced by health personnel is contamination with infectious material from patients, such as some type of fluids present in hospital interventions, with 79% of the respondents showing the magnitude of contamination with infectious material.

According to the results, 53% of the respondents stated that the main chemical indicator is a corrosive compound such as Glutaraldehyde with which health professionals come into contact as it is a chemical disinfectant element of health equipment. According to 80% of the respondents, the poor lighting inside the health clinics due to the deficient physical structure is considered as a main physical risk factor; 57% of the respondents consider that the main psychosocial risk present is work overload.

Taking into consideration the results obtained, a risk matrix is made, according to the William Fine method, where the degree of consequence, exposure and probability are analyzed, the risk matrix according to the William Fine method can be evidenced, indicating the components of the evaluation by consequences. Depending on the results, the risk rating given by Fine's matrix should be taken into consideration. Table 9 shows the references and actions at each level. Therefore, following the William Fine Risk Matrix, we have the following:

- **Population:** 95 health professionals
- **Sample:** 76 health professionals
- **Area:** District 09D08 Health Technical Office 10
- **Activities:** patient health care

Table 1. *Fine's Matrix Evaluation Results*

Risk factor	E	C	P	GP	Level
Constant use of the computer					Notable
Patient survey		5	0.5	7.5	Acceptable
Contamination with infectious material from patients		5			Very high
Improper handling of surgical material	I			45	Moderate
Use of corrosive chemicals	I		0.5	12.5	Acceptable
Low illumination		5			Notable
Work overload		5			Very high
Conflict with work schedules		5			Notable

Table 1 shows the results of the evaluation of the Fine matrix, highlighting the level of risk found in each indicator previously analyzed, as well as the weightings for exposure, consequence and probability. Within the public health activity and the personnel, both medical and administrative, who are part of this sector, there is a high level of deficiencies in terms of preventive culture, which results in the creation of an environment where certain operational activities that are inadequate are valued as correct actions, thus generating risk situations in the work environment for the safety and health of the worker.

According to the results, they consider that in their environment there are some risk indicators such as ergonomic, biological, physical and chemical risks.

Among the ergonomic risk, Table 1 showed that the respondents stated that prolonged use of the computer can affect their health, especially due to the administrative work in which they are immersed, with 63% of the opinions collected in the survey.

In terms of biological risk, Table 2 shows that contamination with infectious agents such as viruses, bacteria, parasites and fungi can cause long-term health problems, with 79% of the respondents stating that this is the case. Contamination with blood samples from patients with HIV or a sputum sample from patients with tuberculosis is very harmful to the health personnel working there.

On the other hand, 80% of the health personnel working in type A health centers indicated that the poor lighting due to deficient structures, lack of basic services and maintenance, increase the physical risk factor, as there is a possibility of occupational accidents due to the problem, as shown in the results presented in Table 4.

In turn, the results shown in Table 3 show that 53% of the respondents consider the chemical factor to be important, since one of the components, glutaraldehyde, which is used in the disinfection of medical equipment, is highly corrosive.

Taking into consideration these evaluations, Table 10 shows the most worrying data in the evaluation of Fine's matrix, with very high levels of risk in the indicators of contamination of infectious materials and work overload, i.e. the biological and psychosocial risk factors are in a very high state for the people working in this sector.

CONCLUSIONS

According to specific objective one, to determine the risks associated with the place where they carry out their operational activities through the review of previous studies in research related to occupational risks, it is concluded that, according to the literature analyzed, the risk indicators that influence the health profession are physical, chemical-biological and psychosocial risks, as evidenced in the analysis of authors' theories carried out.

On the other hand, taking into consideration the specific objective two, to characterize epidemiologically the personnel who are part of the study, it is concluded that the personnel under study are located within very high risk zones within the biological, physical and psychosocial risk factors, being contamination by infectious agents and poor lighting the most worrisome, according to data presented in the survey.

On the other hand, specific objective four, to develop a preventive program to reduce the risk and development of health conditions in health personnel, concluded that it is important to have a prevention plan to mitigate the risks detected, which is why some measures were proposed to reduce them, such as the safe handling of biological materials, adequate breaks for health personnel, improvement in the infrastructure of the clinics and a coherent annual risk prevention plan.

Therefore, taking into consideration the hypothesis formulated, work overload, poor infrastructure and biological risks are the risks with the highest prevalence of exposure and the highest relationship with harmful events to health in the health personnel of the Technical Office 10 of District 09D08 Health, it is accepted by indicating that the

physical, psychosocial and biological risks such as contamination by accidents with infectious samples presents a high risk index according to the Fine's matrix.

REFERENCES

- Alarcón, S., & Maguiña, K. (2018). *"Implementation of an occupational health and safety management system to decrease occupational hazards at Centro Medico Villa."* Universidad César Vallejo. <https://repositorio.ucv.edu.pe/handle/20.500.12692/26121>
- Bouza, E. (2020). *Burnout syndrome (burnout) in physicians in Spain.* Elsevier: <https://www.sciencedirect.com/science/article/abs/pii/S0014256520300916>
- Caycho, T. (2019). *Burnout syndrome in physicians in the city of Arequipa (Peru).* Scielo. https://scielo.conicyt.cl/scielo.php?pid=S0717-92272019000200139&script=sci_arttext&tlng=en
- Delgado, V. (2021). *Comparative study of occupational psychosocial risks among medical professionals.* Scielo: https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1132-62552021000100024
- Galíndez, L. (2007). *Occupational Risks of Health Care Workers.* Scielo. http://ve.scielo.org/scielo.php?script=sci_arttext&pid=S1315-01382007000200001
- Jiménez, Y. (2019). *Factors associated with depression in physicians who will work in rural areas of Peru.* Scielo. https://scielo.conicyt.cl/scielo.php?pid=S0717-92272019000400320&script=sci_arttext&tlng=e
- Lazzaro, M. (2017). *Psychosocial risks and professional integration of foreign physicians: A study on conflict management in Chile.* Scielo. https://scielo.conicyt.cl/scielo.php?pid=S0034-98872017001001300&script=sci_arttext&tlng=en
- Méndez, J. (2019). *Implementation of an Occupational Health and Safety Management System.* Dspace. <https://dspace.ups.edu.ec/bitstream/123456789/10454/1/UPS-GT001548.pdf>
- Mingote, J. (2018). *La experiencia del Programa de Atención Integral al Médico Enfermo (PAIME) de la Organización Médica Colegial en España.* Elsevier. <https://paimm.fgaletea.org/Upload/Documents/4.pdf>
- Molineri, A. (2017). *Perception and prevention of occupational risks in rural veterinarians.* Inta Digital. <https://repositorio.inta.gob.ar/handle/20.500.12123/2771>

- Pardo, J. (2021). *Work incapacity, moral hazard and occupational risk*. Researchgate. https://www.researchgate.net/profile/Jose-Manuel-Pardo/publication/325126950_Incapacidad_laboral_riesgo_moral_y_riesgo_laboral/links/5af98e1e0f7e9b026bf74106/Incapacidad-laboral-riesgo-moral-y-riesgo-laboral.pdf
- Pinet, M. (2017). A case study on working conditions and psychosocial effects in medical and nursing staff attached to the emergency department. *Journal of psychology*: http://www.revistauaricha.umich.mx/ojs_uaricha/index.php/urp/article/view/178
- Rubio, M. (2017). Continuous improvement in the management of occupational risk prevention in the company from collective health surveillance. *Journal of the Spanish Association of Specialists in Occupational Medicine*. https://scielo.isciii.es/scielo.php?pid=S1132-62552017000100005&script=sci_arttext&tlng=en
- Solís, L. (2017). Knowledge and exposure to occupational hazards of health personnel in the surgical area. *Colombian Journal of Occupational Health*. https://revistas.unilibre.edu.co/index.php/rc_salud_ocupa/article/view/4948.
- Solís, R. (2017). *Professional burnout: prevalence and associated factors in physicians and nurses in seven regions of Peru*. Scielo. http://www.scielo.org.pe/scielo.php?pid=S1025-55832017000300003&script=sci_arttext&tlng=pt
- Tarabla, H. (2017). Occupational hazards in Veterinary Medicine in Latin America and the Caribbean. *Journal of Veterinary Sciences*. <https://www.revistas.una.ac.cr/index.php/veterinaria/article/view/10093/12278>
- Torres, J. (2018). Telework in occupational health. *Law Review*. <https://revistas.ces.edu.co/index.php/derecho/article/view/4668>
- Valdés, M. (2017). Professional improvement in occupational health as a need for comprehensive medical care. *Revista Cubana de educación médica superior*. <https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=76461>