



## EFFICACY OF STRATEGIES TO REDUCE ABSENTEEISM DUE TO MUSCULOSKELETAL DISORDERS IN A PHILANTHROPIC HOSPITAL

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### ABSTRACT

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Musculoskeletal disorders are an important reason for absenteeism in Brazil, including among workers in hospital environments. Within this panorama, there is regulatory norm 17 (NR 17) which aims to guarantee safe and healthy work, and can be used as part of strategies to reduce absenteeism. Therefore, the objective of this study was to verify the result of strategies applied in a philanthropic hospital aiming at reducing absenteeism due to musculoskeletal disorders, through the role of ergonomics with the ergonomist participating in the improvements with the sectors. Faced with these concept mentions, the Desenvolvimento Humano Organizacional (DHO) and Saúde Ocupacional sector of the Hospital Dos Fornecedores De Cana De Piracicaba (HFC Saúde), which used data collection as a methodology, interpretation of and these after understanding that the highest rate of removal of his collaborators was due to the ICD M of musculoskeletal diseases. A fact that used strategies and interventions resulting from these, such as the use of NR 17, formation of the Ergonomics Committee (COERGO), use of the MAPHO ergonomic tool in a management format and the management of all certificates with ICD (International Disease Code) M, delivered to the Occupational Health sector between the years 2016 to 2021. Through this methodology, it was possible to clearly verify the decrease in absenteeism, given that in this period the only significant changes that occurred within the institution were the strategies mentioned, coinciding chronologically with the applications in each area and, consequently, their direct cost, showing that the recommendation to develop strategies based on data verification aimed at reducing absenteeism, brought a positive impact on the health of employees and organizational performance, highlighting the need for this hospital to use strategies to obtain positive results for both the company and the workers.

**KEYWORDS:** Absenteeism, ergonomics, management, hospital and MAPHO.

### 1. INTRODUCTION

Musculoskeletal disorders are a significant cause of absenteeism, affecting approximately 27 million Brazilian workers (Ferreira, 2012). Within this context, it is evident that the multiple workloads in hospital roles, especially in nursing, can be considered a significant source of worker illness, which directly reflects on the employee's absence from

their shifts (Kuranth, 2021). This phenomenon is known as sickness-related absenteeism and is one of the major issues related to human resource management in hospitals (Marques, 2015).

According to Betiol & Tonelli (2003), absenteeism can also be correlated with other factors such as work organization, working conditions (which are also related to psychosocial anxiety), and the number of employees in roles (which can not only lead to physical strain but also result in demotivation, disengagement, and the occurrence of other illnesses), and these factors are not necessarily linked to musculoskeletal system disorders.

A study conducted in a public hospital in São Paulo, over a three-year period, identified that the majority of cases involving employee illnesses were due to musculoskeletal and connective tissue disorders (Rocha, 2019). Another study conducted in a hospital in the southern region of the country with 50 beds showed that over a five-year period, there were 2,403 absences of more than fifteen days. The majority of these absences were due to musculoskeletal disorders, representing approximately 23%, while the other absences were related to clinical disorders, psychiatric cases, surgical cases, or unknown causes. Therefore, it is suggested to develop strategies to reduce absenteeism, with a focus on employee health, which will consequently have a positive impact on organizational performance (Kuranth, 2021).

According to Couto (2014), ergonomics can be defined as interprofessional work, based on a set of sciences and technologies, seeking the mutual adjustment between the human being and their work environment in a comfortable, productive, and safe manner, fundamentally aiming to adapt the work to the worker.

In addition to this definition, there is Regulatory Standard Number 17 - Ergonomics<sup>1</sup> (NR 17) and other standards incorporated into Brazilian legislation, which consist of responsibilities, rights, and duties to be fulfilled by employers and workers with the aim of ensuring safe and healthy work. This standard establishes guidelines and requirements that allow the adaptation of working conditions to the psychophysiological characteristics of workers to provide comfort, safety, health, and efficient performance at work. These working conditions include aspects related to the lifting, handling, and unloading of materials, the furniture of workstations, work with machinery, equipment, and manual tools, as well as comfort conditions in the workplace and the organization itself. This standard is currently updated as of Ordinance/MTP No. 423 of October 7, 2021, with enforcement starting on January 3, 2022.

Marques et al. (2011) reinforce that by examining data such as the duration of absences, changes in department, gender, age, and other medical documents, it is possible to reduce absenteeism and improve the quality of life of workers, which can be demonstrated through the reduction of harm when prevention programs are implemented, such as risk reduction, ergonomic corrections, and others, significantly improving worker health and company productivity.

Junior (2017) states that it is not difficult to see that any worker's absence, regardless of the reason, results in costs for the company, and as a solution to the problem, many organizations adopt various programs for this purpose.

Pizo & Menegon (2010) argue that research and actions are effective when it comes to the relationship between humans and work (ergonomics), taking into account worker health and economic efficiency.

Moura et al. (2020) report:

"One of the contemporary challenges of Ergonomics in companies is to convert the results of the application of Ergonomic Analysis (EA) into projects that

are genuinely implemented systematically within organizations. Ergonomic action is, therefore, one of the main obstacles in organizations. In this scenario, the Ergonomics Committee (CoErgo) emerges as an important driver of Ergonomics in organizations because it facilitates systematic and organized actions within the organizations."

Fakih et al. (2006) mention that especially in hospital environments, nursing plays a crucial role in patient care, and it is evident that this population represents a significant portion of the workforce in these establishments. However, these employees are distributed across various departments, which does not result in specific attention, but when considered collectively, it has a significant impact. According to Menoni et al. (2015), these professionals, both nationally and internationally, fall into categories that are most affected by musculoskeletal system pathologies and acute and chronic disorders related to manual patient handling. According to Mauro et al. (2010), identifying the causes of illness is the first step in a prevention strategy and, consequently, in reducing absenteeism.

Therefore, the aim of this study was to examine the outcomes of strategies applied in a philanthropic hospital to reduce absenteeism resulting from musculoskeletal disorders, with a focus on ergonomics. Ergonomists were actively involved in improving management and processes, including equipment acquisition and replacement, workstation adjustments, training, and absenteeism monitoring in collaboration with the Organizational Human Development (DHO) and Occupational Health departments.

## 2. METHODOLOGY

Scaratti & Calvo (2012) assert that transforming the concept of indicators or information standards significantly contributes to evaluative studies, particularly in the context of quality management, enabling the identification of opportunities for performance improvement.

Taking this concept into consideration and understanding that historically, year after year, when evaluating the indicators of the occupational health sector at the Hospital dos Furnecedores de Cana, a philanthropic hospital with approximately 1,200 contracted employees, the highest rate of employee absences that directly impacted the company's absenteeism was due to ICD "M" (musculoskeletal and connective tissue disorders). After collecting data from the Organizational Human Development (DHO) department, considering the financial impacts of this situation, reflections and discussions on potential strategies were conducted to reduce these numbers and generate benefits for society as a whole (employees, the company, individuals in direct contact, and the public welfare system). As a result, in the second half of 2016, the DHO at HFC Saúde initiated the following actions:

- 1- Verification of the department with the highest rate of medical certificates (MCs) involving the ICD "M", observation of the Ergonomic Work Analysis (EWA) for all functions within the hospital complex, and the correlation of this information with medical certificate (MC) rates. Subsequently, the department was selected for the focus of EWA reviews after incorporating ergonomic recommendations throughout the year, followed by the implementation of fine-tuned improvements.
- 2- Establishment of the Ergonomics Committee (COERGO), with the participation of an ergonomist and representatives from the Legal, Occupational Health, Occupational Safety, Organizational Human Development (DHO), Engineering, and other relevant departments. This committee's role is to assist in the identification and implementation of ergonomic recommendations.

- 3- Advanced training for the ergonomist on the MAPHO ergonomic tool (Appropriate Handling of Hospitalized Patients), which complies with ISO TR/12296:2012. The hospital initiated a risk management approach for patient handling within HFC Saúde. This involved creating protocols, standards, routines, standardization, and the acquisition of patient transport and accommodation equipment such as wheelchairs, shower chairs, stretchers, and beds. Additionally, the hospital assessed exposure indices, acquired patient handling equipment like human lifts, sliding sheets, rotating disks, and patient transfer belts, and provided MAPHO training. MAPHO is an internationally recognized method for a comprehensive, analytical, and parametric risk assessment and management of patient handling activities in healthcare facilities (Menoni, 2015).
- 4- Providing support, monitoring, and guidance to all employees with MCs under the ICD "M." This includes conducting anamnesis, gathering the employee's input, making task or workplace adjustments if necessary, and assessing employee satisfaction with the support provided.

### 3. RESULTS

Given that there were no significant changes within the hospital during the mentioned period involving management factors, work organization, working conditions, except those mentioned in items 1, 2, 3, and 4 of the methodology, and no alterations in the workforce, strategic actions aimed at reducing absenteeism resulting from musculoskeletal disorders were carried out. It was possible to make a chronological comparison using the same data collection methodology. The data below, in figures, show the timeline, actions taken, overall numbers, and areas with specific interventions.

Figures 2 and 5 show that MAPHO actions began either before or only shortly after Ergonomics (analysis and application of the current year's AET recommendations) in the nursing care sectors. One of the reasons for this was the dimensions and the large scale of the hospital. Therefore, this ergonomic tool, which is part of the AET, was used in advance in a management format to ensure the expeditious implementation of improvements.

In Figure 1, you can observe the gradual decrease in the total number of medical certificates (MCs) with ICD "M" in the historical series delivered to the Occupational Health department of HFC Saúde. There were 264 MCs in 2016, a year when no strategies had been implemented until then, and in 2021, there were only 120 MCs delivered

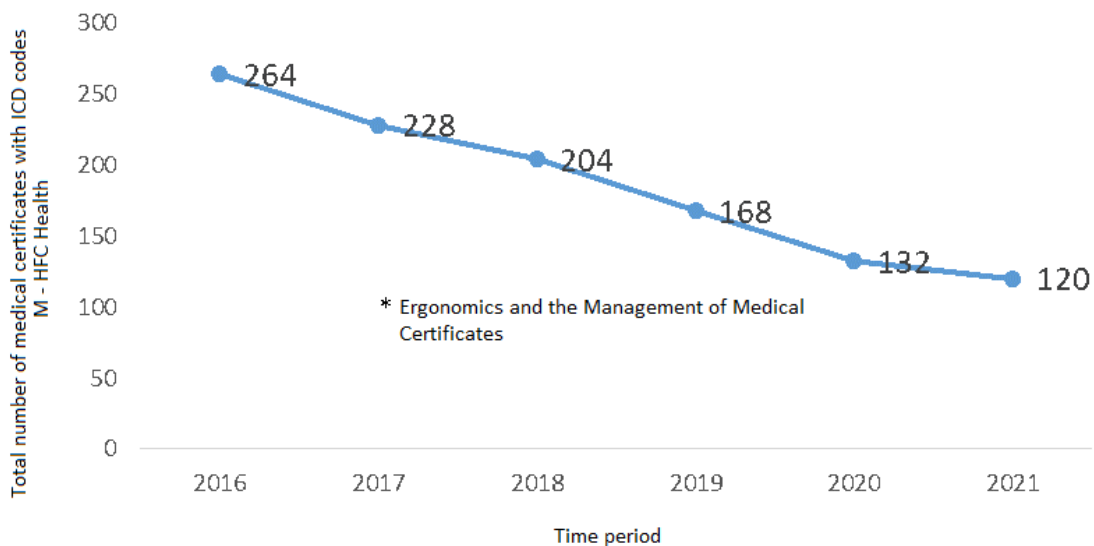


Figure 1. A graph representing the total number of medical certificates (MCs) with ICD "M" in the historical series delivered to the Occupational Health department of HFC Saúde. \*Indicates the year of the beginning of the applied strategy.

In FIGURE 2, it shows the number of medical certificates (MCs) in the historical series for ICD "M," specific to the nursing care sectors, delivered to the Occupational Health department of HFC Saúde. It's possible to observe a gradual decrease, with 112 MCs presented in 2016 and only 63 MCs presented in 2021, representing a reduction of approximately 44%.

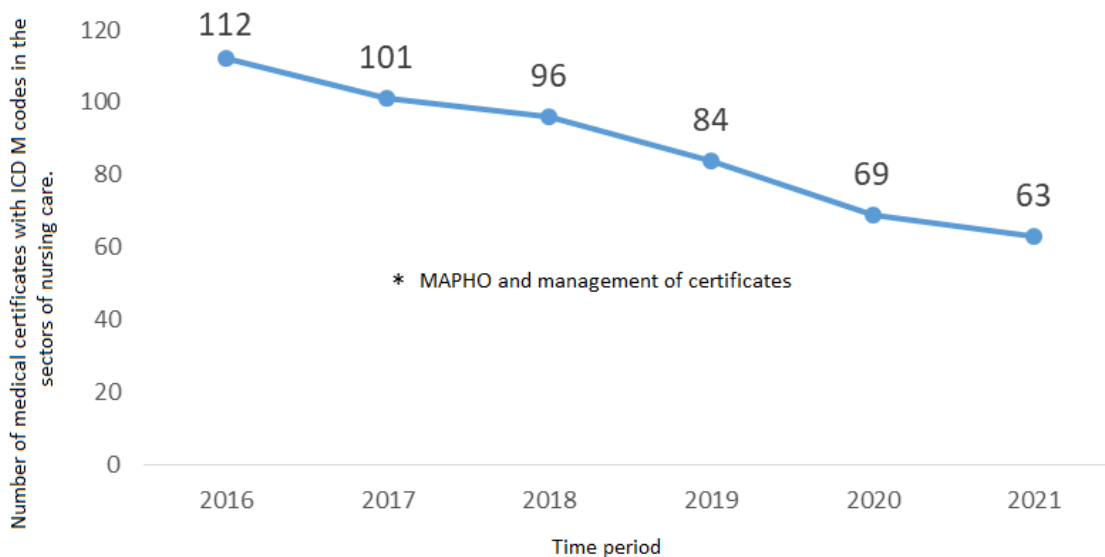


Figure 2. A graph representing the number of medical certificates (MCs) in the historical series for ICD "M," specific to the nursing care sectors, delivered to the Occupational Health department of HFC Saúde. \*Indicates the year of the beginning of the applied strategy.

In the graph in FIGURE 3, medical certificates (MCs) with ICD "M" from the Nutrition department, delivered to the Occupational Health department of HFC Saúde, were filtered. There is a peak in MC deliveries in 2017, the year when ergonomic interventions in the department began. Subsequently, it's possible to observe a reduction in the following years, with the maintenance of ergonomic improvements.

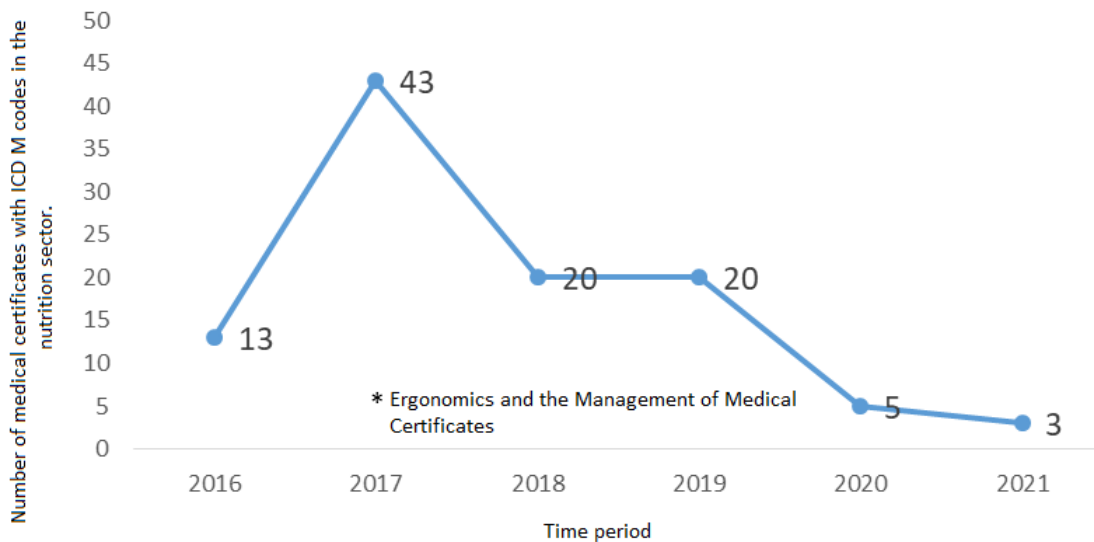


Figure 3. A graph representing the number of medical certificates (MCs) with ICD "M" from the Nutrition department, delivered to the Occupational Health department of HFC Saúde. \*Indicates the year of the beginning of the applied strategy.

In FIGURE 4, medical certificates (MCs) with ICD "M" delivered to the Occupational Health department of HFC Saúde from the Hygiene department were filtered. It shows the beginning of ergonomic interventions in 2018 and a reduction in these numbers in the historical series.

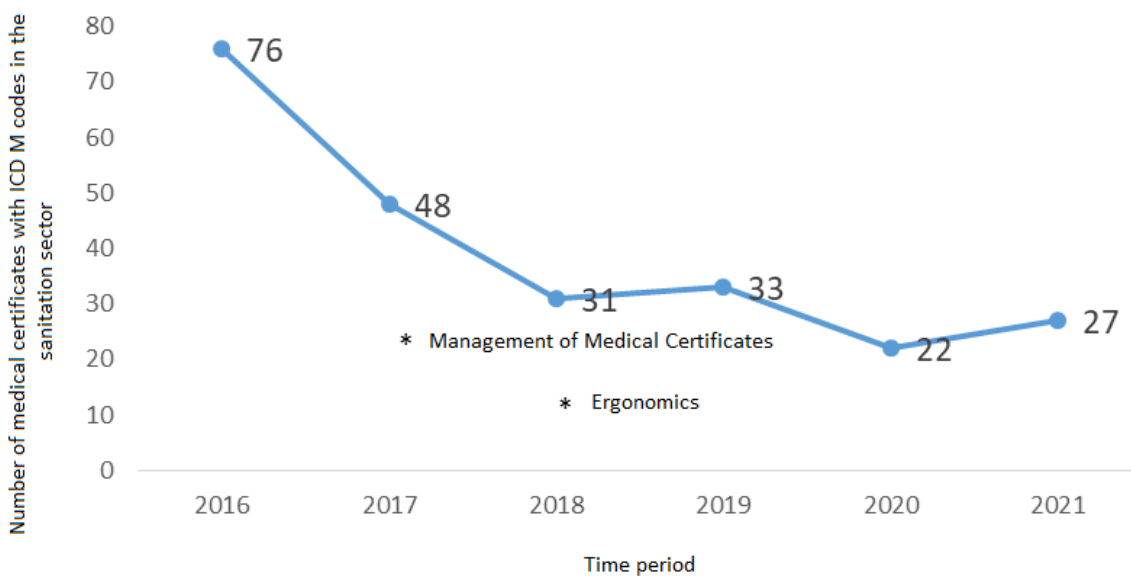


Figure 4. A graph representing the number of medical certificates (MCs) with ICD "M" filtered from the Hygiene department.

\*Indicates the year of the beginning of the applied strategy.

In the graph in FIGURE 5, medical certificates (MCs) with ICD "M" delivered to the Occupational Health department of HFC Saúde from the P.A. (Presidential Award) sector were

filtered. It highlights the start of ergonomic interventions in 2019 and the subsequent reduction in the numbers in the historical series.

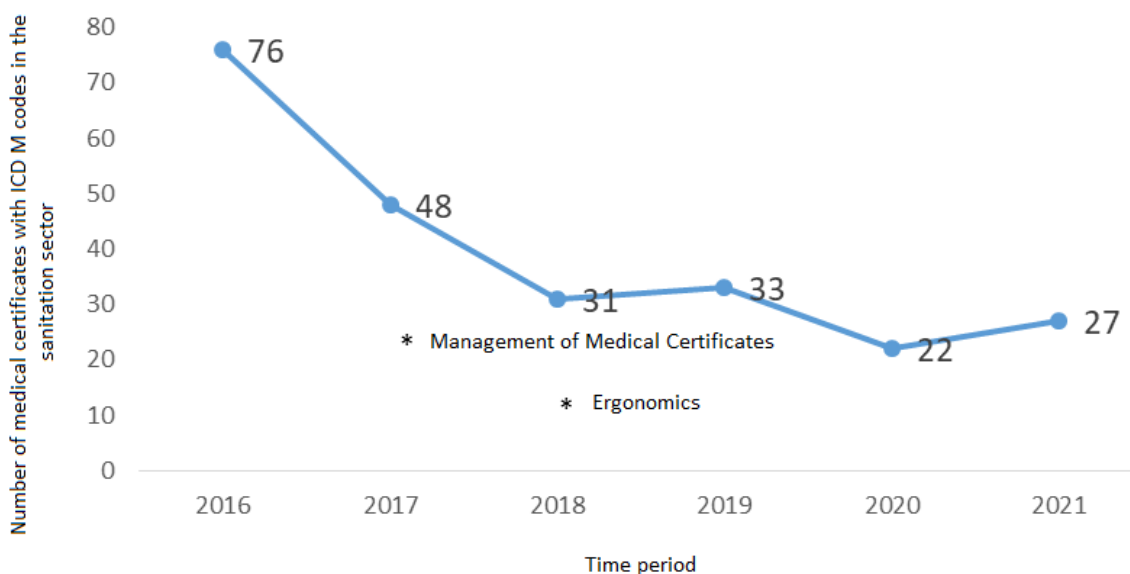


Figure 5. A graph representing the number of medical certificates (MCs) with ICD "M" filtered from the P.A. (Presidential Award) sector.

\*Indicates the year of the beginning of the applied strategy.

In the graph in FIGURE 6, medical certificates (MCs) with ICD "M" delivered to the Occupational Health department of HFC Saúde from the C.C. (Customer Care) sector were filtered. It highlights the beginning of ergonomic interventions in 2017 and the decrease in the numbers after reaching a peak of 18 MCs in 2019 to 7 MCs in 2021.

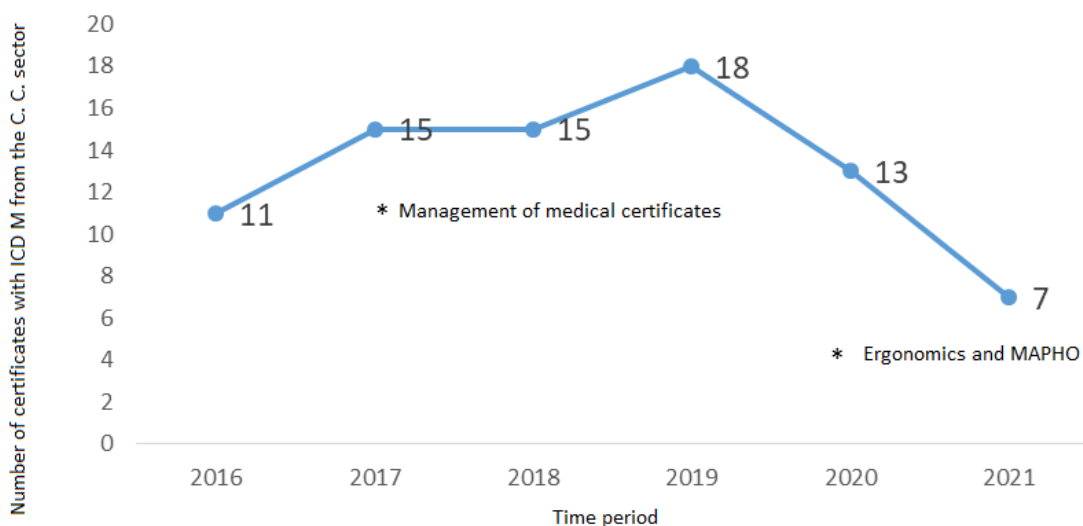


Figure 6. A graph representing the number of medical certificates (MCs) with ICD "M" filtered from the C.C. (Customer Care) sector.

\*Indicates the year of the beginning of the applied strategy.

In TABLE 1, it is possible to notice the reduction in the number of medical certificates (MCs) with ICD "M" delivered to the Occupational Health department of HFC Saúde, decreasing from 264 in 2016 to 120 in 2021, which represents a reduction of 55%. Regarding absenteeism, it was reduced from 1,668 days in 2016 to 357 days in 2021, a reduction of 79%. This reduction in days represents the same percentage of the direct cost, leading to an average savings of R\$ 183,199.86 when comparing the years 2016 and 2021 (average cost considering the daily rate of an employee, using the cost base of 2021 for all the years presented).

Table 1: Absenteeism due to medical certificates with ICD M, associated with direct cost

	Year/%											
	2016	%	2017	%	2018	%	2019	%	2020	%	2021	%
Medical certificates	264	-	228	↓ 14	204	↓ 23	168	↓ 36	132	↓ 50	120	↓ 55
Days	1668	-	948	↓ 43	744	↓ 55	852	↓ 49	432	↓ 74	357	↓ 79
Costs	R\$ 233.086,32	-	R\$ 132.473,52	↓ 43	R\$ 103.966,56	↓ 55	R\$ 119.058,48	↓ 49	R\$ 60.367,68	↓ 74	R\$ 49.887,18	↓ 79
Difference in values			R\$ 100.612,80		R\$ 129.119,76		R\$ 114.027,84		R\$ 172.718,64		R\$ 183.199,14	

Table 1. A table presenting the number of medical certificates (MCs) with ICD "M" delivered to the Occupational Health department of HFC Saúde, along with absenteeism days, direct cost value, and the percentage differences for 2016.

#### 4. DISCUSSION

Faced with the results and aware that within the mentioned period the only significant changes that occurred within this philanthropic institution were the strategies mentioned in the methodology, it becomes evident that these strategies had a positive impact on reducing absenteeism due to musculoskeletal disorders (ICD M). It can be demonstrated that after applying all the recommended strategies in the respective areas, absenteeism rates started to decrease. This shows that the recommendation to develop strategies based on data analysis for reducing absenteeism has a positive impact on employee health and organizational performance, as cited in the references.

In all the sectors or areas mentioned, a reduction in these indices was identified, with some having a longer sample time and others a shorter one. For example, the C.C. sector, which had an intervention and sample period of only one year, still showed a 46% reduction in the index. In aggregate, the reduction in absenteeism was 79%. Considering financial aspects, the annual cost reduction due to absenteeism (ICD M) was based on the average daily cost of an employee in 2021, which was also applied to the year 2016, resulting in R\$ 183,199.86 in savings.

This study did not measure the costs related to time-off banks, overtime, costs associated with increasing the workforce to meet staffing requirements, turnover, and costs related to health service utilization. Additionally, it didn't consider the costs of labor lawsuits, which can vary significantly from one case to another but have a financial impact.

Beyond financial values, organizational aspects that positively impact the work environment and the relationship with work should be taken into account. Excessive absenteeism directly affects the activities of the departments, leading to a direct or indirect depreciation of customer service and care, physical and emotional burden on the teams,



cascading absenteeism, turnover, and employee shift reassignments. However, the social aspects of affected employees must also be considered, as they are individuals in our society with families, commitments, and leisure activities outside the corporate environment.

In this study, it was observed that this hospital needed to use strategies, including compliance with regulatory standards, and it was possible to observe the effectiveness of these actions, with positive results for both the company and the workers, even though they were achieved at a low cost, as most of the actions were related to regulatory compliance and process management.

Positive results were also noted in the reduction of MCs delivered in all areas and, consequently, in absenteeism. This was achieved through compliance with NR 17 (regulatory standard), the establishment of the COERGO committee, the use of the MAPHO ergonomic tool recommended by ISO/TR 12296:2012 for employees in the care areas, and the management of all MCs delivered to Occupational Health with ICD M, in addition to the use of indicators generated by the organization.

## 5. CONCLUSION

In conclusion, there was efficiency in the employed strategies, including the management of medical certificates with ICD M, the establishment of the COERGO committee, the initiation of ergonomic actions in strategic sectors, and the use of the MAPHO ergonomic tool as a management model. These strategies resulted in a positive impact on absenteeism management, coinciding chronologically with the implementation in each area, which led to a reduction in direct costs. The effectiveness of ergonomics played a pivotal role in these strategies, with the guidance of an ergonomist in all applied measures, in partnership with the DHO and Occupational Health departments. It is also worth considering the opportunity for specific studies on the impact of these interventions on aspects such as time-off banks, overtime, workforce increases to meet staffing demands, labor lawsuits, turnover, and health service utilization, as well as the impact on public social security systems. Additionally, the social aspects of healthcare employees' lives and the application of similar strategies in areas outside of healthcare could be explored further.

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