

Lavanderia Classe A: a study on the performance indicator rewashing the hospital layette washing process

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ABSTRACT

Performance indicators are ways of measuring the characteristics of products and processes in organizations. The objective of this research is to analyze the performance indicator rewash of Lavanderia Classe A, a laundry located in the city of Foz do Iguaçu, Paraná, Brazil, in the years 2013, 2014 and 2015, referring to the hospital layette washing process. The research method, in the face of the problem and the objectives, employs a qualitative case study. This study adopts bibliographic research and application of a questionnaire with the proprietary partner. The outcomes suggest that the indicator rewash reached, in the first two years of operation, 4.48% and 5.01%, respectively, which led the management to replace the products used in the layette washing. In 2015, after the use of an enzyme-based product, even though there was an increase in the quantity of processed layette, the indicator had a setback, ending the year at 4.66%.

Keywords: laundry; performance indicator; rewash.

1 INTRODUCTION

According to Brazil's National Agency of Sanitary Surveillance (Anvisa) (2009), the laundry processing of hospital clothes covers all the steps through which the layette must pass. Accordingly, rules are applied to control and reduce infections related to the layette and to define steps in the process of sanitizing the clothes, such as: a) manual of health service clothing processing, prevention and risk control, which aims to guide the activities involved in the processing of health service clothing, focusing on the risks associated with this activity; and b) manual of hospital laundry of the Ministry of Health, which seeks to guide the process of the organization of health services, aiming for greater effectiveness and efficiency.

Companies can better monitor their processes through the creation of indicators, which, according to Kardec et al. (2002), may vary from organization to organization.

According to Takashina and Flores (1996), indicators are ways of planning organizations' product and process characteristics. According to the authors, they are used to control and improve their performance, seeking to improve quality and productivity, making the company increase its market share and competitiveness, aiming for customer satisfaction.

Concerning this research, the services offered by Lavanderia Classe A, a company in the laundry segment, located in the city of Foz do Iguaçu, Paraná, were analyzed. It is an industrial laundry, which offers its customers the laundry service related to both the hotel market and the hospital segment. The focus of this research is the second segment.

Lavanderia Classe A adopts indicators for measuring the performance of its activities, because through them management can evaluate whether or not a particular action achieves its objective. This laundry has worked with indicators since the start of its activities. In addition, all layette washing process follows the current standards of regulatory agencies, such as Brazil's Anvisa.

This research is justified in order to analyze an indicator that presents results of the layette laundry process, in particular, the rewash performance indicator. To do this, it intends to

answer the following question: how does Lavanderia Classe A use the results of the rewash performance indicator?

Initially, this work does a study on the hospital layette washing process, and secondly, it checks how the laundry uses the data from the rewash performance indicator. The data provided by the company for the years 2013, 2014 and 2015 are analyzed. For this purpose, the study aimed to analyze the following variables: a) quantity of clothes processed during washing; and b) level of rewash during this period.

2 PERFORMANCE INDICATORS

For Leão, Silva, Alvarenga and Mendonça (2008), the indicator is the unit of analysis, quantitative or qualitative, used to represent or measure a problem, which needs to be observed in a real situation. According to the authors, indicators must answer five basic questions: why register the information? what will be used? who will use it? how it will be used? and how long will it be useful?

For Takashina and Flores (1996), indicators are analysis mechanisms for performance evaluation, which are elaborated and used by managers in order to achieve the goals, seeking to develop and enhance processes. In this sense, the authors emphasize that the indicators are intended to identify areas with satisfactory performance and areas for improvement. For them, “indicators provide inputs that will scale such changes, making it possible to maximize efficiency and improve overall results” (TAKASHINA & FLORES, 1996, p. 41).

According to Castelli (2006), indicators are directly linked to the concept of quality, therefore “satisfying clients means meeting the needs of all the people with whom the company has a commitment, such as employees, clients, shareholders and neighbors (community)” (CASTELLI, 2006, p.74). Still, according to the author, it is necessary to maintain a channel of permanent dialogue with them, to avoid imbalance and blocking the competitiveness and survival of the company.

In addressing the purpose of performance indicators, Kardec et al. (2002) write that the main purpose of performance indicators is to show the weak points, and observe them, to detect possible problems that are causing the unwanted results.

According to Bittar (2011), in order to evaluate and monitor the quality of activities and services, managers must use performance indicators. For the author, these indicators seek to increase revenue, reduce costs, achieve the investment strategy and increase productivity.

When dealing with the elaboration of indicators, the author emphasizes that, for the creation of indicators, managers must follow various steps, such as: a) knowing what is going to be controlled or measured; b) seeking to know where the information will be extracted; c) what are the methods being used to analyze the data obtained; d) how often these data will be extracted; and e) analysis of their results to arrive at decision making.

Takashina and Flores (1996) argue that indicators are key elements in the control and planning of organizations, and are generated to enable the establishment of quantified targets, in which performance analysis is performed to reach a purpose. For them, the indicators are generally strongly related to the organization's goals and strategies, as they provide the business goals to be met, allowing the improvements achieved in each unit to contribute to the overall goals. The authors emphasize that indicators “must be generated from the needs and expectations of the clients” (TAKASHINA & FLORES, 1996, p.3). In this sense, the authors consider it an important factor to consider the results of the indicators when thinking about the strategies and purposes of the organization.

In Takashina and Flores (1996), the indicators should be demonstrated in a way that allows and provides reliable data and results, guarantees their analysis and use, and shows levels and trends. According to the authors, the indicators can help in the reasoning of an argument, with a view to the decision making.

According to Kardec et al. (2002), many indicators used by managers are not adequate, consequently they do not have the ability to specify or direct what actions the

organization's management must take to improve the performance of the productive system.

Describing the implementation of a performance indicator system, Leão et al. (2008) point out that an infrastructure is needed both for managers and for those who will collect, analyze and communicate the data involved in the process. Therefore, according to the authors, the institution tends to be able to maintain an environment that supports the implementation of the evaluation system.

When mentioning the monitoring of performance indicators, Leão et al. (2008) describe that this action must be done after the problems are raised and during the implementation of possible solutions. The use of indicators should become one of the strategies that ensure the continuity of work.

In describing the relevance of the use of the indicator by managers, Fernandes (2004) states that the use of the indicator leads the manager to observe both the performance of each process and the whole company.

In this sense, Castelli (2006) points out that for companies to operate their activities, they must have processes that must be connected to each other, always aiming at the definition and achievement of a given goal.

Thus, as organizations that they are, laundries should also monitor their processes through performance indicators, in order to be able to obtain data that can allow management to properly analyze, verifying results that aid in decision making.

The following are laundry concepts, standards and definitions for the layette wash processing in health services.

3 LAUNDRY

According to Anvisa's standards manual (2009), which establishes guidelines for the processing of healthcare clothing, the hospital laundry is considered a support sector,

which has the purpose of collecting, weighing, separating, processing, manufacturing, repairing and distributing clothes in conditions of use in the units of the health service.

According to that manual, the laundry has a specialized activity, which can be owned or outsourced, and must always guarantee the demand and the continuity of support.

When defining the stages of the processing of clothes according to the Resolution of the Collegiate Board of Directors (RDC, in Brazilian Portuguese “Resolução da Diretoria Colegiada”) number 6, normalized by Anvisa (2012), the following steps are established that comprise this service: a) removal and conditioning of dirty laundry of the generating unit; b) collecting and transporting the laundry to the processing unit; c) receiving, weighing, separating and classifying the laundry; d) washing process; e) centrifugation, drying and calendering; f) folding, packaging and storage of clean clothing; and g) transportation and distribution of clean clothing. According to RDC 6, these steps have the ultimate goal of guaranteeing the hygiene and quality of clothes used in health care.

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When referring to hospital laundry, Cargnin (2008) explains that it is the sector responsible for the processing and distribution of hospital clothes under complete hygiene conditions. According to the author, for the processing to occur without risks to the worker and under hygienic conditions, the laundry services must follow the legislation.

When discussing the importance of hospital laundry, Pereira (2012) points out that it is one of the most important support sectors of a hospital, since it is responsible for all clothing processing and distribution in conditions of hygiene, conservation and safety for the whole hospital unit.

Describing the basic goal of laundries, Pereira (2012) emphasizes that hospital laundries have the basic objective of safely transforming dirty and contaminated clothes into clean clothes. According to the author, for this to happen, it is necessary to have good equipment and a lot of efficiency in the washing process.

Siqueira (2005) warns that the hospital laundry is often an “ignored area inside the hospital, and, in most institutions, there is no strict control of the costs and quality of the processing of the layette” (SIQUEIRA, 2005, p. 3). In this sense, the author suggests outsourcing, which must be performed by a specialized company, which has a quality control in the provision of this service.

In addressing the concept of service outsourcing, Boeger (2008, p.75) emphasizes that this type of service delivery can be conceptualized as “the process of managing the lateral activities of a company by specialized companies aiming for superior quality, flexibility and economic gains”. According to the author, the activities that are usually outsourced in hospitals are those that are linked to the hospitality industry.

In this sense, when describing the outsourcing of laundry services, Siqueira (2005) emphasizes that the search for outsourcing of laundry services by hospitals has occurred due to the high cost of equipment maintenance and depreciation.

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According to the author, hospitals are increasingly focused on the user. In this sense, some companies are opting for the outsourcing of support services, so as to give the maximum attention to the issues directly involved with the client.

4 METHODOLOGICAL PROCEDURES

The present research is of a basic nature, with a qualitative approach, which, according to Gil (2008), seeks to develop scientific knowledge without the direct concern with its applications “[...] its development tends to be quite formalized and objective” (GIL, 2008, p. 26). According to the author, the analysis of data in qualitative research depends heavily on the ability and style of the researcher.

As for the objectives, this is an exploratory research, which, according to Gil (2008), involves bibliographical and documentary surveys, as well as non-standardized interviews and case studies. For the author, it has as its main purpose “to develop, clarify and modify concepts and ideas, in order to formulate more precise problems or searchable hypotheses for later studies” (GIL, 2008, p. 27).

The present study aimed to analyze the variable rewash performance indicator of Lavanderia Classe A, as well as answer the following question: how does Lavanderia Classe A use the results of the rewash indicator? In order to reach this objective, the bibliographical research technique was used, which, according to Gil (2008), is developed from material already elaborated, consisting mainly of books and articles. For the author, this type of research has as the main purpose to develop and clarify ideas and concepts for the elaboration of the theoretical reference.

Secondly, the technique used was the case study, which, according to Dencker (1998), “may involve examination of records, observation of occurrences of facts, structured and unstructured interviews or any other research technique” (DENCKER, 1998, p. 127).

The criterion of choice for Lavanderia Classe A was for it to be a reference industrial laundry in this business in the city of Foz do Iguaçu, Paraná, Brazil, both in hotel and hospital organizations. Its average laundry washing capacity is 100 tons / month.

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To answer the problem and the proposed objectives, the instruments used were: a) survey and examination of laundry records on performance indicators; b) direct observation (operation of the layette washing process); and c) a questionnaire with the company's owner.

The study aimed to analyze two variables: a) lavage processing of the layette; and b) results that the rewash performance indicator presents.

One of the tools used during the survey was direct observation in the laundry room. The observation program was: a) washing process of the layette; and (b) materials supplied relating to the quantity of garments processed and percentages of rewash.

Regarding the washing process of the layette, the following steps were analyzed: a) reception of the layette by the laundry staff; b) separation of the layette by the type of dirt and type of layette; c) weighing; d) drying; e) ironing process; and f) folding.

As for the materials provided by the company to perform the analysis of this study, there are the control spreadsheets containing the percentages of rewash performance indicator for the years 2013, 2014 and 2015, and spreadsheets containing the volume of clothing processed by the laundry in the same period.

The period of data collection of the survey occurred between August 08, 2016 and August 31, 2016, an adjusted schedule between the researcher and the laundry owner who authorized the research. The questionnaire was applied according to the availability of the interviewee.

A structured questionnaire containing 16 questions was applied with the purpose of knowing: a) the history of the Lavanderia Classe A; b) the washing procedures of the layette; and c) the performance indicators that the laundry uses, specifically, the rewash indicator. Who answered the questions was the owner of Lavanderia ClasseA.

5 DATA ANALYSIS

Lavanderia Classe A is a 1,200 m² industrial laundry located at Jules Rimet Avenue, 867, in the city of Foz do Iguaçu, Paraná, Brazil. Currently, it has 2 business partners, occupying the positions of director of production and commercial director. The company started operations in the city on January 17, 2013.

Its clientele is comprised of both the hospital segment (1 hospital and 2 clinics) and the hotel segment (5 hotels). Its washing process reaches an average of 100 tons of clothing / per month. Of these, 60,000 kg of layette is hospital type and 40,000 kg of layette is hotel type.

To serve the two different segments, the laundry has a total of 17 pieces of equipment, distributed into 4 washing machines of 126 kg, 4 washers of 56 kg, 1 washer of 26 kg, 4 dryers of 100 kg, 2 dryers of 56 kg and 2 calenders.

The laundry operates 18hrs a day, with the opening hours from 06:00AM to 12:00PM during the seven days of the week. The work team is made up of 66 employees, who are

divided into the following sectors: a) critical area (hotel and hospital); b) clean area (hotel and hospital); c) engine room; d) supply area; e) living room; and f) administrative sector.

The nominated critical sector of the hospital area is the place where cars arriving from hospitals are unloaded. On average, 5 collections are made per day, 2 in the morning, 2 in the afternoon and 1 in the evening, at certain times.

The employees who do the sorting of the clothes are the same ones that make the removal of the hampers^I of the car that arrives in the dirty area. Soon after, in order to guarantee the protection and safety of the employees, during the process of handling the pieces, a process of verification of the existence of piercing^{II} material is performed, with the help of a metal detector.

The next step is sorting by type of layette and by type of dirt, and then weighing the layette. The laundry uses this process of weighing so that one has control of the amount of weight placed into the machine, being an action that follows the specifications of the manufacturer for each piece of equipment. This weight is noted on a spreadsheet along with information from the washing machine, which is required for internal control.

After washing, the clothes are centrifuged in the extractor washers themselves. Then they are removed by the employees of the machines already in the clean area, because the barrier washers have two doors, one in the dirty area and another in the clean area.

Towels and surgical field layette are sent to the fold, without passing through the calender. The flat pieces, such as sheets and pillowcases, are sent to the calender area.

After passing through the drying and folding stages, the pieces undergo a revision and approval process, when they are destined for the calender. Employees analyze piece by

^I Bags used for the transport of dirty clothes, plastic or fabric, which are of sufficient quality to resist the weight of the garment, so as not to break during handling and transport. (Anvisa, 2009).

^{II} They are those used for health care that have a tip or that can puncture or cut. (NR 32, 2013).

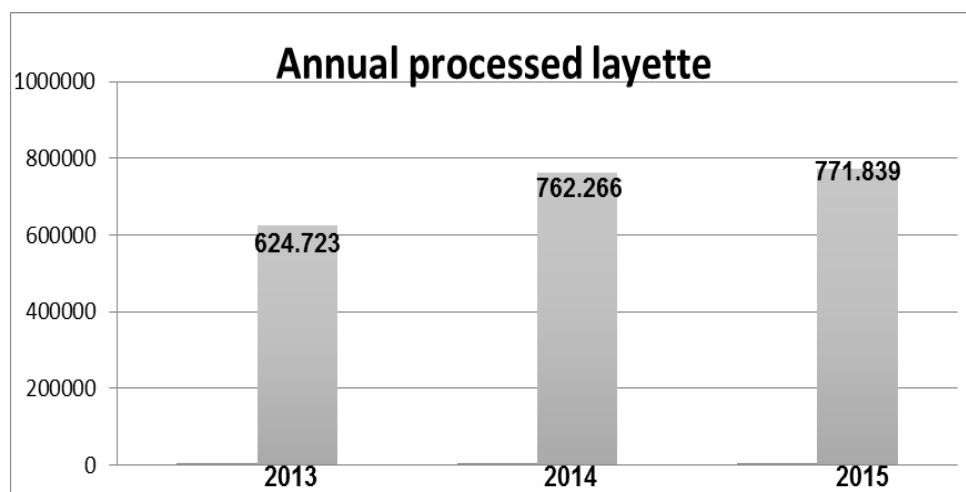
piece, and those with stains or residues end up being separated and put back into the washing process. These parts that return to the initial washing process are called rewash.

Then the clean clothes that went through the approval are packed and re-weighed. The layette is then packed into a cart to be stored later. Finally, the clothes are placed inside the transport car and delivered to the customers.

5.1 LAYETTE WASHING PROCESS DATA

Figure 1 shows the annual amount of layette processed by the Lavanderia Classe A in the hospital sector. The data presented refer to the period studied in this research, years of 2013, 2014 and 2015. According to the figure, it is possible to identify which year had the largest and the least amount of processed layette.

Figure 1. Total amount of layette processed in the years 2013, 2014 and 2015.



Source: Interviewee's data, 2016.

The year that obtained the least amount of processed layette was 2013, reaching 624,723 kg. This amount refers to the period of 10 months of operation, since in January and February the data were not collected: according to the owner, during this initial period, the laundry was in adaptation, since it was inaugurated in January of that year.

In 2014, 762,266kg were processed; according to the owner, that amount was expected by the laundry. The year 2015 had an increase in the results of the processing of clothing, reaching 771,839 kg. This increase is justified due to a strike that occurred in the first two months of that year in the public hospital located in the city, consequently, many attendances that were carried out were directed to the hospital that the laundry attends.

Analyzing in general, it can be observed that the number of dressings processed by the Lavanderia Classe A increased consecutively: during the three years surveyed, the equivalent of 2,158,828 kg of layette was processed, reaching a monthly average of 63,494.94 kg of processed clothes.

In explaining about the different types of dirt in the layette, the owner of the laundry commented that most of the surgeries use products containing oils, ointments, medicines of strong colors, besides the blood resulting from the procedure. When in contact with the layette, in many cases, they end up staining them, causing some parts to have to return to the washing process, in a process called rewash. In order to have a better understanding, in the sequence are presented information regarding the rewash indicator of the Lavanderia ClasseA in the years surveyed.

5.2 REWASH INDICATOR DATA

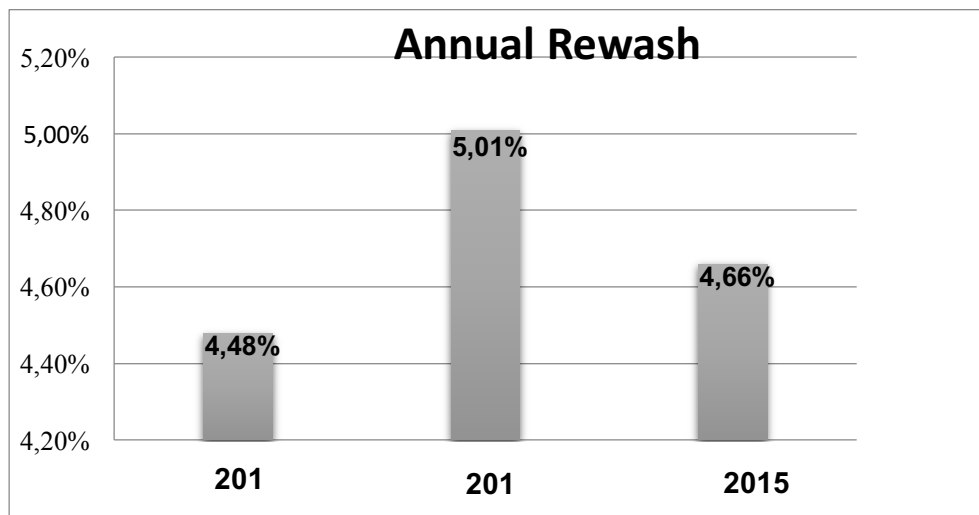
According to the owner of Lavanderia Classe A, the laundering process occurs after the complete washing of the garment. According to her, if at the time of the folding it is verified that there is dirt in the fabric (stains), that part returns for the washing processing. In this way, it is arranged in a specific cart with clothes that will go through this process. In this trolley, the equivalent of 25kg of garments needing rewash is accumulated to redo the washing process.

Parts with oil residue and ointments should be soaked with specific products to remove the stain. After the period of this procedure, the pieces are mixed with those that do not require this measure to remove stains in the washing machine, and the whole washing process is re-done.

Still according to the owner, the rewash process can occur due to other factors, such as: inappropriate classification of the type of dirt, excess of load on the machine, lack of chemical product and wrong choice of process.

In Figure 2, the amount of annual rewash of hospital layette of Lavanderia Classe A is presented, referring to the years of 2013, 2014 and 2015.

Figure 2. Annual rewash for the years 2013, 2014 and 2015.



Source: Interviewee's data, 2016.

Observing Figure 2, it is verified that the year of 2013 presents the rewash referring to the period of 10 months, due to the fact that Lavanderia Classe A does not have the data referring to the months of January and February. According to the owner, the beginning of the laundry operation occurred in March. She emphasizes that at the beginning of the activities, neither the managers nor the team had experience in the classification process of clothes, in addition, this period was of the testing of the products that would be used, as well as the adaptation of the machines. In this sense, she points out that any error would cause an increase in the indicator, but it is observed that it remained below 5%, which is an acceptable percentage as defined by the laundry management.

In 2014, the percentage of rewash reached an annual average of 5.01%, a value higher than the year 2013. This fact is explained by the months of September, October, November and December of 2014: in those months, the laundry management realized that the rewash had a significant increase, reaching 6.21%, which caused the washing process to be revised.

For the owner, this increase has become a cause for concern, as the waste generates costs for the company, due to the use of more products, more energy, more water, more machine wear and, consequently, a greater wear of the layette. Therefore, in December 2014, when it reached the peak of 6.68%, the management of the laundry decided to change the supplier of chemicals. From there, several tests were done, however, the problem persisted until May of the following year.

The amount of layette processed in the year 2014 reached the equivalent of 762,266 kg of clothes, presenting an average of 5.01% of rewash. In the year 2015, after changing the supplier of chemicals, the laundry began to use enzymatic products. According to the owner, this new product features another composition, it does not use chlorine, and leaves the clothes in a whiter tone, in addition to protecting the parts. This replacement caused the rewash indexes to begin to decrease, presenting an annual average of 4.66% of the rewash performance indicator, even with a larger number of processed layette.

According to Farias (2006), the enzymatic products are those prepared in the form of powder, liquid or paste that act as a biological accelerator, providing specific chemical reactions. According to the author, these products are generally used in the process of washing, softening, de-sizing and in processes involving dirt, such as blood in fabric.

According to the proprietor of the laundry, the advantage of formulating detergents containing enzymes is the replacement of caustic products, which can cause injury to the human being, which harms the environment and causes greater tissue wear.

The Lavanderia Classe A works with a maximum acceptable value for the rewash performance indicator which is 5%. But even so, management was looking for solutions

that would reduce this indicator. This decision was made due to the significant increase of the indicator in the year 2014, which resulted in the use of enzyme products. The exchange for enzymatic products, according to the owner, made the results quite expressive, in the hygiene of the layette, in the softness of the fibers, in the gentle fragrance of cleaning and in the decrease of the volume of water used in the processing.

According to her, customers have shown to be more satisfied with the quality of this service provision, even if such replacement has caused an increase in the value charged for the service. In this sense, she points out that, often, customers prefer to pay a higher price to receive a quality service, which in this case offers future savings, because if the use of the product reduces the rewash, also reduces the wear of the parts, there is a longer shelf-life of this material.

6 CONCLUDING REMARKS

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Lavanderia Classe A is an industrial laundry that serves both the hospital and hotel segment. Regarding this research, the data referred to the lavage processing of the hospital layette, more specifically, the rewash performance indicator, which evidences the need for a certain part to undergo a new general washing process.

When dealing with the amount of hospital layette processed annually by the laundry, it was verified that this value has increased every year. In 2013, the layette processing reached an average of 624,723 kg, in the following year, the value reached 762,266 kg. In the year 2015, the data demonstrate an even greater amount of layette washing processing, reaching 771,839 kg.

The goal of this research was to analyze the rewash performance indicator of Lavanderia Classe A. The results obtained are represented annually through the graphs of the three years surveyed. In the year of 2013, the results of the indicator presented an index of 4.48%, which, according to the owner, remained below the estimated goal of the laundry, which is 5%.

In 2014, the percentage of rewash reached an annual average of 5.01%. This percentage, higher than the year 2013, caused the management to review the washing process. The increase in the indicator generates higher costs for the company, through the use of more products, more energy, more water, more wear of the machines and, consequently, a greater wear of the layette. Therefore, in that year the management decided to change the supplier of chemicals.

In the year 2015, after the substitution of chemical products, the values of the indicator rewash presented a regression, closing the year with an average of 4.66%, considering also that, in that year, there was an increase in the volume of layette processed by the laundry.

Through the analysis presented, it can be concluded that the management decision to replace the washing products with other enzyme-based products generated positive results, which can be observed both in the sanitation of the layette through the softness of the fibers, the smooth fragrance and the reduction of the volume of water used during processing. In addition, customers have been more satisfied with the quality of service delivery.

It should be noted that enzymatic products have a higher cost. Even so, according to the owner, customers often prefer to pay a higher price to have a higher quality service, which offers future savings, because if the product reduces the need for rewash, also reduces the wear of the parts, which results in longer shelf life.

In this sense, it is emphasized that companies must be attentive to the operation of their processes, establishing performance indicators that allow measuring the effectiveness of the actions taken. In the laundry segment, this monitoring is necessary for several aspects, either in maintaining the quality and durability of the layette, or in controlling the use of water.

Several investigations can be made from this research, in order to analyze the way in which the performance indicators can help the management in the identification of the weak points of the process, allowing a more detailed observation in order to detect

possible problems that are causing the unwanted results. The reproduction of the study is stimulated, both in laundries inserted in the structure of the lodging facilities, as well as in outsourced laundries, aiming at comparisons of the results and enrichment of the research.

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