

## Six Sigma and the Continuous Improvement of the Dental Medical Services Quality

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### Abstract

In this paper we approached aspects related to the continuous improvement of the dental medical services quality by addressing modern methods to increase economic performances, such as the Six Sigma method. Throughout the paper we set the size of the medical services quality and its lifelong importance as an essential premise of increasing competitiveness in the conditions of a fierce competition. We have shown the benefits of Six Sigma for an organization of medical services field and we focused on the Six Sigma tools to identify the patient's voice and understand his real needs.

Key-words: Six Sigma, quality, performance, continuous improvement, competitiveness, tools.

### 1. Introduction

Quick changes in social and economic environment, the fast evolution of medical technologies lead to changes in our perception of the quality of health services. Thus, the quality of health services in general and the quality of dental care in particular acquires new dimensions in the current economic context that stimulates the confidence and leads to the improvement of the performances.

Quality dimensions and parameters represent useful tools in defining and analyzing problems, results and processes measurements which are obtained in dental medical care and the degree at which the established standards are accomplished.

Some of the most important dimensions of the quality of the medical act are [3]:

- Safety – the potential risk of an intervention or activity is avoided or minimized both for patient and the services providers;
- Professional competence – the knowledge, skills, ability, the performance of the services providers, of managers and the support staff meet the provided service;
- Acceptability – the provided services meet the expectations of clients, providers, paying and financing organizations;
- Efficacy – service, interventions or the actions determine the desired results;
- Relevance – the services are according to the patients' needs and are based on previously established standards;

- Efficiency – the obtaining of the desired results and a cost efficiency use of the resources;
- Accessibility – the possibility of the patient to get the service at the proper place, at the proper moment depending on the felt needs. It supposes the absence of the restrictions from the following points of view: geographic, economic, social, cultural, organizational or the linguistic barriers;
- Continuity – the capacity to provide incessantly and in a coordinated manner the services. The absence of continuity can compromise efficacy and lower efficiency, reducing at the same time the importance of the interpersonal relations;
- Interpersonal relations – they refer to the existing relationships between doctors and patients, managers and doctors, the managerial team and community;
- The patients satisfaction – it refers to the degree to which the changes appeared in the health status of the patients meet their expectations;
- The patient's compliance – it is the degree to which the patient accepts and applies the established care plan agreed with the doctor.

Therefore the focusing of the medical acts on its lifelong improvement represents the way to performance and competitiveness.

## **2. Six Sigma and the performances improvement**

Any health care professional must tend to excellence, which supposes to apply the “zero defects” principle [3]. Otherwise said, those who work in the health care system must improve their performances so as to minimize and eventually, to eliminate the defects.

The process of identifying the centers or the practices of excellence stimulates reorganization, innovation and lifelong improvement, which together lead to a high level of quality. Competition, especially in the dental services field, has a greater and greater importance, as the patient has a better access to adequate care.

Quality can be found in this competition, the dental offices contributing to reach the requested level of quality, in order to attract new resources and broadening horizons.

The improvement of quality supposes the process and sub-processes of reducing the variation of a certain performance compared to a standard in order to realize a better result.

The key data consist in the ability to identify this variation. The process supposes the strengthening of the results control.

Applying the Six Sigma method in the medical services field has an important role.

Approaching Six Sigma is actually a complex of strategic and operational methods through which the achievement of an excellence degree in the quality of products or services offered by a certain organization, industrial or providing services is followed. This “degree of excellence” [4] is not just a figure of speech – it can be quantified and thus there is a possibility of reporting at this level through different indicators which measure the degree of approximation or distance from the followed optimum.

Thus it is outlined the fact that the main aspect of approaching Six Sigma is the managerial one, of organizing and leading the activity of quality, in this activity the operational aspect (methodological, procedural)

being incorporated and which is based on the theoretical and practical arsenal offered by the mathematical statistic. [7]

Six Sigma, this “new philosophy of quality” refers to the identification of some vital elements that can lead to the improvement of the activity at all the levels of the organization, as well as to the quantification of these elements through different “metrics” of performance.

We can identify the benefits which attract the organizations to the Six Sigma method:

- **It generates a long term success.** The only way for a firm to maintain a high rhythm of development and to withstand on the continually changing markets is to be innovative and to re-make the organization constantly. Six Sigma creates the necessary abilities and culture for the continual revitalizing.

- **It establishes an objective of performance for each.** Each function unit of business and individual has different objectives and missions. Although what it bounds everyone is the products services or information delivery to the clients from the interior or exterior of the company. Six Sigma uses this common frame for business, the process and the client, to create a constant objective: the Six Sigma performance, meaning a level of performance as closer as possible to its performance in regard to the Six Sigma objective to register a percent “of perfection” of 99, 9997 – such a high standard, as it makes any of the previous visions over “the excellent” performance to look less modest.

- **It adds value for the clients.** Considering the bitterer and bitterer competition from all the sectors, the delivery of products and services which are just “good” or “with no flaws” will not guarantee the success anymore. The

concept within the Six Sigma, to center on the client, means to learn what exactly represents the value for the client and to plan the way in which products and services can be delivered as profitable as possible.

- **It accelerates the improvement rate.** Considering the informational technologies, which establish a rhythm of doubling at each and every 18 months of the performance reported to costs, the improvement expectations of the client become even more and more stressful. The competitor, who manages to progress faster, wins the race. Borrowing instruments or ideas from more disciplines, Six Sigma helps a company, not only to improve its performance, but also to improve its *improvement* [1].

- **It promotes learning and the trans-sector experience changes.** Six Sigma is an approach which can accelerate the rhythm of development and of the new ideas distribution within the organization. Even in such a diversified company as GE, which implemented successfully this method, Six Sigma is seen as a fundamental instrument of learning. The competent people with expertise in the administration and improvement of the different processes, can be transferred for example from GE Plastics to GE Capital, this leading not only to a shorter curve of learning but also to better ideas and abilities to apply them faster. The ideas can be distributed, and performances can be compared more rigorously.

- **It implements the strategic change.** The introduction of new products, the launch of new companies, the entrance on new markets, what once was occasional business activities are now daily events for more companies. A

better understanding of the firm processes and procedures mean a change in plus to succeed both in the case of minor adjustments and in the case of radical changes, imperiously necessary to maintain the success in business.

### 3. Some Strategic Imperatives for Healthcare in the Future

To assure a high-class medical care with excellent results designed and provided to patients through the Six Sigma method, the following are required [5]:

**1. Elimination of waste:** Value is defined by the customer of the process or service. Healthcare should pursue eliminating wastes in the process using simple tools such as Lean, 5S and more advanced methodologies such as Six Sigma and Theory of Constraints subsequently.

**2. Payment should be based on value** over the period of time rather than the fee for service model. The value model will empower and enable partnership between the provider and the patient and will reward adoption of a healthy life style and reduce costs in the long run, while improving the quality and outcomes.

**3. Economies of scale:** Instead of having several facilities that offer similar services in the same geographical area (and thus leading to inefficient use of resources), healthcare should develop models such as focused factories that can do high volume cases at lower costs and higher quality.

**4. Solution shops:** Solution shops by their very definition are healthcare providers that are geared toward treating complex or emerging health issues where treatments are complex. Reimbursements for these treatments

involving solution shops should be based on fee-for-service model as it requires expertise and custom diagnosis and treatments.

**5. Innovation:** Organizations including government should foster innovation that simplifies complex diagnoses and increases the precision and accuracy of the diagnosis. The goal should be to move “treatments” from solution shops to focused factories to increase value.

**6. Harness the power of technology:** For example, empower the patients with easy access to health information, transferability, enable seamless interface and integration and between patients and providers. This technology enabled facilitated network should help transfer of information on demand, in real time, among patients, providers and support network of hospitals, pharmacy, researchers, etc.

### 4. Six Sigma Tools for Collecting the Voice of the Customer (Patient)

Some common Six Sigma tools used to elicit the Voice of the Customer in healthcare are surveys, customer complaints data base, focus groups, Kano Model analysis, leadership patients rounds (management by walking around), process observations (watching the actual process), encounters based on “moment of truth” (Carlzon defines moment as truth as the point where the customer interacts with the organization and forms an impression on the quality of the service provided), mystery shopper, Critical to Quality Trees, Quality Function Deployment (QFD) and some proprietary off-the-shelf packages.[5]

Surveys are commonly used and are at one end of the spectrum (low complexity, with accuracy dependent on

the survey). Surveys typically poll the patients for his or her overall satisfaction and likelihood to recommend the experience; these are usually employed after a patient encounter (a few days to a few months lag). A key limitation of a survey is that it polls on what the organization's perception of value to the patients is, rather than what the patient actually values.

On the other end of the spectrum is the Quality Function Deployment, a powerful tool that starts with the patient's needs (the "what"), the patient's importance of this "what," followed by the technical descriptors (the "how") for each of the patient's needs and finally the team's rating of the strength of the relationship between the "what" and the "how" Voice of the Customer consists of both qualitative and quantitative methodologies. It is important to capture this information early on in any Six Sigma project before product development and throughout the process improvement cycle.

To be successful in correctly identifying the true need of the patient, the Six Sigma process improvement team should be staffed to a) have a process to solicit information from the patient, b) collate the data, c) conduct analysis, d) be able to interpret the results e) develop actionable goals and f) execute the project to realize the goals.

Some key considerations for success: Though the process sounds simple, it actually tends to be resource intensive (time, scope, costs). The organization should have a key individual accountable for the Voice of the Customer process, a centralized data collection plan, developing priorities that align with the strategic vision and goals of the organization, clear metrics and goals for the actionable Six Sigma

projects coming out of the process. The implications of not meeting the customer expectations (profit and revenue impact) should be tracked to get support for this critical effort from the leadership. The Six Sigma tool selected should be credible, reliable, precise, accurate and useful in making prediction based on responses about future trends.

Every organization serves a unique need for the customer. And a key feature that differentiates a successful organization from a not so successful organization is that a successful one listens to what the customer needs and creates products and services that exceed the expectations. We believe that healthcare attracts the most dedicated, well-intentioned professionals who truly care about the well being of their customers, the patients. However, unlike other service organizations (think hospitality industry), the healthcare professionals will tell you what they think their customers want and need, but will often fail to directly ask what their patients actually want by determining the Voice of the Customer

## 5. Conclusions

Modern society has always followed to ensure the necessary means to achieve a health status appropriate to its needs and objectives. These became more complex and more expensive. As the economic and technological performances developed and deepened, greater necessities appeared concerning the assurance of a minimum level, but satisfactory for health, which naturally, require higher financial resources.

A growth and longlife improvement of medical services is imposed using modern methods such as Six Sigma.

Six Sigma is a solution of the processes improvement within an organization, at all its phases, from the beginning to the end, but its implementation highly depends on the organization's culture. This methodology can be applied to the searching stage of the recruiting resources and the career management process. If these processes can be measured, analyzed, then they surely can be improved, so the ultimate goal of Six Sigma is met.

We can finally say that Six Sigma is a very robust system. Despite all the challenges that may appear in an organization, even if it is production or services, we must admit that Six Sigma is not a program or a technique ad litteram. It is a flexible but fundamental method which makes each and every organization more adaptable, efficient, competitive and profitable.

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