Interdisciplinary Description of Complex Systems 12(1), 78-91, 2014

QUALITY SERVICE EVALUATION THROUGH THE SYSTEM OF COMPLAINTS AND PRAISE

Elizabeta Krstić Vukelja[1] and Biserka Runje[2]

[1]Department for Quality Management System, Dental Clinic Zagreb
Zagreb, Croatia

[2]Faculty of Mechanical Engineering & Naval Architecture – University of Zagreb
Zagreb, Croatia

DOI: 10.7906/indecs.12.1.5
Regular article

Received: 16. December 2013.
Accepted: 20. January 2014.

ABSTRACT

Complaint, as the expression of customer dissatisfaction with the quality of products or services, is very valuable information. Well-built system for collecting, processing and analysis of complaints allows organizations to create the information base for making decisions based on facts. This data base provides an effective adoption and implementation of measures for continuous improvement of products/services quality. To make the system work effectively, it is necessary to continuously use the same methodology for collecting and processing complaints to be able constant comparisons from period to period. Greater investment in quality of products/services does not mean reducing the number of complaints in the same time due to the effects of the phenomenon of "unrealistic expectations". In addition to complaints, a valuable source of information on customer satisfaction is the system of praise.

KEY WORDS

complaint, quality, customer satisfaction, phenomenon of unrealistic expectation, scrap, praise

CLASSIFICATION

JEL: H41, I18

*Corresponding author, η: ekrstic@spz.hr; +385 1 4803 211;
Dental Clinic Zagreb, HR – 10 000 Zagreb, Croatia

INTRODUCTION

Organizations that have adopted the concept of quality as a strategic guideline in the business take into account the degree of customer satisfaction with the service/product and do not neglect the opportunities offered by a good system of collecting, processing and analysis of complaints and praises. The development of such a system is one of the effective methods of evaluating the service quality by measuring the level of customer satisfaction. Customer satisfaction can be measured in various ways: measurement based on questionnaires and interviews, based on the results of audits by the external and internal interested groups, based on the standards typical of certain services specific for a certain organizations, as is the case of health care services.

This article deals with the complaints and praises system in the health care service as one of the elements that can be used in the monitoring of clinical and managerial practices to early identify areas of concern. Complaints are, in fact, warning signs, often present before the patient/customer suffered significant damage, other sources of information include clinical indicators, incidents and results of clinical audit. In addition, the patient/customer does not have to complain when it is not satisfied with the service. On the other hand, the patient/customer himself may be satisfied, but it is noticed that the quality of service that he has experienced was not at the ideal level.

Complaint is not enough just to record, but it should be a trigger to start the whole process that involves: analyzing, communicating with a person who has submitted a complaint, making decisions and planning for improvements, implementation of planned activities aimed at eliminating the causes of permanent dissatisfaction, capturing the specific complaints through periodic reports based on measurement of customer satisfaction.

For example, carefully examined complaints must result in real changes, such as improvement of policies, procedures and processes to improve care, about this customers should be certainly informed, on the basis of complaints preventive actions should prevent repetition of these complaints in the future. The complaint, therefore, can be a catalyst for improving the quality system and point out the special needs of certain groups of patients, for example, children or elderly persons.

Thus, quality improvement for a specific organization is based on several quality management principles: customer orientation, decision-making based on facts and principles of continuous improvement.

WHAT IS A COMPLAINT?

The practical definition says that the complaint is “expression of dissatisfaction that requires response” [1]. However, patients/customers do not always use the word “complaint”. They will wrap their complaints, sometimes, in terms of “comments” or “suggestions” to sound less blatant. For health facility it is important to recognize these „comments“' as a complaint. Specifically, it is important to recognize the situation of patient/customer dissatisfaction with the services in relation to the standards, no matter how they call them. Therefore, in the category of complaints should include any defect or failure to provide medical services at acceptable standards from the perspective of the customer [2].

Complaints are an important indicator of what customer dissatisfaction is constituted, what problems they face during the provision of service. The value of complaints is that they are an excellent additional source of data for determination a value for customers, what are they

complaining about and for elimination of complaints sources in order to achieve higher customer satisfaction level.

In the case of this research, complaints were divided into two categories: informal and formal. The informal complaint, regardless of whether it is addressed by telephone or verbally, in personal contact or through the questionnaires it can be solved by careful treatment quickly and efficiently. A formal complaint has a form of a letter, fax or e-mail, usually refers to serious problems, for example, the unconscionable treatment and must go through a formal process of solving the problem. To submit a complaint means to express dissatisfaction. Thus, the formal complaint is a written protest. The mutual interest is to minimize the effect of the complaint and settle it quickly and in a sensitive manner.

Healthcare facility in this research has its own policies and procedures for complaint cases and follows these policies and procedures [3]. While doing so, a system for tracking complaints particularly took following situations into account:

- sources of data about customer dissatisfaction. Sources analysis for given period were the same, so that the number of complaints could be comparable. Any change in the source of data should be taken into account in the study,
- methodology for collecting and processing complaints, must be the same, in order to ensure comparability. It is necessary to determine what is considered the complaint, i.e. which form of expression of dissatisfaction (whether to consider only expressions of dissatisfaction expressed in writing or orally, and in this case how should they be appropriately recorded),
- evaluation of quality service through the quantification of the degree of customer satisfaction in quality of products or services. The creation of information base as a starting point to explore the root causes of decline in the quality of products or services, and customer dissatisfaction of quality in general,
- interpretation of the number of complaints and the performance of the conclusions,
- purpose that it is not only determination of the number of complaints and simplification of the problem, but the analysis that will lead to the development plan of corrective actions that will act on the causes of customer dissatisfaction.

As it was stated before, the organization that is in focus of this research is health care organization. Dental Clinic Zagreb has accepted the monitoring and analysis of complaints, as the way of quality service evaluation. Top management has made a decision according to which all properly received written complaints from customers, should be delivered to the quality management for processing. Quality team assignments are [3]:

- each complaint must be carefully examined,
- a record of each complaint must be kept in the book of complaints, complaints must be classified into specific categories,
- complaints must be periodically analyzed,
- periodic report on evaluation of quality service based on the analysis of complaints as one of the indicators must be made,
- actions for improvement must be proposed in the report,
- report must be submitted to the quality management representative.

Based on the report of the quality management representative the information for the top management is prepared and proposed with necessary decisions for further actions, primarily to eliminate the cause of the complaint.

COMPLAINTS WITH THEIR SOURCES AND COLLECTING METHODOLOGY

To develop the system, the sources of collecting complaints were determined. Consequently the top management adopted a Procedure of quality named *Complaints of customers – patients* which was established way of collecting, monitoring and analyzing customers complaints [3]. The purpose of this procedure is to establish a methodology that will not change for a long period, to ensure the comparability of results of analysis of complaints from period to period. This action established the obligation of contacting the applicant of the complaints, if it is reasonably possible to establish contact.

There were a different ways of collecting complaints such as: via e-mail, through the official website, in writing to the registry book, through records in the book of praise and complaints, through questionnaires.

The beginning of collecting complaints, based on established methodologies, and their processing and analysis, dates back to July 1st 2006. The first report on the results of the analysis of customers complaints was made in 2006 year, and it referred to the period from July 1st 2006 to December 12th 2006. Subsequently, complaints were regularly collected, and reports were drafted and discussed after each received complaint.

Thus, there are three sources of collecting complaints. These are patients' complaints in written (*formal complaints – FC*), complaints written in the polls *(poll complaints – PC*) and records of complaints to the finished product (*finished product complaints – FPC*), such as the complaints on orthodontic or prosthetic product.

Reports on complaints include, besides determination of the number of complaints, causes analysis, identification of poor processes and determining the level of *the scrap* [4].

Table 1. Number of service complaints in Dental Clinic Zagreb in the period from year 2006 to year 2013 (formal complaints – FC, poll complaints – PC, finished product complaints – FPC). Source: E. Krstić Vukelja research (Management review's records from 2006-2013).

Year	Number of complaints				Number of patient's visits	Amount of investments (kn)	Number of complaints per 10.000 patinets			
	FC	*PC*	*FPC*	*Total*			*FC*	*PC*	*FPC*	*Total*
2006	5		0	5	208287	3.660.000	0.24	0	0	0.05
2007	2	177	5	184	196402	3.394.000	0.10	9.01	0.25	9.37
2008	5	71	3	79	205546	2.984.816	0.24	3.45	0.15	3.84
2009	7	31	2	40	231352	1.913.726	0.30	1.34	0.08	1.73
2010	9	65	2	76	196590	2.555.000	0.46	3.31	0.1	3.87
2011	11	16	3	30	179676	2.737.890	0.61	0.89	0.17	1.67
2012	6	71	5	82	176226	1.950.000	0.34	4,02	0.28	4,65
2013	10	39	1	50	100444	2.250.000	0.99	3.88	0.1	4.97
Total	**55**	**470**	**21**	**546**	**1,494,523**	**21.445.432**	**0.37**	**3.14**	**0.14**	**3.65**

According to the data in Table 1 in the period from the 2006 up to the 2013 year, a total number of 55 *formal complaints (FC)* were received, a total number of 470 *poll complaints (PC)* were received and 21 *finished product complaints (FPC)* were received. Finally, a total number of 546 complaints were received. Observed by years most complaints were received during 2007 year (184), then during 2012 year (82), and so on. Interesting information that can be observed, for a given period, refers to the significant decrease in patient's visits in 2013 year and an increase in investment in the same year. These investments here include not only the implementation of new technologies, investments in continuing education, work

environment restoration but also a large amount of investment for construction interventions realization that was supposed to facilitate access to departments for people with disabilities. This fact is particularly taken into account in further analysis by referring to the data in Tables 4, 5, 6, 7 and 8.

However, the absolute number of complaints in one year does not say much and comparison of absolute numbers per year can be misleading about the customers satisfaction level. This means that the interpretation of the number of complaints in a given period should be approached cautiously.

A small number of complaints does not necessarily mean a small number of dissatisfied customers. These customers have decided to have their complaints heard and to be sure that something will be done about it. Most people do not complain, and therefore those who complain should be approached very seriously.

In the analyzed period, the number of patients/customers visits changed. That is why, it is necessary to calculate the relative indicator so that the correct conclusion, about the customer satisfaction level, based on the number of complaints could be made. The relative indicator is calculated as the complaints number per 10 000 patients/customers visits. It can be concluded that the customers satisfaction level on this indicator was the worst in the 2007 year, when it was received the largest number of complaints, because that year relative indicator of customer satisfaction was 9,37 complaints per 10 000 patients/customers visits. The customers satisfaction level was lowest in 2006 year when it was recorded the smallest number of complaints during that year, which corresponds to the value of relative indicator of 0,05. This result was expected due to the fact that in 2006 Dental Clinic Zagreb began with the introduction of a quality management system and its real swing was experienced is 2007 year. This could be noticed through the seriousness in collecting data.

COMPLAINTS AND THEIR CAUSES

Analysis of the nature of complaints is important to identify the causes of the problem and eliminate them. Reviewing the literature there is a “countless” kind of complaints, in fact as much as one can imagine different situations and events in patient contact with the health service. For the purpose of analysis different types of complaints were brought together and thus they were categorized. From results and analysis of customer satisfaction in secondary health care service some categories and types of complaints causes were divided in several groups [2]: (i) process control (organization, planning, etc.), (ii) the human factor, (iii) equipment, (iv) building (facilities) and (v) other, Table 2.

Table 2. The causes of complaints in the period from year 2006 to year 2013 (total number of all complaints). Source: E. Krstić Vukelja research (Management review’s records from 2006-2013).

Year	Process Guidance (%)	Human Factor (%)	Equipment (%)	Building (%)	Other (%)	Total (%)
2006.	40	20		0	40	100
2007.	3,26	11,41		28,8	56,52	100
2008.	5,06	13,92		37,97	43,04	100
2009.	7,5	10		35	47,5	100
2010.	6,57	19,73		30,26	43,42	100
2011.	16,67	40		10	33,33	100
2012.	9,75	28,05		29,26	32,92	100
2013.	4	6		28	62	100
Total:	**6,41**	**16,48**	**0**	**29,48**	**47,61**	**100**

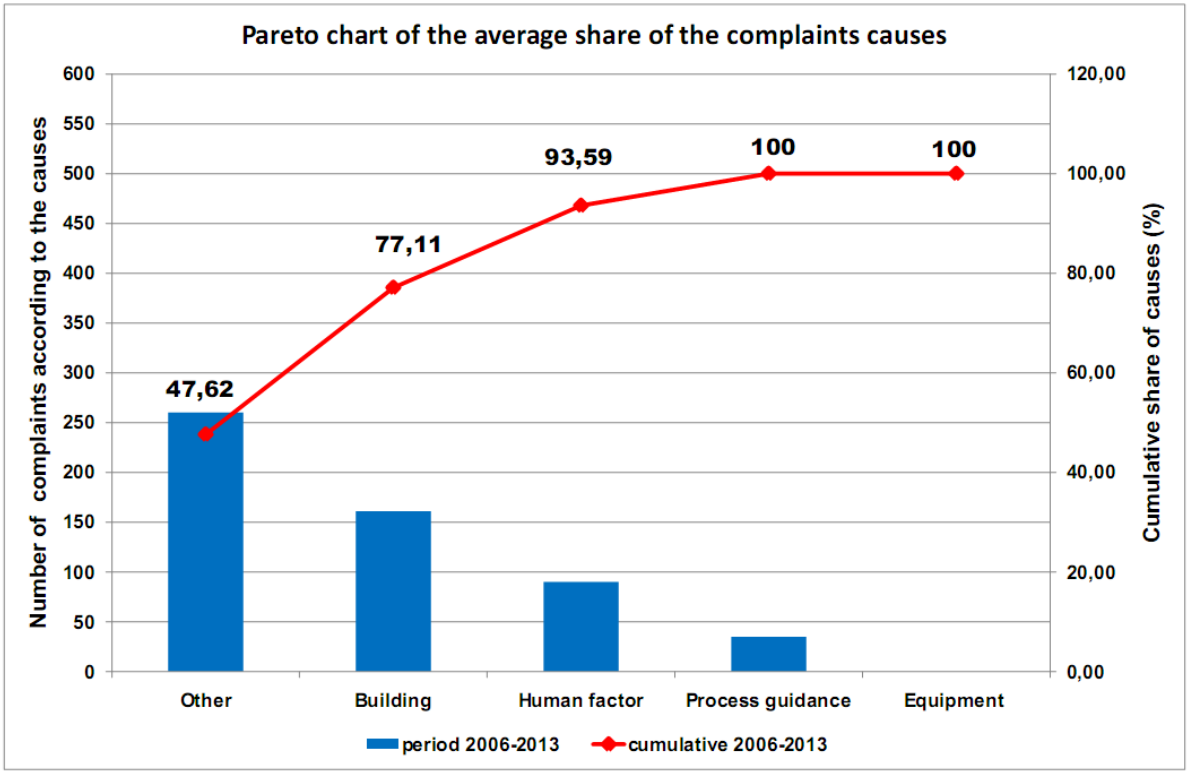


Figure 1. Pareto chart of the average share of the complaints causes. Source: E. Krstić Vukelja research (Management review's records from 2006-2013).

From the cause complaints analysis it can be seen in which direction to take improvement actions. However, it could be noted when analyzing total sum of all of complaints it might be difficult to distinguish the most influential cause of the problem. Viewed separately for each source of complaints it might be easier to reach certain conclusions about implementation of corrective actions.

It can be concluded that in the analyzed period, most of complaints were caused by the concept of "other" 47,62 % (such as: long waiting lists, information about the canceled receipt was not provided, failure to comply with the agreed time of receipt, fear of the doctors, insufficient number of employees, survey questionnaires too long, receive out of turn, no e-mail communication with the doctor, unclear division of numbers etc). The quality of building (such as: sufficient number of seats, neatness, air conditioning, good directions) causes on average 29,5 % of the total number of complaints. Human factor (lack of courtesy, professionalism, communication, for questions often received vague or even rough and arrogant answers, attitudes and behavior of staff etc.) has made an average of 16,5 % complaints during the provision of services. The quality of process guidance (poor maintenance of medical documentation, lack of substitute physician, poor planning and implementation of process, poor diagnostic tests etc.) has caused an average of 6,4 % complaints, and finally the quality of equipment caused none complaint.

Pareto diagram shows which causes are generating the most problems. For this particular example it can be conclude that the concept of "other", building quality and human factor constitute approximately 93,59 % of all causes of complaints. This means that in designing the program of corrective actions and improvements it is necessary to emphasize those measures and activities that will improve the quality control of the main and additional processes and competence of employees. Any change for the better in these two segments will significantly contribute to improving the quality of services, and reducing the number of

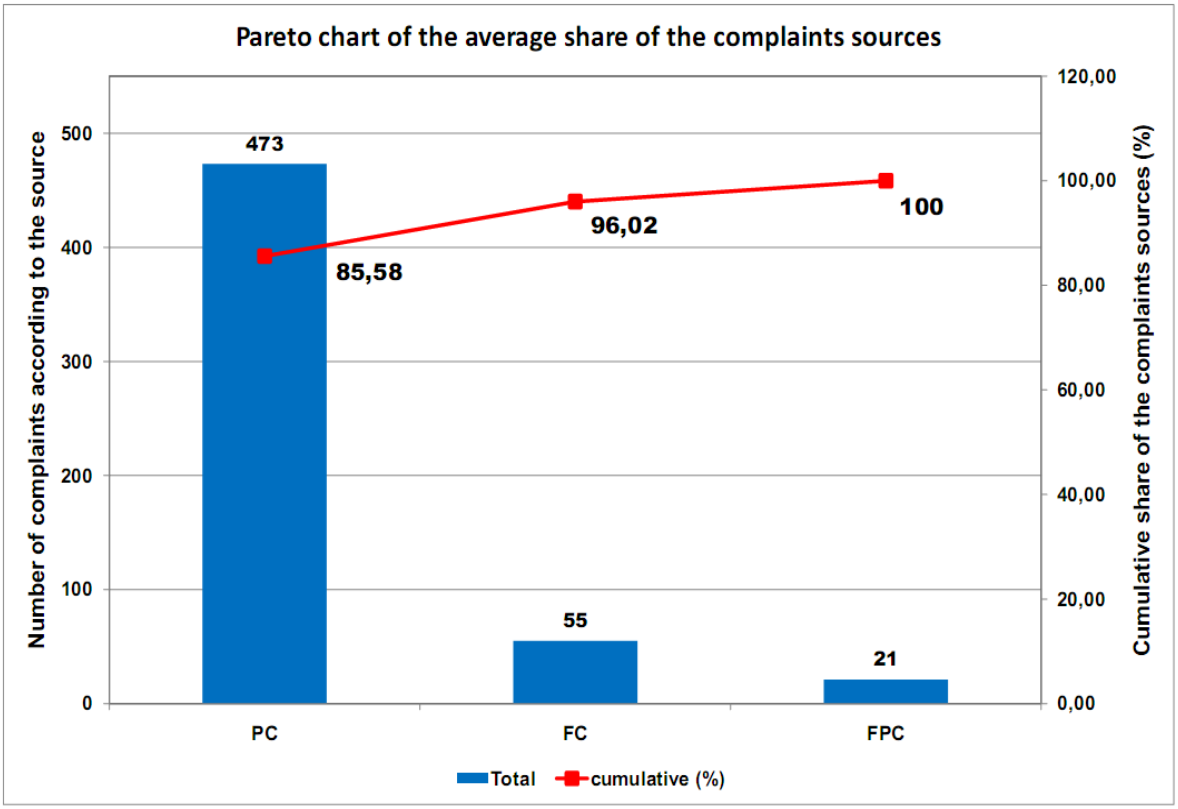


Figure 2. Pareto chart of the average share of the complaints sources. Source: E. Krstić Vukelja research (Management review's records from 2006-2013).

complaints. Other causes, in this case: process guidance and equipment, constitute an important minority of causes of complaints and will certainly not be a priority in solving problems related to the quality services evaluation measured by the number of complaints as an indicator.

It can be concluded that in the analyzed period, the largest source of complaints was from survey questionnaire (*poll complaints* – PP) 85,58 %. The second source according to the share of prevalence was written complaints (*formal complaints* – FC) 10,44 %, and finally the last was from the *finished product complaint records* – FPC 3,98 %. This result was expected because the survey questionnaires were anonymous, and customers have full freedom to express whatever is troubling them without any fear of being recognized. The common characteristics for both analysis was that the biggest negative comments were placed on account of poor communication – the human factor.

This can be confirmed by another analysis that was conducted in the period 2007-2009, which dealt with customer satisfaction with the quality of health services, provided useful conclusions about what is really essential to customer. The analysis of that survey resulted with the conclusion of two groups of patients/customers. The first group, which comes to the medical treatment during a long period of time, and another group that comes to the health care institution for the first time. This is most easily shown by comparing observations of patients who has come for the first time and those who are regular users of health care services, Figure 3.

In other words, the group of patients who has experienced for the first time specific health care service was pleasantly surprised and thrilled with the first impression of the Clinic (neatness, equipment, courtesy of medical staff, well checked specialist departments), while patients who has experienced health care service for a long period of time has given greater importance to human factors (empathy, patient well-being as top priority, ensuring various forms of care to the patient etc.).

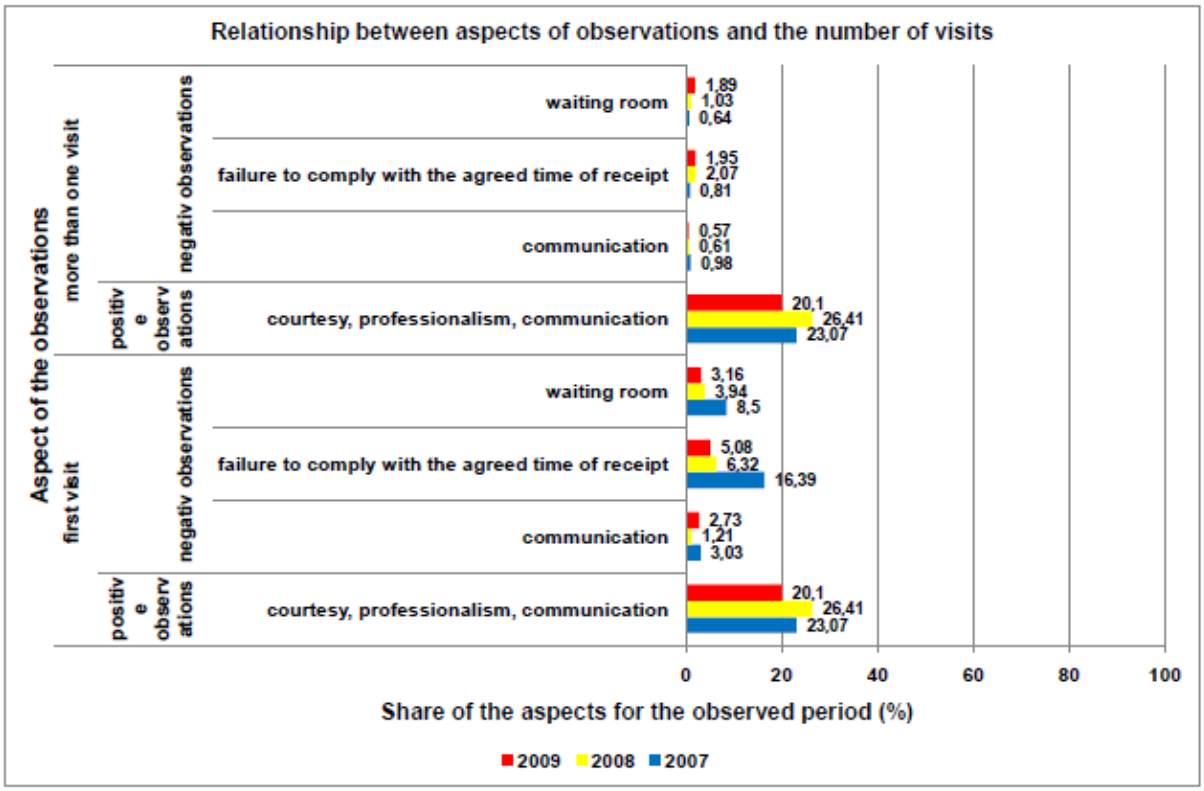


Figure 3. Relationship between aspects of observations and the number of visits. Source: E. Krstić Vukelja, B. Klaić, M. Vukelja, I. Duplančić: *Indicator of patient satisfaction – a model for managing, monitoring, evaluating and improving the quality of health care services*, UDK 616.31:658.562 : 10th Croatian Conference on Quality and 1st Scientific Symposium , May, 10 to 12, 2010th, Sibenik.

So, the more the customers came for health treatment the more they emphasized importance of communication, clarity of instructions, information about treatment, information after with the overall experience of health care quality. From this standpoint, the most important factors for patients were kindness, communication of health and non-health professionals.

Experience has shown that communication problems lie in the background of most complaints. When more experienced professionals were asked to provide a list of the factors that most contribute to raising the complaint, at first place they pu the poor communication between staff, poor communication with customers and poor maintenance of professional documentation. Good staff training, in terms of skills to answer the questions and concerns of customers, is the key for successful prevention. Emphasis is placed on understanding the process of complaints and the need for effective communication, observing the problem from the perspective of the customer and dealing with "difficult" customer. So, could the complaints be prevented? Not all. However, the complaint can be reduced to a minimum if clear and complete information is provided to customers, if they are involved in decisions about which service to choose, if they are fully informed about the service and if they are treated with due respect.

THE SCRAP

From the total number of complaints one part were related to services that are categorized as “scrap”, meaning that they were non-compliant requirements and expectations of the customer. For service it is not easy to determine what is scrap, and what it is not [4]. When the mistake is made during the service, sometimes it is possible to correct or mitigate the

Table 3. The share of the scrap in the total number of complaints in the period from year 2006 to year 2013. Source: E. Krstić Vukelja research (Management review's records from 2006-2013).

Year	The Scrap (%)	Fixable (%)	Total (%)
2006.	20	80	100
2007.	0	100	100
2008.	4	96	100
2009.	5	95	100
2010.	4	96	100
2011.	0	100	100
2012.	0	100	100
2013.	0	100	100
Average	**2**	**98**	**100**

consequences of its non-compliance in the first attempt (repeated action, efforts to mitigate the consequences, to apologize, to provide a service which partially fulfills the requirements, etc.). If all this fails, scrap service occurs.

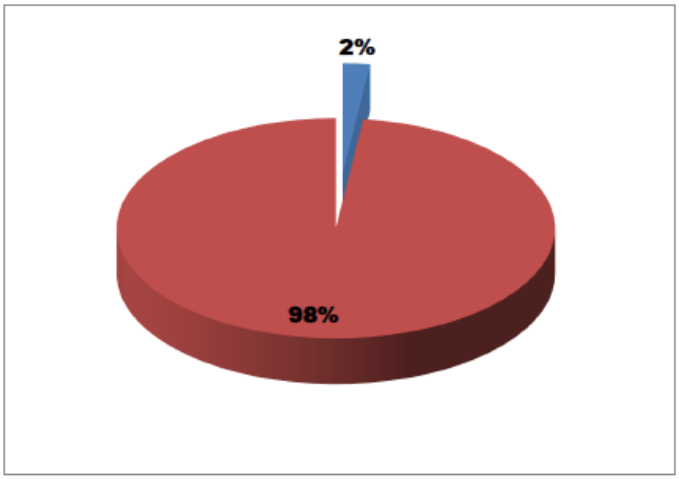
From the total number of complaints in the study period, 2 % or total number of 9 complaints have a character of the scrap, which means that provided services were completely incompatible and have implications at the customer satisfaction level. With such a service, the customer cannot be satisfied because it cannot meet his demands. This service requires certain actions in terms of correcting errors or mitigate its effects, and requires the involvement of specific resources (people, time, information, equipment, etc.).

Such actions may include:

- repetition of actions at no additional charge (generating costs due to the (non) quality),
- communication with the customer in order to clarify, apologies and inform,
- making concessions in price, to mitigate the consequences (costs due to (non) quality),
- payment of compensation (costs due to (non) quality) [3, 4].

Engaging the above resources through the implementation of corrective action causes costs due to the (non) quality. The amount of these costs can be relatively accurately determined.

Figure 4. The share of the scrap in the total number of complaints in the period 2006-2013 (scrap: 2 %, fixable: 98 %). Source: E. Krstić Vukelja research (Management review's records from 2006-2013).



CORRELATION OF NUMBER OF COMPLAINTS AND VISITS OF PATIENTS/CUSTOMERS

When talking about the number of complaints, for a thorough analysis it is not sufficient to determine only a relative indicator, it is essential to determine the degree of positive correlation between, on one side, the number of complaints in one year and some other selected size, for example, the number of patients, the amount of investments (infrastructure, education, new technologies, etc.). In order to establish the existence and intensity of positive correlation the Spearman's rank correlation coefficient is used. By determining the strength of the connection between the number of complaints and the number of patients/customers visits on one hand, and the number of complaints and the amount of investments, on the other hand, it will be determined which of these connections has a stronger intensity, and impact on the number of complaints.

Table 4. Calculation's coefficient of rank correlation for the data in Table 1 (Total number of complaints, formal complaints, poll complaints, finished product complaints and the number of patient's visits). Source: authors' research.

Year	Number of complaints				Number of patient visits	Rank					Deviation (X_{ri} - Y_{ri})							
	X_i				Y_i	X_{ri}				Y_{ri}	d_i				di^2			
1	2				3	4				5	6				7			
	FC	PC	FPC	Total		FC	PC	FPC	Total		FC	PC	FPC	Total	FC	PC	FPC	Total
2006	5		0	5	208287	6	8	8	8	2	4	6	6	6	16	36	36	36
2007	2	177	5	184	196402	8	1	1	1	5	3	-4	-4	-4	9	16	16	16
2008	5	71	3	79	205546	6	2	3	3	3	3	-1	0	0	9	1	0	0
2009	7	31	2	40	231352	4	6	5	6	1	3	5	4	5	9	25	16	25
2010	9	65	2	76	196590	3	4	5	4	4	-1	0	1	0	1	0	1	0
2011	11	16	3	30	179676	1	7	3	7	6	-5	1	-3	1	25	1	9	1
2012	6	71	5	82	176226	5	2	1	2	7	-2	-5	-6	-5	4	25	36	25
2013	10	39	1	50	100444	2	5	7	5	8	-6	-3	-1	-3	36	9	1	9
Total:	**55**	**470**	**21**	**546**	1,494,523										**109**	**113**	**115**	**112**

The empirical value of the Spearman rank correlation coefficient between the total number of complaints and the number of visits is r' = –1,0000. It is a bond of total correlation, which suggests that with the increase of number of patient visits there are grate possibility for increase of complaints during the year. The standard deviation in the total number of complaints is σ = 12,76994, which means that the average deviation from the average is about 12 complaints.

The same conclusion could be made when regarding separately different sources of complaints. The empirical value of the Spearman rank correlation coefficient between the number of *formal complaints* and the number of visits is r' = –0,9464, it is a bond of strong correlation. The empirical value of the Spearman rank correlation coefficient between the number of *poll complaints* and the number of visits is r' = –1,0179, it is a bond of strong correlation. The empirical value of the Spearman rank correlation coefficient between the number of *finished product complaints* and the number of visits is r' = –1,0536, it is a bond of strong correlation.

PHENOMENON OF "UNREALISTIC EXPECTATIONS"

The empirical value of the Spearman rank correlation coefficient between the total number of complaints and the amount of investment in quality is r' = –0,6071. This is a moderate to good correlation of these values and means that the number of complaints depends on the amount of investment.

Table 5. Calculation's coefficient of rank correlation for the data in Table 1 (Total number of complaints, formal complaints, poll complaints, finished product complaints and the amount of investments). Source: authors' research.

Year	Number of complaints				Number of patient visits	Rank					Deviation (X_{ri} - Y_{ri})							
	X_i				Y_i	X_{ri}				Y_{ri}	d_i				di^2			
1	2				3	4				5	6				7			
	FC	PC	FPC	Total		FC	PC	FPC	Total		FC	PC	FPC	Total	FC	PC	FPC	Total
2006	5		0	5	208287	6	8	8	8	2	4	6	6	6	16	36	36	36
2007	2	177	5	184	196402	8	1	1	1	5	3	-4	-4	-4	9	16	16	16
2008	5	71	3	79	205546	6	2	3	3	3	3	-1	0	0	9	1	0	0
2009	7	31	2	40	231352	4	6	5	6	1	3	5	4	5	9	25	16	25
2010	9	65	2	76	196590	3	4	5	4	4	-1	0	1	0	1	0	1	0
2011	11	16	3	30	179676	1	7	3	7	6	-5	1	-3	1	25	1	9	1
2012	6	71	5	82	176226	5	2	1	2	7	-2	-5	-6	-5	4	25	36	25
2013	10	39	1	50	100444	2	5	7	5	8	-6	-3	-1	-3	36	9	1	9
Total:	**55**	**470**	**21**	**546**	1,494,523										**109**	**113**	**115**	**112**

The empirical value of the Spearman rank correlation coefficient between the total number of complaints and the amount of investments is r' = –0.6071. It is a bond of moderate to good correlation, which suggests that the influence of other factors that have significant impact on complaints should be investigated.. The standard deviation in the total number of complaints is σ = 12.76994, which means that the average deviation from the average is about 12 complaints.

The same conclusion could be made when regarding separately different sources of complaints.

The empirical value of the Spearman rank correlation coefficient between the number of *formal complaints* and the amount of investments is r' = –1,1250, it is a bond of total correlation. The empirical value of the Spearman rank correlation coefficient between the number of *poll complaints* and the amount of investments is r' = –0,6071, it is a bond of medium strong correlation. The empirical value of the Spearman rank correlation coefficient between the number of *finished product complaints* and the amount of investments is r' =-0,7321, it is a bond of strong correlation.

At first glance it seems illogical that with the increase of the amount of investments the number of complaints increases too. It is expected that the increase in the quality of infrastructure, people, etc. should result in higher levels of service quality and result in fewer complaints.

However, this positive correlation makes sense. The fact is that an increase in investment in infrastructure, in the people (education) or in the development of new services, increases the range of facilities and services provided to customers (renovation of the waiting room environment, renovation of the doctor's office, implementation of new technologies, easier

access for the invalid people, and many others), and increase the possibility of a large number dissatisfied patients with some of the additional facilities or services, on the one hand.

It is the phenomenon of "unrealistic expectations" [5]. Lately expectations of customers are strongly increased faster than the capabilities of different service providers to please them. Although, today's customers, due to the investments in new materials and new processes, have more than ever highly efficient and highly effective treatment. While most customers are satisfied with the service/product they receive, still there are many who have bad experiences in contact with the specific service provider, and a minority of them complaint. Thus, the increase in the number of complaints does not necessarily mean that there has been the deterioration in the quality of services provided. Simply, this number may be a result of rising customer expectations. Reporting and analysis of complaints in combination with other information and indicators can be used in assessing the performance and quality of some services.

The fact that the organization has a system for the collection and analysis of complaints represents some progress in quality service evaluation through the system of complaints. But this is not enough. This evaluation should be combined with other forms of quality service evaluation in the order to create information base for decisions to improve the level of quality.

QUALITY SERVICE EVALUATION THROUGH THE PRAISE SYSTEM

Praise is also an indicator of quality service level. For their collection and analysis the same system and instrumentation can be used [2]. Sources of collecting praise are the same as for collecting complaints, with one exception there are no praise in case of finished product record. From period to period it is necessary to use the same methodology to ensure comparability, just to make review about the increase or decrease of praise and its influence on overall customer satisfaction level with present quality service.

Table 6. Number of praise on service in the period 2006 – 2013 (*Total number of praises* – T, *formal praises* – FP, *poll praises* – PP and the number of patient's visits and the amount of investments).

Year	Number of praises			Number of patient's visits	Amount of investments (kn)	Number of praises per 10 000 patient		
	FP	PP	T			FP	PP	T
2006	0	0	0	208287	3.660.000	0	0	0
2007	19	195	214	196402	3.394.000	0,97	9,93	10,89
2008	9	180	189	205546	2.984.816	0,44	8,76	9,19
2009	4	86	90	231352	1.913.726	0,17	3,72	3,89
2010	0	107	107	196590	2.555.000	0	5,44	5,44
2011	0	32	32	179676	2.737.890	0	1,78	1,78
2012	4	72	76	176226	1.950.000	0,23	4,08	4,31
2013	4	118	122	100444	2.250.000	0,39	11,75	12,15
Total:	**40**	**790**	**830**	**1.494.523**	**21.445.432**	**0,27**	**5,28**	**5,55**

As the complaints number, absolute number of praise does not show much, so the relative praise number was calculated. In this case it was the number of praises per 10 000 patients. Thus, for example, in 2007 there were a total number of 214 compliments, which is more than in 2013 year (122). But, the relative number of praise per 10 000 patient was greater in 2013 year (12.15), than in 2007 year (10.89). Based on data collected on the praise, it is possible to conduct analysis of their structure according to a source of recording (formal praise through the book of praise, praise recorded through the polls) and according to the interested group (patient, patient's relatives, visitors, external interested groups), and by cause (process, infrastructure, general impression, kindness, and human factors, etc.)

Table 7. Calculation's coefficient of rank correlation for the data in Table 6. Symbols have the same meaning as in Table 6. Source: authors' research.

Year	Number of praises			Number of patient's visits	Rank				Deviation (X_{ri} - Y_{ri})					
	X_i			Y_i	X_{ri}			Y_{ri}	d_i			di^2		
1	*2*			*3*	*4*			*5*	*6*			*7*		
	FP	PP	Total		*FP*	*PP*	*Total*		*FP*	*PP*	*Total*	*FP*	*PP*	*Total*
2006	0	0	0	208287	6	8	8	2	4	6	6	16	36	36
2007	19	195	214	196402	1	1	1	5	-4	-4	-4	16	16	16
2008	9	180	189	205546	2	2	2	3	-1	-1	-1	1	1	1
2009	4	86	90	231352	3	5	5	1	2	4	4	4	16	16
2010	0	107	107	196590	6	4	4	4	2	0	0	4	0	0
2011	0	32	32	179676	6	7	7	6	0	1	1	0	1	1
2012	4	72	76	176226	3	6	6	7	-4	-1	-1	16	1	1
2013	4	118	122	100444	3	3	3	8	-5	-5	-5	25	25	25
Total:	**40**	**790**	**830**	**1,494,523**								**82**	**96**	**96**

By determining the level of correlation calculating the Spearman rank correlation coefficient between the total number of praises per year and the number of patient's per year, the value of $r' = -0{,}7143$ is obtained. It is therefore related as strong correlation, but with a negative sign, which means that the observed influence values are of moving in different directions. The Spearman rank correlation coefficient between the number of formal praises per year and the number of patient's per year is $r' = -0{,}4643$, it is relatively poor correlation. And, finally the Spearman rank correlation coefficient between the number of poll praises per year and the number of patient's per year is $r' = -0{,}7143$, and it is related as strong correlation. The standard deviation in the number of praise is $\sigma = 72{,}3459$, which means that the average deviation from the average is about 72 praises.

Table 8. Calculation's coefficient of rank correlation for the data in Table 6. Symbols have the same meaning as in Table 6. Source: authors' research.

Year	Number of praises			Number of investments (kn)	Rank				Deviation (X_{ri}, Y_{ri})					
	X_i			Y_i	X_{ri}			Y_{ri}	d_i			di^2		
1	*2*			*3*	*4*			*5*	*6*			*7*		
	FP	*PP*	*Total*		*FP*	*PP*	*Total*		*FP*	*PP*	*Total*	*FP*	*PP*	*Total*
2006	**0**	**0**	**0**	3.660.000	**6**	**8**	**8**	**1**	**5**	**7**	**7**	**25**	**49**	**49**
2007	**19**	**195**	**214**	3.394.000	**1**	**1**	**1**	**2**	**-1**	**-1**	**-1**	**1**	**1**	**1**
2008	**9**	**180**	**189**	2.984.816	**2**	**2**	**2**	**3**	**-1**	**-1**	**-1**	**1**	**1**	**1**
2009	**4**	**86**	**90**	1.913.726	**3**	**5**	**5**	**8**	**-5**	**-3**	**-3**	**25**	**9**	**9**
2010	**0**	**107**	**107**	2.555.000	**6**	**4**	**4**	**5**	**1**	**-1**	**-1**	**1**	**1**	**1**
2011	**0**	**32**	**32**	2.737.890	**6**	**7**	**7**	**4**	**2**	**3**	**3**	**4**	**9**	**9**
2012	**4**	**72**	**76**	1.950.000	**3**	**6**	**6**	**7**	**-4**	**-1**	**-1**	**16**	**1**	**1**
2013	**4**	**118**	**122**	2.250.000	**3**	**3**	**3**	**6**	**-3**	**-3**	**-3**	**9**	**9**	**9**
Total:	**40**	**790**	**830**	**21.445.432**								**82**	**80**	**80**

By determining the level of correlation calculating the Spearman rank correlation coefficient between the total number of praises per year and the amount of investments per year, the value of $r' = -0{,}4286$ is obtained. It is therefore related as poor correlation. The Spearman rank correlation coefficient between the number of formal praises per year and the amount of investments per year is $r' = -0{,}4643$, it is relatively poor correlation; and, finally the Spearman rank correlation coefficient between the number of poll praises per year and the amount of investments per year is $r' = -0{,}4286$, and it is related as relatively poor correlation.

The reasons for this may be several. One can be explained with the previously introduced phenomenon of unrealistic expectations. In time, customers get used to the new services and to a higher level of quality of these services. Thus, meaning that increase of quality service level is considered normal and not extraordinary event. Therefore, an increase in number of

patients does not necessarily mean an increase in the absolute number of praises. By calculating the rank correlation of relative number of praise and the number of patient's visits the value of r' = –1,2143 is obtained, which means that there is total correlation between these two values. The Spearman's rank correlation coefficient for the relative number of compliments and the amount of investment is r' = –0,6429. This is a medium strong correlation and it may be interesting for further analysis.

CONCLUSION

There are different ways of evaluating the quality service. One way is by the analysis of customer complaints and praises. This analysis provides valuable information on quality of products/services based on customer opinion through their dissatisfaction or satisfaction. The process of collecting, processing and analyzing of complaints clearly define the sources of complaints and their causes, thus generating the best decisions about the actions for identification and elimination of the causes of the complaint and thus improving the quality service.

REFERENCES

[1] Maughan B., Conduit A., *Complaints: The patient's perspective.* In Wilson, J. and Tinge, J., eds.: Clinical Risk Modification. A Route to Clinical Governance. Oxford, Butterworth Heinemann, pp.103-116, 1999,

[2] Riđanović, Z. and Nuhić, M.: *System of Complaints in Health Institutions*. In Bosnian. Agencija za kvalitet i akreditaciju u zdravstvu u FBiH, Sarajevo, http://www.akaz.ba/Fokus/Zalbe/Dokumenti/sistemi_zalbi_zr_mn.pdf,

[3] Dental Clinic Zagreb: *Quality documentation.* Dental Clinic Zagreb, Zagreb, Intranet,

[4] Drljača, M.: *A Little Encyclopedia of Quality. Part V. Quality Expenses*. In Croatian. Oskar, Zagreb, 1998,

[5] Ojasalo, J.: *Managing customer expectations in professional services*. Managing Service Quality **11**(3), 200-212, 2001, http://dx.doi.org/10.1108/09604520110391379.

OCJENA KVALITETE USLUGE KROZ SUSTAV ŽALBI I POHVALA

E. Krstić Vukelja[1] i B. Runje[2]

[1] Odjel za sutav upravljanja kvalitetom; Stomatološka poliklinika Zagreb
Zagreb, Hrvatska

[2]Fakultet strojarstva i brodogradnje Sveučilišta u Zagrebu
Zagreb, Hrvatska

SAŽETAK

Reklamacija je, kao izraz nezadovoljstva korisnika kvalitetom proizvoda ili usluge, vrlo dragocjena informacija. Dobro izgrađen sustav prikupljanja, obrade i analize reklamacija omogućuje organizaciji stvaranje informacijske osnovice za donošenje poslovnih odluka na temelju činjenica. Ta informacijska osnovica omogućuje učinkovito donošenje i provedbu mjera za kontinuirano poboljšanje kvalitete proizvoda/usluge. Da bi sustav bio učinkovit, potrebno je u kontinuitetu koristiti istu metodologiju prikupljanja i obrade reklamacija radi mogućnosti stalne usporedbe iz razdoblja u razdoblje. Veće investicije u kvalitetu proizvoda/usluge ne znače istovremeno smanjenje broja reklamacija zbog djelovanja fenomena "nerealnog očekivanja". Osim reklamacija, vrijedan izvor informacija o zadovoljstvu korisnika usluge/proizvoda jest i sustav pohvala.

KLJUČNE RIJEČI

žalba, kvaliteta, zadovoljstvo korisnika, fenomen nerealnog očekivanja, škart, pohvala