Improvement of pharmaceutical services in hospitals through Kaizen Lean methodology

Kaizen Institute

João Pedro Faria dos Santos

Department of Engineering and Management, Instituto Superior Técnico

Abstract

Due to the competitive pressure that companies are being targeted, it is extremely urgent to take measures to improve profitability with greater use of resources. Therefore, the main goal is to increase productive capacity.

With this aim, Kaizen Lean systems application have been increasing in order to map the value chain of a company and, through continuous improvement techniques, eliminating activities that do not add value to the customer.

Based on this context Empresa XPTO, leader in the healthcare sector in Portugal, aims to reduce the waste of several processes undertaken in the hospital's Pharmacies.

The present paper provides a set of Lean Kaizen tools that, when properly integrated, permits to draw a set of alternatives to improve the internal circuit of medicines, by focusing on activities that add value to the customer.

Supported by examples from literature review, this paper describes a solution that involves the gathering and analysis of data, in order to identify improvement opportunities for the initial state of the several processes developed. Based on this approach, it was designed a set of alternatives to implement in six pharmacies in a five-month period.

The main results obtained in the first month, after the Implementation of improvements phase (February/14), were an annual reduction of 11% of the stock level and 0.29 average ruptures per month on each hospital.

Keywords: Pharmacy, Gemba, Kaizen Institute, Lean, Muda, Total Flow Management

1. Introduction

In the current economic climate it is essential to reduce waste and increase business efficiency (Waring and Bishop, 2010).

Therefore, it is crucial to find low cost solutions that, at the same time, generate more value for the customer and thus for the company (Waring and Bishop, 2010).

According to the Kaizen methodology that supports a continuous improvement on processes, the way to achieve sustained growth of earnings and sales is done by improving Quality, Cost, Level of Services Rendered and motivation of employees (QCDM) (Bardhan and Thouin, 2013).

The Kaizen methodologies come in five fundamental principles: Creating customer value; Mapping the value chain to make a survey of the opportunities for improvement; Creating flow; Involvement of all people and continuous improvement (Kaizen Institute, 2013a).

Applying these principles implies the reduction of Muda processes. Muda is the Japanese term for waste, ie activities that add no value to the process (Kaizen Institute, 2013a).

According to Masaaki Imai (2012), Muda is represented by a model that classifies waste into seven types: movement of people; movement of material/information; people standing; material stopped; overproduction; reprocessing and defects that cause rework.

The health sector is one of the most important sectors in the sustainability of a country's economy, due to its implications in societies (Reeves et al. 2014). It involves a set of very complex processes and materials, which generates several kinds of Muda to the customers.

Empresa XPTO is a leader in the health sector in Portugal. With several facilities across the country they aim to achieve the excellence in customer service.

In order to achieve this, that has been the company's goal, together with the competitive pressure, the Kaizen Lean methodologies were implemented in order to improve the whole circuit of

the medicine, since it is approved in the hospital Pharmacy until it is administered to the patient.

The goal of this paper is to conduct a survey phase of the initial state, by collecting and analyzing data, to subsequently implement a solution that integrates several tools of continuous improvement.

In Section 2, a brief review will be made to the available bibliography about Kaizen Lean methodologies applied to health. In Section 3 it will be presented the case study with the description of: Kaizen Institute, Empresa XPTO and the problem that is being analysed. In Section 4, the Implementation model will be described. In Section 5 it will be discussed the results achieved and finally in Section 6, the conclusions reached and the proposed actions to improve the results.

2. Literature review

2.1 Lean Thinking

Lean thinking is defined as the goal of reducing or eliminating wastes throughout the value chain of a company (Melton, 2005), focusing only on the company's activities that create value for the customer.

One of the most formal and complete definitions found in the literature defines Lean production as a multidimensional goal that encompasses a wide variety of management practices, such as just-in-time (JIT), quality systems, work teams, production in cells and supplier management, in one integrated system (Shah and Ward, 2003).

Melton (2005) suggests a structure that aims to scroll through all stages of a project of continuous improvement properly respecting Lean thinking.

As expressed in Figure 1, the process begins by collecting data in order to map the activities, so that operations can be divided into value added steps and waste steps. This step, as all of the following, must be performed with the aid of people who works in Gemba (Gemba means shopfloor). After performing this task, an analysis of data to find causes of the problems encountered is taken. The next step consists in designing alternatives to be implemented. These alternatives, usually involve the creation of new processes. Finally, the last two steps are the solution Implementation and subsequent evaluation of results (Melton, 2005).

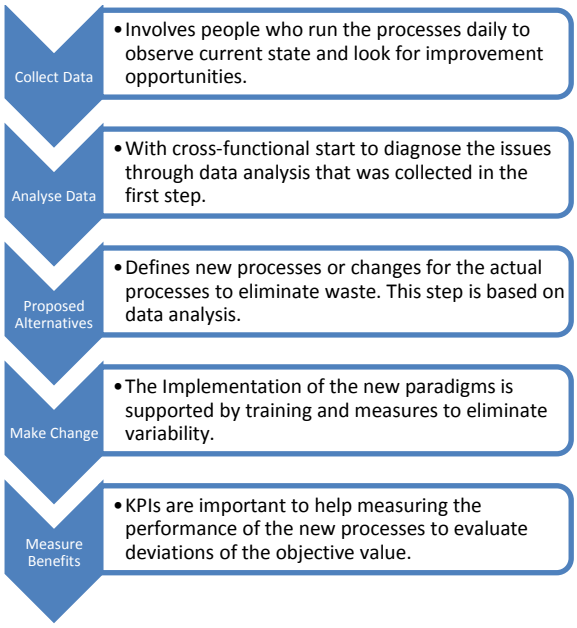

Figure 1 – Lean Thinking Structure
Font: Melton, 2005

Lean and Kaizen concepts are often confused, but Lean is defined as the goal to reach (no waste), Kaizen is defined as the method used to achieve it (Melton, 2005).

Lean thinking was born in the manufacturing sector, more specifically in the automotive industry (Toyota plant in Japan) (Womack et al., 1990). Since 1988, the application of Lean methodologies have increased and also being requested in the service sectors (Bowen and Youngdahl 1988). Both authors found that manufacturing firms had higher gains when clients visited the facilities. This is a recurrent action on services sectors like hotels, hospitals, restaurants, banks and other industries. The main barrier in the paradigm shift was the replication of the tools developed in industrial environment in the services sector (Bowen and Youngdahl, 1988).

According to Suárez-Barraza et al. (2012) the application of Lean in services reduces waste in enterprises by increasing flexibility of activities and product quality, while reducting costs and Lead Times.

Souza (2009) presents an example of Lean Implementation in the retail sector. This sector, combined with health, is one of the sectors where Lean Services methodologies have been well developed. According to the author, the retail chain Tesco, by implementing Lean in its supply chain,

achieved a higher quality of the service and a considerable improvement in the financial results of the company (Souza, 2009).

The case study by Martin et al. (2013) presents an application example of Lean techniques in the health sector. It describes a hospital in the UK where the orthopedic radiology department was object of constant complaints from customers due to high waiting times and low service levels. The results presented by Martin et al. (2013) shows that the new supply logic in the radiology service offers a higher quality for the patient simultaneously with high levels of employee satisfaction. All these actions are reflected in an increased productivity.

The case study presented by Martin et al. (2013) highlights the importance of Lean in services, presenting an application example of the methodologies in the health sector.

2.3 Lean Healthcare

Since 2002 until now, companies such as Kaizen Institute, have been increasingly investing in the adaptation of Lean techniques to the health sector (Souza, 2009).

Facilities like hospitals, pharmacies, clinics among others, are structures with a set of very complex operations. These operations require very high investments, either in equipment or medicines (Robinson et al. (2012)). The application of Lean methodology in terms of health, ie Lean Healthcare emerges with the application of methodologies of business reengineering (Radnor and Boaden, 2008).

The following points will present the application of the five principles of Kaizen to healthcare sector based on documentation provided by Empresa XPTO and Jones and Mitchell (2006):

- **Create Value:** activities that create value are defined by patients who work as a primary customer service. The patient should be involved as far as possible to make this feel like a part of the diagnosis, and medication preparation process.
- **Value Stream Mapping:** Mapping all the processes in the hospital's pharmacies to easily define unnecessary routes simultaneously optimizing the existing flows.
- **Creating flow:** Getting all the processes developed within the hospital pharmacy done fluidly, without constraints and minimizing the distances.
- **Pull Planning:** Except for single-dose, no other activity is based on a pull strategy. This principle focuses on creating a purchasing system with zero wastes, working in a system of just in time.
- **Continuous Improvement:** Creating standards, ie defining the most efficient way to perform an action simultaneously developing standards that will help employees to perform their activities. These improvements should always be based on a PDCA cycle.

Escobar and Vega (2013) presented a study on the applicability of the principles of Kaizen management to a Spanish hospital. After applying the tools, the authors observed not only a reduction in stocks and delivery times but also an increased quality of service. In addition to these benefits, there was also an increase in worker satisfaction resulting in improved productivity.

In the health sector, there is a comprehensive set of waste that should be eliminated. The Pharmacy, due to all the activities, carries out a high tendency to create waste

According to the Seven Muda Model in the health sector it is important to select the tools that best fit the application of Kaizen methodology in Health (Imai, 2012).

2.4 Kaizen Tools

Based on published examples and following the structure advocated by Masaaki Imai, in this Section will be presented the tools with the greatest impact on a continuous improvement project in health sector.

The Kaizen tools with greater importance in reducing waste in the health sector are:

- **Five S:** Designed by Kaoru Ishikawa in Japan this tool works as a checklist that aims to create work habits to provide better organization, cleanliness and discipline in the workplace (Imai, 2012 and Melton, 2005).
- **Visual Management:** Visual management is divided in several aspects from the site identification and normalization to the visual tracking performance Indicators. An example of visual tracking is placing a highly visible area of the Gemba, showing the graphics with the most important Indicators to evaluate the problem under analysis (Melton, 2005).

- **Kanban:** In JIT system, the production process and the movement of materials is controlled by a technique called Kanban (Baykoq and Erol (1998)). Kanban is a subsystem of the Toyota Production System that was created to level the stock, control production and supply of components and in some cases, raw material.
- **Leveling:** A major reason for the variability of the stock is the purchasing policy based on a set of forecasts. Consequently, it is almost impossible to eliminate the variability of a production system. In this regard, most production practices serve to help controlling the excess of stock (Kanban) or reducing variability of a system by, for example, daily shopping thereby reducing the time scale of the predictions (Huttmeir et al. 2009). Lean tool that encompasses all these practices leveling and reducing variability is called heijunka.
- **Value Stream Mapping (VSM):** Technical mapping of a company's value chain with the aim of drawing the current state and define opportunities for improvement in the process. Works as a starting point for continues improvement projects (Jimmerson et al. 2005).

The five tools presented are all interconnected with the goal of making possible the Implementation and structured problem solving.

After establishing the problem, the mapping of flows (VSM) takes place in order to find opportunities for improvement.

Defined all the causes of the problem, in terms of inventory management, remains all other tools like Kanban solution or leveling to implement. Finally, as a complement to the operational resolution there are tools such as audits and 5S Visual Management that allows a jobs improvement along with the Implementation of the established discipline.

With Literature Review, it is concluded that the Kaizen Lean methodologies have been applied in several areas of the health sector. In this paper, as it was said before, there is a focus on services of hospital's pharmacies. In the following Sections the several steps of the Implementation phase will be presented along with the improvements to the monitoring internal circuit of medicines.

3. Case-study

Empresa XPTO consists of a set of units providing healthcare services and is then split into three groups: Private Hospitals (PH), Private Clinics (PC) and Public-Private Hospitals (PPH).

The units with the highest weight in the organizational structure of the XPTO enterprise are Private Hospitals 1 and 2, founded in 1945 and 2001 respectively. The procedures performed in the pharmacies of each unit are very similar differing only in the size and number of customers. The PH2 has been selected as the pilot unit for this study because it includes about 95% of the procedures performed in a pharmacy.

The main processes performed in a hospital pharmacy are:

• **Preparation of Unit Dose (UD):** medications are sent to internal patients at the Hospital according to the prescriptions made by doctors (required by Infarmed). The medications are managed by Pull Planning depending on the doctor and the patient. Associated with the preparation of UD there is a designated activity without any value added designed by the return of medicines that followed in UD but were not administrated to the patients. This happens because of: mistakes in the prescription of the doctor, the patient checks out with no information to Pharmacy or nurses administrate the medication from the preparation of the next point;

• **Preparation of Traditional Dose (TD**): used to supply existing stocks in each service. It serves to support UD and also to respond to emergencies that arise in services. By law, the administration of medicines to internal patients should be done by UD, but sometimes, by disorganization of nurses, this is not a reality;

• **Supply Operative Block and ICU**[1]: works like the TD, but directed to supply these areas in particular due to the associated restrictions;

• **Warehouse Activities**: Related to the two types of preparation and supply there is a whole set of tasks to accomplish as: goods receiving, storage, picking systems, and management of warehouse space. At the same time it is necessary to manage the entire pharmacy stock as a function of the products inputs and outputs.

• **Purchase Order Management**: in this process the orders created in the actual inventory management system are managed.

• **Other activities:** In addition to the activities explained above, that includes a strong logistics

[1] ICU – Intensive Care Unit

component, there are other specific activities of pharmacists as Production Oncologic Medicaments or products, preparation of Clinical Trial and even Management Loans between hospitals.

To integrate these processes with Kaizen tools there is a system called Kaizen Management System (KMS) (Imai, 2012).

The pillars of KMS aim to improve the flow management (TFM), the quality (TQM), the machinery maintenance (TPM), the service management (TSM) and the projects' management (IDM).

The main pillar used in this paper is called Total Flow Management where the objective is the creation of flow in the internal logistics of each Pharmacy as well as external logistics, ie suppliers and hospital services.

In short, the problem studied in this paper entails to improve the efficiency of operations developed in six hospital's Pharmacies of a private company that operates in healthcare. The main focus of improvement concerns the reduction of capital invested in stock in the six Pharmacies by implementing a new policy for inventory management. To support this goal it is necessary to redefine the rules for picking and designing more targeted areas to increase productivity.

4. Application of Kaizen Lean in Empresa XPTO

The introduction of Kaizen Lean methodologies in Empresa XPTO followed a set of three phases: Preliminary Analysis, Implementation and Follow-up. Within these three phases the five steps of the structure advocated by Melton were employed.

In this context, the Preliminary phase, developed in PH2 as a pilot unit, consisted in collecting and analyzing data which were the basis for the proposed improvements. The Implementation phase matches the fourth step of the framework developed by Melton. Finally, the goals measurement is performed during the Follow-up which also includes the creation of new complementary solutions.

4.1 Preliminary phase

The starting point of this paper is to analyze the current state of key processes developed in hospital Pharmacies. For this, the respective collection and analysis of data was performed simultaneously. A process is defined as a set of operations. After these two steps, and based on opportunites found, it is required to design the solution approach with the proposed improvements.

The processes performed in a hospital Pharmacy which were analysed with VSM are: Order Process; Reception and Storage; Unit Dose; Traditional Dose; Repacking; Returns of medicines; Management of expiry dates. In the scope of this paper, for each process defined as critical to the Pharmacy, a value analysis was done with a fluxogram to find major opportunities for improvement throughout the different operations. It was also performed an analysis of stock levels as a complement to the order process. A critical process is defined as a process with a high weight in pharmacy in terms of impact in stock. The processes selected as critical are: 1) Unit Dose; 2) Order process; 3) Inventory analysis. In this paper, an in-depth analysis to the order process is made since this is the part with the highest impact in the observed results. In order to control these processes and to achieve the pre-defined targets for this project, the following Key Performance Indicators (KPI) were defined:

- **Daily Stock Level:** This Indicator monitors the results of the measures taken regarding to the reduction of capital invested in stock. A daily frequency registration was analysed due to the high variability in the consumption of medicines during the month.

$$Stock\ Level = \sum_{i=1}^{n} S_i \qquad [1]$$

The total Value of Stock in a day is obtained by summing the values of existing *stock* of each article in Pharmacy (Si). In total there are n items in inventory. The target value for this Indicator is a reduction of 25% compared with initial stock.

- **Daily Critical Stockout:** It is intended to safely monitor which products are stockout and the respective main cause. The daily frequency was analysed due to the fact that there are daily consumption and, therefore, likelihood of stockout. A Critical Stockout is defined as the absence of a medicine in Pharmacy or anywhere else in the hospital.

$$Critical\ Stockout = \sum_{i=1}^{m} CSout_i \qquad [2]$$

The number of stockout per day ranges from 1 to m, where m is the total number of requests not

satisfied per day. The target for this KPI is zero critical ruptures.

- **Daily Non-Critical Stockout:** A Non-Critical Stockout is defined as the absence of a medicine in the pharmacy. However the medicine exists in *stock* in a forward warehouse or in Traditional Dose elsewhere in the hospital.

$$Non - Critical\ Stockout = \sum_{i=1}^{m} NCSout_i \qquad [3]$$

The number of Non-Critical Stockout in one day is obtained by adding the number of non-critical stockout observed (RNCi), ie unmet medical prescriptions for *stock* of Pharmacy. The target for this Indicator is zero non-critical ruptures.

- **Number of delivery orders per day:** This Indicator intents to study the impact of the new model in the reception area of Pharmacies. Changing the paradigm for creating purchase orders more frequently with less quantity can create variability in the daily receipt routine of each Pharmacy.

$$\text{Number of delivery orders:} = \sum_{i=1}^{j} Order_i \qquad [4]$$

The total number of lines is obtained by summing the number of orders received per day. An order can include several references to medicaments.

4.1.1 Value Analysis to Order Process

The order process is represented by the fluxogram in Figure 2 where is described the sequence of operations which are currently performed. This fluxogram represents the result of step one and two of Melton structure. Based on this analysis to the different operations it was found different types of waste such as: 1) Transactions not standardized; 2) Purchase central did not had view on the needs of Pharmacies; 3) The needs of purchases followed a Push model; 4) Existence of several manual operations; 5) Reprocessing of files and lists of needs; 6) Printing incomplete purchasing lists.

The main consequences of these wastes are the errors generated in the values records the system outputs and inputs and the creation of purchasing lists not synchronized with reality.

In addition to the fluxogram of order process, an analysis was performed to stock level management since the wrong orders can increase stock level and consequently update the stock coverage. From this analysis it was concluded two main things: 1) there are some gaps between the actual stock and the stock in the system; 2) Medicines based on the volume of consumption that would provide a different approach to each group of products are not being classified.

In addition, in data analysis phase it was done an ABC analysis to split Products between rotative products (Type A) and slow movers (B+C).

The results are represented on Table 1.

Table 1 – PH2 Product typification with ABC Analysis

Products A		Products B + C	
#Products	189	**#Products**	1041
Lead Time [Days]	11,22	**Lead Time [Days]**	7,91
Daily Consumption	11,44	**Daily Consumption**	3,36
Stock	37.745 €	**Stock**	226.618 €
Average Coverage [Days]	33,81	**Average Coverage [Days]**	21,95

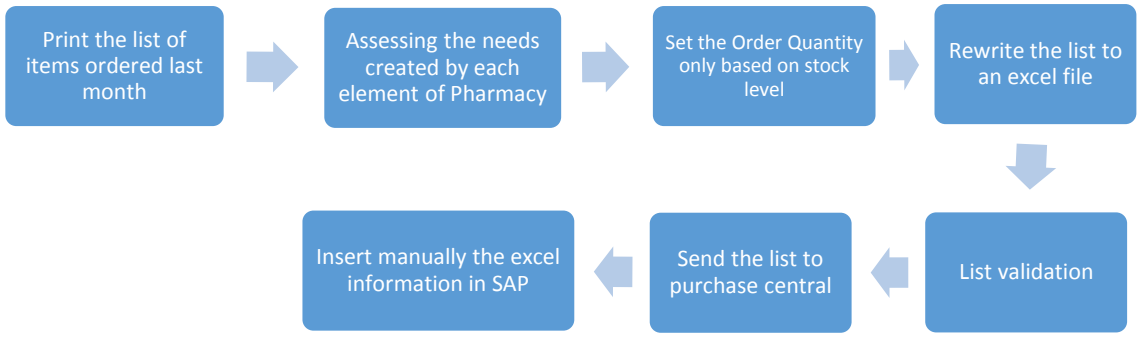

Figure 2 – Fluxogram with sequence of operations in the order process

Comparing Lead Times, from table 1, the average coverage of products A is three times higher. The least rotation products (B+C) stock coverage is 2,8 times higher than Lead Time of these items. If it was created a new paradigm based on zero level of stock, it would be possible to reduce stock coverage to have a value that matches the Lead Time. In other words, Empresa XPTO can reduce stock level working with the just-in-time philosophy.

Considering the Lean structure developed by Melton, the next step is the solution design with alternatives to the actual paradigms.

The proposed alternatives meet the objectives initially defined, including a link between Kaizen Lean tools that were selected and the opportunities for improvement found previously.

Therefore, an objective of 25% reduction in stock level was defined by each hospital Pharmacy. This was a target imposed by Empresa XPTO as a result to achieve within six months following the end of the implementarion phase. The Implementation program will place in practise the opportunities found to the order process. It is divided in four main phases:

Phase 1 - Organization of layouts

To reduce the probability of wrong orders it is important to turn visual the purchase requirements. Five S tool and visual management are the tools chosen to implement this idea. Based on an ABC analysis, the layout design was defined, grouping medicines based on consumption rotation;

Phase 2 – Process normalization

To normalize the purchase process a standard was defined with the best practices to make an order. It should be then shared between all the Pharmacies to guarantee normalization. The main ideia of this phase is to support all the processes with standards.

Phase 3 - Smoothing stock levels

To meet the reduction target, it was defined a new model to manage inventory with a Continous Review Policy (CRP). With this new logic pharmacies have a Replenishment Point for each product and a fixed Quantity to Order. The technique developed to create an order is the Kanban Cycle with four stages: 1) Kanban is in the Replenishment Point; 2) After the consumption of the last products before Kanban, starts the purchase process by placing the Kanban in the "Ordering Kanbans" box; 3) With Kanban's help, the purchased order is created and, after that, it is placed in the "Ordered Kanbans" box; 4) Once the order is received, the product and the Kanban are stored.

Phase 4 – Creation of standardized teams meetings

The implementation of the Daily Kaizen tool will create a culture of continuous improvement thinking in everyone involved in the Pharmacy. This phase helps the Implementation of the new alternatives without variability.

The next step is to start the Implementation program. Based on Melton structure this phase is named: Make Change. It will start with layout redesign due to time consumption and implications in productivity.

The order process was standardized in five operations: 1) Purchase order is identified with Kanbans; 2) With an optical reader the Kanban barcode is picked; 3) Adjustments to the order quantities to fulfil minimal amounts of Suppliers, if necessary; 4) Directly upload data to SAP; 5) Automatical sending of orders to purchase central.

The variables to the CRP model are: Replenishment Point (RP) and Quantity to Order (QO). The first one is calculated with:

$$RP = average\ consumption \times LT + SS \qquad [5]$$

Where safety stock (SS) is the difference between the largest registration of consumption and the average during a period of analysis. The idea is to take into account the deviations from average. The lead-time was calculated by eliminating outliers in historical data.

The second variable is calculated with:

$$QO = \max(daily\ average\ consumpt.\ in\ 7\ days) \qquad [6]$$

Seven-day periods were considered since the new purchase frequency is done in a weekly basis. Compared with the last paradigm there is an improvement when creating a flow in the order process. At the beginning of the project these variables were oversized in order to make the several elements of the Pharmacies feel confortable with the new paradigm. To solve this problem, it was established a committed relationship to create a

complementary model to further reduce the stock level. These two variables are inputs to create Kanbans to do the cycle mentioned before.

5. Measure Benefits

The analysis of the benefits was carried out using the defined KPIs. The benefits observed until the completion of this paper included only data provided for the months of Implementation phase.

In this paper is only presented the KPIs analysis to the HP2 to evaluate the performance of Kaizen Lean methodology. Stock level is done by comparison with the same period of consumption. The results are presented in Table 2:

Table 2 – Impact Analysis on Stock Level of PH2

Period	HP2 Stock Level	Variation $Year_n – Year_{n+1}$
Oct. 2012	301.324 €	-12 %
Oct. 2013	265.000 €	
Nov. 2012	305.358 €	-21 %
Nov. 2013	240.000 €	
Dec. 2012	272.756 €	-19 %
Dec. 2013	220.048 €	
Jan. 2013	254.512 €	-18 %
Jan. 2014	208.400 €	
Feb. 2013	305.868 €	-33 %
Feb. 2014	204.586 €	

As we can see there is a positive evolution of stock level compared with the same period in the last year. In every month there is a reduction of stock compared to the previous year. Taking into account the evolution, there is a cumulative reduction between October and February of 21%. Although it only includes the first month of the six-month commitment agreed, achieving a reduction of 25%, the trend in the HP2 is to achieve the target.

The two KPIs related with stockout are summarized in Table 3 for the PH2. The values represent the average stockout per month in PH2. These KPIs are not compared with previous year because there was not any kind of technique to measure service level.

Table 3 – Impact Analysis on Stockout of PH2

Year	Month	Average Monthly Non-Critical Stockout	Average Monthly Critical Stockout
2013	Sep.	3,00	3,00
	Oct.	1,00	3,00
	Nov.	2,00	2,00
	Dec.	0,00	4,00
Average Monthly 2013		1,50	3,00
2014	Jan	1,00	3,00
	Feb.	0,80	1,00
Average Monthly 2014		0,90	2,00
Absolute Reduction		-0,60	-1,00
Relative Reduction		-67%	-50%

As it is showed above, in the last four months of 2013 in PH2 there was an average of 2,25 unanswered requests with 3 registers to critical stockout. This value when compared with the daily consumption, which is higher than 90.000 (requests), turns the impact of this KPI marginal. Nevertheless, in 2014 a reduction of this KPI was reported. The main cause for the values registered is the shortage from the supplier.

The Implementation of standards for the different processes with the support of meetings in Daily Kaizen model implied a productivity increase of 30%.

6. Conclusions

In this paper the restructing of six hospital Pharmacies, aiming to reduce the stock without compromising the service level has been presented. To better explain the sequence developed by Melton, PH2 was analysed as an application example. The first step undertaken in the Pharmacies was to map all the processes and, based on that, improvement proposals were suggested and later implemented. This initial phase is called data collection and analysis. After this, the Implementation program was defined based on opportunities from a fluxogram with value analysis. In the order process the main opportunities discovered were: 1) Purchase process is not standardized; 2) Utilization of a push model; 3) The purchase central has no view on the needs of Pharmacies.

To implement the alternatives designed, an Implementation program was created with four phases: 1) Layout design; 2) Process normalization; 3) Stock levelling; 4) Normalized meetings. The results of PH2 indicate that the Implementation of a Continuous Review Policy will enable to achieve a 25% reduction in the stock levels without compromising the service level. The cumulative reduction between October 2013 and February 2014 is 21% in PH2. In this hospital the average stockout of medicines in 2014 is 1,45 per month.

The next major step is the Implementation of a complementary reduction model stock. This model consists of revising the formulas for calculating the RP and QO to include the cost of inventory management and control the service level. Tests performed on PH1 enabled a reduction of about 6% in the stock level (after a 25% of reduction) with a service level of 91%. This service level was defined from a sensitive analysis with the Pharmacies Director. Another step that should be implemented in the future is the creation of a system where the purchase central can view orders made by Pharmacies to reduce the variability in the orders to the suppliers.

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